

## Appendix B. Georges Bank haddock

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- VPA input and output
- YPR input and output

#### VPA input GB haddock

|                 |            |          |       |       |      |      |      |        |
|-----------------|------------|----------|-------|-------|------|------|------|--------|
| VPA/ADAPT V     | 2.8        |          |       |       |      |      |      |        |
| ##              |            |          |       |       |      |      |      |        |
| MODEL           | ID         |          |       |       |      |      |      |        |
| garm3--rev-base | F5to7      | backward | 1931  | to    | 2007 | data |      |        |
| PARAM           |            |          |       |       |      |      |      |        |
| 77              | 9          | 30       | 30    | 9     | 1931 | 1    | 0    | 123456 |
| PARTIAL         | RECRUIT    |          |       |       |      |      |      |        |
| 0.001           | 0.41       | 0.84     | 1     | 1     | 1    | 1    | 1    |        |
| AGE             | ESTIMATE   |          |       |       |      |      |      |        |
| 1               | 2          | 3        | 4     | 5     | 6    | 7    | 8    | 9      |
| STOCK           | ESTIMATE   |          |       |       |      |      |      |        |
| 10000           | 1000       | 10000    | 5000  | 15000 | 1000 | 500  | 300  | 300    |
| STOCK           | MIN-MAX    |          |       |       |      |      |      |        |
| 1               | 1000000000 |          |       |       |      |      |      |        |
| F-PLUS          |            |          |       |       |      |      |      |        |
| 1.0000*77       |            |          |       |       |      |      |      |        |
| OMEGA           |            |          |       |       |      |      |      |        |
| 1.0000*78       |            |          |       |       |      |      |      |        |
| WTFSURV         |            |          |       |       |      |      |      |        |
| 1.0000*30       |            |          |       |       |      |      |      |        |
| AGES-F          |            |          |       |       |      |      |      |        |
| 7-May           |            |          |       |       |      |      |      |        |
| AGES-SUMMARY    |            |          |       |       |      |      |      |        |
| 7-May           |            |          |       |       |      |      |      |        |
| MFSPAWN         |            |          |       |       |      |      |      |        |
| 0.25            | 0.25       |          |       |       |      |      |      |        |
| CATCH           | AT         | AGE      |       |       |      |      |      |        |
| 1755            | 8801       | 2041     | 5785  | 9100  | 6045 | 3380 | 1794 | 559    |
| 118             | 2084       | 25871    | 2421  | 3676  | 2894 | 1320 | 664  | 391    |
| 244             | 8476       | 6023     | 10046 | 2092  | 1579 | 1210 | 538  | 647    |
| 341             | 4454       | 5414     | 3734  | 3149  | 1051 | 619  | 250  | 168    |
| 1197            | 11872      | 8819     | 3706  | 2944  | 2458 | 499  | 442  | 109    |
| 880             | 12327      | 11486    | 5431  | 2141  | 1377 | 1362 | 259  | 124    |
| 1288            | 11034      | 10910    | 5629  | 4143  | 1875 | 952  | 481  | 222    |
| 1030            | 20199      | 7755     | 3755  | 2113  | 1600 | 945  | 327  | 173    |
| 607             | 13937      | 19617    | 5163  | 2152  | 967  | 837  | 326  | 239    |
| 2040            | 7254       | 12317    | 8253  | 2510  | 1479 | 752  | 222  | 136    |
| 780             | 23464      | 9808     | 8033  | 5764  | 1781 | 941  | 307  | 384    |
| 310             | 14307      | 16348    | 6531  | 3996  | 2331 | 1036 | 227  | 176    |
| 19              | 4191       | 17738    | 8364  | 3102  | 2693 | 790  | 354  | 178    |
| 64              | 761        | 8437     | 14843 | 5689  | 2281 | 497  | 469  | 108    |
| 121             | 8522       | 2029     | 6386  | 5795  | 2315 | 914  | 265  | 205    |
| 209             | 7466       | 15213    | 2738  | 5785  | 3840 | 1827 | 272  | 23     |
| 90              | 16621      | 10334    | 7181  | 2127  | 2739 | 1501 | 745  | 457    |
| 80              | 11227      | 19237    | 5116  | 2744  | 1157 | 780  | 450  | 369    |
| 328             | 6472       | 12479    | 9608  | 2347  | 1061 | 624  | 409  | 353    |
| 88              | 28971      | 4107     | 4272  | 3315  | 1131 | 520  | 225  | 250    |
| 645             | 8266       | 26472    | 2177  | 2448  | 2138 | 740  | 297  | 215    |
| 0               | 25120      | 8892     | 8485  | 1361  | 944  | 530  | 182  | 107    |
| 1083            | 1807       | 17588    | 5726  | 3757  | 1012 | 542  | 337  | 152    |
| 108             | 31858      | 5107     | 5611  | 2315  | 2131 | 720  | 353  | 98     |
| 90              | 3941       | 19251    | 3316  | 3278  | 1649 | 1068 | 320  | 173    |
| 52              | 11948      | 6698     | 12066 | 3405  | 3378 | 1348 | 563  | 201    |
| 35              | 6594       | 14046    | 4523  | 5822  | 2357 | 1630 | 473  | 366    |
| 125             | 5571       | 7088     | 6665  | 3784  | 2366 | 903  | 442  | 142    |
| 94              | 5716       | 7994     | 5169  | 3934  | 1758 | 1172 | 424  | 334    |
| 258             | 16010      | 6122     | 4562  | 3067  | 1792 | 787  | 406  | 348    |
| 62              | 10689      | 14927    | 4198  | 2917  | 1856 | 1266 | 496  | 674    |
| 74              | 4455       | 16245    | 10440 | 3448  | 2089 | 1566 | 1185 | 898    |
| 2910            | 4047       | 7418     | 11152 | 8198  | 2205 | 1405 | 721  | 1096   |
| 10101           | 15935      | 4554     | 4776  | 8722  | 5794 | 2082 | 1028 | 1332   |
| 9601            | 125818     | 44496    | 5356  | 4391  | 6690 | 3772 | 1094 | 1366   |
| 114             | 6843       | 100810   | 19167 | 2768  | 2591 | 2332 | 1268 | 867    |
| 1150            | 168        | 2891     | 20667 | 10338 | 1209 | 993  | 917  | 698    |
| 8               | 2994       | 709      | 1921  | 14519 | 3499 | 667  | 453  | 842    |
| 2               | 11         | 1698     | 448   | 654   | 5954 | 1574 | 225  | 570    |
| 46              | 158        | 16       | 570   | 186   | 214  | 2308 | 746  | 464    |
| 1               | 1375       | 223      | 40    | 289   | 246  | 285  | 1469 | 928    |
| 160             | 2          | 460      | 83    | 33    | 123  | 80   | 68   | 1265   |
| 2607            | 2113       | 3        | 393   | 54    | 31   | 78   | 15   | 455    |

|        |       |       |       |      |      |      |      |      |
|--------|-------|-------|-------|------|------|------|------|------|
| 48     | 4481  | 682   | 2     | 73   | 2    | 2    | 55   | 258  |
| 199    | 1070  | 1928  | 388   | 4    | 43   | 4    | 4    | 91   |
| 149    | 491   | 570   | 913   | 224  | 0    | 24   | 4    | 116  |
| 1      | 19858 | 190   | 690   | 522  | 362  | 4    | 40   | 113  |
| 1      | 767   | 14509 | 307   | 572  | 521  | 140  | 14   | 68   |
| 1      | 26    | 1743  | 7238  | 530  | 414  | 318  | 97   | 46   |
| 8      | 31170 | 349   | 980   | 6087 | 597  | 549  | 154  | 81   |
| 1      | 1755  | 11076 | 837   | 944  | 2590 | 333  | 159  | 95   |
| 1      | 1174  | 1645  | 3761  | 394  | 573  | 1127 | 107  | 111  |
| 0      | 216   | 821   | 697   | 2261 | 275  | 188  | 808  | 77   |
| 0      | 94    | 301   | 736   | 402  | 1500 | 237  | 270  | 550  |
| 0      | 2464  | 563   | 199   | 472  | 234  | 539  | 80   | 156  |
| 6      | 55    | 2848  | 226   | 148  | 175  | 152  | 270  | 61   |
| 0      | 2035  | 132   | 1646  | 125  | 75   | 91   | 108  | 138  |
| 4      | 53    | 2439  | 137   | 953  | 152  | 56   | 66   | 108  |
| 2      | 1462  | 123   | 1019  | 217  | 478  | 62   | 37   | 57   |
| 63     | 12    | 1697  | 269   | 1124 | 154  | 218  | 55   | 49   |
| 7      | 486   | 123   | 2370  | 144  | 518  | 128  | 172  | 65   |
| 84     | 265   | 408   | 197   | 1960 | 181  | 426  | 47   | 100  |
| 33     | 363   | 439   | 340   | 120  | 741  | 63   | 169  | 82   |
| 27     | 538   | 1192  | 242   | 142  | 73   | 313  | 55   | 110  |
| 17     | 94    | 614   | 471   | 59   | 29   | 9    | 61   | 16   |
| 7      | 56    | 566   | 919   | 450  | 66   | 22   | 7    | 78   |
| 15     | 143   | 273   | 745   | 561  | 218  | 18   | 18   | 49   |
| 6      | 230   | 471   | 558   | 767  | 571  | 169  | 23   | 49   |
| 3      | 43    | 906   | 541   | 606  | 566  | 384  | 163  | 48   |
| 2      | 407   | 626   | 1571  | 588  | 528  | 377  | 258  | 99   |
| 14     | 145   | 2393  | 996   | 1281 | 656  | 438  | 359  | 262  |
| 3      | 397   | 345   | 3177  | 926  | 1105 | 402  | 306  | 551  |
| 5      | 18    | 1943  | 461   | 2686 | 605  | 719  | 212  | 389  |
| 646    | 33    | 122   | 5116  | 729  | 2935 | 687  | 563  | 408  |
| 20     | 612   | 42    | 339   | 8505 | 778  | 1843 | 315  | 343  |
| 164    | 18    | 3164  | 71    | 375  | 5418 | 327  | 842  | 228  |
| 13     | 175   | 240   | 11216 | 194  | 311  | 2512 | 229  | 564  |
| WEIGHT | AT    | AGE   |       |      |      |      |      |      |
| 0.75   | 0.78  | 1.18  | 1.37  | 1.65 | 2.01 | 2.31 | 2.54 | 3.03 |
| 0.64   | 0.85  | 1.09  | 1.82  | 1.89 | 2.19 | 2.74 | 2.93 | 3.20 |
| 0.54   | 0.73  | 1.35  | 1.42  | 1.73 | 2.39 | 2.46 | 2.59 | 2.60 |
| 0.42   | 0.73  | 1.13  | 1.49  | 1.75 | 2.11 | 2.54 | 2.85 | 2.98 |
| 0.46   | 0.87  | 1.22  | 1.60  | 1.79 | 1.98 | 2.56 | 2.79 | 3.42 |
| 0.51   | 0.81  | 1.19  | 1.56  | 1.72 | 2.09 | 2.35 | 2.63 | 3.32 |
| 0.48   | 0.87  | 1.24  | 1.52  | 1.94 | 2.19 | 2.82 | 3.08 | 3.56 |
| 0.56   | 0.87  | 1.37  | 1.76  | 2.16 | 2.30 | 2.67 | 2.75 | 3.71 |
| 0.57   | 0.82  | 1.18  | 1.64  | 1.98 | 2.48 | 2.66 | 2.96 | 3.42 |
| 0.56   | 0.89  | 1.27  | 1.59  | 1.87 | 2.34 | 2.90 | 3.10 | 3.87 |
| 0.52   | 0.79  | 1.20  | 1.57  | 1.87 | 2.31 | 2.67 | 2.93 | 3.52 |
| 0.52   | 0.79  | 1.15  | 1.46  | 1.71 | 2.03 | 2.64 | 3.15 | 3.38 |
| 0.52   | 0.73  | 0.99  | 1.43  | 1.69 | 1.89 | 2.34 | 2.84 | 3.37 |
| 0.62   | 0.80  | 1.09  | 1.40  | 1.87 | 2.31 | 2.61 | 3.07 | 3.68 |
| 0.58   | 0.84  | 1.24  | 1.57  | 1.93 | 2.37 | 2.69 | 3.23 | 3.35 |
| 0.52   | 0.78  | 1.20  | 1.63  | 1.83 | 2.22 | 2.70 | 3.28 | 4.18 |
| 0.58   | 0.73  | 1.15  | 1.61  | 2.02 | 2.36 | 2.79 | 3.06 | 3.32 |
| 0.52   | 0.67  | 1.04  | 1.54  | 1.94 | 2.35 | 2.69 | 3.16 | 3.50 |
| 0.54   | 0.73  | 0.99  | 1.44  | 1.94 | 2.40 | 2.72 | 3.20 | 3.69 |
| 0.43   | 0.68  | 1.07  | 1.33  | 1.80 | 2.24 | 2.60 | 3.26 | 3.42 |
| 0.53   | 0.70  | 0.95  | 1.40  | 1.79 | 2.34 | 2.81 | 3.11 | 3.30 |
| 0.49   | 0.69  | 0.94  | 1.29  | 1.71 | 2.22 | 2.54 | 3.13 | 3.49 |
| 0.55   | 0.64  | 0.94  | 1.19  | 1.62 | 2.02 | 2.37 | 2.71 | 3.31 |
| 0.44   | 0.77  | 0.90  | 1.27  | 1.49 | 1.82 | 2.24 | 2.43 | 3.08 |
| 0.58   | 0.83  | 1.08  | 1.29  | 1.67 | 1.95 | 2.32 | 2.53 | 2.96 |
| 0.42   | 0.84  | 1.04  | 1.38  | 1.70 | 2.13 | 2.43 | 2.88 | 3.62 |
| 0.54   | 0.80  | 1.11  | 1.41  | 1.77 | 2.08 | 2.41 | 2.77 | 3.11 |
| 0.67   | 0.82  | 1.12  | 1.35  | 1.77 | 2.25 | 2.63 | 2.93 | 3.39 |
| 0.56   | 0.85  | 1.15  | 1.45  | 1.80 | 2.18 | 2.57 | 3.05 | 3.52 |
| 0.60   | 0.81  | 1.22  | 1.55  | 1.92 | 2.47 | 2.94 | 3.26 | 3.78 |
| 0.52   | 0.84  | 1.11  | 1.54  | 1.87 | 2.26 | 2.54 | 2.88 | 3.24 |
| 0.54   | 0.85  | 1.07  | 1.41  | 1.77 | 2.14 | 2.47 | 2.62 | 3.29 |
| 0.57   | 0.87  | 1.18  | 1.47  | 1.68 | 2.15 | 2.35 | 3.04 | 3.10 |
| 0.50   | 0.83  | 1.12  | 1.43  | 1.64 | 2.01 | 2.40 | 2.64 | 2.97 |
| 0.58   | 0.69  | 1.03  | 1.35  | 1.67 | 1.99 | 2.26 | 2.66 | 3.11 |
| 0.58   | 0.73  | 0.89  | 1.26  | 1.70 | 2.07 | 2.28 | 2.87 | 3.18 |
| 0.66   | 0.70  | 0.95  | 1.18  | 1.42 | 2.05 | 2.31 | 2.66 | 3.10 |
| 0.59   | 0.81  | 1.05  | 1.32  | 1.57 | 2.10 | 2.32 | 2.62 | 2.86 |
| 0.52   | 0.78  | 1.10  | 1.69  | 1.75 | 1.99 | 2.52 | 2.99 | 3.63 |
| 0.71   | 1.27  | 1.22  | 1.93  | 2.19 | 2.39 | 2.58 | 3.23 | 3.75 |
| 0.67   | 1.03  | 1.31  | 1.74  | 2.39 | 2.81 | 2.92 | 3.10 | 3.72 |
| 0.62   | 1.03  | 1.74  | 2.04  | 2.42 | 2.92 | 3.06 | 3.44 | 3.66 |
| 0.60   | 1.03  | 1.58  | 2.13  | 2.41 | 3.29 | 3.42 | 3.86 | 3.94 |
| 0.72   | 1.06  | 1.82  | 2.32  | 2.83 | 3.76 | 4.05 | 3.92 | 4.26 |
| 0.62   | 0.98  | 1.63  | 2.21  | 2.20 | 2.94 | 4.00 | 4.05 | 4.33 |
| 0.50   | 0.99  | 1.39  | 1.99  | 2.66 | 3.08 | 3.69 | 4.67 | 4.94 |
| 0.53   | 1.07  | 1.44  | 2.17  | 2.73 | 3.21 | 4.15 | 4.00 | 4.99 |
| 0.53   | 0.94  | 1.50  | 2.04  | 2.79 | 3.19 | 3.37 | 3.61 | 5.11 |
| 0.53   | 1.00  | 1.28  | 2.02  | 2.51 | 3.14 | 3.78 | 3.79 | 4.87 |
| 0.55   | 0.94  | 1.21  | 1.73  | 2.17 | 2.82 | 3.60 | 3.56 | 3.87 |
| 0.39   | 0.87  | 1.24  | 1.83  | 2.30 | 2.72 | 3.71 | 4.04 | 4.44 |
| 0.22   | 0.97  | 1.45  | 1.88  | 2.37 | 2.76 | 3.24 | 3.96 | 4.09 |
| 0.33   | 1.02  | 1.37  | 1.83  | 2.21 | 2.65 | 3.25 | 3.36 | 4.27 |
| 0.33   | 0.92  | 1.32  | 1.83  | 2.20 | 2.67 | 2.96 | 3.41 | 3.72 |
| 0.33   | 0.99  | 1.39  | 1.98  | 2.46 | 2.72 | 3.06 | 3.72 | 3.80 |
| 0.45   | 0.94  | 1.36  | 1.83  | 2.56 | 2.83 | 2.96 | 3.46 | 3.78 |
| 0.43   | 0.83  | 1.43  | 2.00  | 2.25 | 2.63 | 3.02 | 3.77 | 4.29 |
| 0.42   | 0.98  | 1.34  | 1.68  | 2.06 | 2.45 | 2.97 | 3.49 | 3.96 |
| 0.53   | 0.89  | 1.48  | 1.79  | 2.21 | 2.57 | 3.24 | 3.56 | 3.82 |
| 0.64   | 0.97  | 1.48  | 1.78  | 2.12 | 2.55 | 2.81 | 2.99 | 4.16 |

|         |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|
| 0.58    | 1.20 | 1.31 | 1.82 | 2.18 | 2.65 | 2.85 | 3.05 | 4.34 |
| 0.54    | 1.18 | 1.64 | 1.77 | 2.19 | 2.52 | 2.97 | 3.37 | 4.27 |
| 0.66    | 1.17 | 1.73 | 2.17 | 2.12 | 2.63 | 2.65 | 3.12 | 4.01 |
| 0.45    | 1.09 | 1.64 | 2.21 | 2.63 | 2.73 | 2.90 | 3.78 | 4.55 |
| 0.43    | 0.97 | 1.49 | 2.03 | 2.54 | 2.82 | 3.28 | 3.09 | 3.98 |
| 0.46    | 1.10 | 1.50 | 1.84 | 2.33 | 2.54 | 3.42 | 3.52 | 3.71 |
| 0.42    | 1.00 | 1.69 | 1.89 | 2.21 | 2.55 | 3.14 | 3.38 | 3.66 |
| 0.51    | 0.97 | 1.49 | 1.92 | 2.33 | 2.69 | 3.03 | 3.04 | 4.07 |
| 0.68    | 1.10 | 1.53 | 1.83 | 2.11 | 2.34 | 2.70 | 2.97 | 3.68 |
| 0.66    | 1.13 | 1.46 | 1.89 | 2.25 | 2.37 | 2.73 | 2.99 | 3.30 |
| 0.36    | 1.17 | 1.46 | 1.75 | 2.16 | 2.53 | 2.63 | 2.73 | 3.41 |
| 0.31    | 0.91 | 1.34 | 1.74 | 1.95 | 2.47 | 3.13 | 3.07 | 3.34 |
| 0.26    | 0.65 | 1.36 | 1.61 | 1.86 | 2.05 | 2.52 | 3.09 | 3.17 |
| 0.21    | 0.39 | 1.00 | 1.50 | 1.67 | 1.95 | 2.07 | 2.47 | 2.91 |
| 0.18    | 0.57 | 1.05 | 1.45 | 1.67 | 1.83 | 2.03 | 2.13 | 2.63 |
| 0.19    | 0.48 | 0.95 | 1.06 | 1.61 | 1.78 | 1.89 | 2.06 | 2.31 |
| 0.15    | 0.88 | 1.09 | 1.26 | 1.48 | 1.83 | 1.93 | 2.02 | 2.18 |
| BIOMASS |      |      |      |      |      |      |      |      |
| 0.70    | 0.66 | 0.95 | 1.17 | 1.43 | 1.72 | 2.05 | 2.42 | 3.03 |
| 0.60    | 0.80 | 0.92 | 1.47 | 1.61 | 1.90 | 2.35 | 2.60 | 3.20 |
| 0.46    | 0.68 | 1.07 | 1.24 | 1.77 | 2.13 | 2.32 | 2.66 | 2.60 |
| 0.29    | 0.63 | 0.91 | 1.42 | 1.58 | 1.91 | 2.46 | 2.65 | 2.98 |
| 0.35    | 0.60 | 0.94 | 1.34 | 1.63 | 1.86 | 2.32 | 2.66 | 3.42 |
| 0.39    | 0.61 | 1.02 | 1.38 | 1.66 | 1.93 | 2.16 | 2.59 | 3.32 |
| 0.36    | 0.67 | 1.00 | 1.34 | 1.74 | 1.94 | 2.43 | 2.69 | 3.56 |
| 0.46    | 0.65 | 1.09 | 1.48 | 1.81 | 2.11 | 2.42 | 2.78 | 3.71 |
| 0.46    | 0.68 | 1.01 | 1.50 | 1.87 | 2.31 | 2.47 | 2.81 | 3.42 |
| 0.47    | 0.71 | 1.02 | 1.37 | 1.75 | 2.15 | 2.68 | 2.87 | 3.87 |
| 0.42    | 0.67 | 1.03 | 1.41 | 1.72 | 2.08 | 2.50 | 2.92 | 3.52 |
| 0.44    | 0.64 | 0.95 | 1.32 | 1.64 | 1.95 | 2.47 | 2.90 | 3.38 |
| 0.42    | 0.62 | 0.88 | 1.28 | 1.57 | 1.80 | 2.18 | 2.74 | 3.37 |
| 0.53    | 0.65 | 0.89 | 1.18 | 1.64 | 1.98 | 2.22 | 2.68 | 3.68 |
| 0.50    | 0.72 | 1.00 | 1.31 | 1.64 | 2.11 | 2.49 | 2.90 | 3.35 |
| 0.44    | 0.67 | 1.00 | 1.42 | 1.70 | 2.07 | 2.53 | 2.97 | 4.18 |
| 0.54    | 0.62 | 0.95 | 1.39 | 1.81 | 2.08 | 2.49 | 2.87 | 3.32 |
| 0.44    | 0.62 | 0.87 | 1.33 | 1.77 | 2.18 | 2.52 | 2.97 | 3.50 |
| 0.48    | 0.62 | 0.81 | 1.22 | 1.73 | 2.16 | 2.53 | 2.93 | 3.69 |
| 0.34    | 0.61 | 0.88 | 1.15 | 1.61 | 2.08 | 2.50 | 2.98 | 3.42 |
| 0.46    | 0.55 | 0.80 | 1.22 | 1.54 | 2.05 | 2.51 | 2.84 | 3.30 |
| 0.43    | 0.60 | 0.81 | 1.11 | 1.55 | 1.99 | 2.44 | 2.97 | 3.49 |
| 0.46    | 0.56 | 0.81 | 1.06 | 1.45 | 1.86 | 2.29 | 2.62 | 3.31 |
| 0.32    | 0.65 | 0.76 | 1.09 | 1.33 | 1.72 | 2.13 | 2.40 | 3.08 |
| 0.48    | 0.60 | 0.91 | 1.08 | 1.46 | 1.70 | 2.05 | 2.38 | 2.96 |
| 0.30    | 0.70 | 0.93 | 1.22 | 1.48 | 1.89 | 2.18 | 2.58 | 3.62 |
| 0.44    | 0.58 | 0.97 | 1.21 | 1.56 | 1.88 | 2.27 | 2.59 | 3.11 |
| 0.59    | 0.67 | 0.95 | 1.22 | 1.58 | 2.00 | 2.34 | 2.66 | 3.39 |
| 0.47    | 0.75 | 0.97 | 1.27 | 1.56 | 1.96 | 2.40 | 2.83 | 3.52 |
| 0.51    | 0.67 | 1.02 | 1.34 | 1.67 | 2.11 | 2.53 | 2.89 | 3.78 |
| 0.41    | 0.71 | 0.95 | 1.37 | 1.70 | 2.08 | 2.50 | 2.91 | 3.24 |
| 0.43    | 0.66 | 0.95 | 1.25 | 1.65 | 2.00 | 2.36 | 2.58 | 3.29 |
| 0.47    | 0.69 | 1.00 | 1.25 | 1.54 | 1.95 | 2.24 | 2.74 | 3.10 |
| 0.43    | 0.69 | 0.99 | 1.30 | 1.55 | 1.84 | 2.27 | 2.49 | 2.97 |
| 0.52    | 0.59 | 0.92 | 1.23 | 1.55 | 1.81 | 2.13 | 2.53 | 3.11 |
| 0.53    | 0.65 | 0.78 | 1.14 | 1.51 | 1.86 | 2.13 | 2.55 | 3.18 |
| 0.60    | 0.64 | 0.83 | 1.02 | 1.34 | 1.87 | 2.19 | 2.46 | 3.10 |
| 0.51    | 0.73 | 0.86 | 1.12 | 1.36 | 1.73 | 2.18 | 2.46 | 2.86 |
| 0.33    | 0.68 | 0.94 | 1.33 | 1.52 | 1.77 | 2.30 | 2.63 | 3.63 |
| 0.59    | 0.81 | 0.98 | 1.46 | 1.92 | 2.05 | 2.27 | 2.85 | 3.75 |
| 0.54    | 0.86 | 1.29 | 1.46 | 2.15 | 2.48 | 2.64 | 2.83 | 3.72 |
| 0.48    | 0.83 | 1.34 | 1.63 | 2.05 | 2.64 | 2.93 | 3.17 | 3.66 |
| 0.45    | 0.80 | 1.28 | 1.93 | 2.22 | 2.82 | 3.16 | 3.44 | 3.94 |
| 0.62    | 0.80 | 1.37 | 1.91 | 2.46 | 3.01 | 3.65 | 3.66 | 4.26 |
| 0.49    | 0.84 | 1.31 | 2.01 | 2.26 | 2.88 | 3.88 | 4.05 | 4.33 |
| 0.34    | 0.78 | 1.17 | 1.80 | 2.42 | 2.60 | 3.29 | 4.32 | 4.94 |
| 0.40    | 0.73 | 1.19 | 1.74 | 2.33 | 2.92 | 3.58 | 3.84 | 4.99 |
| 0.39    | 0.71 | 1.27 | 1.71 | 2.46 | 2.95 | 3.29 | 3.87 | 5.11 |
| 0.40    | 0.73 | 1.10 | 1.74 | 2.26 | 2.96 | 3.47 | 3.57 | 4.87 |
| 0.44    | 0.71 | 1.10 | 1.49 | 2.09 | 2.66 | 3.36 | 3.67 | 3.87 |
| 0.25    | 0.69 | 1.08 | 1.49 | 1.99 | 2.43 | 3.23 | 3.81 | 4.44 |
| 0.10    | 0.62 | 1.12 | 1.53 | 2.08 | 2.52 | 2.97 | 3.83 | 4.09 |
| 0.20    | 0.47 | 1.15 | 1.63 | 2.04 | 2.51 | 3.00 | 3.30 | 4.27 |
| 0.19    | 0.55 | 1.16 | 1.58 | 2.01 | 2.43 | 2.80 | 3.33 | 3.72 |
| 0.20    | 0.57 | 1.13 | 1.62 | 2.12 | 2.45 | 2.86 | 3.32 | 3.80 |
| 0.33    | 0.56 | 1.16 | 1.59 | 2.25 | 2.64 | 2.84 | 3.25 | 3.78 |
| 0.28    | 0.61 | 1.16 | 1.65 | 2.03 | 2.59 | 2.92 | 3.34 | 4.29 |
| 0.29    | 0.65 | 1.05 | 1.55 | 2.03 | 2.35 | 2.79 | 3.25 | 3.96 |
| 0.39    | 0.61 | 1.20 | 1.55 | 1.93 | 2.30 | 2.82 | 3.25 | 3.82 |
| 0.47    | 0.72 | 1.15 | 1.62 | 1.95 | 2.37 | 2.69 | 3.11 | 4.16 |
| 0.41    | 0.88 | 1.13 | 1.64 | 1.97 | 2.37 | 2.70 | 2.93 | 4.34 |
| 0.37    | 0.83 | 1.40 | 1.52 | 1.99 | 2.35 | 2.80 | 3.10 | 4.27 |
| 0.51    | 0.79 | 1.42 | 1.89 | 1.94 | 2.40 | 2.58 | 3.04 | 4.01 |
| 0.30    | 0.85 | 1.39 | 1.95 | 2.39 | 2.40 | 2.76 | 3.17 | 4.55 |
| 0.27    | 0.66 | 1.28 | 1.82 | 2.37 | 2.72 | 2.99 | 3.00 | 3.98 |
| 0.31    | 0.69 | 1.20 | 1.65 | 2.17 | 2.54 | 3.10 | 3.39 | 3.71 |
| 0.27    | 0.67 | 1.36 | 1.68 | 2.02 | 2.43 | 2.83 | 3.40 | 3.66 |
| 0.35    | 0.63 | 1.22 | 1.80 | 2.10 | 2.44 | 2.78 | 3.09 | 4.07 |
| 0.52    | 0.75 | 1.22 | 1.65 | 2.01 | 2.34 | 2.69 | 3.00 | 3.68 |
| 0.50    | 0.88 | 1.27 | 1.70 | 2.03 | 2.24 | 2.53 | 2.84 | 3.30 |
| 0.22    | 0.88 | 1.29 | 1.60 | 2.02 | 2.39 | 2.50 | 2.73 | 3.41 |
| 0.21    | 0.57 | 1.25 | 1.59 | 1.85 | 2.31 | 2.81 | 2.84 | 3.34 |
| 0.21    | 0.44 | 1.11 | 1.47 | 1.79 | 2.00 | 2.50 | 3.11 | 3.17 |
| 0.13    | 0.32 | 0.80 | 1.43 | 1.64 | 1.90 | 2.06 | 2.49 | 2.91 |
| 0.11    | 0.35 | 0.64 | 1.21 | 1.58 | 1.75 | 1.99 | 2.10 | 2.63 |
| 0.09    | 0.29 | 0.73 | 1.06 | 1.53 | 1.72 | 1.86 | 2.05 | 2.31 |
| 0.02    | 0.41 | 0.72 | 1.09 | 1.26 | 1.72 | 1.86 | 1.95 | 2.18 |

|      |        |      |      |      |      |      |      |      |
|------|--------|------|------|------|------|------|------|------|
| 0.11 | 0.36   | 0.80 | 1.25 | 1.56 | 1.82 | 2.05 | 2.34 | 2.64 |
| SSB  |        |      |      |      |      |      |      |      |
| 0.70 | 0.66   | 0.95 | 1.17 | 1.43 | 1.72 | 2.05 | 2.42 | 3.03 |
| 0.60 | 0.80   | 0.92 | 1.47 | 1.61 | 1.90 | 2.35 | 2.60 | 3.20 |
| 0.46 | 0.68   | 1.07 | 1.24 | 1.77 | 2.13 | 2.32 | 2.66 | 2.60 |
| 0.29 | 0.63   | 0.91 | 1.42 | 1.58 | 1.91 | 2.46 | 2.65 | 2.98 |
| 0.35 | 0.60   | 0.94 | 1.34 | 1.63 | 1.86 | 2.32 | 2.66 | 3.42 |
| 0.39 | 0.61   | 1.02 | 1.38 | 1.66 | 1.93 | 2.16 | 2.59 | 3.32 |
| 0.36 | 0.67   | 1.00 | 1.34 | 1.74 | 1.94 | 2.43 | 2.69 | 3.56 |
| 0.46 | 0.65   | 1.09 | 1.48 | 1.81 | 2.11 | 2.42 | 2.78 | 3.71 |
| 0.46 | 0.68   | 1.01 | 1.50 | 1.87 | 2.31 | 2.47 | 2.81 | 3.42 |
| 0.47 | 0.71   | 1.02 | 1.37 | 1.75 | 2.15 | 2.68 | 2.87 | 3.87 |
| 0.42 | 0.67   | 1.03 | 1.41 | 1.72 | 2.08 | 2.50 | 2.92 | 3.52 |
| 0.44 | 0.64   | 0.95 | 1.32 | 1.64 | 1.95 | 2.47 | 2.90 | 3.38 |
| 0.42 | 0.62   | 0.88 | 1.28 | 1.57 | 1.80 | 2.18 | 2.74 | 3.37 |
| 0.53 | 0.65   | 0.89 | 1.18 | 1.64 | 1.98 | 2.22 | 2.68 | 3.68 |
| 0.50 | 0.72   | 1.00 | 1.31 | 1.64 | 2.11 | 2.49 | 2.90 | 3.35 |
| 0.44 | 0.67   | 1.00 | 1.42 | 1.70 | 2.07 | 2.53 | 2.97 | 4.18 |
| 0.54 | 0.62   | 0.95 | 1.39 | 1.81 | 2.08 | 2.49 | 2.87 | 3.32 |
| 0.44 | 0.62   | 0.87 | 1.33 | 1.77 | 2.18 | 2.52 | 2.97 | 3.50 |
| 0.48 | 0.62   | 0.81 | 1.22 | 1.73 | 2.16 | 2.53 | 2.93 | 3.69 |
| 0.34 | 0.61   | 0.88 | 1.15 | 1.61 | 2.08 | 2.50 | 2.98 | 3.42 |
| 0.46 | 0.55   | 0.80 | 1.22 | 1.54 | 2.05 | 2.51 | 2.84 | 3.30 |
| 0.43 | 0.60   | 0.81 | 1.11 | 1.55 | 1.99 | 2.44 | 2.97 | 3.49 |
| 0.46 | 0.56   | 0.81 | 1.06 | 1.45 | 1.86 | 2.29 | 2.62 | 3.31 |
| 0.32 | 0.65   | 0.76 | 1.09 | 1.33 | 1.72 | 2.13 | 2.40 | 3.08 |
| 0.48 | 0.60   | 0.91 | 1.08 | 1.46 | 1.70 | 2.05 | 2.38 | 2.96 |
| 0.30 | 0.70   | 0.93 | 1.22 | 1.48 | 1.89 | 2.18 | 2.58 | 3.62 |
| 0.44 | 0.58   | 0.97 | 1.21 | 1.56 | 1.88 | 2.27 | 2.59 | 3.11 |
| 0.59 | 0.67   | 0.95 | 1.22 | 1.58 | 2.00 | 2.34 | 2.66 | 3.39 |
| 0.47 | 0.75   | 0.97 | 1.27 | 1.56 | 1.96 | 2.40 | 2.83 | 3.52 |
| 0.51 | 0.67   | 1.02 | 1.34 | 1.67 | 2.11 | 2.53 | 2.89 | 3.78 |
| 0.41 | 0.71   | 0.95 | 1.37 | 1.70 | 2.08 | 2.50 | 2.91 | 3.24 |
| 0.43 | 0.66   | 0.95 | 1.25 | 1.65 | 2.00 | 2.36 | 2.58 | 3.29 |
| 0.47 | 0.69   | 1.00 | 1.25 | 1.54 | 1.95 | 2.24 | 2.74 | 3.10 |
| 0.43 | 0.69   | 0.99 | 1.30 | 1.55 | 1.84 | 2.27 | 2.49 | 2.97 |
| 0.52 | 0.59   | 0.92 | 1.23 | 1.55 | 1.81 | 2.13 | 2.53 | 3.11 |
| 0.53 | 0.65   | 0.78 | 1.14 | 1.51 | 1.86 | 2.13 | 2.55 | 3.18 |
| 0.60 | 0.64   | 0.83 | 1.02 | 1.34 | 1.87 | 2.19 | 2.46 | 3.10 |
| 0.51 | 0.73   | 0.86 | 1.12 | 1.36 | 1.73 | 2.18 | 2.46 | 2.86 |
| 0.33 | 0.68   | 0.94 | 1.33 | 1.52 | 1.77 | 2.30 | 2.63 | 3.63 |
| 0.59 | 0.81   | 0.98 | 1.46 | 1.92 | 2.05 | 2.27 | 2.85 | 3.75 |
| 0.54 | 0.86   | 1.29 | 1.46 | 2.15 | 2.48 | 2.64 | 2.83 | 3.72 |
| 0.48 | 0.83   | 1.34 | 1.63 | 2.05 | 2.64 | 2.93 | 3.17 | 3.66 |
| 0.45 | 0.80   | 1.28 | 1.93 | 2.22 | 2.82 | 3.16 | 3.44 | 3.94 |
| 0.62 | 0.80   | 1.37 | 1.91 | 2.46 | 3.01 | 3.65 | 3.66 | 4.26 |
| 0.49 | 0.84   | 1.31 | 2.01 | 2.26 | 2.88 | 3.88 | 4.05 | 4.33 |
| 0.34 | 0.78   | 1.17 | 1.80 | 2.42 | 2.60 | 3.29 | 4.32 | 4.94 |
| 0.40 | 0.73   | 1.19 | 1.74 | 2.33 | 2.92 | 3.58 | 3.84 | 4.99 |
| 0.39 | 0.71   | 1.27 | 1.71 | 2.46 | 2.95 | 3.29 | 3.87 | 5.11 |
| 0.40 | 0.73   | 1.10 | 1.74 | 2.26 | 2.96 | 3.47 | 3.57 | 4.87 |
| 0.44 | 0.71   | 1.10 | 1.49 | 2.09 | 2.66 | 3.36 | 3.67 | 3.87 |
| 0.25 | 0.69   | 1.08 | 1.49 | 1.99 | 2.43 | 3.23 | 3.81 | 4.44 |
| 0.10 | 0.62   | 1.12 | 1.53 | 2.08 | 2.52 | 2.97 | 3.83 | 4.09 |
| 0.20 | 0.47   | 1.15 | 1.63 | 2.04 | 2.51 | 3.00 | 3.30 | 4.27 |
| 0.19 | 0.55   | 1.16 | 1.58 | 2.01 | 2.43 | 2.80 | 3.33 | 3.72 |
| 0.20 | 0.57   | 1.13 | 1.62 | 2.12 | 2.45 | 2.86 | 3.32 | 3.80 |
| 0.33 | 0.56   | 1.16 | 1.59 | 2.25 | 2.64 | 2.84 | 3.25 | 3.78 |
| 0.28 | 0.61   | 1.16 | 1.65 | 2.03 | 2.59 | 2.92 | 3.34 | 4.29 |
| 0.29 | 0.65   | 1.05 | 1.55 | 2.03 | 2.35 | 2.79 | 3.25 | 3.96 |
| 0.39 | 0.61   | 1.20 | 1.55 | 1.93 | 2.30 | 2.82 | 3.25 | 3.82 |
| 0.47 | 0.72   | 1.15 | 1.62 | 1.95 | 2.37 | 2.69 | 3.11 | 4.16 |
| 0.41 | 0.88   | 1.13 | 1.64 | 1.97 | 2.37 | 2.70 | 2.93 | 4.34 |
| 0.37 | 0.83   | 1.40 | 1.52 | 1.99 | 2.35 | 2.80 | 3.10 | 4.27 |
| 0.51 | 0.79   | 1.42 | 1.89 | 1.94 | 2.40 | 2.58 | 3.04 | 4.01 |
| 0.30 | 0.85   | 1.39 | 1.95 | 2.39 | 2.40 | 2.76 | 3.17 | 4.55 |
| 0.27 | 0.66   | 1.28 | 1.82 | 2.37 | 2.72 | 2.99 | 3.00 | 3.98 |
| 0.31 | 0.69   | 1.20 | 1.65 | 2.17 | 2.54 | 3.10 | 3.39 | 3.71 |
| 0.27 | 0.67   | 1.36 | 1.68 | 2.02 | 2.43 | 2.83 | 3.40 | 3.66 |
| 0.35 | 0.63   | 1.22 | 1.80 | 2.10 | 2.44 | 2.78 | 3.09 | 4.07 |
| 0.52 | 0.75   | 1.22 | 1.65 | 2.01 | 2.34 | 2.69 | 3.00 | 3.68 |
| 0.50 | 0.88   | 1.27 | 1.70 | 2.03 | 2.24 | 2.53 | 2.84 | 3.30 |
| 0.22 | 0.88   | 1.29 | 1.60 | 2.02 | 2.39 | 2.50 | 2.73 | 3.41 |
| 0.21 | 0.57   | 1.25 | 1.59 | 1.85 | 2.31 | 2.81 | 2.84 | 3.34 |
| 0.21 | 0.44   | 1.11 | 1.47 | 1.79 | 2.00 | 2.50 | 3.11 | 3.17 |
| 0.13 | 0.32   | 0.80 | 1.43 | 1.64 | 1.90 | 2.06 | 2.49 | 2.91 |
| 0.11 | 0.35   | 0.64 | 1.21 | 1.58 | 1.75 | 1.99 | 2.10 | 2.63 |
| 0.09 | 0.29   | 0.73 | 1.06 | 1.53 | 1.72 | 1.86 | 2.05 | 2.31 |
| 0.02 | 0.41   | 0.72 | 1.09 | 1.26 | 1.72 | 1.86 | 1.95 | 2.18 |
| M    | MATRIX |      |      |      |      |      |      |      |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |
| 0.2  | 0.2    | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  |







|       |       |       |       |       |        |       |       |        |        |       |       |       |
|-------|-------|-------|-------|-------|--------|-------|-------|--------|--------|-------|-------|-------|
| 0     | 0     | 0     | 0     | 0     | 0      | 0     | 0     | 99579  | 15709  | 0     | 1753  | 292   |
|       | 0     | 584   | 32    | 21908 | 8173   | 0     | 1693  | 290    | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 0     | 0      | 0     | 0     | 6913   | 43136  | 9283  | 0     | 779   |
| 0     | 0     | 32    | 325   | 10494 | 29210  | 5223  | 0     | 629    | 145    | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 0     | 0      | 0     | 0     | 3051   | 3148   | 10776 | 2045  | 0     |
|       | 422   | 292   | 32    | 2418  | 5755   | 3192  | 1016  | 0      | 48     | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 0     | 0      | 0     | 0     | 262221 | 974    | 1947  | 2986  | 1396  |
| 0     | 0     | 130   | 0     | 76217 | 2031   | 2321  | 15766 | 2998   | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 0     | 0      | 0     | 0     | 1980   | 108439 | 1363  | 3960  | 1947  |
| 0     | 1461  | 0     | 130   | 14025 | 208291 | 1693  | 1741  | 2660   | 967    | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 0     | 0      | 0     | 0     | 227    | 3148   | 51704 | 1168  | 3051  |
| 0     | 2661  | 519   | 195   | 436   | 6941   | 60803 | 1824  | 1864   | 2062   | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 0     | 0      | 0     | 0     | 117235 | 5128   | 3668  | 18533 | 1071  |
| 0     | 519   | 1201  | 195   | 42915 | 2737   | 3371  | 30104 | 595    | 833    | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 0     | 0      | 0     | 0     | 16878  | 151575 | 1655  | 3376  | 15807 |
| 0     | 2175  | 1201  | 1493  | 4284  | 147902 | 119   | 2935  | 12375  | 833    | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 0     | 0      | 0     | 0     | 10711  | 10678  | 63259 | 7108  | 2467  |
| 0     | 5777  | 779   | 357   | 37917 | 8805   | 41289 | 1467  | 595    | 5513   | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 0     | 0      | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 2467  | 4966  | 3051  | 13210 | 1363  | 909    | 1980  | 0     | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 1229  | 19911  | 6743  | 12018 | 674    | 1349   | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 0     | 0      | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 1396  | 1785  | 1883  | 714   | 7822  | 32     | 130   | 3765  | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 4401  | 0      | 4304  | 1112  | 4546   | 435    | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 0     | 0      | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 6784  | 3830  | 2077  | 2045  | 1883  | 2337   | 227   | 130   | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 18812 | 774    | 677   | 871   | 967    | 3047   | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 0     | 0      | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 0     | 16099 | 2467  | 1298  | 2824  | 1104   | 3797  | 325   | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 97    | 10785  | 2853  | 774   | 919    | 193    | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 0     | 0      | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 8082  | 584   | 6686  | 779   | 357   | 682    | 389   | 1071  | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 36839 | 2110   | 4966  | 714   | 162    | 325    | 5714  | 310   | 8515  |
|       | 1506  | 267   | 408   | 479   | 521    | 162   | 714   | 0      | 0      | 0     | 0     | 0     |
| 0     | 11749 | 195   | 2629  | 260   | 325    | 162   | 3927  | 195    | 422    | 42    | 4278  | 971   |
|       | 0     | 0     | 0     | 0     | 16586  | 292   | 0     | 0      | 0      | 0     | 0     | 0     |
|       | 3533  | 943   | 113   | 422   | 141    | 389   | 0     | 0      | 0      | 0     | 0     | 0     |
| 5031  | 130   | 3213  | 422   | 1039  | 389    | 357   | 389   | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 5842  | 0      | 2564  | 325   | 2499   | 195    | 2069  | 70    | 12005 |
|       | 239   | 4011  | 253   | 239   | 155    | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 65    | 11328 | 1461  | 2304  | 454   | 1331   | 195   | 162   | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 227   | 9802   | 584   | 4219  | 389    | 1298   | 42    | 7515  | 1013  |
|       | 2984  | 267   | 591   | 42    | 42     | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 2791  | 0     | 18565 | 1071  | 1883  | 195    | 422   | 0     | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 1517  | 160    | 8783  | 639   | 2156   | 293    | 1309  | 155   | 13891 |
|       | 183   | 4729  | 324   | 1534  | 183    | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 1753  | 3473  | 779   | 6005  | 292   | 325    | 65    | 130   | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 2502  | 2182   | 80    | 3859  | 160    | 559    | 1056  | 2350  | 197   |
|       | 12652 | 155   | 2252  | 127   | 619    | 97    | 97    | 0      | 0      | 0     | 0     | 0     |
| 1298  | 584   | 357   | 227   | 1071  | 97     | 97    | 97    | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 7000  | 665    | 772   | 160   | 719    | 53     | 4644  | 4152  | 1590  |
|       | 239   | 5376  | 42    | 1492  | 56     | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 3797  | 2110  | 584   | 454   | 389   | 1201   | 195   | 65    | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 9250  | 6751   | 747   | 779   | 0      | 1525   | 5573  | 3040  | 774   |
|       | 633   | 56    | 1801  | 28    | 450    | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 2269  | 8708  | 3254  | 481   | 330   | 214    | 503   | 49    | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 4924  | 13121  | 6521  | 985   | 0      | 186    | 4673  | 16213 | 5742  |
|       | 591   | 338   | 28    | 985   | 14     | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 1627  | 4172  | 7528  | 2969  | 536   | 370    | 93    | 578   | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 2955  | 2506   | 2622  | 2166  | 402    | 147    | 2730  | 3687  | 6052  |
|       | 3124  | 788   | 42    | 0     | 676    | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 3525  | 14908 | 28744 | 16894 | 8497  | 1133   | 237   | 243   | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 7377  | 23168  | 15917 | 7519  | 1222   | 39     | 8599  | 4067  | 6812  |
|       | 7093  | 4110  | 366   | 338   | 56     | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 5826  | 3319  | 10885 | 11871 | 6522  | 2887   | 409   | 228   | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 4256  | 1765   | 3005  | 3370  | 1583   | 463    | 2449  | 1633  | 1393  |
|       | 3293  | 3336  | 2393  | 324   | 127    | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 2673  | 9582  | 4049  | 3437  | 2773  | 696    | 196   | 18    | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 1049  | 8003   | 4762  | 2431  | 1777   | 1056   | 3392  | 11512 | 4335  |
|       | 3617  | 5292  | 5165  | 2787  | 338    | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 33135 | 6581  | 6950  | 2328  | 2085  | 1646   | 663   | 652   | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 14008 | 9050   | 8028  | 2348  | 1338   | 571    | 27796 | 4799  | 10077 |
|       | 3110  | 1970  | 1900  | 1773  | 464    | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 5937  | 7692  | 13322 | 6521  | 3604  | 3591   | 3292  | 1543  | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 5922  | 2728   | 10934 | 26130 | 11429  | 7536   | 25797 | 96547 | 13117 |
|       | 12540 | 2970  | 2181  | 2730  | 1604   | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 32502 | 2789  | 7910  | 2707  | 977   | 682    | 374   | 265   | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 13433 | 9161   | 17791 | 10077 | 3562   | 2143   | 31357 | 3983  | 15312 |
|       | 4349  | 5813  | 1816  | 1618  | 1984   | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 593   | 62469 | 21807 | 10459 | 3546  | 1548   | 1969  | 552   | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 2774  | 28471  | 5459  | 24147 | 6877   | 3774   | 2787  | 44614 | 9359  |
|       | 21617 | 6080  | 7487  | 2238  | 1858   | 0     | 0     | 0      | 0      | 0     | 0     | 0     |
| 32    | 811   | 17689 | 3927  | 15742 | 3116   | 3700  | 2791  | 0      | 0      | 0     | 0     | 0     |
|       | 0     | 0     | 0     | 377   | 6203   | 72276 | 17673 | 27709  | 6075   | 1922  | 3582  | 97567 |
|       | 7229  | 18640 | 4133  | 3779  | 1697   | 0     | 0     | 0      | 0      | 0     | 0     | 0     |



|         |        |        |        |        |        |        |        |       |       |        |       |      |
|---------|--------|--------|--------|--------|--------|--------|--------|-------|-------|--------|-------|------|
| 363974  | 6005   | 3895   | 29406  | 7076   | 8666   | 1396   | 3116   | 0     | 0     | 0      | 0     | 0    |
|         | 0      | 0      | 0      | 501602 | 231    | 1464   | 27761  | 5759  | 10893 | 207872 | 580   | 2807 |
|         | 55692  | 5541   | 10384  | 1739   | 1023   |        |        |       |       |        |       |      |
| 2597    | 173126 | 519    | 1233   | 10873  | 1461   | 3278   | 617    | 0     | 0     | 0      | 0     | 0    |
|         | 0      | 0      | 0      | 5288   | 531168 | 711    | 2741   | 44206 | 3814  | 0      | 0     | 0    |
|         | 0      | 0      | 0      | 0      | 0      |        |        |       |       |        |       |      |
| 6532    | 1850   | 93249  | 1644   | 2058   | 12006  | 1684   | 1537   | 0     | 0     | 0      | 0     | 0    |
|         | 0      | 0      | 0      | 13818  | 5745   | 250707 | 904    | 2260  | 15370 | 0      | 0     | 0    |
|         | 0      | 0      | 0      | 0      | 0      |        |        |       |       |        |       |      |
| 2789    | 22744  | 5937   | 146687 | 1113   | 792    | 4528   | 431    | 0     | 0     | 0      | 0     | 0    |
|         | 0      | 0      | 0      | 3051   | 14742  | 2374   | 156979 | 1282  | 1404  | 4215   | 15001 | 4419 |
|         | 80460  | 1121   | 178    | 4177   | 299    |        |        |       |       |        |       |      |
| 5979    | 2842   | 8374   | 712    | 65850  | 1275   | 553    | 2920   | 0     | 0     | 0      | 0     | 0    |
|         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0     | 0     | 3923   | 1248  | 4813 |
|         | 5204   | 109124 | 1009   | 195    | 8595   |        |        |       |       |        |       |      |
| CHECKED | INDEX  |        |        |        |        |        |        |       |       |        |       |      |

|   |    |    |    |    |    |    |    |    |    |    |    |    |
|---|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 |
|   | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|   | 26 | 27 | 28 | 29 | 30 |    |    |    |    |    |    |    |

OPTIONS

|   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|

CHECKED RETRO

|   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
|   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
|   | 1 | 1 | 1 | 1 | 1 | 1 |   |   |   |   |   |   |

VPA output GB haddock

VPA Version 2.8.0

Model ID: garm3-rev-base F5to7 backward 1931 to 2007 data

Input File: C:\X-APPS\ADAPT\VPA280\GARM3\_REVIEW\BASE\_CASE\31TO07\_BOOTRUN\GARM3\_REV\_31TO07.DA  
 Date of Run: 14-JUL-2008 Time of Run: 12:20

Levenburg-Marquardt Algorithm Completed 9 Iterations  
 Residual Sum of Squares = 475.995  
 Number of Residuals = 730  
 Number of Parameters = 9  
 Degrees of Freedom = 721  
 Mean Squared Residual = 0.660188  
 Standard Deviation = 0.812519

Number of Years = 77  
 Number of Ages = 9  
 First Year = 1931  
 Youngest Age = 1  
 Oldest True Age = 8

Number of Survey Indices Available = 30  
 Number of Survey Indices Used in Estimate = 30

VPA Classic Method - Auto Estimated Q's

Stock Numbers Predicted in Terminal Year Plus One (2008)

| Age | Stock Predicted | Std. Error   | CV           |
|-----|-----------------|--------------|--------------|
| 1   | 16376.323       | 0.747071E-02 | 0.456190E-06 |
| 2   | 6063.866        | 0.154433E-01 | 0.254678E-05 |
| 3   | 17450.483       | 0.987350E-02 | 0.565801E-06 |
| 4   | 4174.856        | 0.211557E-01 | 0.506740E-05 |
| 5   | 209204.143      | 0.320218E-02 | 0.153065E-07 |
| 6   | 790.289         | 0.507316E-01 | 0.641937E-04 |
| 7   | 910.624         | 0.449378E-01 | 0.493483E-04 |
| 8   | 9298.882        | 0.134804E-01 | 0.144968E-05 |
| 9   | 300.000         | 0.000000E+00 | 0.000000E+00 |

Catchability Values for Each Survey Used in Estimate

| INDEX | Catchability | Std. Error   | CV           |
|-------|--------------|--------------|--------------|
| 1     | 0.309573E+00 | 0.617671E-01 | 0.199524E+00 |
| 2     | 0.559059E+00 | 0.792243E-01 | 0.141710E+00 |
| 3     | 0.633341E+00 | 0.869441E-01 | 0.137278E+00 |
| 4     | 0.572417E+00 | 0.571733E-01 | 0.998804E-01 |
| 5     | 0.634646E+00 | 0.795321E-01 | 0.125317E+00 |
| 6     | 0.540223E+00 | 0.879206E-01 | 0.162749E+00 |
| 7     | 0.535573E+00 | 0.783308E-01 | 0.146256E+00 |
| 8     | 0.623145E+00 | 0.105493E+00 | 0.169291E+00 |

|    |              |              |              |
|----|--------------|--------------|--------------|
| 9  | 0.721024E+00 | 0.367805E+00 | 0.510115E+00 |
| 10 | 0.898814E+00 | 0.314331E+00 | 0.349718E+00 |
| 11 | 0.775702E+00 | 0.244101E+00 | 0.314684E+00 |
| 12 | 0.838990E+00 | 0.183046E+00 | 0.218174E+00 |
| 13 | 0.888891E+00 | 0.146199E+00 | 0.164473E+00 |
| 14 | 0.884529E+00 | 0.245112E+00 | 0.277110E+00 |
| 15 | 0.911762E+00 | 0.236731E+00 | 0.259641E+00 |
| 16 | 0.861378E+00 | 0.271423E+00 | 0.315103E+00 |
| 17 | 0.433137E+00 | 0.621932E-01 | 0.143588E+00 |
| 18 | 0.688246E+00 | 0.103249E+00 | 0.150018E+00 |
| 19 | 0.572374E+00 | 0.710432E-01 | 0.124120E+00 |
| 20 | 0.653808E+00 | 0.640887E-01 | 0.980236E-01 |
| 21 | 0.571735E+00 | 0.623636E-01 | 0.109078E+00 |
| 22 | 0.560770E+00 | 0.664267E-01 | 0.118456E+00 |
| 23 | 0.282518E+00 | 0.659275E-01 | 0.233357E+00 |
| 24 | 0.399130E+00 | 0.834303E-01 | 0.209030E+00 |
| 25 | 0.655467E+00 | 0.829613E-01 | 0.126568E+00 |
| 26 | 0.620509E+00 | 0.830449E-01 | 0.133834E+00 |
| 27 | 0.707918E+00 | 0.992401E-01 | 0.140186E+00 |
| 28 | 0.523142E+00 | 0.988187E-01 | 0.188895E+00 |
| 29 | 0.679959E+00 | 0.121998E+00 | 0.179420E+00 |
| 30 | 0.620286E+00 | 0.997301E-01 | 0.160781E+00 |

-- Non-Linear Least Squares Fit --

Default Tolerances Used

Scaled Gradient Tolerance = 6.055454E-06  
 Scaled Step Tolerance = 3.666853E-11  
 Relative Function Tolerance = 3.666853E-11  
 Absolute Function Tolerance = 4.930381E-32

VPA Method Options

- Catchability Values Estimated as an Analytic Function of N
- Catch Equation Used in Cohort Solution
- Plus Group Backward Calculation Method Used
- Rivard Weights Used for JAN-1 Biomass
- Rivard Weights Used for SSB Biomass
- Rivard Weights Calculation Used 5 Years for Terminal Year Plus One
- Arithmetic Average Used in F-Oldest Calculation
- F-Oldest Calculation in Years Prior to Terminal Year  
 Uses Fishing Mortality in Ages 5 to 7
- Calculation of Population of Age 1 In Year 2008  
 = Stock Estimate

Stock Estimates

Age 1  
 Age 2  
 Age 3  
 Age 4  
 Age 5  
 Age 6  
 Age 7  
 Age 8  
 Age 9

Full F in Terminal Year = 0.1832

F in Oldest True Age in Terminal Year = 0.2285

Full F Calculated Using Classic Method

F in Oldest True Age in Terminal Year has been  
 Calculated in Same Manner as in All Other Years

| Age | Input Partial Recruitment | Calc Partial Recruitment | Fishing Mortality | Used In Full F | Comments              |
|-----|---------------------------|--------------------------|-------------------|----------------|-----------------------|
| 1   | 0.001                     | 0.007                    | 0.0019            | NO             | Stock Estimate in T+1 |
| 2   | 0.410                     | 0.034                    | 0.0090            | NO             | Stock Estimate in T+1 |
| 3   | 0.840                     | 0.189                    | 0.0506            | NO             | Stock Estimate in T+1 |
| 4   | 1.000                     | 0.176                    | 0.0473            | YES            | Stock Estimate in T+1 |
| 5   | 1.000                     | 0.745                    | 0.1999            | YES            | Stock Estimate in T+1 |
| 6   | 1.000                     | 1.000                    | 0.2681            | YES            | Stock Estimate in T+1 |
| 7   | 1.000                     | 0.812                    | 0.2176            | YES            | Stock Estimate in T+1 |
| 8   | 1.000                     | 0.852                    | 0.2285            |                | F-oldest              |

Catch At Age - Input Data

| AGE | 1931    | 1932    | 1933    | 1934    | 1935    |
|-----|---------|---------|---------|---------|---------|
| 1   | 1755.0  | 118.0   | 244.0   | 341.0   | 1197.0  |
| 2   | 8801.0  | 2084.0  | 8476.0  | 4454.0  | 11872.0 |
| 3   | 2041.0  | 25871.0 | 6023.0  | 5414.0  | 8819.0  |
| 4   | 5785.0  | 2421.0  | 10046.0 | 3734.0  | 3706.0  |
| 5   | 9100.0  | 3676.0  | 2092.0  | 3149.0  | 2944.0  |
| 6   | 6045.0  | 2894.0  | 1579.0  | 1051.0  | 2458.0  |
| 7   | 3380.0  | 1320.0  | 1210.0  | 619.0   | 499.0   |
| 8   | 1794.0  | 664.0   | 538.0   | 250.0   | 442.0   |
| 9   | 559.0   | 391.0   | 647.0   | 168.0   | 109.0   |
| AGE | 1936    | 1937    | 1938    | 1939    | 1940    |
| 1   | 880.0   | 1288.0  | 1030.0  | 607.0   | 2040.0  |
| 2   | 12327.0 | 11034.0 | 20199.0 | 13937.0 | 7254.0  |
| 3   | 11486.0 | 10910.0 | 7755.0  | 19617.0 | 12317.0 |
| 4   | 5431.0  | 5629.0  | 3755.0  | 5163.0  | 8253.0  |
| 5   | 2141.0  | 4143.0  | 2113.0  | 2152.0  | 2510.0  |
| 6   | 1377.0  | 1875.0  | 1600.0  | 967.0   | 1479.0  |
| 7   | 1362.0  | 952.0   | 945.0   | 837.0   | 752.0   |
| 8   | 259.0   | 481.0   | 327.0   | 326.0   | 222.0   |
| 9   | 124.0   | 222.0   | 173.0   | 239.0   | 136.0   |
| AGE | 1941    | 1942    | 1943    | 1944    | 1945    |
| 1   | 780.0   | 310.0   | 19.0    | 64.0    | 121.0   |
| 2   | 23464.0 | 14307.0 | 4191.0  | 761.0   | 8522.0  |

|   |        |         |         |         |        |
|---|--------|---------|---------|---------|--------|
| 3 | 9808.0 | 16348.0 | 17738.0 | 8437.0  | 2029.0 |
| 4 | 8033.0 | 6531.0  | 8364.0  | 14843.0 | 6386.0 |
| 5 | 5764.0 | 3996.0  | 3102.0  | 5689.0  | 5795.0 |
| 6 | 1781.0 | 2331.0  | 2693.0  | 2281.0  | 2315.0 |
| 7 | 941.0  | 1036.0  | 790.0   | 497.0   | 914.0  |
| 8 | 307.0  | 227.0   | 354.0   | 469.0   | 265.0  |
| 9 | 384.0  | 176.0   | 178.0   | 108.0   | 205.0  |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1946 | 1947 | 1948 | 1949 | 1950 |
|-----|------|------|------|------|------|

|   |         |         |         |         |         |
|---|---------|---------|---------|---------|---------|
| 1 | 209.0   | 90.0    | 80.0    | 328.0   | 88.0    |
| 2 | 7466.0  | 16621.0 | 11227.0 | 6472.0  | 28971.0 |
| 3 | 15213.0 | 10334.0 | 19237.0 | 12479.0 | 4107.0  |
| 4 | 2738.0  | 7181.0  | 5116.0  | 9608.0  | 4272.0  |
| 5 | 5785.0  | 2127.0  | 2744.0  | 2347.0  | 3315.0  |
| 6 | 3840.0  | 2739.0  | 1157.0  | 1061.0  | 1131.0  |
| 7 | 1827.0  | 1501.0  | 780.0   | 624.0   | 520.0   |
| 8 | 272.0   | 745.0   | 450.0   | 409.0   | 225.0   |
| 9 | 23.0    | 457.0   | 369.0   | 353.0   | 250.0   |

Catch At Age - Input Data

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1951 | 1952 | 1953 | 1954 | 1955 |
|-----|------|------|------|------|------|

|   |         |         |         |         |         |
|---|---------|---------|---------|---------|---------|
| 1 | 645.0   | 0.0     | 1083.0  | 108.0   | 90.0    |
| 2 | 8266.0  | 25120.0 | 1807.0  | 31858.0 | 3941.0  |
| 3 | 26472.0 | 8892.0  | 17588.0 | 5107.0  | 19251.0 |
| 4 | 2177.0  | 8485.0  | 5726.0  | 5611.0  | 3316.0  |
| 5 | 2448.0  | 1361.0  | 3757.0  | 2315.0  | 3278.0  |
| 6 | 2138.0  | 944.0   | 1012.0  | 2131.0  | 1649.0  |
| 7 | 740.0   | 530.0   | 542.0   | 720.0   | 1068.0  |
| 8 | 297.0   | 182.0   | 337.0   | 353.0   | 320.0   |
| 9 | 215.0   | 107.0   | 152.0   | 98.0    | 173.0   |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1956 | 1957 | 1958 | 1959 | 1960 |
|-----|------|------|------|------|------|

|   |         |         |        |        |         |
|---|---------|---------|--------|--------|---------|
| 1 | 52.0    | 35.0    | 125.0  | 94.0   | 258.0   |
| 2 | 11948.0 | 6594.0  | 5571.0 | 5716.0 | 16010.0 |
| 3 | 6698.0  | 14046.0 | 7088.0 | 7994.0 | 6122.0  |
| 4 | 12066.0 | 4523.0  | 6665.0 | 5169.0 | 4562.0  |
| 5 | 3405.0  | 5822.0  | 3784.0 | 3934.0 | 3067.0  |
| 6 | 3378.0  | 2357.0  | 2366.0 | 1758.0 | 1792.0  |
| 7 | 1348.0  | 1630.0  | 903.0  | 1172.0 | 787.0   |
| 8 | 563.0   | 473.0   | 442.0  | 424.0  | 406.0   |
| 9 | 201.0   | 366.0   | 142.0  | 334.0  | 348.0   |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1961 | 1962 | 1963 | 1964 | 1965 |
|-----|------|------|------|------|------|

|   |         |         |         |         |          |
|---|---------|---------|---------|---------|----------|
| 1 | 62.0    | 74.0    | 2910.0  | 10101.0 | 9601.0   |
| 2 | 10689.0 | 4455.0  | 4047.0  | 15935.0 | 125818.0 |
| 3 | 14927.0 | 16245.0 | 7418.0  | 4554.0  | 44496.0  |
| 4 | 4198.0  | 10440.0 | 11152.0 | 4776.0  | 5356.0   |
| 5 | 2917.0  | 3448.0  | 8198.0  | 8722.0  | 4391.0   |
| 6 | 1856.0  | 2089.0  | 2205.0  | 5794.0  | 6690.0   |
| 7 | 1266.0  | 1566.0  | 1405.0  | 2082.0  | 3772.0   |
| 8 | 496.0   | 1185.0  | 721.0   | 1028.0  | 1094.0   |
| 9 | 674.0   | 898.0   | 1096.0  | 1332.0  | 1366.0   |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1966 | 1967 | 1968 | 1969 | 1970 |
|-----|------|------|------|------|------|

|   |          |         |         |        |        |
|---|----------|---------|---------|--------|--------|
| 1 | 114.0    | 1150.0  | 8.0     | 2.0    | 46.0   |
| 2 | 6843.0   | 168.0   | 2994.0  | 11.0   | 158.0  |
| 3 | 100810.0 | 2891.0  | 709.0   | 1698.0 | 16.0   |
| 4 | 19167.0  | 20667.0 | 1921.0  | 448.0  | 570.0  |
| 5 | 2768.0   | 10338.0 | 14519.0 | 654.0  | 186.0  |
| 6 | 2591.0   | 1209.0  | 3499.0  | 5954.0 | 214.0  |
| 7 | 2332.0   | 993.0   | 667.0   | 1574.0 | 2308.0 |
| 8 | 1268.0   | 917.0   | 453.0   | 225.0  | 746.0  |
| 9 | 867.0    | 698.0   | 842.0   | 570.0  | 464.0  |

Catch At Age - Input Data

| AGE | 1971    | 1972    | 1973    | 1974   | 1975    |
|-----|---------|---------|---------|--------|---------|
| 1   | 1.0     | 159.6   | 2607.1  | 47.7   | 198.6   |
| 2   | 1375.0  | 2.0     | 2113.1  | 4481.1 | 1069.5  |
| 3   | 223.0   | 460.4   | 3.1     | 681.5  | 1928.0  |
| 4   | 40.0    | 82.9    | 393.1   | 2.1    | 387.9   |
| 5   | 289.0   | 32.7    | 54.0    | 72.6   | 4.1     |
| 6   | 246.0   | 122.8   | 30.6    | 2.1    | 43.4    |
| 7   | 285.0   | 79.8    | 78.4    | 2.1    | 4.1     |
| 8   | 1469.0  | 67.5    | 15.3    | 55.0   | 4.1     |
| 9   | 928.0   | 1264.7  | 455.2   | 258.3  | 91.0    |
| AGE | 1976    | 1977    | 1978    | 1979   | 1980    |
| 1   | 149.3   | 1.0     | 1.0     | 1.0    | 8.0     |
| 2   | 490.5   | 19857.7 | 767.0   | 26.2   | 31170.3 |
| 3   | 570.4   | 189.6   | 14509.1 | 1742.5 | 348.9   |
| 4   | 912.6   | 689.5   | 307.4   | 7237.5 | 980.4   |
| 5   | 224.0   | 522.2   | 571.5   | 530.0  | 6087.3  |
| 6   | 0.0     | 362.0   | 521.1   | 413.9  | 597.3   |
| 7   | 23.9    | 4.1     | 140.1   | 318.0  | 549.0   |
| 8   | 4.1     | 39.5    | 14.1    | 96.9   | 153.8   |
| 9   | 116.1   | 112.5   | 67.5    | 46.4   | 81.4    |
| AGE | 1981    | 1982    | 1983    | 1984   | 1985    |
| 1   | 1.0     | 1.0     | 0.0     | 0.0    | 0.0     |
| 2   | 1755.4  | 1173.7  | 216.1   | 94.1   | 2463.7  |
| 3   | 11076.4 | 1645.1  | 821.1   | 300.6  | 563.2   |
| 4   | 836.9   | 3760.7  | 696.9   | 735.8  | 198.7   |
| 5   | 943.7   | 393.9   | 2261.4  | 401.8  | 472.1   |
| 6   | 2590.3  | 573.2   | 274.7   | 1499.9 | 233.5   |
| 7   | 333.4   | 1127.3  | 187.9   | 236.8  | 538.6   |
| 8   | 159.1   | 106.8   | 808.0   | 270.2  | 79.9    |
| 9   | 94.7    | 110.8   | 76.8    | 549.6  | 155.6   |
| AGE | 1986    | 1987    | 1988    | 1989   | 1990    |
| 1   | 6.1     | 0.0     | 4.1     | 1.9    | 62.9    |
| 2   | 54.7    | 2035.1  | 53.2    | 1462.2 | 11.6    |
| 3   | 2848.3  | 131.6   | 2439.1  | 122.5  | 1697.0  |
| 4   | 226.0   | 1645.5  | 137.1   | 1018.7 | 268.9   |
| 5   | 148.0   | 124.5   | 952.5   | 217.3  | 1124.1  |
| 6   | 175.4   | 74.5    | 152.4   | 477.8  | 154.3   |
| 7   | 152.0   | 90.8    | 56.3    | 61.7   | 217.6   |
| 8   | 269.6   | 108.1   | 65.5    | 37.0   | 55.4    |
| 9   | 60.8    | 137.7   | 108.4   | 56.7   | 48.9    |

Catch At Age - Input Data

| AGE | 1991   | 1992   | 1993   | 1994   | 1995   |
|-----|--------|--------|--------|--------|--------|
| 1   | 7.0    | 83.6   | 33.0   | 27.3   | 17.0   |
| 2   | 486.1  | 265.1  | 363.3  | 537.5  | 93.5   |
| 3   | 122.8  | 407.5  | 439.1  | 1191.5 | 614.3  |
| 4   | 2370.1 | 197.2  | 340.4  | 241.5  | 470.8  |
| 5   | 144.3  | 1960.1 | 120.1  | 142.1  | 58.9   |
| 6   | 517.6  | 181.2  | 741.4  | 73.4   | 29.4   |
| 7   | 127.9  | 425.7  | 62.6   | 313.4  | 8.5    |
| 8   | 171.9  | 46.6   | 169.2  | 55.2   | 61.4   |
| 9   | 65.0   | 99.5   | 82.2   | 109.7  | 16.2   |
| AGE | 1996   | 1997   | 1998   | 1999   | 2000   |
| 1   | 6.8    | 14.5   | 6.0    | 2.6    | 1.6    |
| 2   | 56.4   | 143.3  | 230.1  | 43.2   | 406.6  |
| 3   | 566.3  | 273.0  | 470.9  | 906.0  | 625.6  |
| 4   | 918.6  | 745.1  | 557.6  | 541.1  | 1570.9 |
| 5   | 450.3  | 561.3  | 767.2  | 605.7  | 588.0  |
| 6   | 66.0   | 217.9  | 570.7  | 565.5  | 527.7  |
| 7   | 22.1   | 17.5   | 168.9  | 383.5  | 377.0  |
| 8   | 6.9    | 18.4   | 23.4   | 163.2  | 258.1  |
| 9   | 78.2   | 48.8   | 48.6   | 47.6   | 98.5   |
| AGE | 2001   | 2002   | 2003   | 2004   | 2005   |
| 1   | 14.0   | 2.9    | 4.5    | 646.0  | 19.5   |
| 2   | 145.1  | 396.7  | 17.7   | 33.0   | 612.4  |
| 3   | 2393.3 | 345.3  | 1942.8 | 121.7  | 41.8   |
| 4   | 996.1  | 3177.4 | 461.1  | 5115.6 | 339.0  |
| 5   | 1280.6 | 926.2  | 2686.1 | 729.4  | 8505.4 |
| 6   | 655.6  | 1105.4 | 604.9  | 2935.4 | 777.7  |

|   |       |       |       |       |        |
|---|-------|-------|-------|-------|--------|
| 7 | 437.6 | 401.6 | 719.1 | 686.7 | 1842.6 |
| 8 | 358.8 | 306.4 | 212.3 | 562.9 | 315.2  |
| 9 | 262.2 | 551.2 | 388.8 | 408.2 | 343.2  |

AGE 2006 2007

|   |        |         |
|---|--------|---------|
| 1 | 164.4  | 13.0    |
| 2 | 18.4   | 174.6   |
| 3 | 3164.2 | 240.0   |
| 4 | 70.9   | 11215.7 |
| 5 | 375.2  | 194.2   |
| 6 | 5418.3 | 311.4   |
| 7 | 326.5  | 2511.7  |
| 8 | 841.9  | 228.9   |
| 9 | 227.6  | 564.4   |

Weight At Age - Input Data

AGE 1931 1932 1933 1934 1935

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.7500 | 0.6400 | 0.5400 | 0.4200 | 0.4600 |
| 2 | 0.7800 | 0.8500 | 0.7300 | 0.7300 | 0.8700 |
| 3 | 1.1800 | 1.0900 | 1.3500 | 1.1300 | 1.2200 |
| 4 | 1.3700 | 1.8200 | 1.4200 | 1.4900 | 1.6000 |
| 5 | 1.6500 | 1.8900 | 1.7300 | 1.7500 | 1.7900 |
| 6 | 2.0100 | 2.1900 | 2.3900 | 2.1100 | 1.9800 |
| 7 | 2.3100 | 2.7400 | 2.4600 | 2.5400 | 2.5600 |
| 8 | 2.5400 | 2.9300 | 2.5900 | 2.8500 | 2.7900 |
| 9 | 3.0300 | 3.2000 | 2.6000 | 2.9800 | 3.4200 |

AGE 1936 1937 1938 1939 1940

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.5100 | 0.4800 | 0.5600 | 0.5700 | 0.5600 |
| 2 | 0.8100 | 0.8700 | 0.8700 | 0.8200 | 0.8900 |
| 3 | 1.1900 | 1.2400 | 1.3700 | 1.1800 | 1.2700 |
| 4 | 1.5600 | 1.5200 | 1.7600 | 1.6400 | 1.5900 |
| 5 | 1.7200 | 1.9400 | 2.1600 | 1.9800 | 1.8700 |
| 6 | 2.0900 | 2.1900 | 2.3000 | 2.4800 | 2.3400 |
| 7 | 2.3500 | 2.8200 | 2.6700 | 2.6600 | 2.9000 |
| 8 | 2.6300 | 3.0800 | 2.7500 | 2.9600 | 3.1000 |
| 9 | 3.3200 | 3.5600 | 3.7100 | 3.4200 | 3.8700 |

AGE 1941 1942 1943 1944 1945

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.5200 | 0.5200 | 0.5200 | 0.6200 | 0.5800 |
| 2 | 0.7900 | 0.7900 | 0.7300 | 0.8000 | 0.8400 |
| 3 | 1.2000 | 1.1500 | 0.9900 | 1.0900 | 1.2400 |
| 4 | 1.5700 | 1.4600 | 1.4300 | 1.4000 | 1.5700 |
| 5 | 1.8700 | 1.7100 | 1.6900 | 1.8700 | 1.9300 |
| 6 | 2.3100 | 2.0300 | 1.8900 | 2.3100 | 2.3700 |
| 7 | 2.6700 | 2.6400 | 2.3400 | 2.6100 | 2.6900 |
| 8 | 2.9300 | 3.1500 | 2.8400 | 3.0700 | 3.2300 |
| 9 | 3.5200 | 3.3800 | 3.3700 | 3.6800 | 3.3500 |

AGE 1946 1947 1948 1949 1950

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.5200 | 0.5800 | 0.5200 | 0.5400 | 0.4300 |
| 2 | 0.7800 | 0.7300 | 0.6700 | 0.7300 | 0.6800 |
| 3 | 1.2000 | 1.1500 | 1.0400 | 0.9900 | 1.0700 |
| 4 | 1.6300 | 1.6100 | 1.5400 | 1.4400 | 1.3300 |
| 5 | 1.8300 | 2.0200 | 1.9400 | 1.9400 | 1.8000 |
| 6 | 2.2200 | 2.3600 | 2.3500 | 2.4000 | 2.2400 |
| 7 | 2.7000 | 2.7900 | 2.6900 | 2.7200 | 2.6000 |
| 8 | 3.2800 | 3.0600 | 3.1600 | 3.2000 | 3.2600 |
| 9 | 4.1800 | 3.3200 | 3.5000 | 3.6900 | 3.4200 |

Weight At Age - Input Data

AGE 1951 1952 1953 1954 1955

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.5300 | 0.4880 | 0.5500 | 0.4400 | 0.5800 |
| 2 | 0.7000 | 0.6900 | 0.6400 | 0.7700 | 0.8300 |
| 3 | 0.9500 | 0.9400 | 0.9400 | 0.9000 | 1.0800 |
| 4 | 1.4000 | 1.2900 | 1.1900 | 1.2700 | 1.2900 |
| 5 | 1.7900 | 1.7100 | 1.6200 | 1.4900 | 1.6700 |
| 6 | 2.3400 | 2.2200 | 2.0200 | 1.8200 | 1.9500 |
| 7 | 2.8100 | 2.5400 | 2.3700 | 2.2400 | 2.3200 |
| 8 | 3.1100 | 3.1300 | 2.7100 | 2.4300 | 2.5300 |
| 9 | 3.3000 | 3.4900 | 3.3100 | 3.0800 | 2.9600 |

AGE 1956 1957 1958 1959 1960

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.4200 | 0.5400 | 0.6700 | 0.5600 | 0.6000 |
| 2 | 0.8400 | 0.8000 | 0.8200 | 0.8500 | 0.8100 |

|                            |        |        |        |        |        |
|----------------------------|--------|--------|--------|--------|--------|
| 3                          | 1.0400 | 1.1100 | 1.1200 | 1.1500 | 1.2200 |
| 4                          | 1.3800 | 1.4100 | 1.3500 | 1.4500 | 1.5500 |
| 5                          | 1.7000 | 1.7700 | 1.7700 | 1.8000 | 1.9200 |
| 6                          | 2.1300 | 2.0800 | 2.2500 | 2.1800 | 2.4700 |
| 7                          | 2.4300 | 2.4100 | 2.6300 | 2.5700 | 2.9400 |
| 8                          | 2.8800 | 2.7700 | 2.9300 | 3.0500 | 3.2600 |
| 9                          | 3.6200 | 3.1100 | 3.3900 | 3.5200 | 3.7800 |
| AGE                        | 1961   | 1962   | 1963   | 1964   | 1965   |
| 1                          | 0.5200 | 0.5400 | 0.5700 | 0.5000 | 0.5800 |
| 2                          | 0.8400 | 0.8500 | 0.8700 | 0.8300 | 0.6900 |
| 3                          | 1.1100 | 1.0700 | 1.1800 | 1.1200 | 1.0300 |
| 4                          | 1.5400 | 1.4100 | 1.4700 | 1.4300 | 1.3500 |
| 5                          | 1.8700 | 1.7700 | 1.6800 | 1.6400 | 1.6700 |
| 6                          | 2.2600 | 2.1400 | 2.1500 | 2.0100 | 1.9900 |
| 7                          | 2.5400 | 2.4700 | 2.3500 | 2.4000 | 2.2600 |
| 8                          | 2.8800 | 2.6200 | 3.0400 | 2.6400 | 2.6600 |
| 9                          | 3.2400 | 3.2900 | 3.1000 | 2.9700 | 3.1100 |
| AGE                        | 1966   | 1967   | 1968   | 1969   | 1970   |
| 1                          | 0.5800 | 0.6600 | 0.5900 | 0.5200 | 0.7100 |
| 2                          | 0.7300 | 0.7000 | 0.8100 | 0.7800 | 1.2700 |
| 3                          | 0.8900 | 0.9500 | 1.0500 | 1.1000 | 1.2200 |
| 4                          | 1.2600 | 1.1800 | 1.3200 | 1.6900 | 1.9300 |
| 5                          | 1.7000 | 1.4200 | 1.5700 | 1.7500 | 2.1900 |
| 6                          | 2.0700 | 2.0500 | 2.1000 | 1.9900 | 2.3900 |
| 7                          | 2.2800 | 2.3100 | 2.3200 | 2.5200 | 2.5800 |
| 8                          | 2.8700 | 2.6600 | 2.6200 | 2.9900 | 3.2300 |
| 9                          | 3.1800 | 3.1000 | 2.8600 | 3.6300 | 3.7500 |
| Weight At Age - Input Data |        |        |        |        |        |
| AGE                        | 1971   | 1972   | 1973   | 1974   | 1975   |
| 1                          | 0.6700 | 0.6200 | 0.6000 | 0.7200 | 0.6200 |
| 2                          | 1.0300 | 1.0300 | 1.0300 | 1.0600 | 0.9800 |
| 3                          | 1.3100 | 1.7400 | 1.5800 | 1.8200 | 1.6300 |
| 4                          | 1.7400 | 2.0400 | 2.1300 | 2.3200 | 2.2100 |
| 5                          | 2.3900 | 2.4200 | 2.4100 | 2.8300 | 2.2000 |
| 6                          | 2.8100 | 2.9200 | 3.2900 | 3.7600 | 2.9400 |
| 7                          | 2.9200 | 3.0600 | 3.4200 | 4.0500 | 4.0000 |
| 8                          | 3.1000 | 3.4400 | 3.8600 | 3.9200 | 4.0500 |
| 9                          | 3.7200 | 3.6600 | 3.9400 | 4.2600 | 4.3300 |
| AGE                        | 1976   | 1977   | 1978   | 1979   | 1980   |
| 1                          | 0.5000 | 0.5300 | 0.5300 | 0.5300 | 0.5500 |
| 2                          | 0.9900 | 1.0700 | 0.9400 | 1.0000 | 0.9400 |
| 3                          | 1.3900 | 1.4400 | 1.5000 | 1.2800 | 1.2100 |
| 4                          | 1.9900 | 2.1700 | 2.0400 | 2.0200 | 1.7300 |
| 5                          | 2.6600 | 2.7300 | 2.7900 | 2.5100 | 2.1700 |
| 6                          | 3.0800 | 3.2100 | 3.1900 | 3.1400 | 2.8200 |
| 7                          | 3.6900 | 4.1500 | 3.3700 | 3.7800 | 3.6000 |
| 8                          | 4.6700 | 4.0000 | 3.6100 | 3.7900 | 3.5600 |
| 9                          | 4.9400 | 4.9900 | 5.1100 | 4.8700 | 3.8700 |
| AGE                        | 1981   | 1982   | 1983   | 1984   | 1985   |
| 1                          | 0.3900 | 0.2200 | 0.3300 | 0.3300 | 0.3300 |
| 2                          | 0.8700 | 0.9700 | 1.0200 | 0.9200 | 0.9900 |
| 3                          | 1.2400 | 1.4500 | 1.3700 | 1.3200 | 1.3900 |
| 4                          | 1.8300 | 1.8800 | 1.8300 | 1.8300 | 1.9800 |
| 5                          | 2.3000 | 2.3700 | 2.2100 | 2.2000 | 2.4600 |
| 6                          | 2.7200 | 2.7600 | 2.6500 | 2.6700 | 2.7200 |
| 7                          | 3.7100 | 3.2400 | 3.2500 | 2.9600 | 3.0600 |
| 8                          | 4.0400 | 3.9600 | 3.3600 | 3.4100 | 3.7200 |
| 9                          | 4.4400 | 4.0900 | 4.2700 | 3.7200 | 3.8000 |
| AGE                        | 1986   | 1987   | 1988   | 1989   | 1990   |
| 1                          | 0.4500 | 0.4300 | 0.4200 | 0.5300 | 0.6400 |
| 2                          | 0.9400 | 0.8300 | 0.9800 | 0.8900 | 0.9700 |
| 3                          | 1.3600 | 1.4300 | 1.3400 | 1.4800 | 1.4800 |
| 4                          | 1.8300 | 2.0000 | 1.6800 | 1.7900 | 1.7800 |
| 5                          | 2.5600 | 2.2500 | 2.0600 | 2.2100 | 2.1200 |
| 6                          | 2.8300 | 2.6300 | 2.4500 | 2.5700 | 2.5500 |
| 7                          | 2.9600 | 3.0200 | 2.9700 | 3.2400 | 2.8100 |
| 8                          | 3.4600 | 3.7700 | 3.4900 | 3.5600 | 2.9900 |
| 9                          | 3.7800 | 4.2900 | 3.9600 | 3.8200 | 4.1600 |

Weight At Age - Input Data

| AGE | 1991   | 1992   | 1993   | 1994   | 1995   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.5810 | 0.5380 | 0.6590 | 0.4470 | 0.4290 |
| 2   | 1.2010 | 1.1750 | 1.1690 | 1.0930 | 0.9670 |
| 3   | 1.3110 | 1.6390 | 1.7280 | 1.6430 | 1.4890 |
| 4   | 1.8170 | 1.7680 | 2.1710 | 2.2090 | 2.0250 |
| 5   | 2.1830 | 2.1860 | 2.1190 | 2.6280 | 2.5420 |
| 6   | 2.6450 | 2.5190 | 2.6280 | 2.7280 | 2.8150 |
| 7   | 2.8520 | 2.9670 | 2.6490 | 2.9020 | 3.2750 |
| 8   | 3.0480 | 3.3650 | 3.1230 | 3.7830 | 3.0910 |
| 9   | 4.3370 | 4.2670 | 4.0140 | 4.5460 | 3.9810 |
| AGE | 1996   | 1997   | 1998   | 1999   | 2000   |
| 1   | 0.4560 | 0.4160 | 0.5110 | 0.6780 | 0.6640 |
| 2   | 1.0980 | 0.9980 | 0.9680 | 1.1010 | 1.1330 |
| 3   | 1.4970 | 1.6900 | 1.4850 | 1.5270 | 1.4640 |
| 4   | 1.8380 | 1.8910 | 1.9170 | 1.8300 | 1.8930 |
| 5   | 2.3250 | 2.2130 | 2.3330 | 2.1110 | 2.2520 |
| 6   | 2.5430 | 2.5470 | 2.6880 | 2.3390 | 2.3720 |
| 7   | 3.4230 | 3.1400 | 3.0270 | 2.6970 | 2.7320 |
| 8   | 3.5160 | 3.3800 | 3.0380 | 2.9730 | 2.9910 |
| 9   | 3.7120 | 3.6550 | 4.0700 | 3.6820 | 3.2980 |
| AGE | 2001   | 2002   | 2003   | 2004   | 2005   |
| 1   | 0.3580 | 0.3050 | 0.2580 | 0.2120 | 0.1802 |
| 2   | 1.1730 | 0.9100 | 0.6470 | 0.3940 | 0.5659 |
| 3   | 1.4590 | 1.3360 | 1.3600 | 1.0010 | 1.0523 |
| 4   | 1.7540 | 1.7350 | 1.6140 | 1.4970 | 1.4530 |
| 5   | 2.1570 | 1.9490 | 1.8550 | 1.6660 | 1.6688 |
| 6   | 2.5260 | 2.4740 | 2.0470 | 1.9530 | 1.8311 |
| 7   | 2.6270 | 3.1270 | 2.5200 | 2.0710 | 2.0312 |
| 8   | 2.7280 | 3.0690 | 3.0900 | 2.4680 | 2.1322 |
| 9   | 3.4110 | 3.3380 | 3.1660 | 2.9140 | 2.6310 |
| AGE | 2006   | 2007   |        |        |        |
| 1   | 0.1936 | 0.1475 |        |        |        |
| 2   | 0.4769 | 0.8781 |        |        |        |
| 3   | 0.9502 | 1.0866 |        |        |        |
| 4   | 1.0638 | 1.2582 |        |        |        |
| 5   | 1.6088 | 1.4819 |        |        |        |
| 6   | 1.7809 | 1.8319 |        |        |        |
| 7   | 1.8856 | 1.9325 |        |        |        |
| 8   | 2.0639 | 2.0155 |        |        |        |
| 9   | 2.3078 | 2.1751 |        |        |        |

JAN-1 Weights at Age - Input Data

| AGE | 1931   | 1932   | 1933   | 1934   | 1935   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.7045 | 0.5993 | 0.4644 | 0.2918 | 0.3467 |
| 2   | 0.6598 | 0.7984 | 0.6835 | 0.6279 | 0.6045 |
| 3   | 0.9501 | 0.9221 | 1.0712 | 0.9082 | 0.9437 |
| 4   | 1.1664 | 1.4655 | 1.2441 | 1.4183 | 1.3446 |
| 5   | 1.4322 | 1.6091 | 1.7744 | 1.5764 | 1.6331 |
| 6   | 1.7215 | 1.9009 | 2.1253 | 1.9106 | 1.8615 |
| 7   | 2.0511 | 2.3468 | 2.3211 | 2.4639 | 2.3241 |
| 8   | 2.4223 | 2.6016 | 2.6639 | 2.6478 | 2.6621 |
| 9   | 3.0300 | 3.2000 | 2.6000 | 2.9800 | 3.4200 |
| AGE | 1936   | 1937   | 1938   | 1939   | 1940   |
| 1   | 0.3905 | 0.3565 | 0.4628 | 0.4562 | 0.4715 |
| 2   | 0.6104 | 0.6661 | 0.6462 | 0.6776 | 0.7122 |
| 3   | 1.0175 | 1.0022 | 1.0917 | 1.0132 | 1.0205 |
| 4   | 1.3796 | 1.3449 | 1.4773 | 1.4989 | 1.3697 |
| 5   | 1.6589 | 1.7397 | 1.8120 | 1.8668 | 1.7512 |
| 6   | 1.9342 | 1.9408 | 2.1123 | 2.3145 | 2.1525 |
| 7   | 2.1571 | 2.4277 | 2.4181 | 2.4735 | 2.6818 |
| 8   | 2.5948 | 2.6904 | 2.7848 | 2.8113 | 2.8716 |
| 9   | 3.3200 | 3.5600 | 3.7100 | 3.4200 | 3.8700 |
| AGE | 1941   | 1942   | 1943   | 1944   | 1945   |
| 1   | 0.4219 | 0.4389 | 0.4192 | 0.5327 | 0.5001 |
| 2   | 0.6651 | 0.6409 | 0.6161 | 0.6450 | 0.7217 |
| 3   | 1.0334 | 0.9532 | 0.8844 | 0.8920 | 0.9960 |
| 4   | 1.4121 | 1.3236 | 1.2824 | 1.1773 | 1.3082 |
| 5   | 1.7243 | 1.6385 | 1.5708 | 1.6353 | 1.6438 |
| 6   | 2.0784 | 1.9484 | 1.7977 | 1.9758 | 2.1052 |



|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 7 | 2.4996 | 2.4695 | 2.1795 | 2.2210 | 2.4928 |
| 8 | 2.9150 | 2.9001 | 2.7382 | 2.6803 | 2.9035 |
| 9 | 3.5200 | 3.3800 | 3.3700 | 3.6800 | 3.3500 |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1946 | 1947 | 1948 | 1949 | 1950 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.4389 | 0.5396 | 0.4389 | 0.4812 | 0.3370 |
| 2 | 0.6726 | 0.6161 | 0.6234 | 0.6161 | 0.6060 |
| 3 | 1.0040 | 0.9471 | 0.8713 | 0.8144 | 0.8838 |
| 4 | 1.4217 | 1.3900 | 1.3308 | 1.2238 | 1.1475 |
| 5 | 1.6950 | 1.8146 | 1.7673 | 1.7285 | 1.6100 |
| 6 | 2.0699 | 2.0782 | 2.1788 | 2.1578 | 2.0846 |
| 7 | 2.5296 | 2.4887 | 2.5196 | 2.5282 | 2.4980 |
| 8 | 2.9704 | 2.8744 | 2.9692 | 2.9339 | 2.9778 |
| 9 | 4.1800 | 3.3200 | 3.5000 | 3.6900 | 3.4200 |

JAN-1 Weights at Age - Input Data

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1951 | 1952 | 1953 | 1954 | 1955 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.4645 | 0.4261 | 0.4648 | 0.3204 | 0.4820 |
| 2 | 0.5486 | 0.6047 | 0.5589 | 0.6508 | 0.6043 |
| 3 | 0.8037 | 0.8112 | 0.8054 | 0.7589 | 0.9119 |
| 4 | 1.2239 | 1.1070 | 1.0576 | 1.0926 | 1.0775 |
| 5 | 1.5430 | 1.5473 | 1.4456 | 1.3316 | 1.4563 |
| 6 | 2.0523 | 1.9934 | 1.8585 | 1.7171 | 1.7046 |
| 7 | 2.5089 | 2.4380 | 2.2938 | 2.1272 | 2.0548 |
| 8 | 2.8436 | 2.9657 | 2.6236 | 2.3998 | 2.3806 |
| 9 | 3.3000 | 3.4900 | 3.3100 | 3.0800 | 2.9600 |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1956 | 1957 | 1958 | 1959 | 1960 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.3043 | 0.4382 | 0.5948 | 0.4656 | 0.5071 |
| 2 | 0.6980 | 0.5797 | 0.6654 | 0.7547 | 0.6735 |
| 3 | 0.9291 | 0.9656 | 0.9466 | 0.9711 | 1.0183 |
| 4 | 1.2208 | 1.2110 | 1.2241 | 1.2744 | 1.3351 |
| 5 | 1.4809 | 1.5629 | 1.5798 | 1.5588 | 1.6685 |
| 6 | 1.8860 | 1.8804 | 1.9956 | 1.9643 | 2.1086 |
| 7 | 2.1768 | 2.2657 | 2.3389 | 2.4047 | 2.5316 |
| 8 | 2.5849 | 2.5944 | 2.6573 | 2.8322 | 2.8945 |
| 9 | 3.6200 | 3.1100 | 3.3900 | 3.5200 | 3.7800 |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1961 | 1962 | 1963 | 1964 | 1965 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.4067 | 0.4254 | 0.4724 | 0.4256 | 0.5170 |
| 2 | 0.7099 | 0.6648 | 0.6854 | 0.6878 | 0.5874 |
| 3 | 0.9482 | 0.9481 | 1.0015 | 0.9871 | 0.9246 |
| 4 | 1.3707 | 1.2510 | 1.2542 | 1.2990 | 1.2296 |
| 5 | 1.7025 | 1.6510 | 1.5391 | 1.5527 | 1.5453 |
| 6 | 2.0831 | 2.0005 | 1.9508 | 1.8376 | 1.8065 |
| 7 | 2.5048 | 2.3627 | 2.2425 | 2.2716 | 2.1313 |
| 8 | 2.9098 | 2.5797 | 2.7402 | 2.4908 | 2.5267 |
| 9 | 3.2400 | 3.2900 | 3.1000 | 2.9700 | 3.1100 |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1966 | 1967 | 1968 | 1969 | 1970 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.5280 | 0.5958 | 0.5131 | 0.3327 | 0.5895 |
| 2 | 0.6507 | 0.6372 | 0.7312 | 0.6784 | 0.8127 |
| 3 | 0.7836 | 0.8328 | 0.8573 | 0.9439 | 0.9755 |
| 4 | 1.1392 | 1.0248 | 1.1198 | 1.3321 | 1.4571 |
| 5 | 1.5149 | 1.3376 | 1.3611 | 1.5199 | 1.9238 |
| 6 | 1.8593 | 1.8668 | 1.7268 | 1.7676 | 2.0451 |
| 7 | 2.1301 | 2.1867 | 2.1808 | 2.3004 | 2.2659 |
| 8 | 2.5468 | 2.4627 | 2.4601 | 2.6338 | 2.8530 |
| 9 | 3.1800 | 3.1000 | 2.8600 | 3.6300 | 3.7500 |

JAN-1 Weights at Age - Input Data

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1971 | 1972 | 1973 | 1974 | 1975 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.5404 | 0.4810 | 0.4514 | 0.6171 | 0.4906 |
| 2 | 0.8552 | 0.8307 | 0.7991 | 0.7975 | 0.8400 |
| 3 | 1.2898 | 1.3387 | 1.2757 | 1.3692 | 1.3145 |
| 4 | 1.4570 | 1.6347 | 1.9251 | 1.9146 | 2.0055 |
| 5 | 2.1477 | 2.0520 | 2.2173 | 2.4552 | 2.2592 |
| 6 | 2.4807 | 2.6417 | 2.8217 | 3.0102 | 2.8845 |
| 7 | 2.6417 | 2.9323 | 3.1601 | 3.6503 | 3.8781 |
| 8 | 2.8281 | 3.1694 | 3.4368 | 3.6615 | 4.0500 |
| 9 | 3.7200 | 3.6600 | 3.9400 | 4.2600 | 4.3300 |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1976 | 1977 | 1978 | 1979 | 1980 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.3418 | 0.3980 | 0.3858 | 0.3980 | 0.4373 |
| 2 | 0.7835 | 0.7314 | 0.7058 | 0.7280 | 0.7058 |

|                                   |        |        |        |        |        |
|-----------------------------------|--------|--------|--------|--------|--------|
| 3                                 | 1.1671 | 1.1940 | 1.2669 | 1.0969 | 1.1000 |
| 4                                 | 1.8010 | 1.7368 | 1.7139 | 1.7407 | 1.4881 |
| 5                                 | 2.4246 | 2.3308 | 2.4605 | 2.2628 | 2.0937 |
| 6                                 | 2.6031 | 2.9221 | 2.9511 | 2.9598 | 2.6605 |
| 7                                 | 3.2937 | 3.5752 | 3.2890 | 3.4725 | 3.3621 |
| 8                                 | 4.3220 | 3.8419 | 3.8706 | 3.5738 | 3.6684 |
| 9                                 | 4.9400 | 4.9900 | 5.1100 | 4.8700 | 3.8700 |
| AGE                               | 1981   | 1982   | 1983   | 1984   | 1985   |
| 1                                 | 0.2473 | 0.1022 | 0.1976 | 0.1905 | 0.1955 |
| 2                                 | 0.6917 | 0.6151 | 0.4737 | 0.5510 | 0.5716 |
| 3                                 | 1.0796 | 1.1232 | 1.1528 | 1.1603 | 1.1308 |
| 4                                 | 1.4881 | 1.5268 | 1.6290 | 1.5834 | 1.6167 |
| 5                                 | 1.9947 | 2.0826 | 2.0383 | 2.0065 | 2.1217 |
| 6                                 | 2.4295 | 2.5195 | 2.5061 | 2.4291 | 2.4462 |
| 7                                 | 3.2345 | 2.9686 | 2.9950 | 2.8007 | 2.8584 |
| 8                                 | 3.8137 | 3.8330 | 3.2995 | 3.3290 | 3.3183 |
| 9                                 | 4.4400 | 4.0900 | 4.2700 | 3.7200 | 3.8000 |
| AGE                               | 1986   | 1987   | 1988   | 1989   | 1990   |
| 1                                 | 0.3313 | 0.2848 | 0.2885 | 0.3918 | 0.4672 |
| 2                                 | 0.5570 | 0.6111 | 0.6492 | 0.6114 | 0.7170 |
| 3                                 | 1.1603 | 1.1594 | 1.0546 | 1.2043 | 1.1477 |
| 4                                 | 1.5949 | 1.6492 | 1.5500 | 1.5487 | 1.6231 |
| 5                                 | 2.2514 | 2.0292 | 2.0298 | 1.9269 | 1.9480 |
| 6                                 | 2.6385 | 2.5948 | 2.3479 | 2.3009 | 2.3739 |
| 7                                 | 2.8375 | 2.9235 | 2.7948 | 2.8174 | 2.6873 |
| 8                                 | 3.2539 | 3.3405 | 3.2465 | 3.2516 | 3.1125 |
| 9                                 | 3.7800 | 4.2900 | 3.9600 | 3.8200 | 4.1600 |
| JAN-1 Weights at Age - Input Data |        |        |        |        |        |
| AGE                               | 1991   | 1992   | 1993   | 1994   | 1995   |
| 1                                 | 0.4086 | 0.3650 | 0.5117 | 0.3039 | 0.2682 |
| 2                                 | 0.8767 | 0.8262 | 0.7930 | 0.8487 | 0.6575 |
| 3                                 | 1.1277 | 1.4030 | 1.4249 | 1.3859 | 1.2757 |
| 4                                 | 1.6399 | 1.5224 | 1.8863 | 1.9538 | 1.8240 |
| 5                                 | 1.9712 | 1.9930 | 1.9356 | 2.3886 | 2.3697 |
| 6                                 | 2.3680 | 2.3450 | 2.3968 | 2.4043 | 2.7199 |
| 7                                 | 2.6968 | 2.8014 | 2.5832 | 2.7616 | 2.9890 |
| 8                                 | 2.9266 | 3.0979 | 3.0440 | 3.1656 | 2.9950 |
| 9                                 | 4.3370 | 4.2670 | 4.0140 | 4.5460 | 3.9810 |
| AGE                               | 1996   | 1997   | 1998   | 1999   | 2000   |
| 1                                 | 0.3082 | 0.2727 | 0.3481 | 0.5245 | 0.4996 |
| 2                                 | 0.6863 | 0.6746 | 0.6346 | 0.7501 | 0.8765 |
| 3                                 | 1.2032 | 1.3622 | 1.2174 | 1.2158 | 1.2696 |
| 4                                 | 1.6543 | 1.6825 | 1.7999 | 1.6485 | 1.7002 |
| 5                                 | 2.1698 | 2.0168 | 2.1004 | 2.0117 | 2.0301 |
| 6                                 | 2.5425 | 2.4335 | 2.4390 | 2.3360 | 2.2377 |
| 7                                 | 3.1042 | 2.8258 | 2.7766 | 2.6925 | 2.5279 |
| 8                                 | 3.3934 | 3.4014 | 3.0886 | 2.9999 | 2.8402 |
| 9                                 | 3.7120 | 3.6550 | 4.0700 | 3.6820 | 3.2980 |
| AGE                               | 2001   | 2002   | 2003   | 2004   | 2005   |
| 1                                 | 0.2245 | 0.2094 | 0.2088 | 0.1298 | 0.1107 |
| 2                                 | 0.8825 | 0.5708 | 0.4442 | 0.3188 | 0.3464 |
| 3                                 | 1.2857 | 1.2519 | 1.1125 | 0.8048 | 0.6439 |
| 4                                 | 1.6025 | 1.5910 | 1.4684 | 1.4269 | 1.2060 |
| 5                                 | 2.0207 | 1.8489 | 1.7940 | 1.6398 | 1.5806 |
| 6                                 | 2.3851 | 2.3101 | 1.9974 | 1.9034 | 1.7466 |
| 7                                 | 2.4962 | 2.8105 | 2.4969 | 2.0590 | 1.9917 |
| 8                                 | 2.7300 | 2.8394 | 3.1084 | 2.4939 | 2.1014 |
| 9                                 | 3.4110 | 3.3380 | 3.1660 | 2.9140 | 2.6310 |
| AGE                               | 2006   | 2007   | 2008   |        |        |
| 1                                 | 0.0906 | 0.0231 | 0.1126 |        |        |
| 2                                 | 0.2931 | 0.4139 | 0.3633 |        |        |
| 3                                 | 0.7333 | 0.7198 | 0.8029 |        |        |
| 4                                 | 1.0580 | 1.0934 | 1.2505 |        |        |
| 5                                 | 1.5289 | 1.2553 | 1.5597 |        |        |
| 6                                 | 1.7239 | 1.7166 | 1.8176 |        |        |
| 7                                 | 1.8581 | 1.8551 | 2.0522 |        |        |
| 8                                 | 2.0474 | 1.9495 | 2.3401 |        |        |
| 9                                 | 2.3078 | 2.1750 | 2.6388 |        |        |

SSB Weight At Age - Input Data

| AGE | 1931   | 1932   | 1933   | 1934   | 1935   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.7045 | 0.5993 | 0.4644 | 0.2918 | 0.3467 |
| 2   | 0.6598 | 0.7984 | 0.6835 | 0.6279 | 0.6045 |
| 3   | 0.9501 | 0.9221 | 1.0712 | 0.9082 | 0.9437 |
| 4   | 1.1664 | 1.4655 | 1.2441 | 1.4183 | 1.3446 |
| 5   | 1.4322 | 1.6091 | 1.7744 | 1.5764 | 1.6331 |
| 6   | 1.7215 | 1.9009 | 2.1253 | 1.9106 | 1.8615 |
| 7   | 2.0511 | 2.3468 | 2.3211 | 2.4639 | 2.3241 |
| 8   | 2.4223 | 2.6016 | 2.6639 | 2.6478 | 2.6621 |
| 9   | 3.0300 | 3.2000 | 2.6000 | 2.9800 | 3.4200 |
| AGE | 1936   | 1937   | 1938   | 1939   | 1940   |
| 1   | 0.3905 | 0.3565 | 0.4628 | 0.4562 | 0.4715 |
| 2   | 0.6104 | 0.6661 | 0.6462 | 0.6776 | 0.7122 |
| 3   | 1.0175 | 1.0022 | 1.0917 | 1.0132 | 1.0205 |
| 4   | 1.3796 | 1.3449 | 1.4773 | 1.4989 | 1.3697 |
| 5   | 1.6589 | 1.7397 | 1.8120 | 1.8668 | 1.7512 |
| 6   | 1.9342 | 1.9408 | 2.1123 | 2.3145 | 2.1525 |
| 7   | 2.1571 | 2.4277 | 2.4181 | 2.4735 | 2.6818 |
| 8   | 2.5948 | 2.6904 | 2.7848 | 2.8113 | 2.8716 |
| 9   | 3.3200 | 3.5600 | 3.7100 | 3.4200 | 3.8700 |
| AGE | 1941   | 1942   | 1943   | 1944   | 1945   |
| 1   | 0.4219 | 0.4389 | 0.4192 | 0.5327 | 0.5001 |
| 2   | 0.6651 | 0.6409 | 0.6161 | 0.6450 | 0.7217 |
| 3   | 1.0334 | 0.9532 | 0.8844 | 0.8920 | 0.9960 |
| 4   | 1.4121 | 1.3236 | 1.2824 | 1.1773 | 1.3082 |
| 5   | 1.7243 | 1.6385 | 1.5708 | 1.6353 | 1.6438 |
| 6   | 2.0784 | 1.9484 | 1.7977 | 1.9758 | 2.1052 |
| 7   | 2.4996 | 2.4695 | 2.1795 | 2.2210 | 2.4928 |
| 8   | 2.9150 | 2.9001 | 2.7382 | 2.6803 | 2.9035 |
| 9   | 3.5200 | 3.3800 | 3.3700 | 3.6800 | 3.3500 |
| AGE | 1946   | 1947   | 1948   | 1949   | 1950   |
| 1   | 0.4389 | 0.5396 | 0.4389 | 0.4812 | 0.3370 |
| 2   | 0.6726 | 0.6161 | 0.6234 | 0.6161 | 0.6060 |
| 3   | 1.0040 | 0.9471 | 0.8713 | 0.8144 | 0.8838 |
| 4   | 1.4217 | 1.3900 | 1.3308 | 1.2238 | 1.1475 |
| 5   | 1.6950 | 1.8146 | 1.7673 | 1.7285 | 1.6100 |
| 6   | 2.0699 | 2.0782 | 2.1788 | 2.1578 | 2.0846 |
| 7   | 2.5296 | 2.4887 | 2.5196 | 2.5282 | 2.4980 |
| 8   | 2.9704 | 2.8744 | 2.9692 | 2.9339 | 2.9778 |
| 9   | 4.1800 | 3.3200 | 3.5000 | 3.6900 | 3.4200 |

SSB Weight At Age - Input Data

| AGE | 1951   | 1952   | 1953   | 1954   | 1955   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.4645 | 0.4261 | 0.4648 | 0.3204 | 0.4820 |
| 2   | 0.5486 | 0.6047 | 0.5589 | 0.6508 | 0.6043 |
| 3   | 0.8037 | 0.8112 | 0.8054 | 0.7589 | 0.9119 |
| 4   | 1.2239 | 1.1070 | 1.0576 | 1.0926 | 1.0775 |
| 5   | 1.5430 | 1.5473 | 1.4456 | 1.3316 | 1.4563 |
| 6   | 2.0523 | 1.9934 | 1.8585 | 1.7171 | 1.7046 |
| 7   | 2.5089 | 2.4380 | 2.2938 | 2.1272 | 2.0548 |
| 8   | 2.8436 | 2.9657 | 2.6236 | 2.3998 | 2.3806 |
| 9   | 3.3000 | 3.4900 | 3.3100 | 3.0800 | 2.9600 |
| AGE | 1956   | 1957   | 1958   | 1959   | 1960   |
| 1   | 0.3043 | 0.4382 | 0.5948 | 0.4656 | 0.5071 |
| 2   | 0.6980 | 0.5797 | 0.6654 | 0.7547 | 0.6735 |
| 3   | 0.9291 | 0.9656 | 0.9466 | 0.9711 | 1.0183 |
| 4   | 1.2208 | 1.2110 | 1.2241 | 1.2744 | 1.3351 |
| 5   | 1.4809 | 1.5629 | 1.5798 | 1.5588 | 1.6685 |
| 6   | 1.8860 | 1.8804 | 1.9956 | 1.9643 | 2.1086 |
| 7   | 2.1768 | 2.2657 | 2.3389 | 2.4047 | 2.5316 |
| 8   | 2.5849 | 2.5944 | 2.6573 | 2.8322 | 2.8945 |
| 9   | 3.6200 | 3.1100 | 3.3900 | 3.5200 | 3.7800 |
| AGE | 1961   | 1962   | 1963   | 1964   | 1965   |
| 1   | 0.4067 | 0.4254 | 0.4724 | 0.4256 | 0.5170 |
| 2   | 0.7099 | 0.6648 | 0.6854 | 0.6878 | 0.5874 |
| 3   | 0.9482 | 0.9481 | 1.0015 | 0.9871 | 0.9246 |
| 4   | 1.3707 | 1.2510 | 1.2542 | 1.2990 | 1.2296 |
| 5   | 1.7025 | 1.6510 | 1.5391 | 1.5527 | 1.5453 |
| 6   | 2.0831 | 2.0005 | 1.9508 | 1.8376 | 1.8065 |

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 7 | 2.5048 | 2.3627 | 2.2425 | 2.2716 | 2.1313 |
| 8 | 2.9098 | 2.5797 | 2.7402 | 2.4908 | 2.5267 |
| 9 | 3.2400 | 3.2900 | 3.1000 | 2.9700 | 3.1100 |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1966 | 1967 | 1968 | 1969 | 1970 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.5280 | 0.5958 | 0.5131 | 0.3327 | 0.5895 |
| 2 | 0.6507 | 0.6372 | 0.7312 | 0.6784 | 0.8127 |
| 3 | 0.7836 | 0.8328 | 0.8573 | 0.9439 | 0.9755 |
| 4 | 1.1392 | 1.0248 | 1.1198 | 1.3321 | 1.4571 |
| 5 | 1.5149 | 1.3376 | 1.3611 | 1.5199 | 1.9238 |
| 6 | 1.8593 | 1.8668 | 1.7268 | 1.7676 | 2.0451 |
| 7 | 2.1301 | 2.1867 | 2.1808 | 2.3004 | 2.2659 |
| 8 | 2.5468 | 2.4627 | 2.4601 | 2.6338 | 2.8530 |
| 9 | 3.1800 | 3.1000 | 2.8600 | 3.6300 | 3.7500 |

SSB Weight At Age - Input Data

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1971 | 1972 | 1973 | 1974 | 1975 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.5404 | 0.4810 | 0.4514 | 0.6171 | 0.4906 |
| 2 | 0.8552 | 0.8307 | 0.7991 | 0.7975 | 0.8400 |
| 3 | 1.2898 | 1.3387 | 1.2757 | 1.3692 | 1.3145 |
| 4 | 1.4570 | 1.6347 | 1.9251 | 1.9146 | 2.0055 |
| 5 | 2.1477 | 2.0520 | 2.2173 | 2.4552 | 2.2592 |
| 6 | 2.4807 | 2.6417 | 2.8217 | 3.0102 | 2.8845 |
| 7 | 2.6417 | 2.9323 | 3.1601 | 3.6503 | 3.8781 |
| 8 | 2.8281 | 3.1694 | 3.4368 | 3.6615 | 4.0500 |
| 9 | 3.7200 | 3.6600 | 3.9400 | 4.2600 | 4.3300 |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1976 | 1977 | 1978 | 1979 | 1980 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.3418 | 0.3980 | 0.3858 | 0.3980 | 0.4373 |
| 2 | 0.7835 | 0.7314 | 0.7058 | 0.7280 | 0.7058 |
| 3 | 1.1671 | 1.1940 | 1.2669 | 1.0969 | 1.1000 |
| 4 | 1.8010 | 1.7368 | 1.7139 | 1.7407 | 1.4881 |
| 5 | 2.4246 | 2.3308 | 2.4605 | 2.2628 | 2.0937 |
| 6 | 2.6031 | 2.9221 | 2.9511 | 2.9598 | 2.6605 |
| 7 | 3.2937 | 3.5752 | 3.2890 | 3.4725 | 3.3621 |
| 8 | 4.3220 | 3.8419 | 3.8706 | 3.5738 | 3.6684 |
| 9 | 4.9400 | 4.9900 | 5.1100 | 4.8700 | 3.8700 |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1981 | 1982 | 1983 | 1984 | 1985 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.2473 | 0.1022 | 0.1976 | 0.1905 | 0.1955 |
| 2 | 0.6917 | 0.6151 | 0.4737 | 0.5510 | 0.5716 |
| 3 | 1.0796 | 1.1232 | 1.1528 | 1.1603 | 1.1308 |
| 4 | 1.4881 | 1.5268 | 1.6290 | 1.5834 | 1.6167 |
| 5 | 1.9947 | 2.0826 | 2.0383 | 2.0065 | 2.1217 |
| 6 | 2.4295 | 2.5195 | 2.5061 | 2.4291 | 2.4462 |
| 7 | 3.2345 | 2.9686 | 2.9950 | 2.8007 | 2.8584 |
| 8 | 3.8137 | 3.8330 | 3.2995 | 3.3290 | 3.3183 |
| 9 | 4.4400 | 4.0900 | 4.2700 | 3.7200 | 3.8000 |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1986 | 1987 | 1988 | 1989 | 1990 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.3313 | 0.2848 | 0.2885 | 0.3918 | 0.4672 |
| 2 | 0.5570 | 0.6111 | 0.6492 | 0.6114 | 0.7170 |
| 3 | 1.1603 | 1.1594 | 1.0546 | 1.2043 | 1.1477 |
| 4 | 1.5949 | 1.6492 | 1.5500 | 1.5487 | 1.6231 |
| 5 | 2.2514 | 2.0292 | 2.0298 | 1.9269 | 1.9480 |
| 6 | 2.6385 | 2.5948 | 2.3479 | 2.3009 | 2.3739 |
| 7 | 2.8375 | 2.9235 | 2.7948 | 2.8174 | 2.6873 |
| 8 | 3.2539 | 3.3405 | 3.2465 | 3.2516 | 3.1125 |
| 9 | 3.7800 | 4.2900 | 3.9600 | 3.8200 | 4.1600 |

SSB Weight At Age - Input Data

| AGE | 1991   | 1992   | 1993   | 1994   | 1995   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.4086 | 0.3650 | 0.5117 | 0.3039 | 0.2682 |
| 2   | 0.8767 | 0.8262 | 0.7930 | 0.8487 | 0.6575 |
| 3   | 1.1277 | 1.4030 | 1.4249 | 1.3859 | 1.2757 |
| 4   | 1.6399 | 1.5224 | 1.8863 | 1.9538 | 1.8240 |
| 5   | 1.9712 | 1.9930 | 1.9356 | 2.3886 | 2.3697 |
| 6   | 2.3680 | 2.3450 | 2.3968 | 2.4043 | 2.7199 |
| 7   | 2.6968 | 2.8014 | 2.5832 | 2.7616 | 2.9890 |
| 8   | 2.9266 | 3.0979 | 3.0440 | 3.1656 | 2.9950 |
| 9   | 4.3370 | 4.2670 | 4.0140 | 4.5460 | 3.9810 |
| AGE | 1996   | 1997   | 1998   | 1999   | 2000   |
| 1   | 0.3082 | 0.2727 | 0.3481 | 0.5245 | 0.4996 |
| 2   | 0.6863 | 0.6746 | 0.6346 | 0.7501 | 0.8765 |
| 3   | 1.2032 | 1.3622 | 1.2174 | 1.2158 | 1.2696 |
| 4   | 1.6543 | 1.6825 | 1.7999 | 1.6485 | 1.7002 |
| 5   | 2.1698 | 2.0168 | 2.1004 | 2.0117 | 2.0301 |
| 6   | 2.5425 | 2.4335 | 2.4390 | 2.3360 | 2.2377 |
| 7   | 3.1042 | 2.8258 | 2.7766 | 2.6925 | 2.5279 |
| 8   | 3.3934 | 3.4014 | 3.0886 | 2.9999 | 2.8402 |
| 9   | 3.7120 | 3.6550 | 4.0700 | 3.6820 | 3.2980 |
| AGE | 2001   | 2002   | 2003   | 2004   | 2005   |
| 1   | 0.2245 | 0.2094 | 0.2088 | 0.1298 | 0.1107 |
| 2   | 0.8825 | 0.5708 | 0.4442 | 0.3188 | 0.3464 |
| 3   | 1.2857 | 1.2519 | 1.1125 | 0.8048 | 0.6439 |
| 4   | 1.6025 | 1.5910 | 1.4684 | 1.4269 | 1.2060 |
| 5   | 2.0207 | 1.8489 | 1.7940 | 1.6398 | 1.5806 |
| 6   | 2.3851 | 2.3101 | 1.9974 | 1.9034 | 1.7466 |
| 7   | 2.4962 | 2.8105 | 2.4969 | 2.0590 | 1.9917 |
| 8   | 2.7300 | 2.8394 | 3.1084 | 2.4939 | 2.1014 |
| 9   | 3.4110 | 3.3380 | 3.1660 | 2.9140 | 2.6310 |
| AGE | 2006   | 2007   |        |        |        |
| 1   | 0.0906 | 0.0231 |        |        |        |
| 2   | 0.2931 | 0.4139 |        |        |        |
| 3   | 0.7333 | 0.7198 |        |        |        |
| 4   | 1.0580 | 1.0934 |        |        |        |
| 5   | 1.5289 | 1.2553 |        |        |        |
| 6   | 1.7239 | 1.7166 |        |        |        |
| 7   | 1.8581 | 1.8551 |        |        |        |
| 8   | 2.0474 | 1.9495 |        |        |        |
| 9   | 2.3078 | 2.1750 |        |        |        |

Natural Mortality - Input Data

| AGE | 1931   | 1932   | 1933   | 1934   | 1935   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 2   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 3   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 4   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 5   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 6   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 7   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 8   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 9   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| AGE | 1936   | 1937   | 1938   | 1939   | 1940   |
| 1   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 2   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 3   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 4   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 5   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 6   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 7   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 8   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 9   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| AGE | 1941   | 1942   | 1943   | 1944   | 1945   |
| 1   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 2   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 3   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 4   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 5   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 6   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 7 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 8 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 9 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1946 | 1947 | 1948 | 1949 | 1950 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 2 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 3 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 4 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 5 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 6 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 7 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 8 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 9 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |

Natural Mortality - Input Data

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1951 | 1952 | 1953 | 1954 | 1955 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 2 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 3 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 4 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 5 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 6 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 7 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 8 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 9 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1956 | 1957 | 1958 | 1959 | 1960 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 2 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 3 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 4 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 5 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 6 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 7 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 8 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 9 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1961 | 1962 | 1963 | 1964 | 1965 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 2 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 3 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 4 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 5 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 6 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 7 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 8 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 9 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1966 | 1967 | 1968 | 1969 | 1970 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 2 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 3 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 4 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 5 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 6 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 7 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 8 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 9 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |

Natural Mortality - Input Data

| AGE | 1971   | 1972   | 1973   | 1974   | 1975   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 2   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 3   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 4   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 5   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 6   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 7   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 8   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 9   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| AGE | 1976   | 1977   | 1978   | 1979   | 1980   |
| 1   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 2   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 3   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 4   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 5   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 6   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 7   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 8   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 9   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| AGE | 1981   | 1982   | 1983   | 1984   | 1985   |
| 1   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 2   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 3   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 4   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 5   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 6   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 7   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 8   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 9   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| AGE | 1986   | 1987   | 1988   | 1989   | 1990   |
| 1   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 2   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 3   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 4   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 5   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 6   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 7   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 8   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 9   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |

Natural Mortality - Input Data

| AGE | 1991   | 1992   | 1993   | 1994   | 1995   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 2   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 3   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 4   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 5   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 6   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 7   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 8   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 9   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| AGE | 1996   | 1997   | 1998   | 1999   | 2000   |
| 1   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 2   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 3   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 4   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 5   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 6   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 7   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 8   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 9   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| AGE | 2001   | 2002   | 2003   | 2004   | 2005   |
| 1   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 2   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 3   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 4   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 5   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 6   | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 7 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 8 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 9 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |

| AGE | 2006   | 2007   |
|-----|--------|--------|
| 1   | 0.2000 | 0.2000 |
| 2   | 0.2000 | 0.2000 |
| 3   | 0.2000 | 0.2000 |
| 4   | 0.2000 | 0.2000 |
| 5   | 0.2000 | 0.2000 |
| 6   | 0.2000 | 0.2000 |
| 7   | 0.2000 | 0.2000 |
| 8   | 0.2000 | 0.2000 |
| 9   | 0.2000 | 0.2000 |

Proportion of Natural Mortality Before Spawning = 0.2500  
 Proportion of Fishing Mortality Before Spawning = 0.2500

Maturity - Input Data

| AGE | 1931   | 1932   | 1933   | 1934   | 1935   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0400 | 0.0400 | 0.0400 | 0.0400 | 0.0400 |
| 2   | 0.3800 | 0.3800 | 0.3800 | 0.3800 | 0.3800 |
| 3   | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| 4   | 0.9900 | 0.9900 | 0.9900 | 0.9900 | 0.9900 |
| 5   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 6   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| AGE | 1936   | 1937   | 1938   | 1939   | 1940   |
| 1   | 0.0400 | 0.0400 | 0.0400 | 0.0400 | 0.0400 |
| 2   | 0.3800 | 0.3800 | 0.3800 | 0.3800 | 0.3800 |
| 3   | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| 4   | 0.9900 | 0.9900 | 0.9900 | 0.9900 | 0.9900 |
| 5   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 6   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| AGE | 1941   | 1942   | 1943   | 1944   | 1945   |
| 1   | 0.0400 | 0.0400 | 0.0400 | 0.0400 | 0.0400 |
| 2   | 0.3800 | 0.3800 | 0.3800 | 0.3800 | 0.3800 |
| 3   | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| 4   | 0.9900 | 0.9900 | 0.9900 | 0.9900 | 0.9900 |
| 5   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 6   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| AGE | 1946   | 1947   | 1948   | 1949   | 1950   |
| 1   | 0.0400 | 0.0400 | 0.0400 | 0.0400 | 0.0400 |
| 2   | 0.3800 | 0.3800 | 0.3800 | 0.3800 | 0.3800 |
| 3   | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| 4   | 0.9900 | 0.9900 | 0.9900 | 0.9900 | 0.9900 |
| 5   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 6   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |



Maturity - Input Data

| AGE | 1951   | 1952   | 1953   | 1954   | 1955   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0400 | 0.0400 | 0.0400 | 0.0400 | 0.0400 |
| 2   | 0.3800 | 0.3800 | 0.3800 | 0.3800 | 0.3800 |
| 3   | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| 4   | 0.9900 | 0.9900 | 0.9900 | 0.9900 | 0.9900 |
| 5   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 6   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| AGE | 1956   | 1957   | 1958   | 1959   | 1960   |
| 1   | 0.0400 | 0.0400 | 0.0400 | 0.0400 | 0.0400 |
| 2   | 0.3800 | 0.3800 | 0.3800 | 0.3800 | 0.3800 |
| 3   | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| 4   | 0.9900 | 0.9900 | 0.9900 | 0.9900 | 0.9900 |
| 5   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 6   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| AGE | 1961   | 1962   | 1963   | 1964   | 1965   |
| 1   | 0.0400 | 0.0400 | 0.0630 | 0.0630 | 0.0630 |
| 2   | 0.3800 | 0.3800 | 0.4690 | 0.4690 | 0.4690 |
| 3   | 0.8700 | 0.8700 | 0.9200 | 0.9200 | 0.9200 |
| 4   | 0.9900 | 0.9900 | 0.9930 | 0.9930 | 0.9930 |
| 5   | 1.0000 | 1.0000 | 0.9990 | 0.9990 | 0.9990 |
| 6   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| AGE | 1966   | 1967   | 1968   | 1969   | 1970   |
| 1   | 0.0630 | 0.0630 | 0.0630 | 0.0630 | 0.0630 |
| 2   | 0.4690 | 0.4690 | 0.4690 | 0.4690 | 0.4690 |
| 3   | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| 4   | 0.9930 | 0.9930 | 0.9930 | 0.9930 | 0.9930 |
| 5   | 0.9990 | 0.9990 | 0.9990 | 0.9990 | 0.9990 |
| 6   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

Maturity - Input Data

| AGE | 1971   | 1972   | 1973   | 1974   | 1975   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0630 | 0.0630 | 0.0630 | 0.0630 | 0.0630 |
| 2   | 0.4690 | 0.4690 | 0.4690 | 0.4690 | 0.4690 |
| 3   | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| 4   | 0.9930 | 0.9930 | 0.9930 | 0.9930 | 0.9930 |
| 5   | 0.9990 | 0.9990 | 0.9990 | 0.9990 | 0.9990 |
| 6   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| AGE | 1976   | 1977   | 1978   | 1979   | 1980   |
| 1   | 0.0630 | 0.0630 | 0.0630 | 0.0630 | 0.0630 |
| 2   | 0.4690 | 0.4690 | 0.4690 | 0.4690 | 0.4690 |
| 3   | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| 4   | 0.9930 | 0.9930 | 0.9930 | 0.9930 | 0.9930 |
| 5   | 0.9990 | 0.9990 | 0.9990 | 0.9990 | 0.9990 |
| 6   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| AGE | 1981   | 1982   | 1983   | 1984   | 1985   |
| 1   | 0.0630 | 0.0630 | 0.0630 | 0.0630 | 0.0630 |
| 2   | 0.4690 | 0.4690 | 0.4690 | 0.4690 | 0.4690 |
| 3   | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| 4   | 0.9930 | 0.9930 | 0.9930 | 0.9930 | 0.9930 |
| 5   | 0.9990 | 0.9990 | 0.9990 | 0.9990 | 0.9990 |
| 6   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

|     |        |        |        |        |        |
|-----|--------|--------|--------|--------|--------|
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| AGE | 1986   | 1987   | 1988   | 1989   | 1990   |
| 1   | 0.0630 | 0.0630 | 0.0630 | 0.0630 | 0.0630 |
| 2   | 0.4690 | 0.4690 | 0.4690 | 0.4690 | 0.4690 |
| 3   | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| 4   | 0.9930 | 0.9930 | 0.9930 | 0.9930 | 0.9930 |
| 5   | 0.9990 | 0.9990 | 0.9990 | 0.9990 | 0.9990 |
| 6   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

Maturity - Input Data

|     |        |        |        |        |        |
|-----|--------|--------|--------|--------|--------|
| AGE | 1991   | 1992   | 1993   | 1994   | 1995   |
| 1   | 0.0630 | 0.0630 | 0.0630 | 0.0630 | 0.0630 |
| 2   | 0.4690 | 0.4690 | 0.4690 | 0.4690 | 0.4690 |
| 3   | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| 4   | 0.9930 | 0.9930 | 0.9930 | 0.9930 | 0.9930 |
| 5   | 0.9990 | 0.9990 | 0.9990 | 0.9990 | 0.9990 |
| 6   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

|     |        |        |        |        |        |
|-----|--------|--------|--------|--------|--------|
| AGE | 1996   | 1997   | 1998   | 1999   | 2000   |
| 1   | 0.0630 | 0.0630 | 0.0630 | 0.0630 | 0.0630 |
| 2   | 0.4690 | 0.4690 | 0.4690 | 0.4690 | 0.4690 |
| 3   | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| 4   | 0.9930 | 0.9930 | 0.9930 | 0.9930 | 0.9930 |
| 5   | 0.9990 | 0.9990 | 0.9990 | 0.9990 | 0.9990 |
| 6   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

|     |        |        |        |        |        |
|-----|--------|--------|--------|--------|--------|
| AGE | 2001   | 2002   | 2003   | 2004   | 2005   |
| 1   | 0.0630 | 0.0630 | 0.0630 | 0.0630 | 0.0630 |
| 2   | 0.4690 | 0.4690 | 0.4690 | 0.4690 | 0.4690 |
| 3   | 0.9200 | 0.9200 | 0.9200 | 0.9200 | 0.9200 |
| 4   | 0.9930 | 0.9930 | 0.9930 | 0.9930 | 0.9930 |
| 5   | 0.9990 | 0.9990 | 0.9990 | 0.9990 | 0.9990 |
| 6   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

|     |        |        |
|-----|--------|--------|
| AGE | 2006   | 2007   |
| 1   | 0.0630 | 0.0630 |
| 2   | 0.4690 | 0.4690 |
| 3   | 0.9200 | 0.9200 |
| 4   | 0.9930 | 0.9930 |
| 5   | 0.9990 | 0.9990 |
| 6   | 1.0000 | 1.0000 |
| 7   | 1.0000 | 1.0000 |
| 8   | 1.0000 | 1.0000 |
| 9   | 1.0000 | 1.0000 |

Input Partial Recruitment

AGE

|   |        |
|---|--------|
| 1 | 0.0010 |
| 2 | 0.4100 |
| 3 | 0.8400 |
| 4 | 1.0000 |
| 5 | 1.0000 |
| 6 | 1.0000 |
| 7 | 1.0000 |
| 8 | 1.0000 |

Input F-Plus Ratio

YEAR

|      |        |
|------|--------|
| 1931 | 1.0000 |
| 1932 | 1.0000 |
| 1933 | 1.0000 |
| 1934 | 1.0000 |
| 1935 | 1.0000 |
| 1936 | 1.0000 |
| 1937 | 1.0000 |
| 1938 | 1.0000 |
| 1939 | 1.0000 |
| 1940 | 1.0000 |
| 1941 | 1.0000 |
| 1942 | 1.0000 |
| 1943 | 1.0000 |
| 1944 | 1.0000 |
| 1945 | 1.0000 |
| 1946 | 1.0000 |
| 1947 | 1.0000 |
| 1948 | 1.0000 |
| 1949 | 1.0000 |
| 1950 | 1.0000 |
| 1951 | 1.0000 |
| 1952 | 1.0000 |
| 1953 | 1.0000 |
| 1954 | 1.0000 |
| 1955 | 1.0000 |
| 1956 | 1.0000 |
| 1957 | 1.0000 |
| 1958 | 1.0000 |
| 1959 | 1.0000 |
| 1960 | 1.0000 |
| 1961 | 1.0000 |
| 1962 | 1.0000 |
| 1963 | 1.0000 |
| 1964 | 1.0000 |
| 1965 | 1.0000 |
| 1966 | 1.0000 |
| 1967 | 1.0000 |
| 1968 | 1.0000 |
| 1969 | 1.0000 |
| 1970 | 1.0000 |
| 1971 | 1.0000 |
| 1972 | 1.0000 |
| 1973 | 1.0000 |
| 1974 | 1.0000 |
| 1975 | 1.0000 |
| 1976 | 1.0000 |
| 1977 | 1.0000 |
| 1978 | 1.0000 |
| 1979 | 1.0000 |
| 1980 | 1.0000 |
| 1981 | 1.0000 |
| 1982 | 1.0000 |
| 1983 | 1.0000 |
| 1984 | 1.0000 |
| 1985 | 1.0000 |
| 1986 | 1.0000 |
| 1987 | 1.0000 |
| 1988 | 1.0000 |
| 1989 | 1.0000 |
| 1990 | 1.0000 |
| 1991 | 1.0000 |
| 1992 | 1.0000 |
| 1993 | 1.0000 |
| 1994 | 1.0000 |
| 1995 | 1.0000 |
| 1996 | 1.0000 |
| 1997 | 1.0000 |
| 1998 | 1.0000 |
| 1999 | 1.0000 |
| 2000 | 1.0000 |
| 2001 | 1.0000 |
| 2002 | 1.0000 |
| 2003 | 1.0000 |
| 2004 | 1.0000 |
| 2005 | 1.0000 |
| 2006 | 1.0000 |
| 2007 | 1.0000 |

SURVEY - INPUT DATA

| INDEX      | 1           | 2           | 3          | 4           | 5          |
|------------|-------------|-------------|------------|-------------|------------|
| SURVEY TAG | US_Sp       | US_Sp       | US_Sp      | US_Sp       | US_Sp      |
| AGE        | 1           | 2           | 3          | 4           | 5          |
| TIME       | JAN-1       | JAN-1       | JAN-1      | JAN-1       | JAN-1      |
| TYPE       | NUMBERS     | NUMBERS     | NUMBERS    | NUMBERS     | NUMBERS    |
| RETRO FLAG | 1           | 1           | 1          | 1           | 1          |
| 1931       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1932       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1933       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1934       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1935       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1936       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1937       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1938       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1939       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1940       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1941       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1942       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1943       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1944       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1945       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1946       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1947       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1948       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1949       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1950       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1951       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1952       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1953       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1954       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1955       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1956       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1957       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1958       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1959       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1960       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1961       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1962       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1963       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1964       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1965       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1966       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1967       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1968       | 1298.2857   | 9185.3714   | 1493.0286  | 2272.0000   | 21811.2000 |
| 1969       | 0.0000      | 227.2000    | 1882.5143  | 811.4286    | 1363.2000  |
| 1970       | 2174.6286   | 811.4286    | 0.0000     | 1071.0857   | 1493.0286  |
| 1971       | 0.0000      | 3765.0286   | 811.4286   | 0.0000      | 389.4857   |
| 1972       | 13047.7714  | 292.1143    | 1979.8857  | 389.4857    | 97.3714    |
| 1973       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1974       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1975       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1976       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1977       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1978       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1979       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1980       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1981       | 0.0000      | 0.0000      | 0.0000     | 0.0000      | 0.0000     |
| 1982       | 2466.7429   | 4965.9429   | 3050.9714  | 13210.0571  | 1363.2000  |
| 1983       | 1395.6571   | 1785.1429   | 1882.5143  | 714.0571    | 7822.1714  |
| 1984       | 6783.5429   | 3829.9429   | 2077.2571  | 2044.8000   | 1882.5143  |
| 1985       | 0.0000      | 16098.7429  | 2466.7429  | 1298.2857   | 2823.7714  |
| 1986       | 8081.8286   | 584.2286    | 6686.1714  | 778.9714    | 357.0286   |
| 1987       | 0.0000      | 11749.4857  | 194.7429   | 2629.0286   | 259.6571   |
| 1988       | 5030.8571   | 129.8286    | 3213.2571  | 421.9429    | 1038.6286  |
| 1989       | 64.9143     | 11327.5429  | 1460.5714  | 2304.4571   | 454.4000   |
| 1990       | 2791.3143   | 0.0000      | 18565.4857 | 1071.0857   | 1882.5143  |
| 1991       | 1752.6857   | 3472.9143   | 778.9714   | 6004.5714   | 292.1143   |
| 1992       | 1298.2857   | 584.2286    | 357.0286   | 227.2000    | 1071.0857  |
| 1993       | 3797.4857   | 2109.7143   | 584.2286   | 454.4000    | 389.4857   |
| 1994       | 2269.0789   | 8707.6023   | 3254.1531  | 481.0149    | 330.4137   |
| 1995       | 1627.0766   | 4172.0411   | 7528.1097  | 2969.1794   | 536.1920   |
| 1996       | 3524.8457   | 14907.5657  | 28744.0457 | 16893.9429  | 8497.2800  |
| 1997       | 5825.7326   | 3319.3920   | 10884.5029 | 11870.8754  | 6521.9383  |
| 1998       | 2672.8457   | 9581.9977   | 4048.7040  | 3437.2114   | 2773.4629  |
| 1999       | 33135.4971  | 6581.3349   | 6950.3726  | 2327.5017   | 2085.0469  |
| 2000       | 5937.0606   | 7692.3429   | 13322.3589 | 6521.2891   | 3604.0411  |
| 2001       | 32501.6091  | 2789.3669   | 7910.1303  | 2707.2503   | 976.6354   |
| 2002       | 592.9920    | 62468.6400  | 21806.6560 | 10459.3143  | 3545.9429  |
| 2003       | 32.4571     | 811.4286    | 17689.1429 | 3927.3143   | 15741.7143 |
| 2004       | 363974.4000 | 6004.5714   | 3894.8571  | 29406.1714  | 7075.6571  |
| 2005       | 2596.5714   | 173126.4000 | 519.3143   | 1233.3714   | 10873.1429 |
| 2006       | 6532.3246   | 1850.0571   | 93249.3714 | 1643.9543   | 2058.1074  |
| 2007       | 2788.7177   | 22743.6937  | 5937.0606  | 146686.8114 | 1113.2800  |
| 2008       | 5978.6057   | 2841.6229   | 8373.9429  | 712.1097    | 65850.0251 |

SURVEY - INPUT DATA

| INDEX      | 6          | 7         | 8         | 9           | 10          |
|------------|------------|-----------|-----------|-------------|-------------|
| SURVEY TAG | US_Sp      | US_Sp     | US_Sp     | US_S41      | US_S41      |
| AGE        | 6          | 7         | 8         | 1           | 2           |
| TIME       | JAN-1      | JAN-1     | JAN-1     | JAN-1       | JAN-1       |
| TYPE       | NUMBERS    | NUMBERS   | NUMBERS   | NUMBERS     | NUMBERS     |
| RETRO FLAG | 1          | 1         | 1         | 1           | 1           |
| 1931       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1932       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1933       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1934       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1935       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1936       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1937       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1938       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1939       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1940       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1941       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1942       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1943       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1944       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1945       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1946       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1947       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1948       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1949       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1950       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1951       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1952       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1953       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1954       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1955       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1956       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1957       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1958       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1959       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1960       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1961       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1962       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1963       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1964       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1965       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1966       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1967       | 0.0000     | 0.0000    | 0.0000    | 0.0000      | 0.0000      |
| 1968       | 5452.8000  | 811.4286  | 1460.5714 | 0.0000      | 0.0000      |
| 1969       | 13729.3714 | 3343.0857 | 908.8000  | 0.0000      | 0.0000      |
| 1970       | 1493.0286  | 6491.4286 | 3180.8000 | 0.0000      | 0.0000      |
| 1971       | 389.4857   | 292.1143  | 2661.4857 | 0.0000      | 0.0000      |
| 1972       | 129.8286   | 421.9429  | 97.3714   | 0.0000      | 0.0000      |
| 1973       | 0.0000     | 0.0000    | 0.0000    | 99578.5143  | 15709.2571  |
| 1974       | 0.0000     | 0.0000    | 0.0000    | 6913.3714   | 43135.5429  |
| 1975       | 0.0000     | 0.0000    | 0.0000    | 3050.9714   | 3148.3429   |
| 1976       | 0.0000     | 0.0000    | 0.0000    | 262221.2571 | 973.7143    |
| 1977       | 0.0000     | 0.0000    | 0.0000    | 1979.8857   | 108439.3143 |
| 1978       | 0.0000     | 0.0000    | 0.0000    | 227.2000    | 3148.3429   |
| 1979       | 0.0000     | 0.0000    | 0.0000    | 117235.2000 | 5128.2286   |
| 1980       | 0.0000     | 0.0000    | 0.0000    | 16877.7143  | 151574.8571 |
| 1981       | 0.0000     | 0.0000    | 0.0000    | 10710.8571  | 10678.4000  |
| 1982       | 908.8000   | 1979.8857 | 0.0000    | 0.0000      | 0.0000      |
| 1983       | 32.4571    | 129.8286  | 3765.0286 | 0.0000      | 0.0000      |
| 1984       | 2336.9143  | 227.2000  | 129.8286  | 0.0000      | 0.0000      |
| 1985       | 1103.5429  | 3797.4857 | 324.5714  | 0.0000      | 0.0000      |
| 1986       | 681.6000   | 389.4857  | 1071.0857 | 0.0000      | 0.0000      |
| 1987       | 324.5714   | 162.2857  | 714.0571  | 0.0000      | 0.0000      |
| 1988       | 389.4857   | 357.0286  | 389.4857  | 0.0000      | 0.0000      |
| 1989       | 1330.7429  | 194.7429  | 162.2857  | 0.0000      | 0.0000      |
| 1990       | 194.7429   | 421.9429  | 0.0000    | 0.0000      | 0.0000      |
| 1991       | 324.5714   | 64.9143   | 129.8286  | 0.0000      | 0.0000      |
| 1992       | 97.3714    | 97.3714   | 97.3714   | 0.0000      | 0.0000      |
| 1993       | 1200.9143  | 194.7429  | 64.9143   | 0.0000      | 0.0000      |
| 1994       | 213.5680   | 503.4103  | 49.0103   | 0.0000      | 0.0000      |
| 1995       | 369.6869   | 92.8274   | 577.7371  | 0.0000      | 0.0000      |
| 1996       | 1132.7543  | 236.9371  | 243.4286  | 0.0000      | 0.0000      |
| 1997       | 2886.7383  | 408.9600  | 228.4983  | 0.0000      | 0.0000      |
| 1998       | 695.8811   | 196.0411  | 17.8514   | 0.0000      | 0.0000      |
| 1999       | 1645.9017  | 662.7749  | 651.7394  | 0.0000      | 0.0000      |
| 2000       | 3590.7337  | 3292.4526 | 1543.3371 | 0.0000      | 0.0000      |
| 2001       | 681.6000   | 373.5817  | 265.1749  | 0.0000      | 0.0000      |
| 2002       | 1548.2057  | 1969.4994 | 552.4206  | 0.0000      | 0.0000      |
| 2003       | 3115.8857  | 3700.1143 | 2791.3143 | 0.0000      | 0.0000      |
| 2004       | 8666.0571  | 1395.6571 | 3115.8857 | 0.0000      | 0.0000      |
| 2005       | 1460.5714  | 3278.1714 | 616.6857  | 0.0000      | 0.0000      |
| 2006       | 12005.8971 | 1683.5520 | 1536.8457 | 0.0000      | 0.0000      |
| 2007       | 791.6297   | 4528.0960 | 431.0309  | 0.0000      | 0.0000      |
| 2008       | 1275.2411  | 552.7451  | 2919.8446 | 0.0000      | 0.0000      |

SURVEY - INPUT DATA

| INDEX      | 11         | 12         | 13         | 14        | 15        |
|------------|------------|------------|------------|-----------|-----------|
| SURVEY TAG | US_S41     | US_S41     | US_S41     | US_S41    | US_S41    |
| AGE        | 3          | 4          | 5          | 6         | 7         |
| TIME       | JAN-1      | JAN-1      | JAN-1      | JAN-1     | JAN-1     |
| TYPE       | NUMBERS    | NUMBERS    | NUMBERS    | NUMBERS   | NUMBERS   |
| RETRO FLAG | 1          | 1          | 1          | 1         | 1         |
| 1931       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1932       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1933       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1934       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1935       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1936       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1937       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1938       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1939       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1940       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1941       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1942       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1943       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1944       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1945       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1946       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1947       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1948       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1949       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1950       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1951       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1952       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1953       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1954       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1955       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1956       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1957       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1958       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1959       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1960       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1961       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1962       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1963       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1964       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1965       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1966       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1967       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1968       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1969       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1970       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1971       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1972       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1973       | 0.0000     | 1752.6857  | 292.1143   | 0.0000    | 584.2286  |
| 1974       | 9282.7429  | 0.0000     | 778.9714   | 0.0000    | 32.4571   |
| 1975       | 10775.7714 | 2044.8000  | 0.0000     | 421.9429  | 292.1143  |
| 1976       | 1947.4286  | 2986.0571  | 1395.6571  | 0.0000    | 129.8286  |
| 1977       | 1363.2000  | 3959.7714  | 1947.4286  | 1460.5714 | 0.0000    |
| 1978       | 51704.2286 | 1168.4571  | 3050.9714  | 2661.4857 | 519.3143  |
| 1979       | 3667.6571  | 18533.0286 | 1071.0857  | 519.3143  | 1200.9143 |
| 1980       | 1655.3143  | 3375.5429  | 15806.6286 | 2174.6286 | 1200.9143 |
| 1981       | 63258.9714 | 7108.1143  | 2466.7429  | 5777.3714 | 778.9714  |
| 1982       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1983       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1984       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1985       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1986       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1987       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1988       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1989       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1990       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1991       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1992       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1993       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1994       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1995       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1996       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1997       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1998       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 1999       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 2000       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 2001       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 2002       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 2003       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 2004       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 2005       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 2006       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 2007       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |
| 2008       | 0.0000     | 0.0000     | 0.0000     | 0.0000    | 0.0000    |

SURVEY - INPUT DATA

| INDEX      | 16        | 17          | 18          | 19          | 20          |
|------------|-----------|-------------|-------------|-------------|-------------|
| SURVEY TAG | US_S41    | US_Au0      | US_Au1      | US_Au2      | US_Au3      |
| AGE        | 8         | 1           | 2           | 3           | 4           |
| TIME       | JAN-1     | JAN-1       | JAN-1       | JAN-1       | JAN-1       |
| TYPE       | NUMBERS   | NUMBERS     | NUMBERS     | NUMBERS     | NUMBERS     |
| RETRO FLAG | 1         | 1           | 1           | 1           | 1           |
| 1931       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1932       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1933       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1934       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1935       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1936       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1937       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1938       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1939       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1940       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1941       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1942       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1943       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1944       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1945       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1946       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1947       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1948       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1949       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1950       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1951       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1952       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1953       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1954       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1955       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1956       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1957       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1958       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1959       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1960       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1961       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1962       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1963       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |
| 1964       | 0.0000    | 272418.3177 | 82407.3874  | 29935.5474  | 22101.0423  |
| 1965       | 0.0000    | 7689.4217   | 366335.6571 | 206888.9691 | 18909.2069  |
| 1966       | 0.0000    | 1063.9451   | 32982.2994  | 251187.7760 | 31483.1040  |
| 1967       | 0.0000    | 19924.7909  | 3095.1131   | 9382.0617   | 59677.6503  |
| 1968       | 0.0000    | 96.7223     | 21810.8754  | 1160.6674   | 3240.1966   |
| 1969       | 0.0000    | 290.1669    | 193.4446    | 3095.1131   | 435.2503    |
| 1970       | 0.0000    | 1257.3897   | 96.7223     | 0.0000      | 918.8617    |
| 1971       | 0.0000    | 145.0834    | 13396.0366  | 677.0560    | 48.3611     |
| 1972       | 0.0000    | 7882.8663   | 0.0000      | 1015.5840   | 241.8057    |
| 1973       | 32.4571   | 21907.5977  | 8173.0331   | 0.0000      | 1692.6400   |
| 1974       | 324.5714  | 10494.3680  | 29210.1303  | 5223.0034   | 0.0000      |
| 1975       | 32.4571   | 2418.0571   | 5754.9760   | 3191.8354   | 1015.5840   |
| 1976       | 0.0000    | 76217.1611  | 2031.1680   | 2321.3349   | 15765.7326  |
| 1977       | 129.8286  | 14024.7314  | 208291.4423 | 1692.6400   | 1741.0011   |
| 1978       | 194.7429  | 436.2240    | 6940.9600   | 60802.9394  | 1824.4160   |
| 1979       | 194.7429  | 42914.8343  | 2736.7863   | 3371.3234   | 30104.0000  |
| 1980       | 1493.0286 | 4283.6937   | 147902.0069 | 119.1177    | 2935.0994   |
| 1981       | 357.0286  | 37917.4080  | 8804.9737   | 41288.7314  | 1467.3874   |
| 1982       | 0.0000    | 1229.4766   | 19910.5097  | 6742.6469   | 12017.9063  |
| 1983       | 0.0000    | 4400.8640   | 0.0000      | 4304.1417   | 1112.3063   |
| 1984       | 0.0000    | 18812.4846  | 773.7783    | 677.0560    | 870.5006    |
| 1985       | 0.0000    | 96.7223     | 10784.5349  | 2853.3074   | 773.7783    |
| 1986       | 0.0000    | 36838.8571  | 2109.7143   | 4965.9429   | 714.0571    |
| 1987       | 0.0000    | 0.0000      | 16585.6000  | 292.1143    | 3927.3143   |
| 1988       | 0.0000    | 5842.2857   | 0.0000      | 2564.1143   | 324.5714    |
| 1989       | 0.0000    | 227.2000    | 9802.0571   | 584.2286    | 4219.4286   |
| 1990       | 0.0000    | 1517.0469   | 159.6891    | 8782.9029   | 638.7566    |
| 1991       | 0.0000    | 2501.7966   | 2182.4183   | 79.8446     | 3859.1543   |
| 1992       | 0.0000    | 6999.7074   | 665.3714    | 771.8309    | 159.6891    |
| 1993       | 0.0000    | 9250.2857   | 6751.0857   | 746.5143    | 778.9714    |
| 1994       | 0.0000    | 4923.7486   | 13121.1246  | 6520.6400   | 984.7497    |
| 1995       | 0.0000    | 2954.5737   | 2505.6914   | 2621.8880   | 2165.8651   |
| 1996       | 0.0000    | 7377.1840   | 23168.2331  | 15916.9829  | 7519.0217   |
| 1997       | 0.0000    | 4255.7806   | 1765.0194   | 3005.2069   | 3369.7006   |
| 1998       | 0.0000    | 1048.6903   | 8002.9577   | 4762.1120   | 2430.7154   |
| 1999       | 0.0000    | 14007.8537  | 9050.0251   | 8027.6251   | 2347.6251   |
| 2000       | 0.0000    | 5922.4549   | 2728.0229   | 10934.1623  | 26129.9474  |
| 2001       | 0.0000    | 13433.3623  | 9161.0286   | 17790.7337  | 10076.6446  |
| 2002       | 0.0000    | 2774.4366   | 28471.0811  | 5458.6423   | 24146.8160  |
| 2003       | 0.0000    | 377.4766    | 6203.2091   | 72275.5657  | 17672.9143  |
| 2004       | 0.0000    | 501602.0983 | 230.7703    | 1464.1417   | 27760.5943  |
| 2005       | 0.0000    | 5287.9177   | 531167.9589 | 710.8114    | 2740.6811   |
| 2006       | 0.0000    | 13817.9794  | 5744.9143   | 250706.7611 | 904.2560    |
| 2007       | 0.0000    | 3050.9714   | 14742.3589  | 2374.2400   | 156978.6469 |
| 2008       | 0.0000    | 0.0000      | 0.0000      | 0.0000      | 0.0000      |

SURVEY - INPUT DATA

| INDEX      | 21         | 22         | 23          | 24         | 25         |
|------------|------------|------------|-------------|------------|------------|
| SURVEY TAG | US_Au4     | US_Au5     | Can_Sp      | Can_Sp     | Can_Sp     |
| AGE        | 5          | 6          | 1           | 2          | 3          |
| TIME       | JAN-1      | JAN-1      | JAN-1       | JAN-1      | JAN-1      |
| TYPE       | NUMBERS    | NUMBERS    | NUMBERS     | NUMBERS    | NUMBERS    |
| RETRO FLAG | 1          | 1          | 1           | 1          | 1          |
| 1931       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1932       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1933       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1934       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1935       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1936       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1937       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1938       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1939       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1940       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1941       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1942       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1943       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1944       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1945       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1946       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1947       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1948       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1949       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1950       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1951       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1952       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1953       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1954       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1955       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1956       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1957       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1958       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1959       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1960       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1961       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1962       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1963       | 0.0000     | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1964       | 27082.2400 | 19296.0960 | 0.0000      | 0.0000     | 0.0000     |
| 1965       | 5803.3371  | 12380.4526 | 0.0000      | 0.0000     | 0.0000     |
| 1966       | 3482.0023  | 2611.5017  | 0.0000      | 0.0000     | 0.0000     |
| 1967       | 10881.2571 | 1692.6400  | 0.0000      | 0.0000     | 0.0000     |
| 1968       | 21955.9589 | 5271.3646  | 0.0000      | 0.0000     | 0.0000     |
| 1969       | 1063.9451  | 12525.5360 | 0.0000      | 0.0000     | 0.0000     |
| 1970       | 435.2503   | 531.9726   | 0.0000      | 0.0000     | 0.0000     |
| 1971       | 918.8617   | 870.5006   | 0.0000      | 0.0000     | 0.0000     |
| 1972       | 48.3611    | 725.4171   | 0.0000      | 0.0000     | 0.0000     |
| 1973       | 290.1669   | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1974       | 628.6949   | 145.0834   | 0.0000      | 0.0000     | 0.0000     |
| 1975       | 0.0000     | 48.3611    | 0.0000      | 0.0000     | 0.0000     |
| 1976       | 2998.3909  | 0.0000     | 0.0000      | 0.0000     | 0.0000     |
| 1977       | 2659.8629  | 967.2229   | 0.0000      | 0.0000     | 0.0000     |
| 1978       | 1864.0137  | 2062.3269  | 0.0000      | 0.0000     | 0.0000     |
| 1979       | 594.9394   | 832.8503   | 0.0000      | 0.0000     | 0.0000     |
| 1980       | 12374.6103 | 832.8503   | 0.0000      | 0.0000     | 0.0000     |
| 1981       | 594.9394   | 5513.1703  | 0.0000      | 0.0000     | 0.0000     |
| 1982       | 674.1349   | 1348.5943  | 0.0000      | 0.0000     | 0.0000     |
| 1983       | 4545.9474  | 435.2503   | 0.0000      | 0.0000     | 0.0000     |
| 1984       | 967.2229   | 3046.7520  | 0.0000      | 0.0000     | 0.0000     |
| 1985       | 918.8617   | 193.4446   | 0.0000      | 0.0000     | 0.0000     |
| 1986       | 162.2857   | 324.5714   | 5713.9874   | 309.6249   | 8514.6857  |
| 1987       | 194.7429   | 421.9429   | 42.2216     | 4278.4536  | 971.0964   |
| 1988       | 2499.2000  | 194.7429   | 2068.8575   | 70.3693    | 12005.0031 |
| 1989       | 389.4857   | 1298.2857  | 42.2216     | 7515.4416  | 1013.3180  |
| 1990       | 2155.8034  | 292.7634   | 1308.8690   | 154.8125   | 13890.9005 |
| 1991       | 159.6891   | 558.9120   | 1055.5395   | 2350.3347  | 197.0340   |
| 1992       | 718.6011   | 53.2297    | 4644.3740   | 4151.7889  | 1590.3463  |
| 1993       | 0.0000     | 1525.4857  | 5573.2488   | 3039.9539  | 774.0623   |
| 1994       | 0.0000     | 186.3040   | 4672.5217   | 16213.0875 | 5742.1351  |
| 1995       | 401.8194   | 147.0309   | 2730.3290   | 3687.3515  | 6051.7601  |
| 1996       | 1221.6869  | 38.6240    | 8599.1289   | 4067.3457  | 6811.7486  |
| 1997       | 1582.6103  | 462.8389   | 2448.8518   | 1632.5678  | 1393.3122  |
| 1998       | 1776.7040  | 1056.4800  | 3391.8004   | 11512.4180 | 4334.7491  |
| 1999       | 1337.5589  | 570.9211   | 27795.8748  | 4799.1865  | 10076.8842 |
| 2000       | 11429.4583 | 7535.5749  | 25797.3866  | 96546.6841 | 13116.8381 |
| 2001       | 3561.8469  | 2143.1451  | 31356.5615  | 3982.9026  | 15312.3604 |
| 2002       | 6877.3440  | 3774.1166  | 2786.6244   | 44614.1383 | 9359.1173  |
| 2003       | 27709.3120 | 6074.6789  | 1922.0671   | 3582.3605  | 97566.8982 |
| 2004       | 5758.8709  | 10892.6171 | 207872.0477 | 579.8431   | 2806.8908  |
| 2005       | 44206.3040 | 3814.0389  | 0.0000      | 0.0000     | 0.0000     |
| 2006       | 2260.3154  | 15370.4046 | 0.0000      | 0.0000     | 0.0000     |
| 2007       | 1282.0571  | 1404.0960  | 4215.1298   | 15001.2952 | 4418.9837  |
| 2008       | 0.0000     | 0.0000     | 3923.2138   | 1248.3493  | 4813.2667  |



SURVEY - INPUT DATA

| INDEX      | 26         | 27          | 28         | 29        | 30        |
|------------|------------|-------------|------------|-----------|-----------|
| SURVEY TAG | Can_Sp     | Can_Sp      | Can_Sp     | Can_Sp    | Can_Sp    |
| AGE        | 4          | 5           | 6          | 7         | 8         |
| TIME       | JAN-1      | JAN-1       | JAN-1      | JAN-1     | JAN-1     |
| TYPE       | NUMBERS    | NUMBERS     | NUMBERS    | NUMBERS   | NUMBERS   |
| RETRO FLAG | 1          | 1           | 1          | 1         | 1         |
| 1931       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1932       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1933       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1934       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1935       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1936       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1937       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1938       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1939       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1940       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1941       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1942       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1943       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1944       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1945       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1946       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1947       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1948       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1949       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1950       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1951       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1952       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1953       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1954       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1955       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1956       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1957       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1958       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1959       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1960       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1961       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1962       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1963       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1964       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1965       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1966       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1967       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1968       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1969       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1970       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1971       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1972       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1973       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1974       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1975       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1976       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1977       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1978       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1979       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1980       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1981       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1982       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1983       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1984       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1985       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 1986       | 1505.9031  | 267.4034    | 408.1420   | 478.5113  | 520.7328  |
| 1987       | 3532.5390  | 942.9487    | 112.5909   | 422.2158  | 140.7386  |
| 1988       | 239.2556   | 4011.0503   | 253.3295   | 239.2556  | 154.8125  |
| 1989       | 2983.6585  | 267.4034    | 591.1021   | 42.2216   | 42.2216   |
| 1990       | 182.9602   | 4728.8172   | 323.6988   | 1534.0508 | 182.9602  |
| 1991       | 12652.4007 | 154.8125    | 2251.8177  | 126.6647  | 619.2499  |
| 1992       | 239.2556   | 5376.2148   | 42.2216    | 1491.8292 | 56.2954   |
| 1993       | 633.3237   | 56.2954     | 1801.4542  | 28.1477   | 450.3635  |
| 1994       | 591.1021   | 337.7727    | 28.1477    | 985.1702  | 14.0739   |
| 1995       | 3124.3971  | 788.1362    | 42.2216    | 0.0000    | 675.5453  |
| 1996       | 7093.2258  | 4109.5673   | 365.9204   | 337.7727  | 56.2954   |
| 1997       | 3293.2834  | 3335.5050   | 2392.5563  | 323.6988  | 126.6647  |
| 1998       | 3616.9822  | 5291.7716   | 5165.1069  | 2786.6244 | 337.7727  |
| 1999       | 3110.3232  | 1970.3405   | 1899.9712  | 1773.3064 | 464.4374  |
| 2000       | 12539.8098 | 2969.5846   | 2181.4484  | 2730.3290 | 1604.4201 |
| 2001       | 4348.8229  | 5812.5044   | 1815.5280  | 1618.4940 | 1984.4144 |
| 2002       | 21617.4500 | 6079.9078   | 7487.2939  | 2237.7438 | 1857.7496 |
| 2003       | 7228.6163  | 18640.2655  | 4132.9299  | 3779.3945 | 1697.4483 |
| 2004       | 55692.3777 | 5541.3012   | 10383.9759 | 1738.9662 | 1023.4511 |
| 2005       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 2006       | 0.0000     | 0.0000      | 0.0000     | 0.0000    | 0.0000    |
| 2007       | 80460.3945 | 1120.6229   | 177.5060   | 4177.2086 | 299.0375  |
| 2008       | 5203.7707  | 109124.4661 | 1008.9984  | 194.6924  | 8594.6729 |

Additional Output Files

Population File C:\X-APPS\ADAPT\VPA280\GARM3\_REVIEW\BASE\_CASE\31TO07\_BOOTRUN\GAR  
 Auxilliary File C:\X-APPS\ADAPT\VPA280\GARM3\_REVIEW\BASE\_CASE\31TO07\_BOOTRUN\GAR  
 Covariance File C:\X-APPS\ADAPT\VPA280\GARM3\_REVIEW\BASE\_CASE\31TO07\_BOOTRUN\GAR  
 Residuals File C:\X-APPS\ADAPT\VPA280\GARM3\_REVIEW\BASE\_CASE\31TO07\_BOOTRUN\GAR  
 Log File C:\X-APPS\ADAPT\VPA280\GARM3\_REVIEW\BASE\_CASE\31TO07\_BOOTRUN\GAR

Estimation Results  
 JAN-1 Population Numbers

| AGE   | 1931    | 1932    | 1933    | 1934    | 1935    |
|-------|---------|---------|---------|---------|---------|
| 1     | 39938.  | 45315.  | 51615.  | 59569.  | 58214.  |
| 2     | 80387.  | 31115.  | 36994.  | 42038.  | 48463.  |
| 3     | 14081.  | 57882.  | 23594.  | 22668.  | 30403.  |
| 4     | 17665.  | 9690.   | 24276.  | 13906.  | 13693.  |
| 5     | 17144.  | 9275.   | 5758.   | 10890.  | 8032.   |
| 6     | 10197.  | 5932.   | 4304.   | 2841.   | 6090.   |
| 7     | 5491.   | 2979.   | 2275.   | 2110.   | 1384.   |
| 8     | 3086.   | 1496.   | 1260.   | 785.    | 1172.   |
| 9     | 961.    | 881.    | 1515.   | 527.    | 289.    |
| Total | 188951. | 164565. | 151591. | 155335. | 167739. |

| AGE   | 1936    | 1937    | 1938    | 1939    | 1940    |
|-------|---------|---------|---------|---------|---------|
| 1     | 57147.  | 105311. | 78051.  | 59486.  | 111227. |
| 2     | 46580.  | 45993.  | 85058.  | 62972.  | 48155.  |
| 3     | 29009.  | 27065.  | 27739.  | 51484.  | 39026.  |
| 4     | 16976.  | 13472.  | 12397.  | 15748.  | 24588.  |
| 5     | 7883.   | 9028.   | 5996.   | 6781.   | 8264.   |
| 6     | 3939.   | 4531.   | 3691.   | 3016.   | 3621.   |
| 7     | 2787.   | 1991.   | 2033.   | 1592.   | 1602.   |
| 8     | 686.    | 1066.   | 780.    | 821.    | 558.    |
| 9     | 329.    | 492.    | 413.    | 602.    | 342.    |
| Total | 165336. | 208949. | 216158. | 202501. | 237382. |

| AGE   | 1941    | 1942    | 1943    | 1944    | 1945    |
|-------|---------|---------|---------|---------|---------|
| 1     | 114267. | 61875.  | 23306.  | 65151.  | 51807.  |
| 2     | 89222.  | 92850.  | 50379.  | 19064.  | 53283.  |
| 3     | 32893.  | 51973.  | 63135.  | 37467.  | 14922.  |
| 4     | 20903.  | 18129.  | 27887.  | 35765.  | 23090.  |
| 5     | 12732.  | 9923.   | 8992.   | 15326.  | 16006.  |
| 6     | 4513.   | 5276.   | 4549.   | 4581.   | 7453.   |
| 7     | 1642.   | 2101.   | 2236.   | 1332.   | 1717.   |
| 8     | 640.    | 508.    | 796.    | 1123.   | 645.    |
| 9     | 801.    | 394.    | 400.    | 259.    | 499.    |
| Total | 277614. | 243027. | 181680. | 180068. | 169422. |

| AGE   | 1946    | 1947    | 1948    | 1949    | 1950    |
|-------|---------|---------|---------|---------|---------|
| 1     | 93899.  | 59136.  | 32955.  | 124141. | 57212.  |
| 2     | 42306.  | 76689.  | 48335.  | 26909.  | 101342. |
| 3     | 35951.  | 27917.  | 47841.  | 29481.  | 16214.  |
| 4     | 10389.  | 15832.  | 13602.  | 21957.  | 12979.  |
| 5     | 13170.  | 6046.   | 6548.   | 6555.   | 9390.   |
| 6     | 7914.   | 5613.   | 3044.   | 2907.   | 3264.   |
| 7     | 4025.   | 3053.   | 2152.   | 1457.   | 1430.   |
| 8     | 592.    | 1664.   | 1161.   | 1063.   | 635.    |
| 9     | 50.     | 1021.   | 952.    | 918.    | 705.    |
| Total | 208296. | 196971. | 156589. | 215387. | 203172. |

JAN-1 Population Numbers

| AGE   | 1951    | 1952    | 1953    | 1954    | 1955    |
|-------|---------|---------|---------|---------|---------|
| 1     | 103780. | 42290.  | 132790. | 52280.  | 89900.  |
| 2     | 46762.  | 84386.  | 34620.  | 107741. | 42706.  |
| 3     | 56964.  | 30845.  | 46546.  | 26714.  | 59619.  |
| 4     | 9585.   | 23002.  | 17272.  | 22360.  | 17276.  |
| 5     | 6796.   | 5891.   | 11233.  | 9007.   | 13265.  |
| 6     | 4718.   | 3371.   | 3599.   | 5828.   | 5295.   |
| 7     | 1659.   | 1953.   | 1912.   | 2038.   | 2863.   |
| 8     | 705.    | 697.    | 1123.   | 1079.   | 1024.   |
| 9     | 510.    | 410.    | 506.    | 300.    | 553.    |
| Total | 231479. | 192843. | 249602. | 227348. | 232502. |

| AGE | 1956   | 1957   | 1958   | 1959    | 1960    |
|-----|--------|--------|--------|---------|---------|
| 1   | 60261. | 59630. | 58676. | 129847. | 122245. |
| 2   | 73523. | 49291. | 48790. | 47927.  | 106224. |

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 3 | 31411. | 49438. | 34415. | 34924. | 34088. |
| 4 | 31547. | 19693. | 27866. | 21801. | 21407. |
| 5 | 11161. | 15026. | 12058. | 16825. | 13203. |
| 6 | 7915.  | 6083.  | 7091.  | 6477.  | 10239. |
| 7 | 2856.  | 3460.  | 2870.  | 3684.  | 3725.  |
| 8 | 1388.  | 1135.  | 1378.  | 1540.  | 1965.  |
| 9 | 495.   | 878.   | 443.   | 1213.  | 1685.  |

=====  
Total 220557. 204634. 193586. 264238. 314780.

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1961 | 1962 | 1963 | 1964 | 1965 |
|-----|------|------|------|------|------|

|   |        |        |         |         |         |
|---|--------|--------|---------|---------|---------|
| 1 | 54312. | 39050. | 188241. | 460816. | 32513.  |
| 2 | 99853. | 44411. | 31905.  | 151491. | 368163. |
| 3 | 72550. | 72117. | 32344.  | 22475.  | 109665. |
| 4 | 22399. | 45973. | 44439.  | 19812.  | 14304.  |
| 5 | 13424. | 14561. | 28253.  | 26363.  | 11929.  |
| 6 | 8053.  | 8367.  | 8822.   | 15773.  | 13764.  |
| 7 | 6770.  | 4925.  | 4974.   | 5242.   | 7724.   |
| 8 | 2342.  | 4403.  | 2627.   | 2811.   | 2428.   |
| 9 | 3182.  | 3337.  | 3994.   | 3642.   | 3032.   |

=====  
Total 282883. 237143. 345599. 708424. 563523.

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1966 | 1967 | 1968 | 1969 | 1970 |
|-----|------|------|------|------|------|

|   |         |        |        |        |       |
|---|---------|--------|--------|--------|-------|
| 1 | 4155.   | 14013. | 542.   | 1111.  | 4616. |
| 2 | 18003.  | 3299.  | 10436. | 437.   | 908.  |
| 3 | 188650. | 8612.  | 2549.  | 5856.  | 348.  |
| 4 | 49979.  | 64678. | 4459.  | 1451.  | 3271. |
| 5 | 6915.   | 23760. | 34417. | 1934.  | 786.  |
| 6 | 5833.   | 3185.  | 10213. | 15196. | 997.  |
| 7 | 5300.   | 2461.  | 1525.  | 5225.  | 7112. |
| 8 | 2959.   | 2256.  | 1126.  | 652.   | 2866. |
| 9 | 2023.   | 1717.  | 2094.  | 1653.  | 1782. |

=====  
Total 283817. 123980. 67362. 33515. 22685.

JAN-1 Population Numbers

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1971 | 1972 | 1973 | 1974 | 1975 |
|-----|------|------|------|------|------|

|   |       |       |        |        |       |
|---|-------|-------|--------|--------|-------|
| 1 | 267.  | 8526. | 19498. | 10577. | 7930. |
| 2 | 3737. | 217.  | 6836.  | 13615. | 8617. |
| 3 | 601.  | 1828. | 176.   | 3701.  | 7129. |
| 4 | 270.  | 292.  | 1083.  | 141.   | 2417. |
| 5 | 2165. | 185.  | 165.   | 535.   | 114.  |
| 6 | 476.  | 1512. | 122.   | 87.    | 372.  |
| 7 | 624.  | 171.  | 1127.  | 73.    | 69.   |
| 8 | 3753. | 256.  | 68.    | 852.   | 57.   |
| 9 | 2371. | 4801. | 2036.  | 4002.  | 1276. |

=====  
Total 14264. 17789. 31112. 33582. 27981.

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1976 | 1977 | 1978 | 1979 | 1980 |
|-----|------|------|------|------|------|

|   |         |        |        |        |        |
|---|---------|--------|--------|--------|--------|
| 1 | 105349. | 13984. | 6125.  | 83889. | 10935. |
| 2 | 6313.   | 86118. | 11448. | 5014.  | 68676. |
| 3 | 6091.   | 4726.  | 52656. | 8681.  | 4081.  |
| 4 | 4105.   | 4473.  | 3699.  | 30082. | 5540.  |
| 5 | 1630.   | 2540.  | 3041.  | 2751.  | 18125. |
| 6 | 90.     | 1132.  | 1610.  | 1975.  | 1775.  |
| 7 | 266.    | 73.    | 602.   | 851.   | 1245.  |
| 8 | 53.     | 196.   | 56.    | 367.   | 412.   |
| 9 | 1495.   | 558.   | 270.   | 176.   | 218.   |

=====  
Total 125391. 113801. 79507. 133787. 111007.

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1981 | 1982 | 1983 | 1984 | 1985 |
|-----|------|------|------|------|------|

|   |        |        |       |        |        |
|---|--------|--------|-------|--------|--------|
| 1 | 7364.  | 2581.  | 3284. | 18083. | 2519.  |
| 2 | 8946.  | 6028.  | 2112. | 2689.  | 14804. |
| 3 | 28385. | 5745.  | 3880. | 1535.  | 2116.  |
| 4 | 3027.  | 13326. | 3227. | 2438.  | 986.   |
| 5 | 3653.  | 1727.  | 7534. | 2015.  | 1336.  |
| 6 | 9382.  | 2143.  | 1060. | 4139.  | 1288.  |
| 7 | 918.   | 5355.  | 1240. | 621.   | 2045.  |
| 8 | 529.   | 453.   | 3371. | 846.   | 296.   |
| 9 | 315.   | 470.   | 320.  | 1720.  | 577.   |

=====  
Total 62518. 37828. 26027. 34085. 25967.

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1986 | 1987 | 1988 | 1989 | 1990 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 16793. | 2618.  | 20015. | 1366.  | 3415.  |
| 2 | 2062.  | 13744. | 2143.  | 16383. | 1117.  |
| 3 | 9902.  | 1639.  | 9419.  | 1707.  | 12095. |

|       |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|
| 4     | 1227.  | 5551.  | 1223.  | 5521.  | 1287.  |
| 5     | 628.   | 801.   | 3068.  | 878.   | 3603.  |
| 6     | 671.   | 382.   | 544.   | 1657.  | 524.   |
| 7     | 845.   | 391.   | 245.   | 308.   | 928.   |
| 8     | 1190.  | 555.   | 239.   | 150.   | 197.   |
| 9     | 268.   | 707.   | 395.   | 230.   | 174.   |
| ===== |        |        |        |        |        |
| Total | 33587. | 26387. | 37292. | 28201. | 23339. |

JAN-1 Population Numbers

| AGE   | 1991   | 1992   | 1993   | 1994   | 1995   |
|-------|--------|--------|--------|--------|--------|
| 1     | 2725.  | 10812. | 15695. | 15580. | 12850. |
| 2     | 2739.  | 2225.  | 8776.  | 12820. | 12731. |
| 3     | 904.   | 1805.  | 1583.  | 6857.  | 10011. |
| 4     | 8374.  | 629.   | 1112.  | 901.   | 4542.  |
| 5     | 812.   | 4728.  | 338.   | 605.   | 521.   |
| 6     | 1942.  | 535.   | 2118.  | 169.   | 367.   |
| 7     | 290.   | 1125.  | 275.   | 1070.  | 73.    |
| 8     | 564.   | 123.   | 540.   | 169.   | 594.   |
| 9     | 213.   | 263.   | 262.   | 336.   | 157.   |
| ===== |        |        |        |        |        |
| Total | 18563. | 22245. | 30699. | 38508. | 41846. |

| AGE   | 1996   | 1997   | 1998   | 1999   | 2000   |
|-------|--------|--------|--------|--------|--------|
| 1     | 11939. | 23830. | 14944. | 50508. | 11982. |
| 2     | 10505. | 9769.  | 19497. | 12230. | 41348. |
| 3     | 10339. | 8550.  | 7868.  | 15755. | 9974.  |
| 4     | 7642.  | 7954.  | 6754.  | 6017.  | 12082. |
| 5     | 3294.  | 5429.  | 5840.  | 5027.  | 4439.  |
| 6     | 374.   | 2291.  | 3939.  | 4090.  | 3570.  |
| 7     | 274.   | 246.   | 1680.  | 2711.  | 2839.  |
| 8     | 52.    | 205.   | 186.   | 1223.  | 1874.  |
| 9     | 591.   | 543.   | 386.   | 357.   | 715.   |
| ===== |        |        |        |        |        |
| Total | 45010. | 58816. | 61094. | 97917. | 88822. |

| AGE   | 2001    | 2002    | 2003    | 2004    | 2005    |
|-------|---------|---------|---------|---------|---------|
| 1     | 97844.  | 5779.   | 2884.   | 494868. | 8048.   |
| 2     | 9808.   | 80095.  | 4728.   | 2357.   | 404580. |
| 3     | 33486.  | 7899.   | 65218.  | 3855.   | 1900.   |
| 4     | 7602.   | 25257.  | 6156.   | 51642.  | 3047.   |
| 5     | 8476.   | 5326.   | 17815.  | 4624.   | 37669.  |
| 6     | 3104.   | 5787.   | 3527.   | 12167.  | 3129.   |
| 7     | 2447.   | 1952.   | 3743.   | 2343.   | 7323.   |
| 8     | 1985.   | 1610.   | 1237.   | 2417.   | 1302.   |
| 9     | 1451.   | 2896.   | 2265.   | 1753.   | 1418.   |
| ===== |         |         |         |         |         |
| Total | 166203. | 136600. | 107574. | 576027. | 468416. |

| AGE   | 2006    | 2007    | 2008    |
|-------|---------|---------|---------|
| 1     | 26450.  | 7421.   | 16376.  |
| 2     | 6572.   | 21507.  | 6064.   |
| 3     | 330689. | 5364.   | 17450.  |
| 4     | 1518.   | 267887. | 4175.   |
| 5     | 2189.   | 1179.   | 209204. |
| 6     | 23194.  | 1454.   | 790.    |
| 7     | 1863.   | 14119.  | 911.    |
| 8     | 4340.   | 1231.   | 9299.   |
| 9     | 1173.   | 3036.   | 300.    |
| ===== |         |         |         |
| Total | 397987. | 323198. | 264569. |

Fishing Mortality Calculated

| AGE | 1931   | 1932   | 1933   | 1934   | 1935   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0497 | 0.0029 | 0.0052 | 0.0063 | 0.0229 |
| 2   | 0.1284 | 0.0767 | 0.2898 | 0.1240 | 0.3132 |
| 3   | 0.1737 | 0.6689 | 0.3287 | 0.3041 | 0.3828 |
| 4   | 0.4442 | 0.3205 | 0.6016 | 0.3489 | 0.3522 |
| 5   | 0.8614 | 0.5677 | 0.5066 | 0.3813 | 0.5125 |
| 6   | 1.0305 | 0.7585 | 0.5130 | 0.5188 | 0.5818 |
| 7   | 1.1002 | 0.6608 | 0.8644 | 0.3881 | 0.5015 |
| 8   | 0.9973 | 0.6623 | 0.6280 | 0.4294 | 0.5319 |
| 9   | 0.9973 | 0.6623 | 0.6280 | 0.4294 | 0.5319 |
| AGE | 1936   | 1937   | 1938   | 1939   | 1940   |
| 1   | 0.0171 | 0.0136 | 0.0147 | 0.0113 | 0.0204 |
| 2   | 0.3430 | 0.3056 | 0.3021 | 0.2785 | 0.1812 |
| 3   | 0.5670 | 0.5807 | 0.3661 | 0.5390 | 0.4243 |
| 4   | 0.4315 | 0.6095 | 0.4034 | 0.4448 | 0.4581 |
| 5   | 0.3537 | 0.6943 | 0.4873 | 0.4272 | 0.4048 |
| 6   | 0.4823 | 0.6016 | 0.6410 | 0.4327 | 0.5910 |
| 7   | 0.7605 | 0.7365 | 0.7072 | 0.8488 | 0.7173 |
| 8   | 0.5322 | 0.6775 | 0.6118 | 0.5696 | 0.5710 |
| 9   | 0.5322 | 0.6775 | 0.6118 | 0.5696 | 0.5710 |
| AGE | 1941   | 1942   | 1943   | 1944   | 1945   |
| 1   | 0.0076 | 0.0055 | 0.0009 | 0.0011 | 0.0026 |
| 2   | 0.3404 | 0.1857 | 0.0961 | 0.0450 | 0.1935 |
| 3   | 0.3958 | 0.4226 | 0.3683 | 0.2841 | 0.1621 |
| 4   | 0.5451 | 0.5012 | 0.3986 | 0.6040 | 0.3614 |
| 5   | 0.6810 | 0.5800 | 0.4743 | 0.5209 | 0.5044 |
| 6   | 0.5645 | 0.6582 | 1.0282 | 0.7816 | 0.4160 |
| 7   | 0.9739 | 0.7702 | 0.4887 | 0.5245 | 0.8655 |
| 8   | 0.7398 | 0.6695 | 0.6638 | 0.6090 | 0.5953 |
| 9   | 0.7398 | 0.6695 | 0.6638 | 0.6090 | 0.5953 |
| AGE | 1946   | 1947   | 1948   | 1949   | 1950   |
| 1   | 0.0025 | 0.0017 | 0.0027 | 0.0029 | 0.0017 |
| 2   | 0.2157 | 0.2719 | 0.2944 | 0.3066 | 0.3761 |
| 3   | 0.6201 | 0.5191 | 0.5788 | 0.6204 | 0.3257 |
| 4   | 0.3413 | 0.6829 | 0.5300 | 0.6494 | 0.4470 |
| 5   | 0.6529 | 0.4862 | 0.6120 | 0.4973 | 0.4884 |
| 6   | 0.7525 | 0.7587 | 0.5372 | 0.5097 | 0.4769 |
| 7   | 0.6835 | 0.7671 | 0.5052 | 0.6307 | 0.5075 |
| 8   | 0.6963 | 0.6707 | 0.5515 | 0.5459 | 0.4909 |
| 9   | 0.6963 | 0.6707 | 0.5515 | 0.5459 | 0.4909 |

Fishing Mortality Calculated

| AGE | 1951   | 1952   | 1953   | 1954   | 1955   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0069 | 0.0001 | 0.0090 | 0.0023 | 0.0011 |
| 2   | 0.2161 | 0.3950 | 0.0593 | 0.3918 | 0.1072 |
| 3   | 0.7068 | 0.3799 | 0.5332 | 0.2359 | 0.4365 |
| 4   | 0.2869 | 0.5167 | 0.4511 | 0.3221 | 0.2369 |
| 5   | 0.5011 | 0.2926 | 0.4561 | 0.3313 | 0.3164 |
| 6   | 0.6821 | 0.3669 | 0.3686 | 0.5108 | 0.4174 |
| 7   | 0.6672 | 0.3534 | 0.3722 | 0.4887 | 0.5243 |
| 8   | 0.6168 | 0.3376 | 0.3990 | 0.4436 | 0.4194 |
| 9   | 0.6168 | 0.3376 | 0.3990 | 0.4436 | 0.4194 |
| AGE | 1956   | 1957   | 1958   | 1959   | 1960   |
| 1   | 0.0010 | 0.0006 | 0.0024 | 0.0008 | 0.0023 |
| 2   | 0.1969 | 0.1592 | 0.1343 | 0.1407 | 0.1813 |
| 3   | 0.2669 | 0.3733 | 0.2565 | 0.2895 | 0.2199 |
| 4   | 0.5417 | 0.2906 | 0.3046 | 0.3015 | 0.2667 |
| 5   | 0.4070 | 0.5510 | 0.4214 | 0.2967 | 0.2944 |
| 6   | 0.6274 | 0.5511 | 0.4547 | 0.3534 | 0.2137 |
| 7   | 0.7229 | 0.7207 | 0.4227 | 0.4285 | 0.2641 |
| 8   | 0.5858 | 0.6076 | 0.4329 | 0.3595 | 0.2574 |
| 9   | 0.5858 | 0.6076 | 0.4329 | 0.3595 | 0.2574 |
| AGE | 1961   | 1962   | 1963   | 1964   | 1965   |
| 1   | 0.0013 | 0.0021 | 0.0172 | 0.0245 | 0.3911 |
| 2   | 0.1254 | 0.1171 | 0.1504 | 0.1231 | 0.4686 |
| 3   | 0.2562 | 0.2842 | 0.2901 | 0.2518 | 0.5858 |
| 4   | 0.2307 | 0.2868 | 0.3221 | 0.3074 | 0.5269 |

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 5 | 0.2727 | 0.3011 | 0.3829 | 0.4499 | 0.5153 |
| 6 | 0.2918 | 0.3202 | 0.3206 | 0.5139 | 0.7543 |
| 7 | 0.2301 | 0.4283 | 0.3707 | 0.5694 | 0.7595 |
| 8 | 0.2649 | 0.3498 | 0.3581 | 0.5111 | 0.6764 |
| 9 | 0.2649 | 0.3498 | 0.3581 | 0.5111 | 0.6764 |

| AGE | 1966   | 1967   | 1968   | 1969   | 1970   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0307 | 0.0948 | 0.0164 | 0.0020 | 0.0111 |
| 2   | 0.5373 | 0.0578 | 0.3777 | 0.0282 | 0.2124 |
| 3   | 0.8705 | 0.4582 | 0.3638 | 0.3825 | 0.0521 |
| 4   | 0.5436 | 0.4309 | 0.6355 | 0.4131 | 0.2127 |
| 5   | 0.5753 | 0.6443 | 0.6175 | 0.4625 | 0.3009 |
| 6   | 0.6631 | 0.5364 | 0.4701 | 0.5592 | 0.2689 |
| 7   | 0.6544 | 0.5815 | 0.6491 | 0.4007 | 0.4392 |
| 8   | 0.6309 | 0.5874 | 0.5789 | 0.4741 | 0.3363 |
| 9   | 0.6309 | 0.5874 | 0.5789 | 0.4741 | 0.3363 |

Fishing Mortality Calculated

| AGE | 1971   | 1972   | 1973   | 1974   | 1975   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0041 | 0.0209 | 0.1592 | 0.0050 | 0.0280 |
| 2   | 0.5150 | 0.0102 | 0.4136 | 0.4470 | 0.1469 |
| 3   | 0.5207 | 0.3234 | 0.0196 | 0.2261 | 0.3519 |
| 4   | 0.1778 | 0.3725 | 0.5059 | 0.0165 | 0.1942 |
| 5   | 0.1589 | 0.2159 | 0.4442 | 0.1618 | 0.0405 |
| 6   | 0.8264 | 0.0937 | 0.3214 | 0.0271 | 0.1373 |
| 7   | 0.6898 | 0.7136 | 0.0797 | 0.0325 | 0.0677 |
| 8   | 0.5584 | 0.3411 | 0.2818 | 0.0738 | 0.0818 |
| 9   | 0.5584 | 0.3411 | 0.2818 | 0.0738 | 0.0818 |

| AGE | 1976   | 1977   | 1978   | 1979   | 1980   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0016 | 0.0001 | 0.0002 | 0.0001 | 0.0008 |
| 2   | 0.0895 | 0.2919 | 0.0767 | 0.0058 | 0.6835 |
| 3   | 0.1089 | 0.0452 | 0.3598 | 0.2492 | 0.0989 |
| 4   | 0.2799 | 0.1858 | 0.0960 | 0.3067 | 0.2164 |
| 5   | 0.1640 | 0.2560 | 0.2314 | 0.2379 | 0.4585 |
| 6   | 0.0001 | 0.4311 | 0.4377 | 0.2616 | 0.4595 |
| 7   | 0.1043 | 0.0636 | 0.2948 | 0.5254 | 0.6564 |
| 8   | 0.0895 | 0.2502 | 0.3213 | 0.3416 | 0.5248 |
| 9   | 0.0895 | 0.2502 | 0.3213 | 0.3416 | 0.5248 |

| AGE | 1981   | 1982   | 1983   | 1984   | 1985   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0001 | 0.0004 | 0.0001 | 0.0001 | 0.0001 |
| 2   | 0.2429 | 0.2407 | 0.1195 | 0.0394 | 0.2021 |
| 3   | 0.5562 | 0.3769 | 0.2646 | 0.2424 | 0.3452 |
| 4   | 0.3613 | 0.3703 | 0.2708 | 0.4017 | 0.2503 |
| 5   | 0.3333 | 0.2883 | 0.3990 | 0.2473 | 0.4891 |
| 6   | 0.3607 | 0.3473 | 0.3347 | 0.5051 | 0.2222 |
| 7   | 0.5064 | 0.2630 | 0.1824 | 0.5398 | 0.3410 |
| 8   | 0.4001 | 0.2995 | 0.3054 | 0.4307 | 0.3508 |
| 9   | 0.4001 | 0.2995 | 0.3054 | 0.4307 | 0.3508 |

| AGE | 1986   | 1987   | 1988   | 1989   | 1990   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0004 | 0.0001 | 0.0002 | 0.0015 | 0.0205 |
| 2   | 0.0297 | 0.1778 | 0.0278 | 0.1035 | 0.0115 |
| 3   | 0.3789 | 0.0926 | 0.3342 | 0.0824 | 0.1677 |
| 4   | 0.2262 | 0.3930 | 0.1317 | 0.2267 | 0.2608 |
| 5   | 0.2991 | 0.1874 | 0.4159 | 0.3170 | 0.4183 |
| 6   | 0.3383 | 0.2415 | 0.3672 | 0.3800 | 0.3902 |
| 7   | 0.2204 | 0.2940 | 0.2903 | 0.2482 | 0.2977 |
| 8   | 0.2859 | 0.2410 | 0.3578 | 0.3151 | 0.3687 |
| 9   | 0.2859 | 0.2410 | 0.3578 | 0.3151 | 0.3687 |

Fishing Mortality Calculated

| AGE | 1991   | 1992   | 1993   | 1994   | 1995   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0028 | 0.0086 | 0.0023 | 0.0019 | 0.0015 |
| 2   | 0.2170 | 0.1406 | 0.0467 | 0.0473 | 0.0081 |
| 3   | 0.1620 | 0.2849 | 0.3628 | 0.2120 | 0.0700 |
| 4   | 0.3716 | 0.4206 | 0.4089 | 0.3480 | 0.1212 |
| 5   | 0.2174 | 0.6031 | 0.4918 | 0.2984 | 0.1329 |
| 6   | 0.3459 | 0.4637 | 0.4831 | 0.6407 | 0.0923 |
| 7   | 0.6562 | 0.5342 | 0.2872 | 0.3874 | 0.1370 |
| 8   | 0.4065 | 0.5336 | 0.4207 | 0.4422 | 0.1207 |
| 9   | 0.4065 | 0.5336 | 0.4207 | 0.4422 | 0.1207 |
| AGE | 1996   | 1997   | 1998   | 1999   | 2000   |
| 1   | 0.0006 | 0.0007 | 0.0004 | 0.0001 | 0.0001 |
| 2   | 0.0059 | 0.0163 | 0.0131 | 0.0039 | 0.0109 |
| 3   | 0.0623 | 0.0358 | 0.0682 | 0.0655 | 0.0716 |
| 4   | 0.1419 | 0.1089 | 0.0954 | 0.1043 | 0.1544 |
| 5   | 0.1630 | 0.1209 | 0.1562 | 0.1423 | 0.1576 |
| 6   | 0.2160 | 0.1106 | 0.1736 | 0.1650 | 0.1775 |
| 7   | 0.0930 | 0.0815 | 0.1174 | 0.1692 | 0.1580 |
| 8   | 0.1573 | 0.1043 | 0.1491 | 0.1588 | 0.1643 |
| 9   | 0.1573 | 0.1043 | 0.1491 | 0.1588 | 0.1643 |
| AGE | 2001   | 2002   | 2003   | 2004   | 2005   |
| 1   | 0.0002 | 0.0006 | 0.0017 | 0.0014 | 0.0027 |
| 2   | 0.0165 | 0.0055 | 0.0041 | 0.0156 | 0.0017 |
| 3   | 0.0820 | 0.0494 | 0.0334 | 0.0354 | 0.0246 |
| 4   | 0.1557 | 0.1490 | 0.0861 | 0.1155 | 0.1307 |
| 5   | 0.1817 | 0.2122 | 0.1813 | 0.1905 | 0.2850 |
| 6   | 0.2640 | 0.2357 | 0.2090 | 0.3077 | 0.3185 |
| 7   | 0.2189 | 0.2562 | 0.2372 | 0.3875 | 0.3231 |
| 8   | 0.2215 | 0.2347 | 0.2092 | 0.2952 | 0.3089 |
| 9   | 0.2215 | 0.2347 | 0.2092 | 0.2952 | 0.3089 |
| AGE | 2006   | 2007   |        |        |        |
| 1   | 0.0069 | 0.0019 |        |        |        |
| 2   | 0.0031 | 0.0090 |        |        |        |
| 3   | 0.0106 | 0.0506 |        |        |        |
| 4   | 0.0529 | 0.0473 |        |        |        |
| 5   | 0.2088 | 0.1999 |        |        |        |
| 6   | 0.2964 | 0.2681 |        |        |        |
| 7   | 0.2140 | 0.2176 |        |        |        |
| 8   | 0.2397 | 0.2285 |        |        |        |
| 9   | 0.2397 | 0.2285 |        |        |        |

Average Fishing Mortality For Ages 5- 7

| Year | Average F | N Weighted | Biomass Wtd | Catch Wtd |
|------|-----------|------------|-------------|-----------|
| 1931 | 0.9973    | 0.9538     | 0.9674      | 0.9601    |
| 1932 | 0.6623    | 0.6452     | 0.6521      | 0.6533    |
| 1933 | 0.6280    | 0.5748     | 0.5857      | 0.5974    |
| 1934 | 0.4294    | 0.4068     | 0.4094      | 0.4121    |
| 1935 | 0.5319    | 0.5387     | 0.5396      | 0.5404    |
| 1936 | 0.5322    | 0.4660     | 0.4819      | 0.5035    |
| 1937 | 0.6775    | 0.6727     | 0.6735      | 0.6751    |
| 1938 | 0.6118    | 0.5738     | 0.5840      | 0.5847    |
| 1939 | 0.5696    | 0.4876     | 0.4993      | 0.5178    |
| 1940 | 0.5710    | 0.4919     | 0.5100      | 0.5125    |
| 1941 | 0.7398    | 0.6786     | 0.6841      | 0.6890    |
| 1942 | 0.6695    | 0.6270     | 0.6365      | 0.6315    |
| 1943 | 0.6638    | 0.6360     | 0.6436      | 0.7026    |
| 1944 | 0.6090    | 0.5774     | 0.5849      | 0.5914    |
| 1945 | 0.5953    | 0.5029     | 0.5078      | 0.5183    |
| 1946 | 0.6963    | 0.6892     | 0.6926      | 0.6912    |
| 1947 | 0.6707    | 0.6484     | 0.6619      | 0.6696    |
| 1948 | 0.5515    | 0.5730     | 0.5665      | 0.5757    |
| 1949 | 0.5459    | 0.5184     | 0.5240      | 0.5212    |
| 1950 | 0.4909    | 0.4877     | 0.4880      | 0.4878    |
| 1951 | 0.6168    | 0.5869     | 0.6016      | 0.5969    |
| 1952 | 0.3376    | 0.3255     | 0.3309      | 0.3287    |
| 1953 | 0.3990    | 0.4277     | 0.4212      | 0.4309    |
| 1954 | 0.4436    | 0.4123     | 0.4254      | 0.4273    |
| 1955 | 0.4194    | 0.3691     | 0.3788      | 0.3812    |
| 1956 | 0.5858    | 0.5277     | 0.5465      | 0.5509    |
| 1957 | 0.6076    | 0.5749     | 0.5821      | 0.5792    |
| 1958 | 0.4329    | 0.4323     | 0.4334      | 0.4327    |
| 1959 | 0.3595    | 0.3283     | 0.3362      | 0.3337    |
| 1960 | 0.2574    | 0.2599     | 0.2562      | 0.2646    |

|      |        |        |        |        |
|------|--------|--------|--------|--------|
| 1961 | 0.2649 | 0.2679 | 0.2656 | 0.2696 |
| 1962 | 0.3498 | 0.3293 | 0.3354 | 0.3347 |
| 1963 | 0.3581 | 0.3684 | 0.3661 | 0.3698 |
| 1964 | 0.5111 | 0.4844 | 0.4900 | 0.4872 |
| 1965 | 0.6764 | 0.6702 | 0.6820 | 0.6850 |
| 1966 | 0.6309 | 0.6269 | 0.6319 | 0.6289 |
| 1967 | 0.5874 | 0.6274 | 0.6216 | 0.6290 |
| 1968 | 0.5789 | 0.5860 | 0.5807 | 0.5911 |
| 1969 | 0.4741 | 0.5138 | 0.5068 | 0.5210 |
| 1970 | 0.3363 | 0.4079 | 0.4109 | 0.4162 |
| 1971 | 0.5584 | 0.3577 | 0.3813 | 0.5437 |
| 1972 | 0.3411 | 0.1625 | 0.1669 | 0.3209 |
| 1973 | 0.2818 | 0.1431 | 0.1304 | 0.2459 |
| 1974 | 0.0738 | 0.1315 | 0.1241 | 0.1546 |
| 1975 | 0.0818 | 0.1088 | 0.1101 | 0.1241 |
| 1976 | 0.0895 | 0.1486 | 0.1461 | 0.1582 |
| 1977 | 0.2502 | 0.3051 | 0.3117 | 0.3264 |
| 1978 | 0.3213 | 0.3019 | 0.3092 | 0.3258 |
| 1979 | 0.3416 | 0.2902 | 0.3037 | 0.3181 |
| 1980 | 0.5248 | 0.4702 | 0.4763 | 0.4736 |
| 1981 | 0.4001 | 0.3631 | 0.3677 | 0.3666 |
| 1982 | 0.2995 | 0.2873 | 0.2849 | 0.2908 |
| 1983 | 0.3054 | 0.3648 | 0.3541 | 0.3776 |
| 1984 | 0.4307 | 0.4316 | 0.4431 | 0.4605 |
| 1985 | 0.3508 | 0.3506 | 0.3448 | 0.3749 |
| 1986 | 0.2859 | 0.2804 | 0.2777 | 0.2884 |
| 1987 | 0.2410 | 0.2270 | 0.2341 | 0.2347 |
| 1988 | 0.3578 | 0.4010 | 0.3978 | 0.4034 |
| 1989 | 0.3151 | 0.3463 | 0.3453 | 0.3512 |
| 1990 | 0.3687 | 0.3932 | 0.3871 | 0.3978 |
| 1991 | 0.4065 | 0.3412 | 0.3512 | 0.3727 |
| 1992 | 0.5336 | 0.5793 | 0.5747 | 0.5818 |
| 1993 | 0.4207 | 0.4645 | 0.4624 | 0.4710 |
| 1994 | 0.4422 | 0.3815 | 0.3822 | 0.3987 |
| 1995 | 0.1207 | 0.1177 | 0.1167 | 0.1209 |
| 1996 | 0.1573 | 0.1632 | 0.1620 | 0.1666 |
| 1997 | 0.1043 | 0.1167 | 0.1160 | 0.1172 |
| 1998 | 0.1491 | 0.1565 | 0.1557 | 0.1584 |
| 1999 | 0.1588 | 0.1563 | 0.1576 | 0.1572 |
| 2000 | 0.1643 | 0.1642 | 0.1643 | 0.1647 |
| 2001 | 0.2215 | 0.2064 | 0.2090 | 0.2113 |
| 2002 | 0.2347 | 0.2292 | 0.2315 | 0.2301 |
| 2003 | 0.2092 | 0.1936 | 0.1962 | 0.1955 |
| 2004 | 0.2952 | 0.2891 | 0.2935 | 0.3006 |
| 2005 | 0.3089 | 0.2929 | 0.2943 | 0.2936 |
| 2006 | 0.2397 | 0.2837 | 0.2840 | 0.2866 |
| 2007 | 0.2285 | 0.2208 | 0.2209 | 0.2217 |

Back Calculated Partial Recruitment

| AGE | 1931   | 1932   | 1933   | 1934   | 1935   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0451 | 0.0038 | 0.0060 | 0.0122 | 0.0394 |
| 2   | 0.1168 | 0.1011 | 0.3353 | 0.2391 | 0.5383 |
| 3   | 0.1579 | 0.8819 | 0.3802 | 0.5862 | 0.6579 |
| 4   | 0.4038 | 0.4225 | 0.6960 | 0.6726 | 0.6054 |
| 5   | 0.7830 | 0.7485 | 0.5861 | 0.7350 | 0.8809 |
| 6   | 0.9367 | 1.0000 | 0.5935 | 1.0000 | 1.0000 |
| 7   | 1.0000 | 0.8711 | 1.0000 | 0.7481 | 0.8621 |
| 8   | 0.9065 | 0.8732 | 0.7265 | 0.8277 | 0.9144 |
| 9   | 0.9065 | 0.8732 | 0.7265 | 0.8277 | 0.9144 |
| AGE | 1936   | 1937   | 1938   | 1939   | 1940   |
| 1   | 0.0225 | 0.0184 | 0.0207 | 0.0133 | 0.0285 |
| 2   | 0.4510 | 0.4150 | 0.4271 | 0.3281 | 0.2526 |
| 3   | 0.7456 | 0.7885 | 0.5177 | 0.6350 | 0.5916 |
| 4   | 0.5674 | 0.8276 | 0.5704 | 0.5241 | 0.6387 |
| 5   | 0.4651 | 0.9428 | 0.6890 | 0.5033 | 0.5644 |
| 6   | 0.6342 | 0.8168 | 0.9064 | 0.5098 | 0.8240 |
| 7   | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 0.6998 | 0.9198 | 0.8651 | 0.6710 | 0.7961 |
| 9   | 0.6998 | 0.9198 | 0.8651 | 0.6710 | 0.7961 |
| AGE | 1941   | 1942   | 1943   | 1944   | 1945   |
| 1   | 0.0078 | 0.0072 | 0.0009 | 0.0014 | 0.0030 |
| 2   | 0.3495 | 0.2411 | 0.0935 | 0.0576 | 0.2235 |
| 3   | 0.4064 | 0.5486 | 0.3582 | 0.3635 | 0.1873 |
| 4   | 0.5597 | 0.6507 | 0.3876 | 0.7727 | 0.4176 |
| 5   | 0.6993 | 0.7530 | 0.4612 | 0.6665 | 0.5828 |
| 6   | 0.5796 | 0.8546 | 1.0000 | 1.0000 | 0.4807 |
| 7   | 1.0000 | 1.0000 | 0.4753 | 0.6711 | 1.0000 |
| 8   | 0.7596 | 0.8692 | 0.6455 | 0.7792 | 0.6878 |
| 9   | 0.7596 | 0.8692 | 0.6455 | 0.7792 | 0.6878 |
| AGE | 1946   | 1947   | 1948   | 1949   | 1950   |
| 1   | 0.0033 | 0.0022 | 0.0044 | 0.0045 | 0.0033 |



|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 2 | 0.2866 | 0.3544 | 0.4810 | 0.4720 | 0.7411 |
| 3 | 0.8242 | 0.6766 | 0.9457 | 0.9553 | 0.6418 |
| 4 | 0.4535 | 0.8902 | 0.8659 | 1.0000 | 0.8809 |
| 5 | 0.8677 | 0.6337 | 1.0000 | 0.7657 | 0.9624 |
| 6 | 1.0000 | 0.9890 | 0.8777 | 0.7848 | 0.9398 |
| 7 | 0.9084 | 1.0000 | 0.8254 | 0.9711 | 1.0000 |
| 8 | 0.9254 | 0.8743 | 0.9010 | 0.8405 | 0.9674 |
| 9 | 0.9254 | 0.8743 | 0.9010 | 0.8405 | 0.9674 |

Back Calculated Partial Recruitment

| AGE | 1951   | 1952   | 1953   | 1954   | 1955   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0097 | 0.0002 | 0.0170 | 0.0045 | 0.0021 |
| 2   | 0.3057 | 0.7643 | 0.1111 | 0.7669 | 0.2044 |
| 3   | 1.0000 | 0.7352 | 1.0000 | 0.4617 | 0.8326 |
| 4   | 0.4059 | 1.0000 | 0.8460 | 0.6306 | 0.4519 |
| 5   | 0.7090 | 0.5663 | 0.8555 | 0.6486 | 0.6035 |
| 6   | 0.9650 | 0.7100 | 0.6914 | 1.0000 | 0.7962 |
| 7   | 0.9439 | 0.6840 | 0.6981 | 0.9568 | 1.0000 |
| 8   | 0.8726 | 0.6534 | 0.7483 | 0.8684 | 0.7999 |
| 9   | 0.8726 | 0.6534 | 0.7483 | 0.8684 | 0.7999 |

  

| AGE | 1956   | 1957   | 1958   | 1959   | 1960   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0013 | 0.0009 | 0.0052 | 0.0019 | 0.0079 |
| 2   | 0.2723 | 0.2209 | 0.2954 | 0.3285 | 0.6157 |
| 3   | 0.3692 | 0.5179 | 0.5642 | 0.6756 | 0.7470 |
| 4   | 0.7493 | 0.4032 | 0.6698 | 0.7037 | 0.9058 |
| 5   | 0.5630 | 0.7645 | 0.9266 | 0.6924 | 1.0000 |
| 6   | 0.8679 | 0.7646 | 1.0000 | 0.8248 | 0.7259 |
| 7   | 1.0000 | 1.0000 | 0.9295 | 1.0000 | 0.8970 |
| 8   | 0.8103 | 0.8430 | 0.9520 | 0.8391 | 0.8743 |
| 9   | 0.8103 | 0.8430 | 0.9520 | 0.8391 | 0.8743 |

  

| AGE | 1961   | 1962   | 1963   | 1964   | 1965   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0043 | 0.0049 | 0.0449 | 0.0430 | 0.5150 |
| 2   | 0.4298 | 0.2733 | 0.3927 | 0.2162 | 0.6170 |
| 3   | 0.8782 | 0.6635 | 0.7577 | 0.4423 | 0.7713 |
| 4   | 0.7906 | 0.6697 | 0.8413 | 0.5398 | 0.6937 |
| 5   | 0.9346 | 0.7030 | 1.0000 | 0.7901 | 0.6785 |
| 6   | 1.0000 | 0.7476 | 0.8374 | 0.9026 | 0.9932 |
| 7   | 0.7886 | 1.0000 | 0.9682 | 1.0000 | 1.0000 |
| 8   | 0.9077 | 0.8169 | 0.9352 | 0.8976 | 0.8906 |
| 9   | 0.9077 | 0.8169 | 0.9352 | 0.8976 | 0.8906 |

  

| AGE | 1966   | 1967   | 1968   | 1969   | 1970   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0353 | 0.1471 | 0.0253 | 0.0036 | 0.0252 |
| 2   | 0.6173 | 0.0897 | 0.5819 | 0.0504 | 0.4837 |
| 3   | 1.0000 | 0.7111 | 0.5606 | 0.6841 | 0.1186 |
| 4   | 0.6245 | 0.6687 | 0.9791 | 0.7388 | 0.4843 |
| 5   | 0.6609 | 1.0000 | 0.9514 | 0.8270 | 0.6852 |
| 6   | 0.7617 | 0.8325 | 0.7243 | 1.0000 | 0.6122 |
| 7   | 0.7517 | 0.9025 | 1.0000 | 0.7166 | 1.0000 |
| 8   | 0.7248 | 0.9117 | 0.8919 | 0.8479 | 0.7658 |
| 9   | 0.7248 | 0.9117 | 0.8919 | 0.8479 | 0.7658 |

Back Calculated Partial Recruitment

| AGE | 1971   | 1972   | 1973   | 1974   | 1975   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0050 | 0.0292 | 0.3146 | 0.0112 | 0.0796 |
| 2   | 0.6231 | 0.0143 | 0.8174 | 1.0000 | 0.4174 |
| 3   | 0.6301 | 0.4533 | 0.0387 | 0.5059 | 1.0000 |
| 4   | 0.2151 | 0.5220 | 1.0000 | 0.0369 | 0.5518 |
| 5   | 0.1923 | 0.3025 | 0.8781 | 0.3620 | 0.1151 |
| 6   | 1.0000 | 0.1314 | 0.6353 | 0.0607 | 0.3901 |
| 7   | 0.8347 | 1.0000 | 0.1576 | 0.0726 | 0.1925 |
| 8   | 0.6756 | 0.4780 | 0.5570 | 0.1651 | 0.2326 |
| 9   | 0.6756 | 0.4780 | 0.5570 | 0.1651 | 0.2326 |

  

| AGE | 1976   | 1977   | 1978   | 1979   | 1980   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0056 | 0.0002 | 0.0004 | 0.0002 | 0.0012 |
| 2   | 0.3197 | 0.6772 | 0.1752 | 0.0110 | 1.0000 |
| 3   | 0.3889 | 0.1049 | 0.8221 | 0.4742 | 0.1447 |
| 4   | 1.0000 | 0.4310 | 0.2194 | 0.5836 | 0.3166 |
| 5   | 0.5859 | 0.5938 | 0.5286 | 0.4528 | 0.6708 |
| 6   | 0.0004 | 1.0000 | 1.0000 | 0.4979 | 0.6722 |
| 7   | 0.3726 | 0.1476 | 0.6735 | 1.0000 | 0.9602 |
| 8   | 0.3196 | 0.5805 | 0.7341 | 0.6502 | 0.7677 |
| 9   | 0.3196 | 0.5805 | 0.7341 | 0.6502 | 0.7677 |

| AGE | 1981   | 1982   | 1983   | 1984   | 1985   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0003 | 0.0011 | 0.0003 | 0.0002 | 0.0002 |
| 2   | 0.4367 | 0.6388 | 0.2996 | 0.0729 | 0.4132 |
| 3   | 1.0000 | 1.0000 | 0.6632 | 0.4490 | 0.7058 |
| 4   | 0.6496 | 0.9826 | 0.6787 | 0.7441 | 0.5117 |
| 5   | 0.5993 | 0.7651 | 1.0000 | 0.4581 | 1.0000 |
| 6   | 0.6485 | 0.9216 | 0.8389 | 0.9356 | 0.4543 |
| 7   | 0.9105 | 0.6978 | 0.4571 | 1.0000 | 0.6972 |
| 8   | 0.7194 | 0.7948 | 0.7653 | 0.7979 | 0.7172 |
| 9   | 0.7194 | 0.7948 | 0.7653 | 0.7979 | 0.7172 |

| AGE | 1986   | 1987   | 1988   | 1989   | 1990   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0011 | 0.0003 | 0.0005 | 0.0040 | 0.0491 |
| 2   | 0.0784 | 0.4524 | 0.0667 | 0.2723 | 0.0276 |
| 3   | 1.0000 | 0.2357 | 0.8037 | 0.2168 | 0.4009 |
| 4   | 0.5971 | 1.0000 | 0.3167 | 0.5965 | 0.6235 |
| 5   | 0.7895 | 0.4770 | 1.0000 | 0.8342 | 1.0000 |
| 6   | 0.8928 | 0.6146 | 0.8830 | 1.0000 | 0.9330 |
| 7   | 0.5818 | 0.7480 | 0.6981 | 0.6533 | 0.7118 |
| 8   | 0.7547 | 0.6132 | 0.8603 | 0.8291 | 0.8816 |
| 9   | 0.7547 | 0.6132 | 0.8603 | 0.8291 | 0.8816 |

Back Calculated Partial Recruitment

| AGE | 1991   | 1992   | 1993   | 1994   | 1995   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0043 | 0.0142 | 0.0047 | 0.0030 | 0.0107 |
| 2   | 0.3307 | 0.2331 | 0.0950 | 0.0739 | 0.0594 |
| 3   | 0.2468 | 0.4724 | 0.7377 | 0.3309 | 0.5110 |
| 4   | 0.5663 | 0.6974 | 0.8313 | 0.5431 | 0.8844 |
| 5   | 0.3314 | 1.0000 | 1.0000 | 0.4658 | 0.9697 |
| 6   | 0.5272 | 0.7688 | 0.9823 | 1.0000 | 0.6736 |
| 7   | 1.0000 | 0.8858 | 0.5839 | 0.6047 | 1.0000 |
| 8   | 0.6195 | 0.8849 | 0.8554 | 0.6901 | 0.8811 |
| 9   | 0.6195 | 0.8849 | 0.8554 | 0.6901 | 0.8811 |

| AGE | 1996   | 1997   | 1998   | 1999   | 2000   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0029 | 0.0056 | 0.0026 | 0.0006 | 0.0008 |
| 2   | 0.0275 | 0.1350 | 0.0755 | 0.0231 | 0.0615 |
| 3   | 0.2883 | 0.2966 | 0.3930 | 0.3870 | 0.4036 |
| 4   | 0.6572 | 0.9010 | 0.5491 | 0.6165 | 0.8700 |
| 5   | 0.7548 | 1.0000 | 0.8993 | 0.8411 | 0.8878 |
| 6   | 1.0000 | 0.9153 | 1.0000 | 0.9754 | 1.0000 |
| 7   | 0.4305 | 0.6741 | 0.6759 | 1.0000 | 0.8900 |
| 8   | 0.7284 | 0.8631 | 0.8584 | 0.9388 | 0.9259 |
| 9   | 0.7284 | 0.8631 | 0.8584 | 0.9388 | 0.9259 |

| AGE | 2001   | 2002   | 2003   | 2004   | 2005   |
|-----|--------|--------|--------|--------|--------|
| 1   | 0.0006 | 0.0022 | 0.0073 | 0.0037 | 0.0083 |
| 2   | 0.0623 | 0.0214 | 0.0174 | 0.0402 | 0.0052 |
| 3   | 0.3107 | 0.1927 | 0.1408 | 0.0914 | 0.0760 |
| 4   | 0.5899 | 0.5816 | 0.3632 | 0.2980 | 0.4044 |
| 5   | 0.6885 | 0.8281 | 0.7646 | 0.4917 | 0.8818 |
| 6   | 1.0000 | 0.9196 | 0.8811 | 0.7939 | 0.9857 |
| 7   | 0.8292 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 8   | 0.8392 | 0.9159 | 0.8819 | 0.7618 | 0.9559 |
| 9   | 0.8392 | 0.9159 | 0.8819 | 0.7618 | 0.9559 |

| AGE | 2006   | 2007   |
|-----|--------|--------|
| 1   | 0.0232 | 0.0072 |
| 2   | 0.0104 | 0.0336 |
| 3   | 0.0358 | 0.1886 |
| 4   | 0.1784 | 0.1762 |
| 5   | 0.7047 | 0.7454 |
| 6   | 1.0000 | 1.0000 |
| 7   | 0.7222 | 0.8116 |
| 8   | 0.8089 | 0.8523 |
| 9   | 0.8089 | 0.8523 |

JAN-1 Biomass

| AGE   | 1931    | 1932    | 1933    | 1934    | 1935    |
|-------|---------|---------|---------|---------|---------|
| 1     | 28136.  | 27157.  | 23970.  | 17382.  | 20183.  |
| 2     | 53040.  | 24842.  | 25285.  | 26396.  | 29296.  |
| 3     | 13379.  | 53373.  | 25274.  | 20587.  | 28691.  |
| 4     | 20604.  | 14201.  | 30202.  | 19723.  | 18412.  |
| 5     | 24554.  | 14925.  | 10218.  | 17168.  | 13117.  |
| 6     | 17555.  | 11275.  | 9148.   | 5427.   | 11336.  |
| 7     | 11262.  | 6992.   | 5279.   | 5198.   | 3217.   |
| 8     | 7474.   | 3892.   | 3356.   | 2077.   | 3119.   |
| 9     | 2913.   | 2819.   | 3939.   | 1571.   | 988.    |
| ===== |         |         |         |         |         |
| Total | 178917. | 159477. | 136671. | 115530. | 128360. |

| AGE   | 1936    | 1937    | 1938    | 1939    | 1940    |
|-------|---------|---------|---------|---------|---------|
| 1     | 22316.  | 37543.  | 36122.  | 27138.  | 52443.  |
| 2     | 28433.  | 30636.  | 54964.  | 42670.  | 34296.  |
| 3     | 29517.  | 27124.  | 30283.  | 52164.  | 39826.  |
| 4     | 23420.  | 18119.  | 18315.  | 23604.  | 33679.  |
| 5     | 13077.  | 15705.  | 10865.  | 12658.  | 14471.  |
| 6     | 7619.   | 8794.   | 7797.   | 6980.   | 7795.   |
| 7     | 6011.   | 4833.   | 4915.   | 3938.   | 4296.   |
| 8     | 1781.   | 2869.   | 2173.   | 2307.   | 1602.   |
| 9     | 1091.   | 1752.   | 1532.   | 2057.   | 1322.   |
| ===== |         |         |         |         |         |
| Total | 133264. | 147376. | 166966. | 173516. | 189729. |

| AGE   | 1941    | 1942    | 1943    | 1944    | 1945    |
|-------|---------|---------|---------|---------|---------|
| 1     | 48209.  | 27157.  | 9770.   | 34706.  | 25908.  |
| 2     | 59342.  | 59507.  | 31038.  | 12297.  | 38454.  |
| 3     | 33992.  | 49540.  | 55836.  | 33420.  | 14862.  |
| 4     | 29517.  | 23995.  | 35762.  | 42106.  | 30206.  |
| 5     | 21955.  | 16258.  | 14124.  | 25063.  | 26311.  |
| 6     | 9381.   | 10279.  | 8177.   | 9052.   | 15690.  |
| 7     | 4104.   | 5189.   | 4874.   | 2958.   | 4279.   |
| 8     | 1866.   | 1472.   | 2181.   | 3010.   | 1874.   |
| 9     | 2818.   | 1330.   | 1350.   | 952.    | 1673.   |
| ===== |         |         |         |         |         |
| Total | 211183. | 194729. | 163113. | 163564. | 159258. |

| AGE   | 1946    | 1947    | 1948    | 1949    | 1950    |
|-------|---------|---------|---------|---------|---------|
| 1     | 41212.  | 31910.  | 14464.  | 59737.  | 19281.  |
| 2     | 28455.  | 47248.  | 30132.  | 16579.  | 61413.  |
| 3     | 36095.  | 26441.  | 41684.  | 24009.  | 14330.  |
| 4     | 14770.  | 22006.  | 18101.  | 26871.  | 14894.  |
| 5     | 22323.  | 10972.  | 11572.  | 11330.  | 15118.  |
| 6     | 16380.  | 11665.  | 6633.   | 6273.   | 6804.   |
| 7     | 10182.  | 7598.   | 5422.   | 3683.   | 3571.   |
| 8     | 1757.   | 4782.   | 3446.   | 3119.   | 1890.   |
| 9     | 209.    | 3388.   | 3331.   | 3386.   | 2412.   |
| ===== |         |         |         |         |         |
| Total | 171384. | 166009. | 134785. | 154986. | 139713. |

JAN-1 Biomass

| AGE   | 1951    | 1952    | 1953    | 1954    | 1955    |
|-------|---------|---------|---------|---------|---------|
| 1     | 48206.  | 18020.  | 61721.  | 16751.  | 43332.  |
| 2     | 25654.  | 51028.  | 19349.  | 70118.  | 25807.  |
| 3     | 45782.  | 25022.  | 37488.  | 20273.  | 54367.  |
| 4     | 11731.  | 25463.  | 18267.  | 24430.  | 18615.  |
| 5     | 10486.  | 9114.   | 16238.  | 11994.  | 19318.  |
| 6     | 9682.   | 6720.   | 6689.   | 10008.  | 9025.   |
| 7     | 4161.   | 4761.   | 4386.   | 4336.   | 5883.   |
| 8     | 2004.   | 2067.   | 2946.   | 2590.   | 2437.   |
| 9     | 1683.   | 1430.   | 1676.   | 923.    | 1638.   |
| ===== |         |         |         |         |         |
| Total | 159389. | 143623. | 168761. | 161422. | 180423. |

| AGE | 1956   | 1957   | 1958   | 1959   | 1960   |
|-----|--------|--------|--------|--------|--------|
| 1   | 18337. | 26130. | 34900. | 60457. | 61991. |
| 2   | 51319. | 28574. | 32465. | 36170. | 71542. |
| 3   | 29184. | 47737. | 32577. | 33915. | 34711. |
| 4   | 38513. | 23849. | 34111. | 27783. | 28580. |
| 5   | 16528. | 23485. | 19049. | 26226. | 22029. |
| 6   | 14928. | 11438. | 14151. | 12724. | 21589. |
| 7   | 6216.  | 7840.  | 6713.  | 8860.  | 9429.  |
| 8   | 3587.  | 2944.  | 3662.  | 4361.  | 5689.  |
| 9   | 1793.  | 2731.  | 1501.  | 4270.  | 6368.  |

| AGE | 1961   | 1962   | 1963   | 1964    | 1965    |
|-----|--------|--------|--------|---------|---------|
| 1   | 22089. | 16612. | 88925. | 196123. | 16809.  |
| 2   | 70886. | 29524. | 21867. | 104196. | 216259. |
| 3   | 68792. | 68374. | 32393. | 22185.  | 101397. |
| 4   | 30702. | 57512. | 55735. | 25736.  | 17588.  |
| 5   | 22854. | 24040. | 43484. | 40934.  | 18433.  |
| 6   | 16775. | 16739. | 17210. | 28985.  | 24865.  |
| 7   | 16957. | 11635. | 11153. | 11907.  | 16463.  |
| 8   | 6814.  | 11359. | 7199.  | 7001.   | 6136.   |
| 9   | 10309. | 10978. | 12381. | 10816.  | 9430.   |

| AGE | 1966    | 1967   | 1968   | 1969   | 1970   |
|-----|---------|--------|--------|--------|--------|
| 1   | 2194.   | 8349.  | 278.   | 370.   | 2721.  |
| 2   | 11714.  | 2102.  | 7631.  | 296.   | 738.   |
| 3   | 147826. | 7172.  | 2186.  | 5528.  | 339.   |
| 4   | 56936.  | 66282. | 4994.  | 1932.  | 4766.  |
| 5   | 10475.  | 31781. | 46845. | 2939.  | 1512.  |
| 6   | 10846.  | 5945.  | 17636. | 26860. | 2039.  |
| 7   | 11290.  | 5381.  | 3325.  | 12021. | 16116. |
| 8   | 7536.   | 5555.  | 2771.  | 1718.  | 8176.  |
| 9   | 6434.   | 5322.  | 5988.  | 5999.  | 6684.  |

JAN-1 Biomass

| AGE | 1971   | 1972   | 1973  | 1974   | 1975  |
|-----|--------|--------|-------|--------|-------|
| 1   | 144.   | 4101.  | 8802. | 6527.  | 3890. |
| 2   | 3196.  | 181.   | 5463. | 10858. | 7238. |
| 3   | 775.   | 2448.  | 225.  | 5068.  | 9371. |
| 4   | 394.   | 478.   | 2085. | 271.   | 4847. |
| 5   | 4649.  | 380.   | 366.  | 1313.  | 257.  |
| 6   | 1181.  | 3994.  | 345.  | 261.   | 1074. |
| 7   | 1648.  | 500.   | 3562. | 265.   | 268.  |
| 8   | 10615. | 812.   | 235.  | 3120.  | 233.  |
| 9   | 8820.  | 17573. | 8020. | 17047. | 5525. |

| AGE | 1976   | 1977   | 1978   | 1979   | 1980   |
|-----|--------|--------|--------|--------|--------|
| 1   | 36008. | 5566.  | 2363.  | 33388. | 4782.  |
| 2   | 4946.  | 62986. | 8080.  | 3650.  | 48471. |
| 3   | 7109.  | 5643.  | 66710. | 9522.  | 4490.  |
| 4   | 7393.  | 7768.  | 6339.  | 52364. | 8243.  |
| 5   | 3951.  | 5921.  | 7482.  | 6225.  | 37948. |
| 6   | 233.   | 3309.  | 4752.  | 5847.  | 4723.  |
| 7   | 875.   | 262.   | 1982.  | 2955.  | 4186.  |
| 8   | 228.   | 753.   | 218.   | 1313.  | 1511.  |
| 9   | 7384.  | 2786.  | 1378.  | 857.   | 844.   |

| AGE | 1981   | 1982   | 1983   | 1984   | 1985  |
|-----|--------|--------|--------|--------|-------|
| 1   | 1821.  | 264.   | 649.   | 3445.  | 492.  |
| 2   | 6188.  | 3708.  | 1001.  | 1482.  | 8462. |
| 3   | 30644. | 6453.  | 4472.  | 1781.  | 2393. |
| 4   | 4504.  | 20345. | 5256.  | 3860.  | 1594. |
| 5   | 7287.  | 3596.  | 15356. | 4043.  | 2834. |
| 6   | 22794. | 5399.  | 2656.  | 10053. | 3152. |
| 7   | 2969.  | 15898. | 3713.  | 1739.  | 5845. |
| 8   | 2017.  | 1736.  | 11122. | 2816.  | 983.  |
| 9   | 1397.  | 1922.  | 1368.  | 6400.  | 2192. |

| AGE | 1986   | 1987  | 1988  | 1989   | 1990   |
|-----|--------|-------|-------|--------|--------|
| 1   | 5564.  | 746.  | 5774. | 535.   | 1596.  |
| 2   | 1149.  | 8399. | 1391. | 10017. | 801.   |
| 3   | 11490. | 1900. | 9934. | 2055.  | 13881. |
| 4   | 1957.  | 9154. | 1896. | 8550.  | 2089.  |
| 5   | 1415.  | 1626. | 6227. | 1692.  | 7019.  |
| 6   | 1769.  | 990.  | 1277. | 3813.  | 1243.  |
| 7   | 2397.  | 1144. | 686.  | 869.   | 2493.  |
| 8   | 3873.  | 1853. | 775.  | 489.   | 613.   |
| 9   | 1015.  | 3031. | 1565. | 880.   | 723.   |

JAN-1 Biomass

| AGE   | 1991   | 1992   | 1993   | 1994   | 1995   |
|-------|--------|--------|--------|--------|--------|
| 1     | 1113.  | 3946.  | 8031.  | 4735.  | 3446.  |
| 2     | 2401.  | 1838.  | 6960.  | 10880. | 8370.  |
| 3     | 1019.  | 2533.  | 2255.  | 9504.  | 12771. |
| 4     | 13732. | 958.   | 2097.  | 1761.  | 8284.  |
| 5     | 1600.  | 9423.  | 655.   | 1444.  | 1235.  |
| 6     | 4598.  | 1254.  | 5076.  | 407.   | 999.   |
| 7     | 782.   | 3151.  | 711.   | 2954.  | 218.   |
| 8     | 1651.  | 382.   | 1643.  | 536.   | 1780.  |
| 9     | 925.   | 1123.  | 1053.  | 1528.  | 624.   |
| Total | 27822. | 24608. | 28481. | 33749. | 37729. |

| AGE   | 1996   | 1997   | 1998   | 1999   | 2000    |
|-------|--------|--------|--------|--------|---------|
| 1     | 3680.  | 6498.  | 5202.  | 26491. | 5986.   |
| 2     | 7210.  | 6590.  | 12373. | 9174.  | 36242.  |
| 3     | 12439. | 11647. | 9579.  | 19155. | 12663.  |
| 4     | 12642. | 13382. | 12156. | 9919.  | 20541.  |
| 5     | 7148.  | 10949. | 12266. | 10112. | 9011.   |
| 6     | 950.   | 5576.  | 9607.  | 9554.  | 7988.   |
| 7     | 851.   | 696.   | 4663.  | 7299.  | 7177.   |
| 8     | 177.   | 696.   | 574.   | 3668.  | 5322.   |
| 9     | 2194.  | 1983.  | 1572.  | 1313.  | 2359.   |
| Total | 47291. | 58018. | 67993. | 96686. | 107289. |

| AGE   | 2001    | 2002    | 2003    | 2004    | 2005    |
|-------|---------|---------|---------|---------|---------|
| 1     | 21966.  | 1210.   | 602.    | 64234.  | 891.    |
| 2     | 8656.   | 45718.  | 2100.   | 751.    | 140147. |
| 3     | 43053.  | 9889.   | 72555.  | 3103.   | 1224.   |
| 4     | 12182.  | 40184.  | 9039.   | 73688.  | 3674.   |
| 5     | 17128.  | 9848.   | 31961.  | 7583.   | 59539.  |
| 6     | 7404.   | 13367.  | 7045.   | 23158.  | 5465.   |
| 7     | 6109.   | 5486.   | 9346.   | 4825.   | 14586.  |
| 8     | 5419.   | 4571.   | 3844.   | 6029.   | 2736.   |
| 9     | 4948.   | 9666.   | 7171.   | 5108.   | 3730.   |
| Total | 126863. | 139939. | 143664. | 188479. | 231992. |

| AGE   | 2006    | 2007    | 2008    |
|-------|---------|---------|---------|
| 1     | 2396.   | 171.    | 1844.   |
| 2     | 1926.   | 8902.   | 2203.   |
| 3     | 242494. | 3861.   | 14011.  |
| 4     | 1606.   | 292908. | 5221.   |
| 5     | 3346.   | 1480.   | 326296. |
| 6     | 39984.  | 2496.   | 1436.   |
| 7     | 3462.   | 26192.  | 1869.   |
| 8     | 8886.   | 2401.   | 21760.  |
| 9     | 2708.   | 6604.   | 792.    |
| Total | 306808. | 345015. | 375431. |

Mean Biomass

| AGE   | 1931    | 1932    | 1933    | 1934    | 1935    |
|-------|---------|---------|---------|---------|---------|
| 1     | 26507.  | 26249.  | 25198.  | 22607.  | 24003.  |
| 2     | 53446.  | 23104.  | 21352.  | 26212.  | 32980.  |
| 3     | 13864.  | 42157.  | 24739.  | 20120.  | 28110.  |
| 4     | 17841.  | 13749.  | 23712.  | 15945.  | 16835.  |
| 5     | 17431.  | 12238.  | 7143.   | 14453.  | 10283.  |
| 6     | 11791.  | 8356.   | 7356.   | 4275.   | 8366.   |
| 7     | 7097.   | 5474.   | 3444.   | 4052.   | 2547.   |
| 8     | 4569.   | 2937.   | 2219.   | 1659.   | 2318.   |
| 9     | 1698.   | 1889.   | 2679.   | 1166.   | 701.    |
| Total | 154245. | 136152. | 117841. | 110489. | 126143. |

| AGE | 1936   | 1937   | 1938   | 1939   | 1940   |
|-----|--------|--------|--------|--------|--------|
| 1   | 26198. | 45516. | 39335. | 30564. | 55900. |
| 2   | 29114. | 31407. | 58179. | 41039. | 35636. |
| 3   | 24106. | 23295. | 29018. | 42946. | 36865. |
| 4   | 19634. | 14037. | 16383. | 19034. | 28644. |
| 5   | 10411. | 11576. | 9367.  | 9973.  | 11595. |
| 6   | 5967.  | 6826.  | 5741.  | 5542.  | 5856.  |
| 7   | 4209.  | 3645.  | 3568.  | 2623.  | 3040.  |
| 8   | 1280.  | 2187.  | 1470.  | 1694.  | 1205.  |
| 9   | 774.   | 1167.  | 1049.  | 1435.  | 922.   |

|              |         |         |         |         |         |
|--------------|---------|---------|---------|---------|---------|
| =====        |         |         |         |         |         |
| Total        | 121693. | 139655. | 164109. | 154851. | 179662. |
| AGE          | 1941    | 1942    | 1943    | 1944    | 1945    |
| -----        |         |         |         |         |         |
| 1            | 53658.  | 29084.  | 10980.  | 36591.  | 27200.  |
| 2            | 54453.  | 60861.  | 31831.  | 13527.  | 37002.  |
| 3            | 29739.  | 44492.  | 47679.  | 32374.  | 15523.  |
| 4            | 23138.  | 19024.  | 30007.  | 34406.  | 27739.  |
| 5            | 15827.  | 11782.  | 11053.  | 20422.  | 22174.  |
| 6            | 7289.   | 7189.   | 4950.   | 6742.   | 13188.  |
| 7            | 2580.   | 3551.   | 3782.   | 2473.   | 2841.   |
| 8            | 1216.   | 1068.   | 1515.   | 2364.   | 1438.   |
| 9            | 1827.   | 889.    | 904.    | 653.    | 1154.   |
| =====        |         |         |         |         |         |
| Total        | 189725. | 177939. | 142701. | 149551. | 148258. |
| AGE          | 1946    | 1947    | 1948    | 1949    | 1950    |
| -----        |         |         |         |         |         |
| 1            | 44202.  | 31061.  | 15511.  | 60672.  | 22279.  |
| 2            | 27000.  | 44629.  | 25550.  | 15412.  | 52383.  |
| 3            | 29438.  | 22895.  | 34565.  | 19913.  | 13494.  |
| 4            | 13077.  | 16930.  | 14866.  | 21304.  | 12710.  |
| 5            | 16215.  | 8838.   | 8698.   | 9156.   | 12218.  |
| 6            | 11329.  | 8520.   | 5062.   | 4996.   | 5312.   |
| 7            | 7217.   | 5459.   | 4153.   | 2691.   | 2664.   |
| 8            | 1281.   | 3399.   | 2579.   | 2398.   | 1494.   |
| 9            | 138.    | 2262.   | 2342.   | 2386.   | 1742.   |
| =====        |         |         |         |         |         |
| Total        | 149897. | 143993. | 113327. | 138929. | 124296. |
| Mean Biomass |         |         |         |         |         |
| AGE          | 1951    | 1952    | 1953    | 1954    | 1955    |
| -----        |         |         |         |         |         |
| 1            | 49687.  | 18704.  | 65906.  | 20826.  | 47234.  |
| 2            | 26777.  | 43884.  | 19518.  | 62617.  | 30519.  |
| 3            | 35578.  | 22002.  | 31009.  | 19488.  | 47633.  |
| 4            | 10624.  | 21182.  | 15106.  | 22122.  | 18056.  |
| 5            | 8744.   | 7954.   | 13344.  | 10411.  | 17303.  |
| 6            | 7335.   | 5712.   | 5545.   | 7592.   | 7703.   |
| 7            | 3117.   | 3809.   | 3451.   | 3300.   | 4726.   |
| 8            | 1497.   | 1687.   | 2289.   | 1934.   | 1931.   |
| 9            | 1150.   | 1106.   | 1261.   | 680.    | 1221.   |
| =====        |         |         |         |         |         |
| Total        | 144510. | 126040. | 157430. | 148970. | 176325. |
| AGE          | 1956    | 1957    | 1958    | 1959    | 1960    |
| -----        |         |         |         |         |         |
| 1            | 22929.  | 29176.  | 35590.  | 65879.  | 66403.  |
| 2            | 50976.  | 33127.  | 34006.  | 34523.  | 71539.  |
| 3            | 26102.  | 41766.  | 30945.  | 31759.  | 33959.  |
| 4            | 30739.  | 21946.  | 29542.  | 24859.  | 26514.  |
| 5            | 14223.  | 18703.  | 15895.  | 23868.  | 20000.  |
| 6            | 11468.  | 8897.   | 11707.  | 10845.  | 20711.  |
| 7            | 4531.   | 5450.   | 5619.   | 7030.   | 8761.   |
| 8            | 2768.   | 2156.   | 2992.   | 3597.   | 5142.   |
| 9            | 1242.   | 1873.   | 1112.   | 3270.   | 5110.   |
| =====        |         |         |         |         |         |
| Total        | 164978. | 163094. | 167409. | 205630. | 258138. |
| AGE          | 1961    | 1962    | 1963    | 1964    | 1965    |
| -----        |         |         |         |         |         |
| 1            | 25582.  | 19093.  | 96445.  | 206379. | 14237.  |
| 2            | 71597.  | 32350.  | 23416.  | 107447. | 185250. |
| 3            | 64662.  | 61167.  | 30171.  | 20253.  | 78232.  |
| 4            | 28027.  | 51319.  | 50889.  | 22220.  | 13724.  |
| 5            | 20004.  | 20271.  | 35969.  | 31793.  | 14230.  |
| 6            | 14376.  | 13961.  | 14786.  | 22660.  | 17649.  |
| 7            | 13975.  | 9031.   | 8906.   | 8775.   | 11224.  |
| 8            | 5393.   | 8874.   | 6121.   | 5310.   | 4302.   |
| 9            | 8245.   | 8445.   | 9488.   | 7740.   | 6281.   |
| =====        |         |         |         |         |         |
| Total        | 251860. | 224513. | 276191. | 432578. | 345129. |
| AGE          | 1966    | 1967    | 1968    | 1969    | 1970    |
| -----        |         |         |         |         |         |
| 1            | 2152.   | 8010.   | 288.    | 523.    | 2954.   |
| 2            | 9297.   | 2036.   | 6421.   | 305.    | 945.    |
| 3            | 103071. | 5994.   | 2046.   | 4883.   | 375.    |
| 4            | 44427.  | 56601.  | 3990.   | 1833.   | 5172.   |
| 5            | 8179.   | 22783.  | 36913.  | 2475.   | 1354.   |
| 6            | 8089.   | 4620.   | 15630.  | 21189.  | 1902.   |
| 7            | 8125.   | 3945.   | 2384.   | 9899.   | 13558.  |
| 8            | 5768.   | 4152.   | 2050.   | 1419.   | 7164.   |
| 9            | 4370.   | 3684.   | 4160.   | 4364.   | 5173.   |
| =====        |         |         |         |         |         |
| Total        | 193478. | 111825. | 73881.  | 46888.  | 38598.  |

Mean Biomass

| AGE   | 1971   | 1972   | 1973   | 1974   | 1975   |
|-------|--------|--------|--------|--------|--------|
| 1     | 162.   | 4743.  | 9829.  | 6886.  | 4396.  |
| 2     | 2750.  | 202.   | 5263.  | 10626. | 7135.  |
| 3     | 561.   | 2477.  | 250.   | 5485.  | 8930.  |
| 4     | 391.   | 454.   | 1655.  | 295.   | 4415.  |
| 5     | 4347.  | 367.   | 293.   | 1270.  | 223.   |
| 6     | 836.   | 3825.  | 313.   | 291.   | 929.   |
| 7     | 1206.  | 342.   | 3362.  | 262.   | 242.   |
| 8     | 8156.  | 681.   | 210.   | 2922.  | 203.   |
| 9     | 6183.  | 13572. | 6364.  | 14912. | 4814.  |
| ===== |        |        |        |        |        |
| Total | 24592. | 26663. | 27539. | 42949. | 31288. |

| AGE   | 1976   | 1977    | 1978   | 1979    | 1980   |
|-------|--------|---------|--------|---------|--------|
| 1     | 47705. | 6717.   | 2942.  | 40295.  | 5449.  |
| 2     | 5427.  | 72782.  | 9400.  | 4532.   | 42866. |
| 3     | 7284.  | 6036.   | 60482. | 8951.   | 4269.  |
| 4     | 6488.  | 8053.   | 6531.  | 47674.  | 7839.  |
| 5     | 3634.  | 5570.   | 6891.  | 5591.   | 28811. |
| 6     | 250.   | 2696.   | 3798.  | 4968.   | 3666.  |
| 7     | 846.   | 267.    | 1602.  | 2288.   | 3011.  |
| 8     | 214.   | 631.    | 158.   | 1075.   | 1043.  |
| 9     | 6411.  | 2244.   | 1074.  | 661.    | 600.   |
| ===== |        |         |        |         |        |
| Total | 78259. | 104995. | 92878. | 116035. | 97554. |

| AGE   | 1981   | 1982   | 1983   | 1984   | 1985   |
|-------|--------|--------|--------|--------|--------|
| 1     | 2603.  | 515.   | 982.   | 5408.  | 753.   |
| 2     | 6288.  | 4729.  | 1844.  | 2200.  | 12067. |
| 3     | 24695. | 6330.  | 4251.  | 1637.  | 2268.  |
| 4     | 4239.  | 19093. | 4710.  | 3352.  | 1572.  |
| 5     | 6512.  | 3238.  | 12526. | 3574.  | 2374.  |
| 6     | 19534. | 4555.  | 2175.  | 7929.  | 2859.  |
| 7     | 2443.  | 13889. | 3348.  | 1298.  | 4833.  |
| 8     | 1606.  | 1412.  | 8891.  | 2139.  | 847.   |
| 9     | 1051.  | 1513.  | 1074.  | 4747.  | 1686.  |
| ===== |        |        |        |        |        |
| Total | 68970. | 55273. | 39801. | 32285. | 29259. |

| AGE   | 1986   | 1987   | 1988   | 1989   | 1990   |
|-------|--------|--------|--------|--------|--------|
| 1     | 6848.  | 1020.  | 7618.  | 656.   | 1961.  |
| 2     | 1732.  | 9500.  | 1878.  | 12576. | 976.   |
| 3     | 10224. | 2032.  | 9779.  | 2201.  | 14978. |
| 4     | 1828.  | 8374.  | 1749.  | 8045.  | 1835.  |
| 5     | 1267.  | 1494.  | 4718.  | 1515.  | 5697.  |
| 6     | 1467.  | 811.   | 1017.  | 3231.  | 1008.  |
| 7     | 2041.  | 933.   | 576.   | 805.   | 2054.  |
| 8     | 3262.  | 1691.  | 639.   | 418.   | 449.   |
| 9     | 804.   | 2451.  | 1200.  | 687.   | 552.   |
| ===== |        |        |        |        |        |
| Total | 29473. | 28307. | 29174. | 30134. | 29512. |

Mean Biomass

| AGE   | 1991   | 1992   | 1993   | 1994   | 1995   |
|-------|--------|--------|--------|--------|--------|
| 1     | 1433.  | 5250.  | 9364.  | 6306.  | 4993.  |
| 2     | 2690.  | 2215.  | 9092.  | 12414. | 11114. |
| 3     | 994.   | 2344.  | 2091.  | 9234.  | 13063. |
| 4     | 11589. | 829.   | 1807.  | 1533.  | 7867.  |
| 5     | 1449.  | 7105.  | 517.   | 1251.  | 1127.  |
| 6     | 3958.  | 984.   | 4033.  | 313.   | 897.   |
| 7     | 556.   | 2364.  | 577.   | 2347.  | 203.   |
| 8     | 1289.  | 294.   | 1256.  | 472.   | 1572.  |
| 9     | 693.   | 796.   | 784.   | 1128.  | 534.   |
| ===== |        |        |        |        |        |
| Total | 24651. | 22182. | 29522. | 34999. | 41369. |

| AGE | 1996   | 1997   | 1998   | 1999   | 2000   |
|-----|--------|--------|--------|--------|--------|
| 1   | 4933.  | 8982.  | 6920.  | 31036. | 7210.  |
| 2   | 10425. | 8767.  | 16998. | 12181. | 42237. |
| 3   | 13614. | 12872. | 10249. | 21130. | 12787. |
| 4   | 11897. | 12939. | 11210. | 9494.  | 19257. |
| 5   | 6423.  | 10277. | 11462. | 8986.  | 8404.  |
| 6   | 777.   | 5017.  | 8835.  | 8015.  | 7052.  |
| 7   | 814.   | 674.   | 4356.  | 6113.  | 6520.  |
| 8   | 154.   | 596.   | 477.   | 3055.  | 4697.  |
| 9   | 1845.  | 1710.  | 1327.  | 1103.  | 1977.  |

|                        |         |         |         |         |         |
|------------------------|---------|---------|---------|---------|---------|
| Total                  | 50881.  | 61834.  | 71834.  | 101112. | 110142. |
| AGE                    | 2001    | 2002    | 2003    | 2004    | 2005    |
| 1                      | 31745.  | 1597.   | 674.    | 95020.  | 1313.   |
| 2                      | 10345.  | 65886.  | 2767.   | 835.    | 207358. |
| 3                      | 42571.  | 9341.   | 79106.  | 3439.   | 1791.   |
| 4                      | 11220.  | 36990.  | 8641.   | 66300.  | 3769.   |
| 5                      | 15198.  | 8507.   | 27476.  | 6378.   | 49811.  |
| 6                      | 6274.   | 11605.  | 5926.   | 18634.  | 4471.   |
| 7                      | 5252.   | 4901.   | 7641.   | 3670.   | 11582.  |
| 8                      | 4418.   | 4007.   | 3136.   | 4705.   | 2176.   |
| 9                      | 4037.   | 7840.   | 5885.   | 4029.   | 2923.   |
| Total                  | 131061. | 150673. | 141253. | 203010. | 285194. |
| AGE                    | 2006    | 2007    |         |         |         |
| 1                      | 4627.   | 991.    |         |         |         |
| 2                      | 2836.   | 17042.  |         |         |         |
| 3                      | 283345. | 5155.   |         |         |         |
| 4                      | 1427.   | 298626. |         |         |         |
| 5                      | 2890.   | 1440.   |         |         |         |
| 6                      | 32559.  | 2127.   |         |         |         |
| 7                      | 2877.   | 22304.  |         |         |         |
| 8                      | 7248.   | 2019.   |         |         |         |
| 9                      | 2191.   | 5371.   |         |         |         |
| Total                  | 340000. | 355077. |         |         |         |
| Spawning Stock Biomass |         |         |         |         |         |
| AGE                    | 1931    | 1932    | 1933    | 1934    | 1935    |
| 1                      | 1057.   | 1033.   | 911.    | 660.    | 764.    |
| 2                      | 18566.  | 8809.   | 8501.   | 9250.   | 9792.   |
| 3                      | 10601.  | 37368.  | 19266.  | 15790.  | 21577.  |
| 4                      | 17364.  | 12344.  | 24470.  | 17022.  | 15877.  |
| 5                      | 18832.  | 12319.  | 8563.   | 14846.  | 10977.  |
| 6                      | 12906.  | 8873.   | 7654.   | 4535.   | 9324.   |
| 7                      | 8137.   | 5638.   | 4046.   | 4488.   | 2700.   |
| 8                      | 5541.   | 3137.   | 2728.   | 1775.   | 2598.   |
| 9                      | 2160.   | 2272.   | 3202.   | 1342.   | 823.    |
| Total                  | 95164.  | 91793.  | 79343.  | 69708.  | 74431.  |
| AGE                    | 1936    | 1937    | 1938    | 1939    | 1940    |
| 1                      | 845.    | 1424.   | 1369.   | 1030.   | 1985.   |
| 2                      | 9433.   | 10259.  | 18423.  | 14387.  | 11848.  |
| 3                      | 21199.  | 19414.  | 22869.  | 37727.  | 29641.  |
| 4                      | 19799.  | 14651.  | 15593.  | 19889.  | 28284.  |
| 5                      | 11386.  | 12559.  | 9150.   | 10821.  | 12441.  |
| 6                      | 6424.   | 7197.   | 6318.   | 5959.   | 6396.   |
| 7                      | 4728.   | 3825.   | 3918.   | 3029.   | 3415.   |
| 8                      | 1483.   | 2304.   | 1774.   | 1903.   | 1321.   |
| 9                      | 909.    | 1407.   | 1250.   | 1697.   | 1090.   |
| Total                  | 76207.  | 73039.  | 80664.  | 96442.  | 96422.  |
| AGE                    | 1941    | 1942    | 1943    | 1944    | 1945    |
| 1                      | 1831.   | 1032.   | 372.    | 1320.   | 985.    |
| 2                      | 19700.  | 20534.  | 10953.  | 4395.   | 13244.  |
| 3                      | 25480.  | 36888.  | 42144.  | 25762.  | 11811.  |
| 4                      | 24256.  | 19935.  | 30484.  | 34095.  | 25988.  |
| 5                      | 17614.  | 13378.  | 11933.  | 20930.  | 22063.  |
| 6                      | 7749.   | 8294.   | 6015.   | 7082.   | 13451.  |
| 7                      | 3060.   | 4072.   | 4103.   | 2468.   | 3279.   |
| 8                      | 1475.   | 1184.   | 1757.   | 2459.   | 1536.   |
| 9                      | 2228.   | 1070.   | 1087.   | 778.    | 1371.   |
| Total                  | 103394. | 106388. | 108848. | 99288.  | 93727.  |
| AGE                    | 1946    | 1947    | 1948    | 1949    | 1950    |
| 1                      | 1567.   | 1214.   | 550.    | 2271.   | 733.    |
| 2                      | 9746.   | 15956.  | 10119.  | 5550.   | 20207.  |
| 3                      | 25581.  | 19218.  | 29849.  | 17015.  | 10932.  |
| 4                      | 12772.  | 17471.  | 14931.  | 21513.  | 12542.  |
| 5                      | 18037.  | 9242.   | 9446.   | 9518.   | 12728.  |
| 6                      | 12910.  | 9179.   | 5517.   | 5253.   | 5745.   |
| 7                      | 8164.   | 5966.   | 4546.   | 2992.   | 2992.   |
| 8                      | 1404.   | 3847.   | 2856.   | 2588.   | 1590.   |
| 9                      | 167.    | 2726.   | 2761.   | 2810.   | 2029.   |
| Total                  | 90348.  | 84819.  | 80573.  | 69510.  | 69499.  |



Spawning Stock Biomass

| AGE   | 1951   | 1952   | 1953   | 1954   | 1955    |
|-------|--------|--------|--------|--------|---------|
| 1     | 1831.  | 686.   | 2343.  | 637.   | 1648.   |
| 2     | 8785.  | 16711. | 6891.  | 22981. | 9082.   |
| 3     | 31751. | 18831. | 27152. | 15817. | 40341.  |
| 4     | 10283. | 21073. | 15368. | 21226. | 16522.  |
| 5     | 8800.  | 8058.  | 13782. | 10502. | 16979.  |
| 6     | 7766.  | 5832.  | 5803.  | 8379.  | 7734.   |
| 7     | 3350.  | 4145.  | 3802.  | 3650.  | 4909.   |
| 8     | 1634.  | 1807.  | 2536.  | 2205.  | 2087.   |
| 9     | 1372.  | 1250.  | 1443.  | 786.   | 1403.   |
| Total | 75572. | 78393. | 79120. | 86182. | 100705. |

| AGE   | 1956    | 1957    | 1958    | 1959    | 1960    |
|-------|---------|---------|---------|---------|---------|
| 1     | 698.    | 994.    | 1327.   | 2300.   | 2357.   |
| 2     | 17659.  | 9925.   | 11347.  | 12622.  | 24714.  |
| 3     | 22593.  | 35986.  | 25285.  | 26108.  | 27189.  |
| 4     | 31675.  | 20885.  | 29768.  | 24264.  | 25179.  |
| 5     | 14201.  | 19465.  | 16308.  | 23164.  | 19468.  |
| 6     | 12138.  | 9480.   | 12014.  | 11080.  | 19468.  |
| 7     | 4935.   | 6228.   | 5745.   | 7572.   | 8396.   |
| 8     | 2947.   | 2406.   | 3126.   | 3792.   | 5074.   |
| 9     | 1474.   | 2231.   | 1281.   | 3713.   | 5680.   |
| Total | 108320. | 107600. | 106202. | 114614. | 137525. |

| AGE   | 1961    | 1962    | 1963    | 1964    | 1965    |
|-------|---------|---------|---------|---------|---------|
| 1     | 840.    | 632.    | 5306.   | 11681.  | 913.    |
| 2     | 24832.  | 10364.  | 9396.   | 45076.  | 85813.  |
| 3     | 53398.  | 52704.  | 26364.  | 18230.  | 76646.  |
| 4     | 27292.  | 50412.  | 48572.  | 22512.  | 14563.  |
| 5     | 20307.  | 21209.  | 37550.  | 34761.  | 15399.  |
| 6     | 14834.  | 14698.  | 15110.  | 24247.  | 19587.  |
| 7     | 15228.  | 9944.   | 9670.   | 9823.   | 12952.  |
| 8     | 6066.   | 9900.   | 6262.   | 5860.   | 4929.   |
| 9     | 9178.   | 9568.   | 10769.  | 9054.   | 7575.   |
| Total | 171975. | 179431. | 168999. | 181245. | 238377. |

| AGE   | 1966    | 1967    | 1968   | 1969   | 1970   |
|-------|---------|---------|--------|--------|--------|
| 1     | 130.    | 489.    | 17.    | 22.    | 163.   |
| 2     | 4569.   | 924.    | 3097.  | 131.   | 312.   |
| 3     | 104067. | 5598.   | 1746.  | 4396.  | 293.   |
| 4     | 46946.  | 56214.  | 4024.  | 1646.  | 4268.  |
| 5     | 8621.   | 25708.  | 38148. | 2488.  | 1332.  |
| 6     | 8741.   | 4945.   | 14915. | 22217. | 1814.  |
| 7     | 9119.   | 4426.   | 2689.  | 10344. | 13736. |
| 8     | 6123.   | 4562.   | 2281.  | 1452.  | 7150.  |
| 9     | 5227.   | 4371.   | 4928.  | 5069.  | 5846.  |
| Total | 193543. | 107237. | 71846. | 47766. | 34913. |

Spawning Stock Biomass

| AGE   | 1971   | 1972   | 1973   | 1974   | 1975   |
|-------|--------|--------|--------|--------|--------|
| 1     | 9.     | 244.   | 507.   | 391.   | 232.   |
| 2     | 1254.  | 80.    | 2198.  | 4332.  | 3113.  |
| 3     | 596.   | 1976.  | 196.   | 4191.  | 7510.  |
| 4     | 356.   | 411.   | 1736.  | 255.   | 4362.  |
| 5     | 4246.  | 342.   | 311.   | 1198.  | 242.   |
| 6     | 914.   | 3711.  | 303.   | 246.   | 987.   |
| 7     | 1319.  | 398.   | 3321.  | 250.   | 250.   |
| 8     | 8782.  | 709.   | 208.   | 2913.  | 217.   |
| 9     | 7297.  | 15350. | 7110.  | 15919. | 5149.  |
| Total | 24771. | 23222. | 15889. | 29695. | 22061. |

| AGE | 1976  | 1977   | 1978   | 1979   | 1980   |
|-----|-------|--------|--------|--------|--------|
| 1   | 2157. | 334.   | 142.   | 2001.  | 287.   |
| 2   | 2158. | 26122. | 3536.  | 1626.  | 18228. |
| 3   | 6054. | 4883.  | 53357. | 7830.  | 3833.  |
| 4   | 6512. | 7004.  | 5846.  | 45812. | 7377.  |
| 5   | 3604. | 5278.  | 6711.  | 5574.  | 32156. |
| 6   | 222.  | 2826.  | 4052.  | 5210.  | 4005.  |
| 7   | 811.  | 245.   | 1751.  | 2465.  | 3379.  |
| 8   | 212.  | 673.   | 191.   | 1147.  | 1261.  |
| 9   | 6868. | 2490.  | 1209.  | 748.   | 704.   |

|       |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|
| Total | 28598. | 49856. | 76794. | 72411. | 71229. |
| AGE   | 1981   | 1982   | 1983   | 1984   | 1985   |

|       |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|
| 1     | 109.   | 16.    | 39.    | 206.   | 30.    |
| 2     | 2598.  | 1558.  | 433.   | 654.   | 3589.  |
| 3     | 23337. | 5139.  | 3663.  | 1467.  | 1921.  |
| 4     | 3887.  | 17519. | 4640.  | 3298.  | 1414.  |
| 5     | 6371.  | 3180.  | 13207. | 3612.  | 2383.  |
| 6     | 19812. | 4709.  | 2323.  | 8429.  | 2836.  |
| 7     | 2489.  | 14160. | 3375.  | 1445.  | 5106.  |
| 8     | 1736.  | 1532.  | 9802.  | 2405.  | 857.   |
| 9     | 1203.  | 1696.  | 1206.  | 5466.  | 1910.  |
| ===== |        |        |        |        |        |
| Total | 61541. | 49509. | 38688. | 26982. | 20045. |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1986 | 1987 | 1988 | 1989 | 1990 |
|-----|------|------|------|------|------|

|       |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|
| 1     | 333.   | 45.    | 346.   | 32.    | 95.    |
| 2     | 509.   | 3584.  | 616.   | 4355.  | 356.   |
| 3     | 9146.  | 1625.  | 7996.  | 1762.  | 11649. |
| 4     | 1747.  | 7837.  | 1733.  | 7631.  | 1848.  |
| 5     | 1248.  | 1474.  | 5333.  | 1485.  | 6008.  |
| 6     | 1546.  | 887.   | 1108.  | 3298.  | 1072.  |
| 7     | 2158.  | 1011.  | 607.   | 777.   | 2201.  |
| 8     | 3430.  | 1660.  | 674.   | 430.   | 532.   |
| 9     | 899.   | 2715.  | 1362.  | 773.   | 627.   |
| ===== |        |        |        |        |        |
| Total | 21016. | 20838. | 19775. | 20543. | 24390. |

Spawning Stock Biomass

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1991 | 1992 | 1993 | 1994 | 1995 |
|-----|------|------|------|------|------|

|       |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|
| 1     | 67.    | 236.   | 481.   | 284.   | 206.   |
| 2     | 1015.  | 792.   | 3069.  | 4797.  | 3727.  |
| 3     | 856.   | 2064.  | 1802.  | 7888.  | 10982. |
| 4     | 11820. | 815.   | 1788.  | 1525.  | 7592.  |
| 5     | 1440.  | 7701.  | 550.   | 1274.  | 1135.  |
| 6     | 4011.  | 1062.  | 4279.  | 330.   | 929.   |
| 7     | 632.   | 2623.  | 630.   | 2550.  | 201.   |
| 8     | 1418.  | 318.   | 1407.  | 456.   | 1643.  |
| 9     | 795.   | 935.   | 901.   | 1302.  | 576.   |
| ===== |        |        |        |        |        |
| Total | 22055. | 16545. | 14908. | 20405. | 26991. |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 1996 | 1997 | 1998 | 1999 | 2000 |
|-----|------|------|------|------|------|

|       |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|
| 1     | 220.   | 389.   | 312.   | 1588.  | 359.   |
| 2     | 3212.  | 2928.  | 5502.  | 4089.  | 16124. |
| 3     | 10718. | 10102. | 8241.  | 16491. | 10885. |
| 4     | 11525. | 12301. | 11212. | 9128.  | 18668. |
| 5     | 6521.  | 10095. | 11210. | 9273.  | 8232.  |
| 6     | 856.   | 5159.  | 8750.  | 8721.  | 7268.  |
| 7     | 791.   | 649.   | 4308.  | 6655.  | 6563.  |
| 8     | 162.   | 645.   | 526.   | 3354.  | 4859.  |
| 9     | 2007.  | 1838.  | 1441.  | 1201.  | 2153.  |
| ===== |        |        |        |        |        |
| Total | 36012. | 44106. | 51501. | 60500. | 75112. |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 2001 | 2002 | 2003 | 2004 | 2005 |
|-----|------|------|------|------|------|

|       |        |         |         |         |         |
|-------|--------|---------|---------|---------|---------|
| 1     | 1316.  | 73.     | 36.     | 3848.   | 53.     |
| 2     | 3846.  | 20368.  | 936.    | 334.    | 62497.  |
| 3     | 36912. | 8548.   | 62967.  | 2691.   | 1064.   |
| 4     | 11067. | 36568.  | 8356.   | 67623.  | 3359.   |
| 5     | 15553. | 8875.   | 29025.  | 6870.   | 52689.  |
| 6     | 6593.  | 11988.  | 6360.   | 20398.  | 4801.   |
| 7     | 5501.  | 4894.   | 8378.   | 4165.   | 12798.  |
| 8     | 4877.  | 4100.   | 3471.   | 5327.   | 2409.   |
| 9     | 4453.  | 8671.   | 6474.   | 4514.   | 3284.   |
| ===== |        |         |         |         |         |
| Total | 90119. | 104085. | 126004. | 115770. | 142954. |

|     |      |      |
|-----|------|------|
| AGE | 2006 | 2007 |
|-----|------|------|

|       |         |         |
|-------|---------|---------|
| 1     | 143.    | 10.     |
| 2     | 859.    | 3962.   |
| 3     | 211652. | 3336.   |
| 4     | 1497.   | 273423. |
| 5     | 3018.   | 1338.   |
| 6     | 35317.  | 2221.   |
| 7     | 3121.   | 23595.  |
| 8     | 7961.   | 2157.   |
| 9     | 2426.   | 5933.   |
| ===== |         |         |
| Total | 265995. | 315976. |

Catch Biomass

| AGE   | 1931   | 1932   | 1933   | 1934   | 1935   |
|-------|--------|--------|--------|--------|--------|
| 1     | 1316.  | 76.    | 132.   | 143.   | 551.   |
| 2     | 6865.  | 1771.  | 6187.  | 3251.  | 10329. |
| 3     | 2408.  | 28199. | 8131.  | 6118.  | 10759. |
| 4     | 7925.  | 4406.  | 14265. | 5564.  | 5930.  |
| 5     | 15015. | 6948.  | 3619.  | 5511.  | 5270.  |
| 6     | 12150. | 6338.  | 3774.  | 2218.  | 4867.  |
| 7     | 7808.  | 3617.  | 2977.  | 1572.  | 1277.  |
| 8     | 4557.  | 1946.  | 1393.  | 712.   | 1233.  |
| 9     | 1694.  | 1251.  | 1682.  | 501.   | 373.   |
| ===== |        |        |        |        |        |
| Total | 59739. | 54552. | 42161. | 25590. | 40588. |

| AGE   | 1936   | 1937   | 1938   | 1939   | 1940   |
|-------|--------|--------|--------|--------|--------|
| 1     | 449.   | 618.   | 577.   | 346.   | 1142.  |
| 2     | 9985.  | 9600.  | 17573. | 11428. | 6456.  |
| 3     | 13668. | 13528. | 10624. | 23148. | 15643. |
| 4     | 8472.  | 8556.  | 6609.  | 8467.  | 13122. |
| 5     | 3683.  | 8037.  | 4564.  | 4261.  | 4694.  |
| 6     | 2878.  | 4106.  | 3680.  | 2398.  | 3461.  |
| 7     | 3201.  | 2685.  | 2523.  | 2226.  | 2181.  |
| 8     | 681.   | 1481.  | 899.   | 965.   | 688.   |
| 9     | 412.   | 790.   | 642.   | 817.   | 526.   |
| ===== |        |        |        |        |        |
| Total | 43428. | 49402. | 47691. | 54058. | 47913. |

| AGE   | 1941   | 1942   | 1943   | 1944   | 1945   |
|-------|--------|--------|--------|--------|--------|
| 1     | 406.   | 161.   | 10.    | 40.    | 70.    |
| 2     | 18537. | 11303. | 3059.  | 609.   | 7158.  |
| 3     | 11770. | 18800. | 17561. | 9196.  | 2516.  |
| 4     | 12612. | 9535.  | 11961. | 20780. | 10026. |
| 5     | 10779. | 6833.  | 5242.  | 10638. | 11184. |
| 6     | 4114.  | 4732.  | 5090.  | 5269.  | 5487.  |
| 7     | 2512.  | 2735.  | 1849.  | 1297.  | 2459.  |
| 8     | 900.   | 715.   | 1005.  | 1440.  | 856.   |
| 9     | 1352.  | 595.   | 600.   | 397.   | 687.   |
| ===== |        |        |        |        |        |
| Total | 62980. | 55409. | 46376. | 49667. | 40443. |

| AGE   | 1946   | 1947   | 1948   | 1949   | 1950   |
|-------|--------|--------|--------|--------|--------|
| 1     | 109.   | 52.    | 42.    | 177.   | 38.    |
| 2     | 5823.  | 12133. | 7522.  | 4725.  | 19700. |
| 3     | 18256. | 11884. | 20006. | 12354. | 4394.  |
| 4     | 4463.  | 11561. | 7879.  | 13836. | 5682.  |
| 5     | 10587. | 4297.  | 5323.  | 4553.  | 5967.  |
| 6     | 8525.  | 6464.  | 2719.  | 2546.  | 2533.  |
| 7     | 4933.  | 4188.  | 2098.  | 1697.  | 1352.  |
| 8     | 892.   | 2280.  | 1422.  | 1309.  | 734.   |
| 9     | 96.    | 1517.  | 1292.  | 1303.  | 855.   |
| ===== |        |        |        |        |        |
| Total | 53683. | 54376. | 48303. | 42500. | 41255. |

Catch Biomass

| AGE   | 1951   | 1952   | 1953   | 1954   | 1955   |
|-------|--------|--------|--------|--------|--------|
| 1     | 342.   | 0.     | 596.   | 48.    | 52.    |
| 2     | 5786.  | 17333. | 1156.  | 24531. | 3271.  |
| 3     | 25148. | 8358.  | 16533. | 4596.  | 20791. |
| 4     | 3048.  | 10946. | 6814.  | 7126.  | 4278.  |
| 5     | 4382.  | 2327.  | 6086.  | 3449.  | 5474.  |
| 6     | 5003.  | 2096.  | 2044.  | 3878.  | 3216.  |
| 7     | 2079.  | 1346.  | 1285.  | 1613.  | 2478.  |
| 8     | 924.   | 570.   | 913.   | 858.   | 810.   |
| 9     | 710.   | 373.   | 503.   | 302.   | 512.   |
| ===== |        |        |        |        |        |
| Total | 47422. | 43349. | 35930. | 46401. | 40881. |

| AGE | 1956   | 1957   | 1958  | 1959  | 1960   |
|-----|--------|--------|-------|-------|--------|
| 1   | 22.    | 19.    | 84.   | 53.   | 155.   |
| 2   | 10036. | 5275.  | 4568. | 4859. | 12968. |
| 3   | 6966.  | 15591. | 7939. | 9193. | 7469.  |
| 4   | 16651. | 6377.  | 8998. | 7495. | 7071.  |
| 5   | 5788.  | 10305. | 6698. | 7081. | 5889.  |
| 6   | 7195.  | 4903.  | 5324. | 3832. | 4426.  |
| 7   | 3276.  | 3928.  | 2375. | 3012. | 2314.  |
| 8   | 1621.  | 1310.  | 1295. | 1293. | 1324.  |
| 9   | 728.   | 1138.  | 481.  | 1176. | 1315.  |

|               |         |        |        |        |         |
|---------------|---------|--------|--------|--------|---------|
| =====         |         |        |        |        |         |
| Total         | 52284.  | 48847. | 37761. | 37994. | 42930.  |
| AGE           | 1961    | 1962   | 1963   | 1964   | 1965    |
| -----         |         |        |        |        |         |
| 1             | 32.     | 40.    | 1659.  | 5050.  | 5569.   |
| 2             | 8979.   | 3787.  | 3521.  | 13226. | 86814.  |
| 3             | 16569.  | 17382. | 8753.  | 5100.  | 45831.  |
| 4             | 6465.   | 14720. | 16393. | 6830.  | 7231.   |
| 5             | 5455.   | 6103.  | 13773. | 14304. | 7333.   |
| 6             | 4195.   | 4470.  | 4741.  | 11646. | 13313.  |
| 7             | 3216.   | 3868.  | 3302.  | 4997.  | 8525.   |
| 8             | 1428.   | 3105.  | 2192.  | 2714.  | 2910.   |
| 9             | 2184.   | 2954.  | 3398.  | 3956.  | 4248.   |
| =====         |         |        |        |        |         |
| Total         | 48522.  | 56430. | 57731. | 67823. | 181774. |
| AGE           | 1966    | 1967   | 1968   | 1969   | 1970    |
| -----         |         |        |        |        |         |
| 1             | 66.     | 759.   | 5.     | 1.     | 33.     |
| 2             | 4995.   | 118.   | 2425.  | 9.     | 201.    |
| 3             | 89721.  | 2746.  | 744.   | 1868.  | 20.     |
| 4             | 24150.  | 24387. | 2536.  | 757.   | 1100.   |
| 5             | 4706.   | 14680. | 22795. | 1144.  | 407.    |
| 6             | 5363.   | 2478.  | 7348.  | 11848. | 511.    |
| 7             | 5317.   | 2294.  | 1547.  | 3966.  | 5955.   |
| 8             | 3639.   | 2439.  | 1187.  | 673.   | 2410.   |
| 9             | 2757.   | 2164.  | 2408.  | 2069.  | 1740.   |
| =====         |         |        |        |        |         |
| Total         | 140715. | 52065. | 40995. | 22336. | 12376.  |
| Catch Biomass |         |        |        |        |         |
| AGE           | 1971    | 1972   | 1973   | 1974   | 1975    |
| -----         |         |        |        |        |         |
| 1             | 1.      | 99.    | 1564.  | 34.    | 123.    |
| 2             | 1416.   | 2.     | 2176.  | 4750.  | 1048.   |
| 3             | 292.    | 801.   | 5.     | 1240.  | 3143.   |
| 4             | 70.     | 169.   | 837.   | 5.     | 857.    |
| 5             | 691.    | 79.    | 130.   | 205.   | 9.      |
| 6             | 691.    | 359.   | 101.   | 8.     | 128.    |
| 7             | 832.    | 244.   | 268.   | 9.     | 16.     |
| 8             | 4554.   | 232.   | 59.    | 216.   | 17.     |
| 9             | 3452.   | 4629.  | 1793.  | 1100.  | 394.    |
| =====         |         |        |        |        |         |
| Total         | 11999.  | 6614.  | 6934.  | 7567.  | 5735.   |
| AGE           | 1976    | 1977   | 1978   | 1979   | 1980    |
| -----         |         |        |        |        |         |
| 1             | 75.     | 1.     | 1.     | 1.     | 4.      |
| 2             | 486.    | 21248. | 721.   | 26.    | 29300.  |
| 3             | 793.    | 273.   | 21764. | 2230.  | 422.    |
| 4             | 1816.   | 1496.  | 627.   | 14620. | 1696.   |
| 5             | 596.    | 1426.  | 1594.  | 1330.  | 13209.  |
| 6             | 0.      | 1162.  | 1662.  | 1300.  | 1684.   |
| 7             | 88.     | 17.    | 472.   | 1202.  | 1976.   |
| 8             | 19.     | 158.   | 51.    | 367.   | 548.    |
| 9             | 574.    | 561.   | 345.   | 226.   | 315.    |
| =====         |         |        |        |        |         |
| Total         | 4446.   | 26342. | 27237. | 21302. | 49156.  |
| AGE           | 1981    | 1982   | 1983   | 1984   | 1985    |
| -----         |         |        |        |        |         |
| 1             | 0.      | 0.     | 0.     | 0.     | 0.      |
| 2             | 1527.   | 1138.  | 220.   | 87.    | 2439.   |
| 3             | 13735.  | 2385.  | 1125.  | 397.   | 783.    |
| 4             | 1532.   | 7070.  | 1275.  | 1347.  | 393.    |
| 5             | 2171.   | 934.   | 4998.  | 884.   | 1161.   |
| 6             | 7046.   | 1582.  | 728.   | 4005.  | 635.    |
| 7             | 1237.   | 3652.  | 611.   | 701.   | 1648.   |
| 8             | 643.    | 423.   | 2715.  | 921.   | 297.    |
| 9             | 420.    | 453.   | 328.   | 2045.  | 591.    |
| =====         |         |        |        |        |         |
| Total         | 28310.  | 17638. | 12000. | 10385. | 7948.   |
| AGE           | 1986    | 1987   | 1988   | 1989   | 1990    |
| -----         |         |        |        |        |         |
| 1             | 3.      | 0.     | 2.     | 1.     | 40.     |
| 2             | 51.     | 1689.  | 52.    | 1301.  | 11.     |
| 3             | 3874.   | 188.   | 3268.  | 181.   | 2512.   |
| 4             | 414.    | 3291.  | 230.   | 1823.  | 479.    |
| 5             | 379.    | 280.   | 1962.  | 480.   | 2383.   |
| 6             | 496.    | 196.   | 373.   | 1228.  | 393.    |
| 7             | 450.    | 274.   | 167.   | 200.   | 611.    |
| 8             | 933.    | 408.   | 229.   | 132.   | 166.    |
| 9             | 230.    | 591.   | 429.   | 217.   | 203.    |
| =====         |         |        |        |        |         |
| Total         | 6829.   | 6917.  | 6713.  | 5564.  | 6799.   |

Catch Biomass

| AGE   | 1991  | 1992  | 1993  | 1994  | 1995  |
|-------|-------|-------|-------|-------|-------|
| 1     | 4.    | 45.   | 22.   | 12.   | 7.    |
| 2     | 584.  | 311.  | 425.  | 587.  | 90.   |
| 3     | 161.  | 668.  | 759.  | 1958. | 915.  |
| 4     | 4306. | 349.  | 739.  | 533.  | 953.  |
| 5     | 315.  | 4285. | 254.  | 373.  | 150.  |
| 6     | 1369. | 456.  | 1948. | 200.  | 83.   |
| 7     | 365.  | 1263. | 166.  | 909.  | 28.   |
| 8     | 524.  | 157.  | 528.  | 209.  | 190.  |
| 9     | 282.  | 425.  | 330.  | 499.  | 64.   |
| Total | 7910. | 7959. | 5171. | 5281. | 2480. |

| AGE   | 1996  | 1997  | 1998  | 1999  | 2000  |
|-------|-------|-------|-------|-------|-------|
| 1     | 3.    | 6.    | 3.    | 2.    | 1.    |
| 2     | 62.   | 143.  | 223.  | 48.   | 461.  |
| 3     | 848.  | 461.  | 699.  | 1383. | 916.  |
| 4     | 1688. | 1409. | 1069. | 990.  | 2974. |
| 5     | 1047. | 1242. | 1790. | 1279. | 1324. |
| 6     | 168.  | 555.  | 1534. | 1323. | 1252. |
| 7     | 76.   | 55.   | 511.  | 1034. | 1030. |
| 8     | 24.   | 62.   | 71.   | 485.  | 772.  |
| 9     | 290.  | 178.  | 198.  | 175.  | 325.  |
| Total | 4206. | 4112. | 6098. | 6719. | 9054. |

| AGE   | 2001   | 2002   | 2003   | 2004   | 2005   |
|-------|--------|--------|--------|--------|--------|
| 1     | 5.     | 1.     | 1.     | 137.   | 4.     |
| 2     | 170.   | 361.   | 11.    | 13.    | 347.   |
| 3     | 3492.  | 461.   | 2642.  | 122.   | 44.    |
| 4     | 1747.  | 5513.  | 744.   | 7658.  | 493.   |
| 5     | 2762.  | 1805.  | 4983.  | 1215.  | 14194. |
| 6     | 1656.  | 2735.  | 1238.  | 5733.  | 1424.  |
| 7     | 1150.  | 1256.  | 1812.  | 1422.  | 3743.  |
| 8     | 979.   | 940.   | 656.   | 1389.  | 672.   |
| 9     | 894.   | 1840.  | 1231.  | 1189.  | 903.   |
| Total | 12855. | 14912. | 13319. | 18879. | 21822. |

| AGE   | 2006   | 2007   |
|-------|--------|--------|
| 1     | 32.    | 2.     |
| 2     | 9.     | 153.   |
| 3     | 3007.  | 261.   |
| 4     | 75.    | 14112. |
| 5     | 604.   | 288.   |
| 6     | 9649.  | 570.   |
| 7     | 616.   | 4854.  |
| 8     | 1738.  | 461.   |
| 9     | 525.   | 1228.  |
| Total | 16254. | 21929. |

Catch Numbers

| AGE   | 1931    | 1932    | 1933    | 1934    | 1935    |
|-------|---------|---------|---------|---------|---------|
| 1     | 1755.0  | 118.0   | 244.0   | 341.0   | 1197.0  |
| 2     | 8801.0  | 2084.0  | 8476.0  | 4454.0  | 11872.0 |
| 3     | 2041.0  | 25871.0 | 6023.0  | 5414.0  | 8819.0  |
| 4     | 5785.0  | 2421.0  | 10046.0 | 3734.0  | 3706.0  |
| 5     | 9100.0  | 3676.0  | 2092.0  | 3149.0  | 2944.0  |
| 6     | 6045.0  | 2894.0  | 1579.0  | 1051.0  | 2458.0  |
| 7     | 3380.0  | 1320.0  | 1210.0  | 619.0   | 499.0   |
| 8     | 1794.0  | 664.0   | 538.0   | 250.0   | 442.0   |
| 9     | 559.0   | 391.0   | 647.0   | 168.0   | 109.0   |
| Total | 39260.0 | 39439.0 | 30855.0 | 19180.0 | 32046.0 |

| AGE | 1936    | 1937    | 1938    | 1939    | 1940    |
|-----|---------|---------|---------|---------|---------|
| 1   | 880.0   | 1288.0  | 1030.0  | 607.0   | 2040.0  |
| 2   | 12327.0 | 11034.0 | 20199.0 | 13937.0 | 7254.0  |
| 3   | 11486.0 | 10910.0 | 7755.0  | 19617.0 | 12317.0 |
| 4   | 5431.0  | 5629.0  | 3755.0  | 5163.0  | 8253.0  |
| 5   | 2141.0  | 4143.0  | 2113.0  | 2152.0  | 2510.0  |
| 6   | 1377.0  | 1875.0  | 1600.0  | 967.0   | 1479.0  |
| 7   | 1362.0  | 952.0   | 945.0   | 837.0   | 752.0   |
| 8   | 259.0   | 481.0   | 327.0   | 326.0   | 222.0   |
| 9   | 124.0   | 222.0   | 173.0   | 239.0   | 136.0   |

| AGE   | 1941    | 1942    | 1943    | 1944    | 1945    |
|-------|---------|---------|---------|---------|---------|
| 1     | 780.0   | 310.0   | 19.0    | 64.0    | 121.0   |
| 2     | 23464.0 | 14307.0 | 4191.0  | 761.0   | 8522.0  |
| 3     | 9808.0  | 16348.0 | 17738.0 | 8437.0  | 2029.0  |
| 4     | 8033.0  | 6531.0  | 8364.0  | 14843.0 | 6386.0  |
| 5     | 5764.0  | 3996.0  | 3102.0  | 5689.0  | 5795.0  |
| 6     | 1781.0  | 2331.0  | 2693.0  | 2281.0  | 2315.0  |
| 7     | 941.0   | 1036.0  | 790.0   | 497.0   | 914.0   |
| 8     | 307.0   | 227.0   | 354.0   | 469.0   | 265.0   |
| 9     | 384.0   | 176.0   | 178.0   | 108.0   | 205.0   |
| Total | 51262.0 | 45262.0 | 37429.0 | 33149.0 | 26552.0 |

| AGE   | 1946    | 1947    | 1948    | 1949    | 1950    |
|-------|---------|---------|---------|---------|---------|
| 1     | 209.0   | 90.0    | 80.0    | 328.0   | 88.0    |
| 2     | 7466.0  | 16621.0 | 11227.0 | 6472.0  | 28971.0 |
| 3     | 15213.0 | 10334.0 | 19237.0 | 12479.0 | 4107.0  |
| 4     | 2738.0  | 7181.0  | 5116.0  | 9608.0  | 4272.0  |
| 5     | 5785.0  | 2127.0  | 2744.0  | 2347.0  | 3315.0  |
| 6     | 3840.0  | 2739.0  | 1157.0  | 1061.0  | 1131.0  |
| 7     | 1827.0  | 1501.0  | 780.0   | 624.0   | 520.0   |
| 8     | 272.0   | 745.0   | 450.0   | 409.0   | 225.0   |
| 9     | 23.0    | 457.0   | 369.0   | 353.0   | 250.0   |
| Total | 37373.0 | 41795.0 | 41160.0 | 33681.0 | 42879.0 |

Catch Numbers

| AGE   | 1951    | 1952    | 1953    | 1954    | 1955    |
|-------|---------|---------|---------|---------|---------|
| 1     | 645.0   | 0.0     | 1083.0  | 108.0   | 90.0    |
| 2     | 8266.0  | 25120.0 | 1807.0  | 31858.0 | 3941.0  |
| 3     | 26472.0 | 8892.0  | 17588.0 | 5107.0  | 19251.0 |
| 4     | 2177.0  | 8485.0  | 5726.0  | 5611.0  | 3316.0  |
| 5     | 2448.0  | 1361.0  | 3757.0  | 2315.0  | 3278.0  |
| 6     | 2138.0  | 944.0   | 1012.0  | 2131.0  | 1649.0  |
| 7     | 740.0   | 530.0   | 542.0   | 720.0   | 1068.0  |
| 8     | 297.0   | 182.0   | 337.0   | 353.0   | 320.0   |
| 9     | 215.0   | 107.0   | 152.0   | 98.0    | 173.0   |
| Total | 43398.0 | 45621.0 | 32004.0 | 48301.0 | 33086.0 |

| AGE   | 1956    | 1957    | 1958    | 1959    | 1960    |
|-------|---------|---------|---------|---------|---------|
| 1     | 52.0    | 35.0    | 125.0   | 94.0    | 258.0   |
| 2     | 11948.0 | 6594.0  | 5571.0  | 5716.0  | 16010.0 |
| 3     | 6698.0  | 14046.0 | 7088.0  | 7994.0  | 6122.0  |
| 4     | 12066.0 | 4523.0  | 6665.0  | 5169.0  | 4562.0  |
| 5     | 3405.0  | 5822.0  | 3784.0  | 3934.0  | 3067.0  |
| 6     | 3378.0  | 2357.0  | 2366.0  | 1758.0  | 1792.0  |
| 7     | 1348.0  | 1630.0  | 903.0   | 1172.0  | 787.0   |
| 8     | 563.0   | 473.0   | 442.0   | 424.0   | 406.0   |
| 9     | 201.0   | 366.0   | 142.0   | 334.0   | 348.0   |
| Total | 39659.0 | 35846.0 | 27086.0 | 26595.0 | 33352.0 |

| AGE   | 1961    | 1962    | 1963    | 1964    | 1965     |
|-------|---------|---------|---------|---------|----------|
| 1     | 62.0    | 74.0    | 2910.0  | 10101.0 | 9601.0   |
| 2     | 10689.0 | 4455.0  | 4047.0  | 15935.0 | 125818.0 |
| 3     | 14927.0 | 16245.0 | 7418.0  | 4554.0  | 44496.0  |
| 4     | 4198.0  | 10440.0 | 11152.0 | 4776.0  | 5356.0   |
| 5     | 2917.0  | 3448.0  | 8198.0  | 8722.0  | 4391.0   |
| 6     | 1856.0  | 2089.0  | 2205.0  | 5794.0  | 6690.0   |
| 7     | 1266.0  | 1566.0  | 1405.0  | 2082.0  | 3772.0   |
| 8     | 496.0   | 1185.0  | 721.0   | 1028.0  | 1094.0   |
| 9     | 674.0   | 898.0   | 1096.0  | 1332.0  | 1366.0   |
| Total | 37085.0 | 40400.0 | 39152.0 | 54324.0 | 202584.0 |

| AGE   | 1966     | 1967    | 1968    | 1969    | 1970   |
|-------|----------|---------|---------|---------|--------|
| 1     | 114.0    | 1150.0  | 8.0     | 2.0     | 46.0   |
| 2     | 6843.0   | 168.0   | 2994.0  | 11.0    | 158.0  |
| 3     | 100810.0 | 2891.0  | 709.0   | 1698.0  | 16.0   |
| 4     | 19167.0  | 20667.0 | 1921.0  | 448.0   | 570.0  |
| 5     | 2768.0   | 10338.0 | 14519.0 | 654.0   | 186.0  |
| 6     | 2591.0   | 1209.0  | 3499.0  | 5954.0  | 214.0  |
| 7     | 2332.0   | 993.0   | 667.0   | 1574.0  | 2308.0 |
| 8     | 1268.0   | 917.0   | 453.0   | 225.0   | 746.0  |
| 9     | 867.0    | 698.0   | 842.0   | 570.0   | 464.0  |
| Total | 136760.0 | 39031.0 | 25612.0 | 11136.0 | 4708.0 |

Catch Numbers

| AGE   | 1971   | 1972   | 1973   | 1974   | 1975   |
|-------|--------|--------|--------|--------|--------|
| 1     | 1.0    | 159.6  | 2607.1 | 47.7   | 198.6  |
| 2     | 1375.0 | 2.0    | 2113.1 | 4481.1 | 1069.5 |
| 3     | 223.0  | 460.4  | 3.1    | 681.5  | 1928.0 |
| 4     | 40.0   | 82.9   | 393.1  | 2.1    | 387.9  |
| 5     | 289.0  | 32.7   | 54.0   | 72.6   | 4.1    |
| 6     | 246.0  | 122.8  | 30.6   | 2.1    | 43.4   |
| 7     | 285.0  | 79.8   | 78.4   | 2.1    | 4.1    |
| 8     | 1469.0 | 67.5   | 15.3   | 55.0   | 4.1    |
| 9     | 928.0  | 1264.7 | 455.2  | 258.3  | 91.0   |
| Total | 4856.0 | 2272.4 | 5749.9 | 5602.5 | 3730.7 |

| AGE   | 1976   | 1977    | 1978    | 1979    | 1980    |
|-------|--------|---------|---------|---------|---------|
| 1     | 149.3  | 1.0     | 1.0     | 1.0     | 8.0     |
| 2     | 490.5  | 19857.7 | 767.0   | 26.2    | 31170.3 |
| 3     | 570.4  | 189.6   | 14509.1 | 1742.5  | 348.9   |
| 4     | 912.6  | 689.5   | 307.4   | 7237.5  | 980.4   |
| 5     | 224.0  | 522.2   | 571.5   | 530.0   | 6087.3  |
| 6     | 0.0    | 362.0   | 521.1   | 413.9   | 597.3   |
| 7     | 23.9   | 4.1     | 140.1   | 318.0   | 549.0   |
| 8     | 4.1    | 39.5    | 14.1    | 96.9    | 153.8   |
| 9     | 116.1  | 112.5   | 67.5    | 46.4    | 81.4    |
| Total | 2490.9 | 21778.1 | 16898.8 | 10412.4 | 39976.4 |

| AGE   | 1981    | 1982   | 1983   | 1984   | 1985   |
|-------|---------|--------|--------|--------|--------|
| 1     | 1.0     | 1.0    | 0.0    | 0.0    | 0.0    |
| 2     | 1755.4  | 1173.7 | 216.1  | 94.1   | 2463.7 |
| 3     | 11076.4 | 1645.1 | 821.1  | 300.6  | 563.2  |
| 4     | 836.9   | 3760.7 | 696.9  | 735.8  | 198.7  |
| 5     | 943.7   | 393.9  | 2261.4 | 401.8  | 472.1  |
| 6     | 2590.3  | 573.2  | 274.7  | 1499.9 | 233.5  |
| 7     | 333.4   | 1127.3 | 187.9  | 236.8  | 538.6  |
| 8     | 159.1   | 106.8  | 808.0  | 270.2  | 79.9   |
| 9     | 94.7    | 110.8  | 76.8   | 549.6  | 155.6  |
| Total | 17790.9 | 8892.5 | 5342.9 | 4088.8 | 4705.3 |

| AGE   | 1986   | 1987   | 1988   | 1989   | 1990   |
|-------|--------|--------|--------|--------|--------|
| 1     | 6.1    | 0.0    | 4.1    | 1.9    | 62.9   |
| 2     | 54.7   | 2035.1 | 53.2   | 1462.2 | 11.6   |
| 3     | 2848.3 | 131.6  | 2439.1 | 122.5  | 1697.0 |
| 4     | 226.0  | 1645.5 | 137.1  | 1018.7 | 268.9  |
| 5     | 148.0  | 124.5  | 952.5  | 217.3  | 1124.1 |
| 6     | 175.4  | 74.5   | 152.4  | 477.8  | 154.3  |
| 7     | 152.0  | 90.8   | 56.3   | 61.7   | 217.6  |
| 8     | 269.6  | 108.1  | 65.5   | 37.0   | 55.4   |
| 9     | 60.8   | 137.7  | 108.4  | 56.7   | 48.9   |
| Total | 3940.9 | 4347.8 | 3968.6 | 3455.8 | 3640.7 |

Catch Numbers

| AGE   | 1991   | 1992   | 1993   | 1994   | 1995   |
|-------|--------|--------|--------|--------|--------|
| 1     | 7.0    | 83.6   | 33.0   | 27.3   | 17.0   |
| 2     | 486.1  | 265.1  | 363.3  | 537.5  | 93.5   |
| 3     | 122.8  | 407.5  | 439.1  | 1191.5 | 614.3  |
| 4     | 2370.1 | 197.2  | 340.4  | 241.5  | 470.8  |
| 5     | 144.3  | 1960.1 | 120.1  | 142.1  | 58.9   |
| 6     | 517.6  | 181.2  | 741.4  | 73.4   | 29.4   |
| 7     | 127.9  | 425.7  | 62.6   | 313.4  | 8.5    |
| 8     | 171.9  | 46.6   | 169.2  | 55.2   | 61.4   |
| 9     | 65.0   | 99.5   | 82.2   | 109.7  | 16.2   |
| Total | 4012.7 | 3666.5 | 2351.3 | 2691.6 | 1370.0 |

| AGE | 1996  | 1997  | 1998  | 1999  | 2000   |
|-----|-------|-------|-------|-------|--------|
| 1   | 6.8   | 14.5  | 6.0   | 2.6   | 1.6    |
| 2   | 56.4  | 143.3 | 230.1 | 43.2  | 406.6  |
| 3   | 566.3 | 273.0 | 470.9 | 906.0 | 625.6  |
| 4   | 918.6 | 745.1 | 557.6 | 541.1 | 1570.9 |
| 5   | 450.3 | 561.3 | 767.2 | 605.7 | 588.0  |
| 6   | 66.0  | 217.9 | 570.7 | 565.5 | 527.7  |
| 7   | 22.1  | 17.5  | 168.9 | 383.5 | 377.0  |
| 8   | 6.9   | 18.4  | 23.4  | 163.2 | 258.1  |
| 9   | 78.2  | 48.8  | 48.6  | 47.6  | 98.5   |

|       |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|
| Total | 2171.6 | 2039.8 | 2843.4 | 3258.4 | 4454.0 |
|-------|--------|--------|--------|--------|--------|

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| AGE | 2001 | 2002 | 2003 | 2004 | 2005 |
|-----|------|------|------|------|------|

|   |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|
| 1 | 14.0   | 2.9    | 4.5    | 646.0  | 19.5   |
| 2 | 145.1  | 396.7  | 17.7   | 33.0   | 612.4  |
| 3 | 2393.3 | 345.3  | 1942.8 | 121.7  | 41.8   |
| 4 | 996.1  | 3177.4 | 461.1  | 5115.6 | 339.0  |
| 5 | 1280.6 | 926.2  | 2686.1 | 729.4  | 8505.4 |
| 6 | 655.6  | 1105.4 | 604.9  | 2935.4 | 777.7  |
| 7 | 437.6  | 401.6  | 719.1  | 686.7  | 1842.6 |
| 8 | 358.8  | 306.4  | 212.3  | 562.9  | 315.2  |
| 9 | 262.2  | 551.2  | 388.8  | 408.2  | 343.2  |

=====

|       |        |        |        |         |         |
|-------|--------|--------|--------|---------|---------|
| Total | 6543.3 | 7213.1 | 7037.3 | 11238.9 | 12796.8 |
|-------|--------|--------|--------|---------|---------|

|     |      |      |
|-----|------|------|
| AGE | 2006 | 2007 |
|-----|------|------|

|   |        |         |
|---|--------|---------|
| 1 | 164.4  | 13.0    |
| 2 | 18.4   | 174.6   |
| 3 | 3164.2 | 240.0   |
| 4 | 70.9   | 11215.7 |
| 5 | 375.2  | 194.2   |
| 6 | 5418.3 | 311.4   |
| 7 | 326.5  | 2511.7  |
| 8 | 841.9  | 228.9   |
| 9 | 227.6  | 564.4   |

=====

|       |         |         |
|-------|---------|---------|
| Total | 10607.4 | 15453.9 |
|-------|---------|---------|

Surplus Production

Average Adjustment Factor (Delta) = 1.0000

| Year | Biomass    | Delta Biomass | Catch Biomass | Surplus Production |
|------|------------|---------------|---------------|--------------------|
| 1931 | 178917.421 | -19440.405    | 59738.640     | 40298.235          |
| 1932 | 159477.016 | -22805.645    | 54551.550     | 31745.905          |
| 1933 | 136671.371 | -21140.915    | 42160.800     | 21019.885          |
| 1934 | 115530.456 | 12829.164     | 25589.880     | 38419.044          |
| 1935 | 128359.620 | 4904.405      | 40588.040     | 45492.445          |
| 1936 | 133264.026 | 14112.048     | 43428.370     | 57540.418          |
| 1937 | 147376.074 | 19589.657     | 49402.410     | 68992.067          |
| 1938 | 166965.731 | 6550.065      | 47691.390     | 54241.455          |
| 1939 | 173515.796 | 16213.416     | 54057.590     | 70271.006          |
| 1940 | 189729.212 | 21454.047     | 47913.200     | 69367.247          |
| 1941 | 211183.259 | -16454.638    | 62980.020     | 46525.382          |
| 1942 | 194728.620 | -31615.891    | 55409.250     | 23793.359          |
| 1943 | 163112.729 | 451.016       | 46376.420     | 46827.436          |
| 1944 | 163563.745 | -4305.337     | 49666.990     | 45361.653          |
| 1945 | 159258.408 | 12126.066     | 40442.900     | 52568.966          |
| 1946 | 171384.474 | -5375.027     | 53683.250     | 48308.223          |
| 1947 | 166009.447 | -31224.528    | 54376.350     | 23151.822          |
| 1948 | 134784.919 | 20200.791     | 48302.820     | 68503.611          |
| 1949 | 154985.710 | -15272.626    | 42499.640     | 27227.014          |
| 1950 | 139713.084 | 19676.304     | 41255.310     | 60931.614          |
| 1951 | 159389.388 | -15765.890    | 47421.660     | 31655.770          |
| 1952 | 143623.498 | 25137.099     | 43349.210     | 68486.309          |
| 1953 | 168760.597 | -7338.173     | 35930.300     | 28592.127          |
| 1954 | 161422.424 | 19000.388     | 46400.650     | 65401.038          |
| 1955 | 180422.812 | -16.605       | 40881.200     | 40864.595          |
| 1956 | 180406.207 | -5679.558     | 52283.500     | 46603.942          |
| 1957 | 174726.649 | 4401.442      | 48846.860     | 53248.302          |
| 1958 | 179128.091 | 35638.117     | 37760.790     | 73398.907          |
| 1959 | 214766.208 | 47162.237     | 37993.950     | 85156.187          |
| 1960 | 261928.445 | 4248.220      | 42930.500     | 47178.720          |
| 1961 | 266176.665 | -19403.343    | 48522.120     | 29118.777          |
| 1962 | 246773.322 | 43575.148     | 56429.820     | 100004.968         |
| 1963 | 290348.470 | 157533.650    | 57730.850     | 215264.500         |
| 1964 | 447882.120 | -20502.304    | 67823.490     | 47321.186          |
| 1965 | 427379.816 | -162128.452   | 181773.570    | 19645.118          |
| 1966 | 265251.364 | -127361.825   | 140714.980    | 13353.155          |
| 1967 | 137889.539 | -46235.908    | 52065.370     | 5829.462           |
| 1968 | 91653.631  | -33990.131    | 40995.180     | 7005.049           |
| 1969 | 57663.500  | -14573.223    | 22335.830     | 7762.607           |
| 1970 | 43090.277  | -11667.751    | 12375.960     | 708.209            |
| 1971 | 31422.526  | -956.235      | 11998.880     | 11042.645          |
| 1972 | 30466.291  | -1364.427     | 6614.124      | 5249.697           |
| 1973 | 29101.865  | 15626.507     | 6934.442      | 22560.949          |
| 1974 | 44728.372  | -12025.062    | 7567.329      | -4457.733          |
| 1975 | 32703.309  | 35425.275     | 5734.792      | 41160.067          |
| 1976 | 68128.584  | 26866.860     | 4445.890      | 31312.750          |
| 1977 | 94995.444  | 4307.427      | 26341.524     | 30648.951          |
| 1978 | 99302.871  | 16817.564     | 27237.013     | 44054.577          |
| 1979 | 116120.435 | -921.824      | 21302.085     | 20380.261          |
| 1980 | 115198.611 | -35577.103    | 49155.516     | 13578.413          |
| 1981 | 79621.509  | -20299.687    | 28310.123     | 8010.436           |
| 1982 | 59321.822  | -13729.330    | 17638.347     | 3909.017           |
| 1983 | 45592.491  | -9974.619     | 11999.796     | 2025.177           |
| 1984 | 35617.872  | -7670.575     | 10385.393     | 2714.818           |
| 1985 | 27947.297  | 2680.623      | 7948.447      | 10629.070          |
| 1986 | 30627.919  | -1784.792     | 6829.253      | 5044.461           |



|      |            |           |           |           |
|------|------------|-----------|-----------|-----------|
| 1987 | 28843.128  | 682.252   | 6916.867  | 7599.120  |
| 1988 | 29525.380  | -626.466  | 6713.180  | 6086.714  |
| 1989 | 28898.914  | 1558.998  | 5563.539  | 7122.537  |
| 1990 | 30457.912  | -2635.572 | 6798.793  | 4163.221  |
| 1991 | 27822.340  | -3214.572 | 7910.021  | 4695.449  |
| 1992 | 24607.768  | 3872.909  | 7958.660  | 11831.569 |
| 1993 | 28480.677  | 5268.595  | 5171.299  | 10439.893 |
| 1994 | 33749.272  | 3980.161  | 5281.477  | 9261.639  |
| 1995 | 37729.433  | 9561.784  | 2480.372  | 12042.156 |
| 1996 | 47291.217  | 10726.296 | 4206.139  | 14932.434 |
| 1997 | 58017.513  | 9975.674  | 4112.054  | 14087.727 |
| 1998 | 67993.187  | 28693.254 | 6098.079  | 34791.333 |
| 1999 | 96686.441  | 10602.521 | 6719.095  | 17321.615 |
| 2000 | 107288.962 | 19574.490 | 9054.007  | 28628.496 |
| 2001 | 126863.451 | 13075.901 | 12855.244 | 25931.145 |
| 2002 | 139939.352 | 3724.871  | 14911.965 | 18636.836 |
| 2003 | 143664.223 | 44814.902 | 13319.062 | 58133.964 |
| 2004 | 188479.125 | 43512.594 | 18878.733 | 62391.327 |
| 2005 | 231991.719 | 74816.732 | 21822.015 | 96638.748 |
| 2006 | 306808.452 | 38206.541 | 16254.266 | 54460.807 |
| 2007 | 345014.992 | 30416.501 | 21928.976 | 52345.477 |
| 2008 | 375431.493 |           |           |           |

Summary of Survey Indices Used in the Estimate

| INDEX | Survey Tag | Age | Time  | Type   | Catchability | Std. Error | CV         |
|-------|------------|-----|-------|--------|--------------|------------|------------|
| 1     | US_Sp      | 1   | JAN-1 | NUMBER | 0.3096E+00   | 0.6177E-01 | 0.1995E+00 |
| 2     | US_Sp      | 2   | JAN-1 | NUMBER | 0.5591E+00   | 0.7922E-01 | 0.1417E+00 |
| 3     | US_Sp      | 3   | JAN-1 | NUMBER | 0.6333E+00   | 0.8694E-01 | 0.1373E+00 |
| 4     | US_Sp      | 4   | JAN-1 | NUMBER | 0.5724E+00   | 0.5717E-01 | 0.9988E-01 |
| 5     | US_Sp      | 5   | JAN-1 | NUMBER | 0.6346E+00   | 0.7953E-01 | 0.1253E+00 |
| 6     | US_Sp      | 6   | JAN-1 | NUMBER | 0.5402E+00   | 0.8792E-01 | 0.1627E+00 |
| 7     | US_Sp      | 7   | JAN-1 | NUMBER | 0.5356E+00   | 0.7833E-01 | 0.1463E+00 |
| 8     | US_Sp      | 8   | JAN-1 | NUMBER | 0.6231E+00   | 0.1055E+00 | 0.1693E+00 |
| 9     | US_S41     | 1   | JAN-1 | NUMBER | 0.7210E+00   | 0.3678E+00 | 0.5101E+00 |
| 10    | US_S41     | 2   | JAN-1 | NUMBER | 0.8988E+00   | 0.3143E+00 | 0.3497E+00 |
| 11    | US_S41     | 3   | JAN-1 | NUMBER | 0.7757E+00   | 0.2441E+00 | 0.3147E+00 |
| 12    | US_S41     | 4   | JAN-1 | NUMBER | 0.8390E+00   | 0.1830E+00 | 0.2182E+00 |
| 13    | US_S41     | 5   | JAN-1 | NUMBER | 0.8889E+00   | 0.1462E+00 | 0.1645E+00 |
| 14    | US_S41     | 6   | JAN-1 | NUMBER | 0.8845E+00   | 0.2451E+00 | 0.2771E+00 |
| 15    | US_S41     | 7   | JAN-1 | NUMBER | 0.9118E+00   | 0.2367E+00 | 0.2596E+00 |
| 16    | US_S41     | 8   | JAN-1 | NUMBER | 0.8614E+00   | 0.2714E+00 | 0.3151E+00 |
| 17    | US_Au0     | 1   | JAN-1 | NUMBER | 0.4331E+00   | 0.6219E-01 | 0.1436E+00 |
| 18    | US_Au1     | 2   | JAN-1 | NUMBER | 0.6882E+00   | 0.1032E+00 | 0.1500E+00 |
| 19    | US_Au2     | 3   | JAN-1 | NUMBER | 0.5724E+00   | 0.7104E-01 | 0.1241E+00 |
| 20    | US_Au3     | 4   | JAN-1 | NUMBER | 0.6538E+00   | 0.6409E-01 | 0.9802E-01 |
| 21    | US_Au4     | 5   | JAN-1 | NUMBER | 0.5717E+00   | 0.6236E-01 | 0.1091E+00 |
| 22    | US_Au5     | 6   | JAN-1 | NUMBER | 0.5608E+00   | 0.6643E-01 | 0.1185E+00 |
| 23    | Can_Sp     | 1   | JAN-1 | NUMBER | 0.2825E+00   | 0.6593E-01 | 0.2334E+00 |
| 24    | Can_Sp     | 2   | JAN-1 | NUMBER | 0.3991E+00   | 0.8343E-01 | 0.2090E+00 |
| 25    | Can_Sp     | 3   | JAN-1 | NUMBER | 0.6555E+00   | 0.8296E-01 | 0.1266E+00 |
| 26    | Can_Sp     | 4   | JAN-1 | NUMBER | 0.6205E+00   | 0.8304E-01 | 0.1338E+00 |
| 27    | Can_Sp     | 5   | JAN-1 | NUMBER | 0.7079E+00   | 0.9924E-01 | 0.1402E+00 |
| 28    | Can_Sp     | 6   | JAN-1 | NUMBER | 0.5231E+00   | 0.9882E-01 | 0.1889E+00 |
| 29    | Can_Sp     | 7   | JAN-1 | NUMBER | 0.6800E+00   | 0.1220E+00 | 0.1794E+00 |
| 30    | Can_Sp     | 8   | JAN-1 | NUMBER | 0.6203E+00   | 0.9973E-01 | 0.1608E+00 |

Survey Index: 1 Tag: US\_Sp AGE = 1  
Time = JAN-1 Type = NUMBER  
Catchability = 0.309573E+00 % Variance Contribution = 6.3228  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed | Predicted    | Residual |
|------|----------|--------------|----------|
| 1931 | N/A      | 0.123638E+05 | N/A      |
| 1932 | N/A      | 0.140282E+05 | N/A      |
| 1933 | N/A      | 0.159786E+05 | N/A      |
| 1934 | N/A      | 0.184410E+05 | N/A      |
| 1935 | N/A      | 0.180213E+05 | N/A      |
| 1936 | N/A      | 0.176911E+05 | N/A      |
| 1937 | N/A      | 0.326013E+05 | N/A      |
| 1938 | N/A      | 0.241623E+05 | N/A      |
| 1939 | N/A      | 0.184154E+05 | N/A      |
| 1940 | N/A      | 0.344327E+05 | N/A      |
| 1941 | N/A      | 0.353740E+05 | N/A      |
| 1942 | N/A      | 0.191547E+05 | N/A      |
| 1943 | N/A      | 0.721502E+04 | N/A      |
| 1944 | N/A      | 0.201688E+05 | N/A      |
| 1945 | N/A      | 0.160379E+05 | N/A      |
| 1946 | N/A      | 0.290685E+05 | N/A      |
| 1947 | N/A      | 0.183068E+05 | N/A      |
| 1948 | N/A      | 0.102019E+05 | N/A      |
| 1949 | N/A      | 0.384308E+05 | N/A      |
| 1950 | N/A      | 0.177114E+05 | N/A      |
| 1951 | N/A      | 0.321276E+05 | N/A      |
| 1952 | N/A      | 0.130917E+05 | N/A      |
| 1953 | N/A      | 0.411083E+05 | N/A      |
| 1954 | N/A      | 0.161846E+05 | N/A      |
| 1955 | N/A      | 0.278307E+05 | N/A      |
| 1956 | N/A      | 0.186552E+05 | N/A      |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1957 | N/A          | 0.184599E+05 | N/A           |
| 1958 | N/A          | 0.181643E+05 | N/A           |
| 1959 | N/A          | 0.401969E+05 | N/A           |
| 1960 | N/A          | 0.378438E+05 | N/A           |
| 1961 | N/A          | 0.168135E+05 | N/A           |
| 1962 | N/A          | 0.120888E+05 | N/A           |
| 1963 | N/A          | 0.582744E+05 | N/A           |
| 1964 | N/A          | 0.142656E+06 | N/A           |
| 1965 | N/A          | 0.100652E+05 | N/A           |
| 1966 | N/A          | 0.128629E+04 | N/A           |
| 1967 | N/A          | 0.433805E+04 | N/A           |
| 1968 | 0.129829E+04 | 0.167858E+03 | 0.204568E+01  |
| 1969 | N/A          | 0.343901E+03 | N/A           |
| 1970 | 0.217463E+04 | 0.142885E+04 | 0.419990E+00  |
| 1971 | N/A          | 0.825241E+02 | N/A           |
| 1972 | 0.130478E+05 | 0.263939E+04 | 0.159807E+01  |
| 1973 | N/A          | 0.603612E+04 | N/A           |
| 1974 | N/A          | 0.327439E+04 | N/A           |
| 1975 | N/A          | 0.245494E+04 | N/A           |
| 1976 | N/A          | 0.326132E+05 | N/A           |
| 1977 | N/A          | 0.432899E+04 | N/A           |
| 1978 | N/A          | 0.189617E+04 | N/A           |
| 1979 | N/A          | 0.259697E+05 | N/A           |
| 1980 | N/A          | 0.338524E+04 | N/A           |
| 1981 | N/A          | 0.227971E+04 | N/A           |
| 1982 | 0.246674E+04 | 0.799029E+03 | 0.112726E+01  |
| 1983 | 0.139566E+04 | 0.101676E+04 | 0.316745E+00  |
| 1984 | 0.678354E+04 | 0.559811E+04 | 0.192070E+00  |
| 1985 | N/A          | 0.779824E+03 | N/A           |
| 1986 | 0.808183E+04 | 0.519876E+04 | 0.441197E+00  |
| 1987 | N/A          | 0.810504E+03 | N/A           |
| 1988 | 0.503086E+04 | 0.619613E+04 | -0.208335E+00 |
| 1989 | 0.649143E+02 | 0.422859E+03 | -0.187397E+01 |
| 1990 | 0.279131E+04 | 0.105720E+04 | 0.970884E+00  |
| 1991 | 0.175269E+04 | 0.843594E+03 | 0.731233E+00  |
| 1992 | 0.129829E+04 | 0.334698E+04 | -0.947013E+00 |
| 1993 | 0.379749E+04 | 0.485872E+04 | -0.246436E+00 |
| 1994 | 0.226908E+04 | 0.482300E+04 | -0.754021E+00 |
| 1995 | 0.162708E+04 | 0.397799E+04 | -0.893992E+00 |
| 1996 | 0.352485E+04 | 0.369593E+04 | -0.473952E-01 |
| 1997 | 0.582573E+04 | 0.737714E+04 | -0.236102E+00 |
| 1998 | 0.267285E+04 | 0.462640E+04 | -0.548635E+00 |
| 1999 | 0.331355E+05 | 0.156358E+05 | 0.751043E+00  |
| 2000 | 0.593706E+04 | 0.370926E+04 | 0.470381E+00  |
| 2001 | 0.325016E+05 | 0.302899E+05 | 0.704758E-01  |
| 2002 | 0.592992E+03 | 0.178889E+04 | -0.110417E+01 |
| 2003 | 0.324571E+02 | 0.892844E+03 | -0.331449E+01 |
| 2004 | 0.363974E+06 | 0.153198E+06 | 0.865355E+00  |
| 2005 | 0.259657E+04 | 0.249147E+04 | 0.413188E-01  |
| 2006 | 0.653232E+04 | 0.818810E+04 | -0.225919E+00 |
| 2007 | 0.278872E+04 | 0.229727E+04 | 0.193862E+00  |
| 2008 | 0.597861E+04 | 0.506966E+04 | 0.164913E+00  |

Survey Index: 2 Tag: US\_Sp AGE = 2  
Time = JAN-1 Type = NUMBER  
Catchability = 0.559059E+00 % Variance Contribution = 3.9236  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed | Predicted    | Residual |
|------|----------|--------------|----------|
| 1931 | N/A      | 0.449413E+05 | N/A      |
| 1932 | N/A      | 0.173949E+05 | N/A      |
| 1933 | N/A      | 0.206818E+05 | N/A      |
| 1934 | N/A      | 0.235019E+05 | N/A      |
| 1935 | N/A      | 0.270937E+05 | N/A      |
| 1936 | N/A      | 0.260411E+05 | N/A      |
| 1937 | N/A      | 0.257128E+05 | N/A      |
| 1938 | N/A      | 0.475523E+05 | N/A      |
| 1939 | N/A      | 0.352052E+05 | N/A      |
| 1940 | N/A      | 0.269215E+05 | N/A      |
| 1941 | N/A      | 0.498805E+05 | N/A      |
| 1942 | N/A      | 0.519083E+05 | N/A      |
| 1943 | N/A      | 0.281647E+05 | N/A      |
| 1944 | N/A      | 0.106582E+05 | N/A      |
| 1945 | N/A      | 0.297883E+05 | N/A      |
| 1946 | N/A      | 0.236517E+05 | N/A      |
| 1947 | N/A      | 0.428737E+05 | N/A      |
| 1948 | N/A      | 0.270220E+05 | N/A      |
| 1949 | N/A      | 0.150436E+05 | N/A      |
| 1950 | N/A      | 0.566561E+05 | N/A      |
| 1951 | N/A      | 0.261427E+05 | N/A      |
| 1952 | N/A      | 0.471766E+05 | N/A      |
| 1953 | N/A      | 0.193548E+05 | N/A      |
| 1954 | N/A      | 0.602338E+05 | N/A      |
| 1955 | N/A      | 0.238752E+05 | N/A      |
| 1956 | N/A      | 0.411037E+05 | N/A      |
| 1957 | N/A      | 0.275564E+05 | N/A      |
| 1958 | N/A      | 0.272762E+05 | N/A      |
| 1959 | N/A      | 0.267937E+05 | N/A      |
| 1960 | N/A      | 0.593857E+05 | N/A      |
| 1961 | N/A      | 0.558236E+05 | N/A      |
| 1962 | N/A      | 0.248283E+05 | N/A      |
| 1963 | N/A      | 0.178365E+05 | N/A      |
| 1964 | N/A      | 0.846924E+05 | N/A      |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1965 | N/A          | 0.205825E+06 | N/A           |
| 1966 | N/A          | 0.100645E+05 | N/A           |
| 1967 | N/A          | 0.184430E+04 | N/A           |
| 1968 | 0.918537E+04 | 0.583417E+04 | 0.453881E+00  |
| 1969 | 0.227200E+03 | 0.244147E+03 | -0.719397E-01 |
| 1970 | 0.811429E+03 | 0.507465E+03 | 0.469369E+00  |
| 1971 | 0.376503E+04 | 0.208939E+04 | 0.588881E+00  |
| 1972 | 0.292114E+03 | 0.121511E+03 | 0.877141E+00  |
| 1973 | N/A          | 0.382189E+04 | N/A           |
| 1974 | N/A          | 0.761156E+04 | N/A           |
| 1975 | N/A          | 0.481727E+04 | N/A           |
| 1976 | N/A          | 0.352949E+04 | N/A           |
| 1977 | N/A          | 0.481448E+05 | N/A           |
| 1978 | N/A          | 0.639998E+04 | N/A           |
| 1979 | N/A          | 0.280308E+04 | N/A           |
| 1980 | N/A          | 0.383937E+05 | N/A           |
| 1981 | N/A          | 0.500120E+04 | N/A           |
| 1982 | 0.496594E+04 | 0.337017E+04 | 0.387641E+00  |
| 1983 | 0.178514E+04 | 0.118090E+04 | 0.413223E+00  |
| 1984 | 0.382994E+04 | 0.150318E+04 | 0.935268E+00  |
| 1985 | 0.160987E+05 | 0.827625E+04 | 0.665351E+00  |
| 1986 | 0.584229E+03 | 0.115289E+04 | -0.679737E+00 |
| 1987 | 0.117495E+05 | 0.768355E+04 | 0.424728E+00  |
| 1988 | 0.129829E+03 | 0.119825E+04 | -0.222240E+01 |
| 1989 | 0.113275E+05 | 0.915922E+04 | 0.212476E+00  |
| 1990 | N/A          | 0.624258E+03 | N/A           |
| 1991 | 0.347291E+04 | 0.153137E+04 | 0.818829E+00  |
| 1992 | 0.584229E+03 | 0.124376E+04 | -0.755603E+00 |
| 1993 | 0.210971E+04 | 0.490646E+04 | -0.843999E+00 |
| 1994 | 0.870760E+04 | 0.716719E+04 | 0.194683E+00  |
| 1995 | 0.417204E+04 | 0.711725E+04 | -0.534116E+00 |
| 1996 | 0.149076E+05 | 0.587307E+04 | 0.931492E+00  |
| 1997 | 0.331939E+04 | 0.546118E+04 | -0.497883E+00 |
| 1998 | 0.958200E+04 | 0.109001E+05 | -0.128890E+00 |
| 1999 | 0.658133E+04 | 0.683732E+04 | -0.381590E-01 |
| 2000 | 0.769234E+04 | 0.231160E+05 | -0.110030E+01 |
| 2001 | 0.278937E+04 | 0.548352E+04 | -0.675933E+00 |
| 2002 | 0.624686E+05 | 0.447780E+05 | 0.332947E+00  |
| 2003 | 0.811429E+03 | 0.264349E+04 | -0.118106E+01 |
| 2004 | 0.600457E+04 | 0.131784E+04 | 0.151653E+01  |
| 2005 | 0.173126E+06 | 0.226184E+06 | -0.267327E+00 |
| 2006 | 0.185006E+04 | 0.367391E+04 | -0.686041E+00 |
| 2007 | 0.227437E+05 | 0.120235E+05 | 0.637425E+00  |
| 2008 | 0.284162E+04 | 0.339006E+04 | -0.176471E+00 |

Survey Index: 3 Tag: US\_Sp AGE = 3  
Time = JAN-1 Type = NUMBER  
Catchability = 0.633341E+00 % Variance Contribution = 3.6820  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.891821E+04 | N/A           |
| 1932 | N/A          | 0.366593E+05 | N/A           |
| 1933 | N/A          | 0.149432E+05 | N/A           |
| 1934 | N/A          | 0.143567E+05 | N/A           |
| 1935 | N/A          | 0.192554E+05 | N/A           |
| 1936 | N/A          | 0.183729E+05 | N/A           |
| 1937 | N/A          | 0.171411E+05 | N/A           |
| 1938 | N/A          | 0.175683E+05 | N/A           |
| 1939 | N/A          | 0.326072E+05 | N/A           |
| 1940 | N/A          | 0.247166E+05 | N/A           |
| 1941 | N/A          | 0.208325E+05 | N/A           |
| 1942 | N/A          | 0.329165E+05 | N/A           |
| 1943 | N/A          | 0.399858E+05 | N/A           |
| 1944 | N/A          | 0.237293E+05 | N/A           |
| 1945 | N/A          | 0.945057E+04 | N/A           |
| 1946 | N/A          | 0.227692E+05 | N/A           |
| 1947 | N/A          | 0.176812E+05 | N/A           |
| 1948 | N/A          | 0.302998E+05 | N/A           |
| 1949 | N/A          | 0.186716E+05 | N/A           |
| 1950 | N/A          | 0.102692E+05 | N/A           |
| 1951 | N/A          | 0.360777E+05 | N/A           |
| 1952 | N/A          | 0.195356E+05 | N/A           |
| 1953 | N/A          | 0.294792E+05 | N/A           |
| 1954 | N/A          | 0.169191E+05 | N/A           |
| 1955 | N/A          | 0.377593E+05 | N/A           |
| 1956 | N/A          | 0.198940E+05 | N/A           |
| 1957 | N/A          | 0.313110E+05 | N/A           |
| 1958 | N/A          | 0.217964E+05 | N/A           |
| 1959 | N/A          | 0.221190E+05 | N/A           |
| 1960 | N/A          | 0.215891E+05 | N/A           |
| 1961 | N/A          | 0.459492E+05 | N/A           |
| 1962 | N/A          | 0.456747E+05 | N/A           |
| 1963 | N/A          | 0.204848E+05 | N/A           |
| 1964 | N/A          | 0.142341E+05 | N/A           |
| 1965 | N/A          | 0.694556E+05 | N/A           |
| 1966 | N/A          | 0.119480E+06 | N/A           |
| 1967 | N/A          | 0.545463E+04 | N/A           |
| 1968 | 0.149303E+04 | 0.161460E+04 | -0.782800E-01 |
| 1969 | 0.188251E+04 | 0.370906E+04 | -0.678171E+00 |
| 1970 | N/A          | 0.220160E+03 | N/A           |
| 1971 | 0.811429E+03 | 0.380606E+03 | 0.757031E+00  |
| 1972 | 0.197989E+04 | 0.115796E+04 | 0.536380E+00  |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1973 | N/A          | 0.111559E+03 | N/A           |
| 1974 | N/A          | 0.234418E+04 | N/A           |
| 1975 | N/A          | 0.451505E+04 | N/A           |
| 1976 | N/A          | 0.385771E+04 | N/A           |
| 1977 | N/A          | 0.299346E+04 | N/A           |
| 1978 | N/A          | 0.333491E+05 | N/A           |
| 1979 | N/A          | 0.549783E+04 | N/A           |
| 1980 | N/A          | 0.258491E+04 | N/A           |
| 1981 | N/A          | 0.179774E+05 | N/A           |
| 1982 | 0.305097E+04 | 0.363845E+04 | -0.176097E+00 |
| 1983 | 0.188251E+04 | 0.245707E+04 | -0.266362E+00 |
| 1984 | 0.207726E+04 | 0.971914E+03 | 0.759537E+00  |
| 1985 | 0.246674E+04 | 0.134042E+04 | 0.609915E+00  |
| 1986 | 0.668617E+04 | 0.627157E+04 | 0.640154E-01  |
| 1987 | 0.194743E+03 | 0.103805E+04 | -0.167342E+01 |
| 1988 | 0.321326E+04 | 0.596574E+04 | -0.618748E+00 |
| 1989 | 0.146057E+04 | 0.108097E+04 | 0.300965E+00  |
| 1990 | 0.185655E+05 | 0.766021E+04 | 0.885264E+00  |
| 1991 | 0.778971E+03 | 0.572374E+03 | 0.308181E+00  |
| 1992 | 0.357029E+03 | 0.114327E+04 | -0.116383E+01 |
| 1993 | 0.584229E+03 | 0.100229E+04 | -0.539755E+00 |
| 1994 | 0.325415E+04 | 0.434313E+04 | -0.288663E+00 |
| 1995 | 0.752811E+04 | 0.634041E+04 | 0.171700E+00  |
| 1996 | 0.287440E+05 | 0.654788E+04 | 0.147929E+01  |
| 1997 | 0.108845E+05 | 0.541510E+04 | 0.698148E+00  |
| 1998 | 0.404870E+04 | 0.498337E+04 | -0.207710E+00 |
| 1999 | 0.695037E+04 | 0.997845E+04 | -0.361632E+00 |
| 2000 | 0.133224E+05 | 0.631702E+04 | 0.746197E+00  |
| 2001 | 0.791013E+04 | 0.212079E+05 | -0.986228E+00 |
| 2002 | 0.218067E+05 | 0.500306E+04 | 0.147216E+01  |
| 2003 | 0.176891E+05 | 0.413054E+05 | -0.848042E+00 |
| 2004 | 0.389486E+04 | 0.244176E+04 | 0.466938E+00  |
| 2005 | 0.519314E+03 | 0.120344E+04 | -0.840433E+00 |
| 2006 | 0.932494E+05 | 0.209439E+06 | -0.809155E+00 |
| 2007 | 0.593706E+04 | 0.339709E+04 | 0.558295E+00  |
| 2008 | 0.837394E+04 | 0.110521E+05 | -0.277497E+00 |

Survey Index: 4 Tag: US\_Sp AGE = 4  
Time = JAN-1 Type = NUMBER  
Catchability = 0.572417E+00 % Variance Contribution = 1.9491  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.101117E+05 | N/A           |
| 1932 | N/A          | 0.554692E+04 | N/A           |
| 1933 | N/A          | 0.138961E+05 | N/A           |
| 1934 | N/A          | 0.796015E+04 | N/A           |
| 1935 | N/A          | 0.783819E+04 | N/A           |
| 1936 | N/A          | 0.971720E+04 | N/A           |
| 1937 | N/A          | 0.771161E+04 | N/A           |
| 1938 | N/A          | 0.709644E+04 | N/A           |
| 1939 | N/A          | 0.901436E+04 | N/A           |
| 1940 | N/A          | 0.140748E+05 | N/A           |
| 1941 | N/A          | 0.119653E+05 | N/A           |
| 1942 | N/A          | 0.103771E+05 | N/A           |
| 1943 | N/A          | 0.159630E+05 | N/A           |
| 1944 | N/A          | 0.204723E+05 | N/A           |
| 1945 | N/A          | 0.132169E+05 | N/A           |
| 1946 | N/A          | 0.594683E+04 | N/A           |
| 1947 | N/A          | 0.906232E+04 | N/A           |
| 1948 | N/A          | 0.778579E+04 | N/A           |
| 1949 | N/A          | 0.125685E+05 | N/A           |
| 1950 | N/A          | 0.742949E+04 | N/A           |
| 1951 | N/A          | 0.548676E+04 | N/A           |
| 1952 | N/A          | 0.131667E+05 | N/A           |
| 1953 | N/A          | 0.988681E+04 | N/A           |
| 1954 | N/A          | 0.127992E+05 | N/A           |
| 1955 | N/A          | 0.988928E+04 | N/A           |
| 1956 | N/A          | 0.180582E+05 | N/A           |
| 1957 | N/A          | 0.112729E+05 | N/A           |
| 1958 | N/A          | 0.159512E+05 | N/A           |
| 1959 | N/A          | 0.124793E+05 | N/A           |
| 1960 | N/A          | 0.122537E+05 | N/A           |
| 1961 | N/A          | 0.128213E+05 | N/A           |
| 1962 | N/A          | 0.263155E+05 | N/A           |
| 1963 | N/A          | 0.254376E+05 | N/A           |
| 1964 | N/A          | 0.113409E+05 | N/A           |
| 1965 | N/A          | 0.818787E+04 | N/A           |
| 1966 | N/A          | 0.286087E+05 | N/A           |
| 1967 | N/A          | 0.370226E+05 | N/A           |
| 1968 | 0.227200E+04 | 0.255269E+04 | -0.116488E+00 |
| 1969 | 0.811429E+03 | 0.830355E+03 | -0.230566E-01 |
| 1970 | 0.107109E+04 | 0.187215E+04 | -0.558416E+00 |
| 1971 | N/A          | 0.154646E+03 | N/A           |
| 1972 | 0.389486E+03 | 0.167318E+03 | 0.844933E+00  |
| 1973 | N/A          | 0.620069E+03 | N/A           |
| 1974 | N/A          | 0.809485E+02 | N/A           |
| 1975 | N/A          | 0.138356E+04 | N/A           |
| 1976 | N/A          | 0.234988E+04 | N/A           |
| 1977 | N/A          | 0.256019E+04 | N/A           |
| 1978 | N/A          | 0.211711E+04 | N/A           |
| 1979 | N/A          | 0.172197E+05 | N/A           |
| 1980 | N/A          | 0.317096E+04 | N/A           |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1981 | N/A          | 0.173265E+04 | N/A           |
| 1982 | 0.132101E+05 | 0.762777E+04 | 0.549183E+00  |
| 1983 | 0.714057E+03 | 0.184700E+04 | -0.950356E+00 |
| 1984 | 0.204480E+04 | 0.139545E+04 | 0.382081E+00  |
| 1985 | 0.129829E+04 | 0.564380E+03 | 0.833072E+00  |
| 1986 | 0.778971E+03 | 0.702319E+03 | 0.103587E+00  |
| 1987 | 0.262903E+04 | 0.317721E+04 | -0.189389E+00 |
| 1988 | 0.421943E+03 | 0.700184E+03 | -0.506473E+00 |
| 1989 | 0.230446E+04 | 0.316025E+04 | -0.315806E+00 |
| 1990 | 0.107109E+04 | 0.736636E+03 | 0.374334E+00  |
| 1991 | 0.600457E+04 | 0.479331E+04 | 0.225300E+00  |
| 1992 | 0.227200E+03 | 0.360215E+03 | -0.460870E+00 |
| 1993 | 0.454400E+03 | 0.636273E+03 | -0.336650E+00 |
| 1994 | 0.481015E+03 | 0.515983E+03 | -0.701756E-01 |
| 1995 | 0.296918E+04 | 0.259986E+04 | 0.132827E+00  |
| 1996 | 0.168939E+05 | 0.437446E+04 | 0.135117E+01  |
| 1997 | 0.118709E+05 | 0.455274E+04 | 0.958360E+00  |
| 1998 | 0.343721E+04 | 0.386595E+04 | -0.117547E+00 |
| 1999 | 0.232750E+04 | 0.344434E+04 | -0.391937E+00 |
| 2000 | 0.652129E+04 | 0.691582E+04 | -0.587390E-01 |
| 2001 | 0.270725E+04 | 0.435132E+04 | -0.474546E+00 |
| 2002 | 0.104593E+05 | 0.144574E+05 | -0.323714E+00 |
| 2003 | 0.392731E+04 | 0.352373E+04 | 0.108436E+00  |
| 2004 | 0.294062E+05 | 0.295609E+05 | -0.524647E-02 |
| 2005 | 0.123337E+04 | 0.174394E+04 | -0.346398E+00 |
| 2006 | 0.164395E+04 | 0.868911E+03 | 0.637619E+00  |
| 2007 | 0.146687E+06 | 0.153343E+06 | -0.443797E-01 |
| 2008 | 0.712110E+03 | 0.238976E+04 | -0.121072E+01 |

Survey Index: 5 Tag: US\_Sp AGE = 5  
 Type = NUMBER  
 Catchability = 0.634646E+00 % Variance Contribution = 3.2729  
 Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.108807E+05 | N/A           |
| 1932 | N/A          | 0.588657E+04 | N/A           |
| 1933 | N/A          | 0.365456E+04 | N/A           |
| 1934 | N/A          | 0.691159E+04 | N/A           |
| 1935 | N/A          | 0.509740E+04 | N/A           |
| 1936 | N/A          | 0.500276E+04 | N/A           |
| 1937 | N/A          | 0.572928E+04 | N/A           |
| 1938 | N/A          | 0.380533E+04 | N/A           |
| 1939 | N/A          | 0.430333E+04 | N/A           |
| 1940 | N/A          | 0.524447E+04 | N/A           |
| 1941 | N/A          | 0.808057E+04 | N/A           |
| 1942 | N/A          | 0.629738E+04 | N/A           |
| 1943 | N/A          | 0.570642E+04 | N/A           |
| 1944 | N/A          | 0.972678E+04 | N/A           |
| 1945 | N/A          | 0.101584E+05 | N/A           |
| 1946 | N/A          | 0.835833E+04 | N/A           |
| 1947 | N/A          | 0.383734E+04 | N/A           |
| 1948 | N/A          | 0.415541E+04 | N/A           |
| 1949 | N/A          | 0.416006E+04 | N/A           |
| 1950 | N/A          | 0.595937E+04 | N/A           |
| 1951 | N/A          | 0.431297E+04 | N/A           |
| 1952 | N/A          | 0.373840E+04 | N/A           |
| 1953 | N/A          | 0.712889E+04 | N/A           |
| 1954 | N/A          | 0.571637E+04 | N/A           |
| 1955 | N/A          | 0.841872E+04 | N/A           |
| 1956 | N/A          | 0.708328E+04 | N/A           |
| 1957 | N/A          | 0.953641E+04 | N/A           |
| 1958 | N/A          | 0.765229E+04 | N/A           |
| 1959 | N/A          | 0.106777E+05 | N/A           |
| 1960 | N/A          | 0.837932E+04 | N/A           |
| 1961 | N/A          | 0.851934E+04 | N/A           |
| 1962 | N/A          | 0.924088E+04 | N/A           |
| 1963 | N/A          | 0.179307E+05 | N/A           |
| 1964 | N/A          | 0.167313E+05 | N/A           |
| 1965 | N/A          | 0.757046E+04 | N/A           |
| 1966 | N/A          | 0.438849E+04 | N/A           |
| 1967 | N/A          | 0.150791E+05 | N/A           |
| 1968 | 0.218112E+05 | 0.218427E+05 | -0.144380E-02 |
| 1969 | 0.136320E+04 | 0.122735E+04 | 0.104975E+00  |
| 1970 | 0.149303E+04 | 0.498660E+03 | 0.109664E+01  |
| 1971 | 0.389486E+03 | 0.137380E+04 | -0.126051E+01 |
| 1972 | 0.973714E+02 | 0.117514E+03 | -0.188025E+00 |
| 1973 | N/A          | 0.104647E+03 | N/A           |
| 1974 | N/A          | 0.339375E+03 | N/A           |
| 1975 | N/A          | 0.722763E+02 | N/A           |
| 1976 | N/A          | 0.103425E+04 | N/A           |
| 1977 | N/A          | 0.161231E+04 | N/A           |
| 1978 | N/A          | 0.192991E+04 | N/A           |
| 1979 | N/A          | 0.174583E+04 | N/A           |
| 1980 | N/A          | 0.115028E+05 | N/A           |
| 1981 | N/A          | 0.231835E+04 | N/A           |
| 1982 | 0.136320E+04 | 0.109587E+04 | 0.218287E+00  |
| 1983 | 0.782217E+04 | 0.478122E+04 | 0.492267E+00  |
| 1984 | 0.188251E+04 | 0.127886E+04 | 0.386643E+00  |
| 1985 | 0.282377E+04 | 0.847673E+03 | 0.120333E+01  |
| 1986 | 0.357029E+03 | 0.398867E+03 | -0.110813E+00 |
| 1987 | 0.259657E+03 | 0.508442E+03 | -0.671989E+00 |
| 1988 | 0.103863E+04 | 0.194684E+04 | -0.628306E+00 |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1989 | 0.454400E+03 | 0.557156E+03 | -0.203867E+00 |
| 1990 | 0.188251E+04 | 0.228685E+04 | -0.194569E+00 |
| 1991 | 0.292114E+03 | 0.515179E+03 | -0.567369E+00 |
| 1992 | 0.107109E+04 | 0.300064E+04 | -0.103015E+01 |
| 1993 | 0.389486E+03 | 0.214712E+03 | 0.595532E+00  |
| 1994 | 0.330414E+03 | 0.383737E+03 | -0.149611E+00 |
| 1995 | 0.536192E+03 | 0.330723E+03 | 0.483211E+00  |
| 1996 | 0.849728E+04 | 0.209063E+04 | 0.140228E+01  |
| 1997 | 0.652194E+04 | 0.344547E+04 | 0.638110E+00  |
| 1998 | 0.277346E+04 | 0.370630E+04 | -0.289936E+00 |
| 1999 | 0.208505E+04 | 0.319010E+04 | -0.425262E+00 |
| 2000 | 0.360404E+04 | 0.281688E+04 | 0.246425E+00  |
| 2001 | 0.976635E+03 | 0.537946E+04 | -0.170623E+01 |
| 2002 | 0.354594E+04 | 0.338027E+04 | 0.478481E-01  |
| 2003 | 0.157417E+05 | 0.113064E+05 | 0.330942E+00  |
| 2004 | 0.707566E+04 | 0.293465E+04 | 0.880072E+00  |
| 2005 | 0.108731E+05 | 0.239064E+05 | -0.787848E+00 |
| 2006 | 0.205811E+04 | 0.138912E+04 | 0.393119E+00  |
| 2007 | 0.111328E+04 | 0.748131E+03 | 0.397487E+00  |
| 2008 | 0.658500E+05 | 0.132771E+06 | -0.701242E+00 |

Survey Index: 6 Tag: US\_Sp AGE = 6  
Time = JAN-1 Type = NUMBER  
Catchability = 0.540223E+00 % Variance Contribution = 5.5201  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.550891E+04 | N/A           |
| 1932 | N/A          | 0.320439E+04 | N/A           |
| 1933 | N/A          | 0.232532E+04 | N/A           |
| 1934 | N/A          | 0.153456E+04 | N/A           |
| 1935 | N/A          | 0.328979E+04 | N/A           |
| 1936 | N/A          | 0.212793E+04 | N/A           |
| 1937 | N/A          | 0.244783E+04 | N/A           |
| 1938 | N/A          | 0.199404E+04 | N/A           |
| 1939 | N/A          | 0.162915E+04 | N/A           |
| 1940 | N/A          | 0.195630E+04 | N/A           |
| 1941 | N/A          | 0.243828E+04 | N/A           |
| 1942 | N/A          | 0.285006E+04 | N/A           |
| 1943 | N/A          | 0.245731E+04 | N/A           |
| 1944 | N/A          | 0.247498E+04 | N/A           |
| 1945 | N/A          | 0.402636E+04 | N/A           |
| 1946 | N/A          | 0.427513E+04 | N/A           |
| 1947 | N/A          | 0.303222E+04 | N/A           |
| 1948 | N/A          | 0.164466E+04 | N/A           |
| 1949 | N/A          | 0.157037E+04 | N/A           |
| 1950 | N/A          | 0.176327E+04 | N/A           |
| 1951 | N/A          | 0.254851E+04 | N/A           |
| 1952 | N/A          | 0.182103E+04 | N/A           |
| 1953 | N/A          | 0.194442E+04 | N/A           |
| 1954 | N/A          | 0.314864E+04 | N/A           |
| 1955 | N/A          | 0.286032E+04 | N/A           |
| 1956 | N/A          | 0.427588E+04 | N/A           |
| 1957 | N/A          | 0.328601E+04 | N/A           |
| 1958 | N/A          | 0.383073E+04 | N/A           |
| 1959 | N/A          | 0.349929E+04 | N/A           |
| 1960 | N/A          | 0.553117E+04 | N/A           |
| 1961 | N/A          | 0.435032E+04 | N/A           |
| 1962 | N/A          | 0.452023E+04 | N/A           |
| 1963 | N/A          | 0.476591E+04 | N/A           |
| 1964 | N/A          | 0.852098E+04 | N/A           |
| 1965 | N/A          | 0.743565E+04 | N/A           |
| 1966 | N/A          | 0.315138E+04 | N/A           |
| 1967 | N/A          | 0.172042E+04 | N/A           |
| 1968 | 0.545280E+04 | 0.551727E+04 | -0.117548E-01 |
| 1969 | 0.137294E+05 | 0.820917E+04 | 0.514286E+00  |
| 1970 | 0.149303E+04 | 0.538649E+03 | 0.101950E+01  |
| 1971 | 0.389486E+03 | 0.257210E+03 | 0.414934E+00  |
| 1972 | 0.129829E+03 | 0.816766E+03 | -0.183914E+01 |
| 1973 | N/A          | 0.659973E+02 | N/A           |
| 1974 | N/A          | 0.467717E+02 | N/A           |
| 1975 | N/A          | 0.201183E+03 | N/A           |
| 1976 | N/A          | 0.483713E+02 | N/A           |
| 1977 | N/A          | 0.611773E+03 | N/A           |
| 1978 | N/A          | 0.869900E+03 | N/A           |
| 1979 | N/A          | 0.106717E+04 | N/A           |
| 1980 | N/A          | 0.959084E+03 | N/A           |
| 1981 | N/A          | 0.506838E+04 | N/A           |
| 1982 | 0.908800E+03 | 0.115772E+04 | -0.242083E+00 |
| 1983 | 0.324571E+02 | 0.572428E+03 | -0.286997E+01 |
| 1984 | 0.233691E+04 | 0.223584E+04 | 0.442161E-01  |
| 1985 | 0.110354E+04 | 0.695985E+03 | 0.460953E+00  |
| 1986 | 0.681600E+03 | 0.362232E+03 | 0.632158E+00  |
| 1987 | 0.324571E+03 | 0.206112E+03 | 0.454084E+00  |
| 1988 | 0.389486E+03 | 0.293776E+03 | 0.282009E+00  |
| 1989 | 0.133074E+04 | 0.895163E+03 | 0.396487E+00  |
| 1990 | 0.194743E+03 | 0.282807E+03 | -0.373084E+00 |
| 1991 | 0.324571E+03 | 0.104898E+04 | -0.117307E+01 |
| 1992 | 0.973714E+02 | 0.288874E+03 | -0.108746E+01 |
| 1993 | 0.120091E+04 | 0.114415E+04 | 0.484194E-01  |
| 1994 | 0.213568E+03 | 0.915029E+02 | 0.847584E+00  |
| 1995 | 0.369687E+03 | 0.198431E+03 | 0.622213E+00  |
| 1996 | 0.113275E+04 | 0.201808E+03 | 0.172509E+01  |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1997 | 0.288674E+04 | 0.123785E+04 | 0.846753E+00  |
| 1998 | 0.695881E+03 | 0.212785E+04 | -0.111769E+01 |
| 1999 | 0.164590E+04 | 0.220957E+04 | -0.294508E+00 |
| 2000 | 0.359073E+04 | 0.192836E+04 | 0.621686E+00  |
| 2001 | 0.681600E+03 | 0.167695E+04 | -0.900288E+00 |
| 2002 | 0.154821E+04 | 0.312600E+04 | -0.702659E+00 |
| 2003 | 0.311589E+04 | 0.190538E+04 | 0.491831E+00  |
| 2004 | 0.866606E+04 | 0.657280E+04 | 0.276473E+00  |
| 2005 | 0.146057E+04 | 0.169039E+04 | -0.146134E+00 |
| 2006 | 0.120059E+05 | 0.125298E+05 | -0.427089E-01 |
| 2007 | 0.791630E+03 | 0.785639E+03 | 0.759574E-02  |
| 2008 | 0.127524E+04 | 0.426932E+03 | 0.109427E+01  |

Survey Index: 7 Tag: US\_Sp AGE = 7  
Time = JAN-1 Type = NUMBER  
Catchability = 0.535573E+00 % Variance Contribution = 4.4580  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.294060E+04 | N/A           |
| 1932 | N/A          | 0.159560E+04 | N/A           |
| 1933 | N/A          | 0.121818E+04 | N/A           |
| 1934 | N/A          | 0.112996E+04 | N/A           |
| 1935 | N/A          | 0.741446E+03 | N/A           |
| 1936 | N/A          | 0.149246E+04 | N/A           |
| 1937 | N/A          | 0.106631E+04 | N/A           |
| 1938 | N/A          | 0.108870E+04 | N/A           |
| 1939 | N/A          | 0.852593E+03 | N/A           |
| 1940 | N/A          | 0.857859E+03 | N/A           |
| 1941 | N/A          | 0.879309E+03 | N/A           |
| 1942 | N/A          | 0.112547E+04 | N/A           |
| 1943 | N/A          | 0.119778E+04 | N/A           |
| 1944 | N/A          | 0.713324E+03 | N/A           |
| 1945 | N/A          | 0.919430E+03 | N/A           |
| 1946 | N/A          | 0.215584E+04 | N/A           |
| 1947 | N/A          | 0.163511E+04 | N/A           |
| 1948 | N/A          | 0.115250E+04 | N/A           |
| 1949 | N/A          | 0.780136E+03 | N/A           |
| 1950 | N/A          | 0.765645E+03 | N/A           |
| 1951 | N/A          | 0.888347E+03 | N/A           |
| 1952 | N/A          | 0.104577E+04 | N/A           |
| 1953 | N/A          | 0.102417E+04 | N/A           |
| 1954 | N/A          | 0.109163E+04 | N/A           |
| 1955 | N/A          | 0.153340E+04 | N/A           |
| 1956 | N/A          | 0.152939E+04 | N/A           |
| 1957 | N/A          | 0.185322E+04 | N/A           |
| 1958 | N/A          | 0.153722E+04 | N/A           |
| 1959 | N/A          | 0.197326E+04 | N/A           |
| 1960 | N/A          | 0.199477E+04 | N/A           |
| 1961 | N/A          | 0.362567E+04 | N/A           |
| 1962 | N/A          | 0.263749E+04 | N/A           |
| 1963 | N/A          | 0.266370E+04 | N/A           |
| 1964 | N/A          | 0.280730E+04 | N/A           |
| 1965 | N/A          | 0.413694E+04 | N/A           |
| 1966 | N/A          | 0.283867E+04 | N/A           |
| 1967 | N/A          | 0.131802E+04 | N/A           |
| 1968 | 0.811429E+03 | 0.816687E+03 | -0.645937E-02 |
| 1969 | 0.334309E+04 | 0.279859E+04 | 0.177777E+00  |
| 1970 | 0.649143E+04 | 0.380920E+04 | 0.533063E+00  |
| 1971 | 0.292114E+03 | 0.334141E+03 | -0.134418E+00 |
| 1972 | 0.421943E+03 | 0.913610E+02 | 0.153005E+01  |
| 1973 | N/A          | 0.603638E+03 | N/A           |
| 1974 | N/A          | 0.388435E+02 | N/A           |
| 1975 | N/A          | 0.369483E+02 | N/A           |
| 1976 | N/A          | 0.142348E+03 | N/A           |
| 1977 | N/A          | 0.392583E+02 | N/A           |
| 1978 | N/A          | 0.322677E+03 | N/A           |
| 1979 | N/A          | 0.455797E+03 | N/A           |
| 1980 | N/A          | 0.666829E+03 | N/A           |
| 1981 | N/A          | 0.491690E+03 | N/A           |
| 1982 | 0.197989E+04 | 0.286821E+04 | -0.370649E+00 |
| 1983 | 0.129829E+03 | 0.663982E+03 | -0.163204E+01 |
| 1984 | 0.227200E+03 | 0.332467E+03 | -0.380710E+00 |
| 1985 | 0.379749E+04 | 0.109518E+04 | 0.124342E+01  |
| 1986 | 0.389486E+03 | 0.452369E+03 | -0.149671E+00 |
| 1987 | 0.162286E+03 | 0.209635E+03 | -0.256007E+00 |
| 1988 | 0.357029E+03 | 0.131399E+03 | 0.999574E+00  |
| 1989 | 0.194743E+03 | 0.165170E+03 | 0.164705E+00  |
| 1990 | 0.421943E+03 | 0.496882E+03 | -0.163483E+00 |
| 1991 | 0.649143E+02 | 0.155381E+03 | -0.872812E+00 |
| 1992 | 0.973714E+02 | 0.602460E+03 | -0.182249E+01 |
| 1993 | 0.194743E+03 | 0.147480E+03 | 0.277986E+00  |
| 1994 | 0.503410E+03 | 0.572858E+03 | -0.129232E+00 |
| 1995 | 0.928274E+02 | 0.391338E+02 | 0.863755E+00  |
| 1996 | 0.236937E+03 | 0.146862E+03 | 0.478303E+00  |
| 1997 | 0.408960E+03 | 0.131988E+03 | 0.113091E+01  |
| 1998 | 0.196041E+03 | 0.899515E+03 | -0.152353E+01 |
| 1999 | 0.662775E+03 | 0.145184E+04 | -0.784149E+00 |
| 2000 | 0.329245E+04 | 0.152063E+04 | 0.772507E+00  |
| 2001 | 0.373582E+03 | 0.131067E+04 | -0.125516E+01 |
| 2002 | 0.196950E+04 | 0.104536E+04 | 0.633417E+00  |
| 2003 | 0.370011E+04 | 0.200463E+04 | 0.612906E+00  |
| 2004 | 0.139566E+04 | 0.125493E+04 | 0.106283E+00  |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 2005 | 0.327817E+04 | 0.392213E+04 | -0.179349E+00 |
| 2006 | 0.168355E+04 | 0.997799E+03 | 0.523109E+00  |
| 2007 | 0.452810E+04 | 0.756171E+04 | -0.512795E+00 |
| 2008 | 0.552745E+03 | 0.487705E+03 | 0.125185E+00  |

Survey Index: 8 Tag: US\_Sp AGE = 8  
Time = JAN-1 Type = NUMBER  
Catchability = 0.623145E+00 % Variance Contribution = 5.2382  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.192278E+04 | N/A           |
| 1932 | N/A          | 0.932299E+03 | N/A           |
| 1933 | N/A          | 0.784985E+03 | N/A           |
| 1934 | N/A          | 0.488901E+03 | N/A           |
| 1935 | N/A          | 0.730200E+03 | N/A           |
| 1936 | N/A          | 0.427734E+03 | N/A           |
| 1937 | N/A          | 0.664568E+03 | N/A           |
| 1938 | N/A          | 0.486336E+03 | N/A           |
| 1939 | N/A          | 0.511310E+03 | N/A           |
| 1940 | N/A          | 0.347539E+03 | N/A           |
| 1941 | N/A          | 0.398860E+03 | N/A           |
| 1942 | N/A          | 0.316290E+03 | N/A           |
| 1943 | N/A          | 0.496284E+03 | N/A           |
| 1944 | N/A          | 0.699892E+03 | N/A           |
| 1945 | N/A          | 0.402165E+03 | N/A           |
| 1946 | N/A          | 0.368597E+03 | N/A           |
| 1947 | N/A          | 0.103674E+04 | N/A           |
| 1948 | N/A          | 0.723267E+03 | N/A           |
| 1949 | N/A          | 0.662463E+03 | N/A           |
| 1950 | N/A          | 0.395540E+03 | N/A           |
| 1951 | N/A          | 0.439091E+03 | N/A           |
| 1952 | N/A          | 0.434245E+03 | N/A           |
| 1953 | N/A          | 0.699611E+03 | N/A           |
| 1954 | N/A          | 0.672407E+03 | N/A           |
| 1955 | N/A          | 0.637862E+03 | N/A           |
| 1956 | N/A          | 0.864726E+03 | N/A           |
| 1957 | N/A          | 0.707076E+03 | N/A           |
| 1958 | N/A          | 0.858661E+03 | N/A           |
| 1959 | N/A          | 0.959606E+03 | N/A           |
| 1960 | N/A          | 0.122467E+04 | N/A           |
| 1961 | N/A          | 0.145915E+04 | N/A           |
| 1962 | N/A          | 0.274390E+04 | N/A           |
| 1963 | N/A          | 0.163720E+04 | N/A           |
| 1964 | N/A          | 0.175141E+04 | N/A           |
| 1965 | N/A          | 0.151324E+04 | N/A           |
| 1966 | N/A          | 0.184391E+04 | N/A           |
| 1967 | N/A          | 0.140551E+04 | N/A           |
| 1968 | 0.146057E+04 | 0.701926E+03 | 0.732756E+00  |
| 1969 | 0.908800E+03 | 0.406516E+03 | 0.804503E+00  |
| 1970 | 0.318080E+04 | 0.178580E+04 | 0.577268E+00  |
| 1971 | 0.266149E+04 | 0.233888E+04 | 0.129211E+00  |
| 1972 | 0.973714E+02 | 0.159687E+03 | -0.494685E+00 |
| 1973 | N/A          | 0.426352E+02 | N/A           |
| 1974 | N/A          | 0.530954E+03 | N/A           |
| 1975 | N/A          | 0.358209E+02 | N/A           |
| 1976 | N/A          | 0.328917E+02 | N/A           |
| 1977 | N/A          | 0.122171E+03 | N/A           |
| 1978 | N/A          | 0.350921E+02 | N/A           |
| 1979 | N/A          | 0.228905E+03 | N/A           |
| 1980 | N/A          | 0.256738E+03 | N/A           |
| 1981 | N/A          | 0.329513E+03 | N/A           |
| 1982 | N/A          | 0.282278E+03 | N/A           |
| 1983 | 0.376503E+04 | 0.210046E+04 | 0.583597E+00  |
| 1984 | 0.129829E+03 | 0.527061E+03 | -0.140110E+01 |
| 1985 | 0.324571E+03 | 0.184597E+03 | 0.564332E+00  |
| 1986 | 0.107109E+04 | 0.741800E+03 | 0.367349E+00  |
| 1987 | 0.714057E+03 | 0.345679E+03 | 0.725453E+00  |
| 1988 | 0.389486E+03 | 0.148835E+03 | 0.961986E+00  |
| 1989 | 0.162286E+03 | 0.936322E+02 | 0.549984E+00  |
| 1990 | N/A          | 0.122753E+03 | N/A           |
| 1991 | 0.129829E+03 | 0.351447E+03 | -0.995844E+00 |
| 1992 | 0.973714E+02 | 0.767951E+02 | 0.237392E+00  |
| 1993 | 0.649143E+02 | 0.336382E+03 | -0.164518E+01 |
| 1994 | 0.490103E+02 | 0.105420E+03 | -0.765919E+00 |
| 1995 | 0.577737E+03 | 0.370420E+03 | 0.444480E+00  |
| 1996 | 0.243429E+03 | 0.325052E+02 | 0.201342E+01  |
| 1997 | 0.228498E+03 | 0.127480E+03 | 0.583570E+00  |
| 1998 | 0.178514E+02 | 0.115894E+03 | -0.187059E+01 |
| 1999 | 0.651739E+03 | 0.761991E+03 | -0.156289E+00 |
| 2000 | 0.154334E+04 | 0.116775E+04 | 0.278865E+00  |
| 2001 | 0.265175E+03 | 0.123690E+04 | -0.153997E+01 |
| 2002 | 0.552421E+03 | 0.100312E+04 | -0.596556E+00 |
| 2003 | 0.279131E+04 | 0.770710E+03 | 0.128696E+01  |
| 2004 | 0.311589E+04 | 0.150642E+04 | 0.726779E+00  |
| 2005 | 0.616686E+03 | 0.811380E+03 | -0.274378E+00 |
| 2006 | 0.153685E+04 | 0.270457E+04 | -0.565210E+00 |
| 2007 | 0.431031E+03 | 0.767370E+03 | -0.576789E+00 |
| 2008 | 0.291984E+04 | 0.579455E+04 | -0.685388E+00 |

Survey Index: 9 Tag: US\_S41 AGE = 1  
Time = JAN-1 Type = NUMBER  
Catchability = 0.721024E+00 % Variance Contribution = 3.9361



Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.287963E+05 | N/A           |
| 1932 | N/A          | 0.326730E+05 | N/A           |
| 1933 | N/A          | 0.372156E+05 | N/A           |
| 1934 | N/A          | 0.429507E+05 | N/A           |
| 1935 | N/A          | 0.419733E+05 | N/A           |
| 1936 | N/A          | 0.412041E+05 | N/A           |
| 1937 | N/A          | 0.759315E+05 | N/A           |
| 1938 | N/A          | 0.562763E+05 | N/A           |
| 1939 | N/A          | 0.428911E+05 | N/A           |
| 1940 | N/A          | 0.801969E+05 | N/A           |
| 1941 | N/A          | 0.823893E+05 | N/A           |
| 1942 | N/A          | 0.446132E+05 | N/A           |
| 1943 | N/A          | 0.168045E+05 | N/A           |
| 1944 | N/A          | 0.469751E+05 | N/A           |
| 1945 | N/A          | 0.373538E+05 | N/A           |
| 1946 | N/A          | 0.677034E+05 | N/A           |
| 1947 | N/A          | 0.426382E+05 | N/A           |
| 1948 | N/A          | 0.237612E+05 | N/A           |
| 1949 | N/A          | 0.895088E+05 | N/A           |
| 1950 | N/A          | 0.412514E+05 | N/A           |
| 1951 | N/A          | 0.748282E+05 | N/A           |
| 1952 | N/A          | 0.304918E+05 | N/A           |
| 1953 | N/A          | 0.957450E+05 | N/A           |
| 1954 | N/A          | 0.376955E+05 | N/A           |
| 1955 | N/A          | 0.648204E+05 | N/A           |
| 1956 | N/A          | 0.434497E+05 | N/A           |
| 1957 | N/A          | 0.429948E+05 | N/A           |
| 1958 | N/A          | 0.423064E+05 | N/A           |
| 1959 | N/A          | 0.936224E+05 | N/A           |
| 1960 | N/A          | 0.881417E+05 | N/A           |
| 1961 | N/A          | 0.391602E+05 | N/A           |
| 1962 | N/A          | 0.281559E+05 | N/A           |
| 1963 | N/A          | 0.135727E+06 | N/A           |
| 1964 | N/A          | 0.332259E+06 | N/A           |
| 1965 | N/A          | 0.234427E+05 | N/A           |
| 1966 | N/A          | 0.299589E+04 | N/A           |
| 1967 | N/A          | 0.101037E+05 | N/A           |
| 1968 | N/A          | 0.390956E+03 | N/A           |
| 1969 | N/A          | 0.800978E+03 | N/A           |
| 1970 | N/A          | 0.332792E+04 | N/A           |
| 1971 | N/A          | 0.192206E+03 | N/A           |
| 1972 | N/A          | 0.614738E+04 | N/A           |
| 1973 | 0.995785E+05 | 0.140587E+05 | 0.195771E+01  |
| 1974 | 0.691337E+04 | 0.762637E+04 | -0.981546E-01 |
| 1975 | 0.305097E+04 | 0.571777E+04 | -0.628119E+00 |
| 1976 | 0.262221E+06 | 0.759591E+05 | 0.123899E+01  |
| 1977 | 0.197989E+04 | 0.100826E+05 | -0.162777E+01 |
| 1978 | 0.227200E+03 | 0.441636E+04 | -0.296724E+01 |
| 1979 | 0.117235E+06 | 0.604860E+05 | 0.661771E+00  |
| 1980 | 0.168777E+05 | 0.788454E+04 | 0.761091E+00  |
| 1981 | 0.107109E+05 | 0.530967E+04 | 0.701728E+00  |
| 1982 | N/A          | 0.186101E+04 | N/A           |
| 1983 | N/A          | 0.236813E+04 | N/A           |
| 1984 | N/A          | 0.130385E+05 | N/A           |
| 1985 | N/A          | 0.181628E+04 | N/A           |
| 1986 | N/A          | 0.121084E+05 | N/A           |
| 1987 | N/A          | 0.188774E+04 | N/A           |
| 1988 | N/A          | 0.144314E+05 | N/A           |
| 1989 | N/A          | 0.984878E+03 | N/A           |
| 1990 | N/A          | 0.246233E+04 | N/A           |
| 1991 | N/A          | 0.196481E+04 | N/A           |
| 1992 | N/A          | 0.779542E+04 | N/A           |
| 1993 | N/A          | 0.113164E+05 | N/A           |
| 1994 | N/A          | 0.112332E+05 | N/A           |
| 1995 | N/A          | 0.926511E+04 | N/A           |
| 1996 | N/A          | 0.860816E+04 | N/A           |
| 1997 | N/A          | 0.171821E+05 | N/A           |
| 1998 | N/A          | 0.107753E+05 | N/A           |
| 1999 | N/A          | 0.364172E+05 | N/A           |
| 2000 | N/A          | 0.863922E+04 | N/A           |
| 2001 | N/A          | 0.705480E+05 | N/A           |
| 2002 | N/A          | 0.416649E+04 | N/A           |
| 2003 | N/A          | 0.207952E+04 | N/A           |
| 2004 | N/A          | 0.356812E+06 | N/A           |
| 2005 | N/A          | 0.580287E+04 | N/A           |
| 2006 | N/A          | 0.190709E+05 | N/A           |
| 2007 | N/A          | 0.535055E+04 | N/A           |
| 2008 | N/A          | 0.118077E+05 | N/A           |

Survey Index: 10 Tag: US\_S41 AGE = 2  
 Time = JAN-1 Type = NUMBER  
 Catchability = 0.898814E+00 % Variance Contribution = 1.8500  
 Residual = LN(Observed) - LN(Predicted)

| Year | Observed | Predicted    | Residual |
|------|----------|--------------|----------|
| 1931 | N/A      | 0.722533E+05 | N/A      |
| 1932 | N/A      | 0.279662E+05 | N/A      |
| 1933 | N/A      | 0.332507E+05 | N/A      |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1934 | N/A          | 0.377846E+05 | N/A           |
| 1935 | N/A          | 0.435592E+05 | N/A           |
| 1936 | N/A          | 0.418670E+05 | N/A           |
| 1937 | N/A          | 0.413392E+05 | N/A           |
| 1938 | N/A          | 0.764511E+05 | N/A           |
| 1939 | N/A          | 0.566003E+05 | N/A           |
| 1940 | N/A          | 0.432825E+05 | N/A           |
| 1941 | N/A          | 0.801943E+05 | N/A           |
| 1942 | N/A          | 0.834544E+05 | N/A           |
| 1943 | N/A          | 0.452811E+05 | N/A           |
| 1944 | N/A          | 0.171354E+05 | N/A           |
| 1945 | N/A          | 0.478915E+05 | N/A           |
| 1946 | N/A          | 0.380255E+05 | N/A           |
| 1947 | N/A          | 0.689293E+05 | N/A           |
| 1948 | N/A          | 0.434441E+05 | N/A           |
| 1949 | N/A          | 0.241860E+05 | N/A           |
| 1950 | N/A          | 0.910876E+05 | N/A           |
| 1951 | N/A          | 0.420303E+05 | N/A           |
| 1952 | N/A          | 0.758470E+05 | N/A           |
| 1953 | N/A          | 0.311173E+05 | N/A           |
| 1954 | N/A          | 0.968394E+05 | N/A           |
| 1955 | N/A          | 0.383848E+05 | N/A           |
| 1956 | N/A          | 0.660835E+05 | N/A           |
| 1957 | N/A          | 0.443031E+05 | N/A           |
| 1958 | N/A          | 0.438527E+05 | N/A           |
| 1959 | N/A          | 0.430770E+05 | N/A           |
| 1960 | N/A          | 0.954760E+05 | N/A           |
| 1961 | N/A          | 0.897491E+05 | N/A           |
| 1962 | N/A          | 0.399171E+05 | N/A           |
| 1963 | N/A          | 0.286762E+05 | N/A           |
| 1964 | N/A          | 0.136162E+06 | N/A           |
| 1965 | N/A          | 0.330910E+06 | N/A           |
| 1966 | N/A          | 0.161810E+05 | N/A           |
| 1967 | N/A          | 0.296514E+04 | N/A           |
| 1968 | N/A          | 0.937975E+04 | N/A           |
| 1969 | N/A          | 0.392522E+03 | N/A           |
| 1970 | N/A          | 0.815865E+03 | N/A           |
| 1971 | N/A          | 0.335918E+04 | N/A           |
| 1972 | N/A          | 0.195356E+03 | N/A           |
| 1973 | 0.157093E+05 | 0.614456E+04 | 0.938683E+00  |
| 1974 | 0.431355E+05 | 0.122373E+05 | 0.125986E+01  |
| 1975 | 0.314834E+04 | 0.774485E+04 | -0.900152E+00 |
| 1976 | 0.973714E+03 | 0.567446E+04 | -0.176261E+01 |
| 1977 | 0.108439E+06 | 0.774036E+05 | 0.337157E+00  |
| 1978 | 0.314834E+04 | 0.102894E+05 | -0.118424E+01 |
| 1979 | 0.512823E+04 | 0.450659E+04 | 0.129220E+00  |
| 1980 | 0.151575E+06 | 0.617266E+05 | 0.898365E+00  |
| 1981 | 0.106784E+05 | 0.804057E+04 | 0.283723E+00  |
| 1982 | N/A          | 0.541831E+04 | N/A           |
| 1983 | N/A          | 0.189856E+04 | N/A           |
| 1984 | N/A          | 0.241670E+04 | N/A           |
| 1985 | N/A          | 0.133060E+05 | N/A           |
| 1986 | N/A          | 0.185354E+04 | N/A           |
| 1987 | N/A          | 0.123530E+05 | N/A           |
| 1988 | N/A          | 0.192646E+04 | N/A           |
| 1989 | N/A          | 0.147255E+05 | N/A           |
| 1990 | N/A          | 0.100364E+04 | N/A           |
| 1991 | N/A          | 0.246203E+04 | N/A           |
| 1992 | N/A          | 0.199963E+04 | N/A           |
| 1993 | N/A          | 0.788824E+04 | N/A           |
| 1994 | N/A          | 0.115229E+05 | N/A           |
| 1995 | N/A          | 0.114426E+05 | N/A           |
| 1996 | N/A          | 0.944229E+04 | N/A           |
| 1997 | N/A          | 0.878008E+04 | N/A           |
| 1998 | N/A          | 0.175245E+05 | N/A           |
| 1999 | N/A          | 0.109926E+05 | N/A           |
| 2000 | N/A          | 0.371642E+05 | N/A           |
| 2001 | N/A          | 0.881600E+04 | N/A           |
| 2002 | N/A          | 0.719908E+05 | N/A           |
| 2003 | N/A          | 0.425002E+04 | N/A           |
| 2004 | N/A          | 0.211873E+04 | N/A           |
| 2005 | N/A          | 0.363642E+06 | N/A           |
| 2006 | N/A          | 0.590665E+04 | N/A           |
| 2007 | N/A          | 0.193305E+05 | N/A           |
| 2008 | N/A          | 0.545029E+04 | N/A           |

Survey Index: 11 Tag: US\_S41 AGE = 3  
Time = JAN-1 Type = NUMBER  
Catchability = 0.775702E+00 % Variance Contribution = 1.1650  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed | Predicted    | Residual |
|------|----------|--------------|----------|
| 1931 | N/A      | 0.109228E+05 | N/A      |
| 1932 | N/A      | 0.448995E+05 | N/A      |
| 1933 | N/A      | 0.183021E+05 | N/A      |
| 1934 | N/A      | 0.175838E+05 | N/A      |
| 1935 | N/A      | 0.235836E+05 | N/A      |
| 1936 | N/A      | 0.225027E+05 | N/A      |
| 1937 | N/A      | 0.209941E+05 | N/A      |
| 1938 | N/A      | 0.215172E+05 | N/A      |
| 1939 | N/A      | 0.399365E+05 | N/A      |
| 1940 | N/A      | 0.302723E+05 | N/A      |
| 1941 | N/A      | 0.255152E+05 | N/A      |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1942 | N/A          | 0.403154E+05 | N/A           |
| 1943 | N/A          | 0.489737E+05 | N/A           |
| 1944 | N/A          | 0.290631E+05 | N/A           |
| 1945 | N/A          | 0.115748E+05 | N/A           |
| 1946 | N/A          | 0.278872E+05 | N/A           |
| 1947 | N/A          | 0.216556E+05 | N/A           |
| 1948 | N/A          | 0.371105E+05 | N/A           |
| 1949 | N/A          | 0.228685E+05 | N/A           |
| 1950 | N/A          | 0.125775E+05 | N/A           |
| 1951 | N/A          | 0.441872E+05 | N/A           |
| 1952 | N/A          | 0.239268E+05 | N/A           |
| 1953 | N/A          | 0.361055E+05 | N/A           |
| 1954 | N/A          | 0.207222E+05 | N/A           |
| 1955 | N/A          | 0.462468E+05 | N/A           |
| 1956 | N/A          | 0.243657E+05 | N/A           |
| 1957 | N/A          | 0.383490E+05 | N/A           |
| 1958 | N/A          | 0.266958E+05 | N/A           |
| 1959 | N/A          | 0.270908E+05 | N/A           |
| 1960 | N/A          | 0.264418E+05 | N/A           |
| 1961 | N/A          | 0.562775E+05 | N/A           |
| 1962 | N/A          | 0.559413E+05 | N/A           |
| 1963 | N/A          | 0.250893E+05 | N/A           |
| 1964 | N/A          | 0.174336E+05 | N/A           |
| 1965 | N/A          | 0.850676E+05 | N/A           |
| 1966 | N/A          | 0.146336E+06 | N/A           |
| 1967 | N/A          | 0.668070E+04 | N/A           |
| 1968 | N/A          | 0.197753E+04 | N/A           |
| 1969 | N/A          | 0.454278E+04 | N/A           |
| 1970 | N/A          | 0.269647E+03 | N/A           |
| 1971 | N/A          | 0.466158E+03 | N/A           |
| 1972 | N/A          | 0.141824E+04 | N/A           |
| 1973 | N/A          | 0.136635E+03 | N/A           |
| 1974 | 0.928274E+04 | 0.287111E+04 | 0.117346E+01  |
| 1975 | 0.107758E+05 | 0.552993E+04 | 0.667125E+00  |
| 1976 | 0.194743E+04 | 0.472483E+04 | -0.886323E+00 |
| 1977 | 0.136320E+04 | 0.366632E+04 | -0.989354E+00 |
| 1978 | 0.517042E+05 | 0.408452E+05 | 0.235750E+00  |
| 1979 | 0.366766E+04 | 0.673362E+04 | -0.607561E+00 |
| 1980 | 0.165531E+04 | 0.316595E+04 | -0.648461E+00 |
| 1981 | 0.632590E+05 | 0.220183E+05 | 0.105536E+01  |
| 1982 | N/A          | 0.445629E+04 | N/A           |
| 1983 | N/A          | 0.300937E+04 | N/A           |
| 1984 | N/A          | 0.119038E+04 | N/A           |
| 1985 | N/A          | 0.164172E+04 | N/A           |
| 1986 | N/A          | 0.768127E+04 | N/A           |
| 1987 | N/A          | 0.127138E+04 | N/A           |
| 1988 | N/A          | 0.730671E+04 | N/A           |
| 1989 | N/A          | 0.132395E+04 | N/A           |
| 1990 | N/A          | 0.938206E+04 | N/A           |
| 1991 | N/A          | 0.701031E+03 | N/A           |
| 1992 | N/A          | 0.140025E+04 | N/A           |
| 1993 | N/A          | 0.122759E+04 | N/A           |
| 1994 | N/A          | 0.531937E+04 | N/A           |
| 1995 | N/A          | 0.776560E+04 | N/A           |
| 1996 | N/A          | 0.801970E+04 | N/A           |
| 1997 | N/A          | 0.663230E+04 | N/A           |
| 1998 | N/A          | 0.610352E+04 | N/A           |
| 1999 | N/A          | 0.122214E+05 | N/A           |
| 2000 | N/A          | 0.773694E+04 | N/A           |
| 2001 | N/A          | 0.259749E+05 | N/A           |
| 2002 | N/A          | 0.612764E+04 | N/A           |
| 2003 | N/A          | 0.505899E+05 | N/A           |
| 2004 | N/A          | 0.299061E+04 | N/A           |
| 2005 | N/A          | 0.147395E+04 | N/A           |
| 2006 | N/A          | 0.256516E+06 | N/A           |
| 2007 | N/A          | 0.416068E+04 | N/A           |
| 2008 | N/A          | 0.135364E+05 | N/A           |

Survey Index: 12 Tag: US\_S41 AGE = 4  
Time = JAN-1 Type = NUMBER  
Catchability = 0.838990E+00 % Variance Contribution = 0.5600  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed | Predicted    | Residual |
|------|----------|--------------|----------|
| 1931 | N/A      | 0.148207E+05 | N/A      |
| 1932 | N/A      | 0.813010E+04 | N/A      |
| 1933 | N/A      | 0.203675E+05 | N/A      |
| 1934 | N/A      | 0.116672E+05 | N/A      |
| 1935 | N/A      | 0.114884E+05 | N/A      |
| 1936 | N/A      | 0.142425E+05 | N/A      |
| 1937 | N/A      | 0.113029E+05 | N/A      |
| 1938 | N/A      | 0.104012E+05 | N/A      |
| 1939 | N/A      | 0.132123E+05 | N/A      |
| 1940 | N/A      | 0.206294E+05 | N/A      |
| 1941 | N/A      | 0.175375E+05 | N/A      |
| 1942 | N/A      | 0.152097E+05 | N/A      |
| 1943 | N/A      | 0.233970E+05 | N/A      |
| 1944 | N/A      | 0.300061E+05 | N/A      |
| 1945 | N/A      | 0.193720E+05 | N/A      |
| 1946 | N/A      | 0.871625E+04 | N/A      |
| 1947 | N/A      | 0.132826E+05 | N/A      |
| 1948 | N/A      | 0.114116E+05 | N/A      |
| 1949 | N/A      | 0.184217E+05 | N/A      |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1950 | N/A          | 0.108894E+05 | N/A           |
| 1951 | N/A          | 0.804192E+04 | N/A           |
| 1952 | N/A          | 0.192984E+05 | N/A           |
| 1953 | N/A          | 0.144911E+05 | N/A           |
| 1954 | N/A          | 0.187598E+05 | N/A           |
| 1955 | N/A          | 0.144947E+05 | N/A           |
| 1956 | N/A          | 0.264679E+05 | N/A           |
| 1957 | N/A          | 0.165226E+05 | N/A           |
| 1958 | N/A          | 0.233796E+05 | N/A           |
| 1959 | N/A          | 0.182908E+05 | N/A           |
| 1960 | N/A          | 0.179602E+05 | N/A           |
| 1961 | N/A          | 0.187921E+05 | N/A           |
| 1962 | N/A          | 0.385705E+05 | N/A           |
| 1963 | N/A          | 0.372838E+05 | N/A           |
| 1964 | N/A          | 0.166224E+05 | N/A           |
| 1965 | N/A          | 0.120009E+05 | N/A           |
| 1966 | N/A          | 0.419316E+05 | N/A           |
| 1967 | N/A          | 0.542638E+05 | N/A           |
| 1968 | N/A          | 0.374147E+04 | N/A           |
| 1969 | N/A          | 0.121705E+04 | N/A           |
| 1970 | N/A          | 0.274401E+04 | N/A           |
| 1971 | N/A          | 0.226665E+03 | N/A           |
| 1972 | N/A          | 0.245237E+03 | N/A           |
| 1973 | 0.175269E+04 | 0.908832E+03 | 0.656744E+00  |
| 1974 | N/A          | 0.118646E+03 | N/A           |
| 1975 | 0.204480E+04 | 0.202788E+04 | 0.830663E-02  |
| 1976 | 0.298606E+04 | 0.344422E+04 | -0.142742E+00 |
| 1977 | 0.395977E+04 | 0.375246E+04 | 0.537745E-01  |
| 1978 | 0.116846E+04 | 0.310304E+04 | -0.976700E+00 |
| 1979 | 0.185330E+05 | 0.252388E+05 | -0.308829E+00 |
| 1980 | 0.337554E+04 | 0.464766E+04 | -0.319807E+00 |
| 1981 | 0.710811E+04 | 0.253954E+04 | 0.102925E+01  |
| 1982 | N/A          | 0.111800E+05 | N/A           |
| 1983 | N/A          | 0.270714E+04 | N/A           |
| 1984 | N/A          | 0.204531E+04 | N/A           |
| 1985 | N/A          | 0.827210E+03 | N/A           |
| 1986 | N/A          | 0.102939E+04 | N/A           |
| 1987 | N/A          | 0.465683E+04 | N/A           |
| 1988 | N/A          | 0.102626E+04 | N/A           |
| 1989 | N/A          | 0.463196E+04 | N/A           |
| 1990 | N/A          | 0.107968E+04 | N/A           |
| 1991 | N/A          | 0.702553E+04 | N/A           |
| 1992 | N/A          | 0.527965E+03 | N/A           |
| 1993 | N/A          | 0.932583E+03 | N/A           |
| 1994 | N/A          | 0.756274E+03 | N/A           |
| 1995 | N/A          | 0.381061E+04 | N/A           |
| 1996 | N/A          | 0.641163E+04 | N/A           |
| 1997 | N/A          | 0.667293E+04 | N/A           |
| 1998 | N/A          | 0.566631E+04 | N/A           |
| 1999 | N/A          | 0.504836E+04 | N/A           |
| 2000 | N/A          | 0.101365E+05 | N/A           |
| 2001 | N/A          | 0.637771E+04 | N/A           |
| 2002 | N/A          | 0.211902E+05 | N/A           |
| 2003 | N/A          | 0.516472E+04 | N/A           |
| 2004 | N/A          | 0.433272E+05 | N/A           |
| 2005 | N/A          | 0.255609E+04 | N/A           |
| 2006 | N/A          | 0.127356E+04 | N/A           |
| 2007 | N/A          | 0.224755E+06 | N/A           |
| 2008 | N/A          | 0.350266E+04 | N/A           |

Survey Index: 13 Tag: US\_S41 AGE = 5  
Time = JAN-1 Type = NUMBER  
Catchability = 0.888891E+00 % Variance Contribution = 0.3183  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed | Predicted    | Residual |
|------|----------|--------------|----------|
| 1931 | N/A      | 0.152396E+05 | N/A      |
| 1932 | N/A      | 0.824479E+04 | N/A      |
| 1933 | N/A      | 0.511861E+04 | N/A      |
| 1934 | N/A      | 0.968044E+04 | N/A      |
| 1935 | N/A      | 0.713946E+04 | N/A      |
| 1936 | N/A      | 0.700692E+04 | N/A      |
| 1937 | N/A      | 0.802448E+04 | N/A      |
| 1938 | N/A      | 0.532978E+04 | N/A      |
| 1939 | N/A      | 0.602728E+04 | N/A      |
| 1940 | N/A      | 0.734545E+04 | N/A      |
| 1941 | N/A      | 0.113177E+05 | N/A      |
| 1942 | N/A      | 0.882017E+04 | N/A      |
| 1943 | N/A      | 0.799247E+04 | N/A      |
| 1944 | N/A      | 0.136234E+05 | N/A      |
| 1945 | N/A      | 0.142280E+05 | N/A      |
| 1946 | N/A      | 0.117068E+05 | N/A      |
| 1947 | N/A      | 0.537462E+04 | N/A      |
| 1948 | N/A      | 0.582012E+04 | N/A      |
| 1949 | N/A      | 0.582662E+04 | N/A      |
| 1950 | N/A      | 0.834676E+04 | N/A      |
| 1951 | N/A      | 0.604079E+04 | N/A      |
| 1952 | N/A      | 0.523604E+04 | N/A      |
| 1953 | N/A      | 0.998480E+04 | N/A      |
| 1954 | N/A      | 0.800640E+04 | N/A      |
| 1955 | N/A      | 0.117913E+05 | N/A      |
| 1956 | N/A      | 0.992092E+04 | N/A      |
| 1957 | N/A      | 0.133568E+05 | N/A      |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1958 | N/A          | 0.107179E+05 | N/A           |
| 1959 | N/A          | 0.149554E+05 | N/A           |
| 1960 | N/A          | 0.117362E+05 | N/A           |
| 1961 | N/A          | 0.119323E+05 | N/A           |
| 1962 | N/A          | 0.129429E+05 | N/A           |
| 1963 | N/A          | 0.251140E+05 | N/A           |
| 1964 | N/A          | 0.234341E+05 | N/A           |
| 1965 | N/A          | 0.106033E+05 | N/A           |
| 1966 | N/A          | 0.614657E+04 | N/A           |
| 1967 | N/A          | 0.211199E+05 | N/A           |
| 1968 | N/A          | 0.305931E+05 | N/A           |
| 1969 | N/A          | 0.171904E+04 | N/A           |
| 1970 | N/A          | 0.698428E+03 | N/A           |
| 1971 | N/A          | 0.192415E+04 | N/A           |
| 1972 | N/A          | 0.164591E+03 | N/A           |
| 1973 | 0.292114E+03 | 0.146570E+03 | 0.689645E+00  |
| 1974 | 0.778971E+03 | 0.475332E+03 | 0.493961E+00  |
| 1975 | N/A          | 0.101231E+03 | N/A           |
| 1976 | 0.139566E+04 | 0.144858E+04 | -0.372168E-01 |
| 1977 | 0.194743E+04 | 0.225822E+04 | -0.148068E+00 |
| 1978 | 0.305097E+04 | 0.270305E+04 | 0.121078E+00  |
| 1979 | 0.107109E+04 | 0.244523E+04 | -0.825466E+00 |
| 1980 | 0.158066E+05 | 0.161109E+05 | -0.190672E-01 |
| 1981 | 0.246674E+04 | 0.324711E+04 | -0.274866E+00 |
| 1982 | N/A          | 0.153489E+04 | N/A           |
| 1983 | N/A          | 0.669662E+04 | N/A           |
| 1984 | N/A          | 0.179118E+04 | N/A           |
| 1985 | N/A          | 0.118726E+04 | N/A           |
| 1986 | N/A          | 0.558658E+03 | N/A           |
| 1987 | N/A          | 0.712129E+03 | N/A           |
| 1988 | N/A          | 0.272676E+04 | N/A           |
| 1989 | N/A          | 0.780358E+03 | N/A           |
| 1990 | N/A          | 0.320299E+04 | N/A           |
| 1991 | N/A          | 0.721565E+03 | N/A           |
| 1992 | N/A          | 0.420273E+04 | N/A           |
| 1993 | N/A          | 0.300727E+03 | N/A           |
| 1994 | N/A          | 0.537465E+03 | N/A           |
| 1995 | N/A          | 0.463214E+03 | N/A           |
| 1996 | N/A          | 0.292815E+04 | N/A           |
| 1997 | N/A          | 0.482576E+04 | N/A           |
| 1998 | N/A          | 0.519108E+04 | N/A           |
| 1999 | N/A          | 0.446809E+04 | N/A           |
| 2000 | N/A          | 0.394536E+04 | N/A           |
| 2001 | N/A          | 0.753453E+04 | N/A           |
| 2002 | N/A          | 0.473444E+04 | N/A           |
| 2003 | N/A          | 0.158359E+05 | N/A           |
| 2004 | N/A          | 0.411030E+04 | N/A           |
| 2005 | N/A          | 0.334835E+05 | N/A           |
| 2006 | N/A          | 0.194561E+04 | N/A           |
| 2007 | N/A          | 0.104784E+04 | N/A           |
| 2008 | N/A          | 0.185960E+06 | N/A           |

Survey Index: 14 Tag: US\_S41 AGE = 6  
Time = JAN-1 Type = NUMBER  
Catchability = 0.884529E+00 % Variance Contribution = 0.4840  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed | Predicted    | Residual |
|------|----------|--------------|----------|
| 1931 | N/A      | 0.901997E+04 | N/A      |
| 1932 | N/A      | 0.524667E+04 | N/A      |
| 1933 | N/A      | 0.380735E+04 | N/A      |
| 1934 | N/A      | 0.251259E+04 | N/A      |
| 1935 | N/A      | 0.538651E+04 | N/A      |
| 1936 | N/A      | 0.348415E+04 | N/A      |
| 1937 | N/A      | 0.400793E+04 | N/A      |
| 1938 | N/A      | 0.326493E+04 | N/A      |
| 1939 | N/A      | 0.266747E+04 | N/A      |
| 1940 | N/A      | 0.320314E+04 | N/A      |
| 1941 | N/A      | 0.399230E+04 | N/A      |
| 1942 | N/A      | 0.466652E+04 | N/A      |
| 1943 | N/A      | 0.402345E+04 | N/A      |
| 1944 | N/A      | 0.405238E+04 | N/A      |
| 1945 | N/A      | 0.659253E+04 | N/A      |
| 1946 | N/A      | 0.699985E+04 | N/A      |
| 1947 | N/A      | 0.496478E+04 | N/A      |
| 1948 | N/A      | 0.269287E+04 | N/A      |
| 1949 | N/A      | 0.257124E+04 | N/A      |
| 1950 | N/A      | 0.288708E+04 | N/A      |
| 1951 | N/A      | 0.417277E+04 | N/A      |
| 1952 | N/A      | 0.298165E+04 | N/A      |
| 1953 | N/A      | 0.318367E+04 | N/A      |
| 1954 | N/A      | 0.515540E+04 | N/A      |
| 1955 | N/A      | 0.468332E+04 | N/A      |
| 1956 | N/A      | 0.700108E+04 | N/A      |
| 1957 | N/A      | 0.538032E+04 | N/A      |
| 1958 | N/A      | 0.627221E+04 | N/A      |
| 1959 | N/A      | 0.572952E+04 | N/A      |
| 1960 | N/A      | 0.905641E+04 | N/A      |
| 1961 | N/A      | 0.712295E+04 | N/A      |
| 1962 | N/A      | 0.740116E+04 | N/A      |
| 1963 | N/A      | 0.780343E+04 | N/A      |
| 1964 | N/A      | 0.139518E+05 | N/A      |
| 1965 | N/A      | 0.121747E+05 | N/A      |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1966 | N/A          | 0.515988E+04 | N/A           |
| 1967 | N/A          | 0.281691E+04 | N/A           |
| 1968 | N/A          | 0.903366E+04 | N/A           |
| 1969 | N/A          | 0.134412E+05 | N/A           |
| 1970 | N/A          | 0.881952E+03 | N/A           |
| 1971 | N/A          | 0.421141E+03 | N/A           |
| 1972 | N/A          | 0.133732E+04 | N/A           |
| 1973 | N/A          | 0.108060E+03 | N/A           |
| 1974 | N/A          | 0.765812E+02 | N/A           |
| 1975 | 0.421943E+03 | 0.329406E+03 | 0.247580E+00  |
| 1976 | N/A          | 0.792003E+02 | N/A           |
| 1977 | 0.146057E+04 | 0.100168E+04 | 0.377148E+00  |
| 1978 | 0.266149E+04 | 0.142432E+04 | 0.625188E+00  |
| 1979 | 0.519314E+03 | 0.174732E+04 | -0.121333E+01 |
| 1980 | 0.217463E+04 | 0.157035E+04 | 0.325560E+00  |
| 1981 | 0.577737E+04 | 0.829866E+04 | -0.362145E+00 |
| 1982 | N/A          | 0.189558E+04 | N/A           |
| 1983 | N/A          | 0.937260E+03 | N/A           |
| 1984 | N/A          | 0.366083E+04 | N/A           |
| 1985 | N/A          | 0.113956E+04 | N/A           |
| 1986 | N/A          | 0.593097E+03 | N/A           |
| 1987 | N/A          | 0.337476E+03 | N/A           |
| 1988 | N/A          | 0.481012E+03 | N/A           |
| 1989 | N/A          | 0.146569E+04 | N/A           |
| 1990 | N/A          | 0.463051E+03 | N/A           |
| 1991 | N/A          | 0.171754E+04 | N/A           |
| 1992 | N/A          | 0.472985E+03 | N/A           |
| 1993 | N/A          | 0.187337E+04 | N/A           |
| 1994 | N/A          | 0.149822E+03 | N/A           |
| 1995 | N/A          | 0.324900E+03 | N/A           |
| 1996 | N/A          | 0.330428E+03 | N/A           |
| 1997 | N/A          | 0.202678E+04 | N/A           |
| 1998 | N/A          | 0.348402E+04 | N/A           |
| 1999 | N/A          | 0.361782E+04 | N/A           |
| 2000 | N/A          | 0.315739E+04 | N/A           |
| 2001 | N/A          | 0.274574E+04 | N/A           |
| 2002 | N/A          | 0.511833E+04 | N/A           |
| 2003 | N/A          | 0.311976E+04 | N/A           |
| 2004 | N/A          | 0.107619E+05 | N/A           |
| 2005 | N/A          | 0.276775E+04 | N/A           |
| 2006 | N/A          | 0.205155E+05 | N/A           |
| 2007 | N/A          | 0.128636E+04 | N/A           |
| 2008 | N/A          | 0.699033E+03 | N/A           |

Survey Index: 15 Tag: US\_S41 AGE = 7  
Time = JAN-1 Type = NUMBER  
Catchability = 0.911762E+00 % Variance Contribution = 0.7931  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.500610E+04 | N/A           |
| 1932 | N/A          | 0.271636E+04 | N/A           |
| 1933 | N/A          | 0.207384E+04 | N/A           |
| 1934 | N/A          | 0.192365E+04 | N/A           |
| 1935 | N/A          | 0.126224E+04 | N/A           |
| 1936 | N/A          | 0.254078E+04 | N/A           |
| 1937 | N/A          | 0.181529E+04 | N/A           |
| 1938 | N/A          | 0.185341E+04 | N/A           |
| 1939 | N/A          | 0.145146E+04 | N/A           |
| 1940 | N/A          | 0.146042E+04 | N/A           |
| 1941 | N/A          | 0.149694E+04 | N/A           |
| 1942 | N/A          | 0.191600E+04 | N/A           |
| 1943 | N/A          | 0.203910E+04 | N/A           |
| 1944 | N/A          | 0.121437E+04 | N/A           |
| 1945 | N/A          | 0.156524E+04 | N/A           |
| 1946 | N/A          | 0.367011E+04 | N/A           |
| 1947 | N/A          | 0.278361E+04 | N/A           |
| 1948 | N/A          | 0.196202E+04 | N/A           |
| 1949 | N/A          | 0.132811E+04 | N/A           |
| 1950 | N/A          | 0.130344E+04 | N/A           |
| 1951 | N/A          | 0.151233E+04 | N/A           |
| 1952 | N/A          | 0.178033E+04 | N/A           |
| 1953 | N/A          | 0.174355E+04 | N/A           |
| 1954 | N/A          | 0.185840E+04 | N/A           |
| 1955 | N/A          | 0.261047E+04 | N/A           |
| 1956 | N/A          | 0.260364E+04 | N/A           |
| 1957 | N/A          | 0.315493E+04 | N/A           |
| 1958 | N/A          | 0.261698E+04 | N/A           |
| 1959 | N/A          | 0.335928E+04 | N/A           |
| 1960 | N/A          | 0.339590E+04 | N/A           |
| 1961 | N/A          | 0.617235E+04 | N/A           |
| 1962 | N/A          | 0.449008E+04 | N/A           |
| 1963 | N/A          | 0.453469E+04 | N/A           |
| 1964 | N/A          | 0.477916E+04 | N/A           |
| 1965 | N/A          | 0.704275E+04 | N/A           |
| 1966 | N/A          | 0.483256E+04 | N/A           |
| 1967 | N/A          | 0.224381E+04 | N/A           |
| 1968 | N/A          | 0.139033E+04 | N/A           |
| 1969 | N/A          | 0.476434E+04 | N/A           |
| 1970 | N/A          | 0.648480E+04 | N/A           |
| 1971 | N/A          | 0.568843E+03 | N/A           |
| 1972 | N/A          | 0.155533E+03 | N/A           |
| 1973 | 0.584229E+03 | 0.102764E+04 | -0.564725E+00 |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1974 | 0.324571E+02 | 0.661274E+02 | -0.711662E+00 |
| 1975 | 0.292114E+03 | 0.629010E+02 | 0.153558E+01  |
| 1976 | 0.129829E+03 | 0.242335E+03 | -0.624104E+00 |
| 1977 | N/A          | 0.668335E+02 | N/A           |
| 1978 | 0.519314E+03 | 0.549327E+03 | -0.561854E-01 |
| 1979 | 0.120091E+04 | 0.775952E+03 | 0.436748E+00  |
| 1980 | 0.120091E+04 | 0.113521E+04 | 0.562626E-01  |
| 1981 | 0.778971E+03 | 0.837056E+03 | -0.719168E-01 |
| 1982 | N/A          | 0.488285E+04 | N/A           |
| 1983 | N/A          | 0.113037E+04 | N/A           |
| 1984 | N/A          | 0.565993E+03 | N/A           |
| 1985 | N/A          | 0.186444E+04 | N/A           |
| 1986 | N/A          | 0.770115E+03 | N/A           |
| 1987 | N/A          | 0.356883E+03 | N/A           |
| 1988 | N/A          | 0.223695E+03 | N/A           |
| 1989 | N/A          | 0.281186E+03 | N/A           |
| 1990 | N/A          | 0.845895E+03 | N/A           |
| 1991 | N/A          | 0.264521E+03 | N/A           |
| 1992 | N/A          | 0.102563E+04 | N/A           |
| 1993 | N/A          | 0.251071E+03 | N/A           |
| 1994 | N/A          | 0.975236E+03 | N/A           |
| 1995 | N/A          | 0.666216E+02 | N/A           |
| 1996 | N/A          | 0.250018E+03 | N/A           |
| 1997 | N/A          | 0.224696E+03 | N/A           |
| 1998 | N/A          | 0.153134E+04 | N/A           |
| 1999 | N/A          | 0.247161E+04 | N/A           |
| 2000 | N/A          | 0.258873E+04 | N/A           |
| 2001 | N/A          | 0.223129E+04 | N/A           |
| 2002 | N/A          | 0.177963E+04 | N/A           |
| 2003 | N/A          | 0.341269E+04 | N/A           |
| 2004 | N/A          | 0.213640E+04 | N/A           |
| 2005 | N/A          | 0.667706E+04 | N/A           |
| 2006 | N/A          | 0.169866E+04 | N/A           |
| 2007 | N/A          | 0.128731E+05 | N/A           |
| 2008 | N/A          | 0.830272E+03 | N/A           |

Survey Index: 16 Tag: US\_S41 AGE = 8  
Time = JAN-1 Type = NUMBER  
Catchability = 0.861378E+00 % Variance Contribution = 1.1681  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.265787E+04 | N/A           |
| 1932 | N/A          | 0.128872E+04 | N/A           |
| 1933 | N/A          | 0.108509E+04 | N/A           |
| 1934 | N/A          | 0.675812E+03 | N/A           |
| 1935 | N/A          | 0.100936E+04 | N/A           |
| 1936 | N/A          | 0.591260E+03 | N/A           |
| 1937 | N/A          | 0.918638E+03 | N/A           |
| 1938 | N/A          | 0.672266E+03 | N/A           |
| 1939 | N/A          | 0.706788E+03 | N/A           |
| 1940 | N/A          | 0.480406E+03 | N/A           |
| 1941 | N/A          | 0.551347E+03 | N/A           |
| 1942 | N/A          | 0.437210E+03 | N/A           |
| 1943 | N/A          | 0.686017E+03 | N/A           |
| 1944 | N/A          | 0.967466E+03 | N/A           |
| 1945 | N/A          | 0.555916E+03 | N/A           |
| 1946 | N/A          | 0.509515E+03 | N/A           |
| 1947 | N/A          | 0.143309E+04 | N/A           |
| 1948 | N/A          | 0.999778E+03 | N/A           |
| 1949 | N/A          | 0.915727E+03 | N/A           |
| 1950 | N/A          | 0.546758E+03 | N/A           |
| 1951 | N/A          | 0.606959E+03 | N/A           |
| 1952 | N/A          | 0.600261E+03 | N/A           |
| 1953 | N/A          | 0.967078E+03 | N/A           |
| 1954 | N/A          | 0.929473E+03 | N/A           |
| 1955 | N/A          | 0.881722E+03 | N/A           |
| 1956 | N/A          | 0.119532E+04 | N/A           |
| 1957 | N/A          | 0.977396E+03 | N/A           |
| 1958 | N/A          | 0.118693E+04 | N/A           |
| 1959 | N/A          | 0.132647E+04 | N/A           |
| 1960 | N/A          | 0.169287E+04 | N/A           |
| 1961 | N/A          | 0.201700E+04 | N/A           |
| 1962 | N/A          | 0.379291E+04 | N/A           |
| 1963 | N/A          | 0.226312E+04 | N/A           |
| 1964 | N/A          | 0.242099E+04 | N/A           |
| 1965 | N/A          | 0.209177E+04 | N/A           |
| 1966 | N/A          | 0.254886E+04 | N/A           |
| 1967 | N/A          | 0.194284E+04 | N/A           |
| 1968 | N/A          | 0.970277E+03 | N/A           |
| 1969 | N/A          | 0.561930E+03 | N/A           |
| 1970 | N/A          | 0.246852E+04 | N/A           |
| 1971 | N/A          | 0.323306E+04 | N/A           |
| 1972 | N/A          | 0.220737E+03 | N/A           |
| 1973 | 0.324571E+02 | 0.589350E+02 | -0.596515E+00 |
| 1974 | 0.324571E+03 | 0.733941E+03 | -0.815924E+00 |
| 1975 | 0.324571E+02 | 0.495156E+02 | -0.422367E+00 |
| 1976 | N/A          | 0.454665E+02 | N/A           |
| 1977 | 0.129829E+03 | 0.168878E+03 | -0.262963E+00 |
| 1978 | 0.194743E+03 | 0.485080E+02 | 0.138995E+01  |
| 1979 | 0.194743E+03 | 0.316417E+03 | -0.485381E+00 |
| 1980 | 0.149303E+04 | 0.354891E+03 | 0.143675E+01  |
| 1981 | 0.357029E+03 | 0.455488E+03 | -0.243554E+00 |

|      |     |              |     |
|------|-----|--------------|-----|
| 1982 | N/A | 0.390195E+03 | N/A |
| 1983 | N/A | 0.290349E+04 | N/A |
| 1984 | N/A | 0.728561E+03 | N/A |
| 1985 | N/A | 0.255169E+03 | N/A |
| 1986 | N/A | 0.102540E+04 | N/A |
| 1987 | N/A | 0.477834E+03 | N/A |
| 1988 | N/A | 0.205736E+03 | N/A |
| 1989 | N/A | 0.129428E+03 | N/A |
| 1990 | N/A | 0.169682E+03 | N/A |
| 1991 | N/A | 0.485808E+03 | N/A |
| 1992 | N/A | 0.106154E+03 | N/A |
| 1993 | N/A | 0.464984E+03 | N/A |
| 1994 | N/A | 0.145722E+03 | N/A |
| 1995 | N/A | 0.512035E+03 | N/A |
| 1996 | N/A | 0.449321E+02 | N/A |
| 1997 | N/A | 0.176216E+03 | N/A |
| 1998 | N/A | 0.160201E+03 | N/A |
| 1999 | N/A | 0.105331E+04 | N/A |
| 2000 | N/A | 0.161420E+04 | N/A |
| 2001 | N/A | 0.170977E+04 | N/A |
| 2002 | N/A | 0.138661E+04 | N/A |
| 2003 | N/A | 0.106536E+04 | N/A |
| 2004 | N/A | 0.208233E+04 | N/A |
| 2005 | N/A | 0.112158E+04 | N/A |
| 2006 | N/A | 0.373854E+04 | N/A |
| 2007 | N/A | 0.106074E+04 | N/A |
| 2008 | N/A | 0.800985E+04 | N/A |

Survey Index: 17 Tag: US\_Au0 AGE = 1  
Time = JAN-1 Type = NUMBER  
Catchability = 0.433137E+00 % Variance Contribution = 7.8226  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.172987E+05 | N/A           |
| 1932 | N/A          | 0.196275E+05 | N/A           |
| 1933 | N/A          | 0.223563E+05 | N/A           |
| 1934 | N/A          | 0.258016E+05 | N/A           |
| 1935 | N/A          | 0.252144E+05 | N/A           |
| 1936 | N/A          | 0.247523E+05 | N/A           |
| 1937 | N/A          | 0.456139E+05 | N/A           |
| 1938 | N/A          | 0.338066E+05 | N/A           |
| 1939 | N/A          | 0.257657E+05 | N/A           |
| 1940 | N/A          | 0.481763E+05 | N/A           |
| 1941 | N/A          | 0.494933E+05 | N/A           |
| 1942 | N/A          | 0.268002E+05 | N/A           |
| 1943 | N/A          | 0.100949E+05 | N/A           |
| 1944 | N/A          | 0.282191E+05 | N/A           |
| 1945 | N/A          | 0.224394E+05 | N/A           |
| 1946 | N/A          | 0.406711E+05 | N/A           |
| 1947 | N/A          | 0.256138E+05 | N/A           |
| 1948 | N/A          | 0.142739E+05 | N/A           |
| 1949 | N/A          | 0.537702E+05 | N/A           |
| 1950 | N/A          | 0.247808E+05 | N/A           |
| 1951 | N/A          | 0.449511E+05 | N/A           |
| 1952 | N/A          | 0.183172E+05 | N/A           |
| 1953 | N/A          | 0.575164E+05 | N/A           |
| 1954 | N/A          | 0.226446E+05 | N/A           |
| 1955 | N/A          | 0.389392E+05 | N/A           |
| 1956 | N/A          | 0.261013E+05 | N/A           |
| 1957 | N/A          | 0.258281E+05 | N/A           |
| 1958 | N/A          | 0.254145E+05 | N/A           |
| 1959 | N/A          | 0.562413E+05 | N/A           |
| 1960 | N/A          | 0.529489E+05 | N/A           |
| 1961 | N/A          | 0.235245E+05 | N/A           |
| 1962 | N/A          | 0.169140E+05 | N/A           |
| 1963 | N/A          | 0.815343E+05 | N/A           |
| 1964 | 0.272418E+06 | 0.199596E+06 | 0.311042E+00  |
| 1965 | 0.768942E+04 | 0.140826E+05 | -0.605094E+00 |
| 1966 | 0.106395E+04 | 0.179971E+04 | -0.525641E+00 |
| 1967 | 0.199248E+05 | 0.606955E+04 | 0.118868E+01  |
| 1968 | 0.967223E+02 | 0.234857E+03 | -0.887134E+00 |
| 1969 | 0.290167E+03 | 0.481167E+03 | -0.505759E+00 |
| 1970 | 0.125739E+04 | 0.199916E+04 | -0.463691E+00 |
| 1971 | 0.145083E+03 | 0.115463E+03 | 0.228358E+00  |
| 1972 | 0.788287E+04 | 0.369288E+04 | 0.758284E+00  |
| 1973 | 0.219076E+05 | 0.844541E+04 | 0.953211E+00  |
| 1974 | 0.104944E+05 | 0.458135E+04 | 0.828845E+00  |
| 1975 | 0.241806E+04 | 0.343481E+04 | -0.350997E+00 |
| 1976 | 0.762172E+05 | 0.456305E+05 | 0.513010E+00  |
| 1977 | 0.140247E+05 | 0.605688E+04 | 0.839628E+00  |
| 1978 | 0.436224E+03 | 0.265302E+04 | -0.180530E+01 |
| 1979 | 0.429148E+05 | 0.363354E+05 | 0.166425E+00  |
| 1980 | 0.428369E+04 | 0.473644E+04 | -0.100469E+00 |
| 1981 | 0.379174E+05 | 0.318965E+04 | 0.247550E+01  |
| 1982 | 0.122948E+04 | 0.111796E+04 | 0.950861E-01  |
| 1983 | 0.440086E+04 | 0.142259E+04 | 0.112932E+01  |
| 1984 | 0.188125E+05 | 0.783256E+04 | 0.876231E+00  |
| 1985 | 0.967223E+02 | 0.109109E+04 | -0.242308E+01 |
| 1986 | 0.368389E+05 | 0.727382E+04 | 0.162227E+01  |
| 1987 | N/A          | 0.113401E+04 | N/A           |
| 1988 | 0.584229E+04 | 0.866928E+04 | -0.394664E+00 |
| 1989 | 0.227200E+03 | 0.591640E+03 | -0.957068E+00 |



|      |              |              |               |
|------|--------------|--------------|---------------|
| 1990 | 0.151705E+04 | 0.147918E+04 | 0.252768E-01  |
| 1991 | 0.250180E+04 | 0.118031E+04 | 0.751232E+00  |
| 1992 | 0.699971E+04 | 0.468290E+04 | 0.401950E+00  |
| 1993 | 0.925029E+04 | 0.679805E+04 | 0.308019E+00  |
| 1994 | 0.492375E+04 | 0.674807E+04 | -0.315186E+00 |
| 1995 | 0.295457E+04 | 0.556578E+04 | -0.633283E+00 |
| 1996 | 0.737718E+04 | 0.517114E+04 | 0.355300E+00  |
| 1997 | 0.425578E+04 | 0.103217E+05 | -0.885969E+00 |
| 1998 | 0.104869E+04 | 0.647299E+04 | -0.182010E+01 |
| 1999 | 0.140079E+05 | 0.218767E+05 | -0.445805E+00 |
| 2000 | 0.592245E+04 | 0.518979E+04 | 0.132057E+00  |
| 2001 | 0.134334E+05 | 0.423799E+05 | -0.114893E+01 |
| 2002 | 0.277444E+04 | 0.250291E+04 | 0.102993E+00  |
| 2003 | 0.377477E+03 | 0.124922E+04 | -0.119676E+01 |
| 2004 | 0.501602E+06 | 0.214346E+06 | 0.850218E+00  |
| 2005 | 0.528792E+04 | 0.348593E+04 | 0.416691E+00  |
| 2006 | 0.138180E+05 | 0.114563E+05 | 0.187428E+00  |
| 2007 | 0.305097E+04 | 0.321421E+04 | -0.521205E-01 |
| 2008 | N/A          | 0.709319E+04 | N/A           |

Survey Index: 18 Tag: US\_Aul AGE = 2  
Time = JAN-1 Type = NUMBER  
Catchability = 0.688246E+00 % Variance Contribution = 7.7540  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.553263E+05 | N/A           |
| 1932 | N/A          | 0.214145E+05 | N/A           |
| 1933 | N/A          | 0.254609E+05 | N/A           |
| 1934 | N/A          | 0.289327E+05 | N/A           |
| 1935 | N/A          | 0.333545E+05 | N/A           |
| 1936 | N/A          | 0.320587E+05 | N/A           |
| 1937 | N/A          | 0.316545E+05 | N/A           |
| 1938 | N/A          | 0.585407E+05 | N/A           |
| 1939 | N/A          | 0.433404E+05 | N/A           |
| 1940 | N/A          | 0.331426E+05 | N/A           |
| 1941 | N/A          | 0.614070E+05 | N/A           |
| 1942 | N/A          | 0.639033E+05 | N/A           |
| 1943 | N/A          | 0.346730E+05 | N/A           |
| 1944 | N/A          | 0.131211E+05 | N/A           |
| 1945 | N/A          | 0.366718E+05 | N/A           |
| 1946 | N/A          | 0.291172E+05 | N/A           |
| 1947 | N/A          | 0.527810E+05 | N/A           |
| 1948 | N/A          | 0.332663E+05 | N/A           |
| 1949 | N/A          | 0.185199E+05 | N/A           |
| 1950 | N/A          | 0.697483E+05 | N/A           |
| 1951 | N/A          | 0.321838E+05 | N/A           |
| 1952 | N/A          | 0.580781E+05 | N/A           |
| 1953 | N/A          | 0.238273E+05 | N/A           |
| 1954 | N/A          | 0.741526E+05 | N/A           |
| 1955 | N/A          | 0.293923E+05 | N/A           |
| 1956 | N/A          | 0.506019E+05 | N/A           |
| 1957 | N/A          | 0.339241E+05 | N/A           |
| 1958 | N/A          | 0.335792E+05 | N/A           |
| 1959 | N/A          | 0.329852E+05 | N/A           |
| 1960 | N/A          | 0.731085E+05 | N/A           |
| 1961 | N/A          | 0.687233E+05 | N/A           |
| 1962 | N/A          | 0.305656E+05 | N/A           |
| 1963 | N/A          | 0.219582E+05 | N/A           |
| 1964 | 0.824074E+05 | 0.104263E+06 | -0.235243E+00 |
| 1965 | 0.366336E+06 | 0.253387E+06 | 0.368633E+00  |
| 1966 | 0.329823E+05 | 0.123902E+05 | 0.979063E+00  |
| 1967 | 0.309511E+04 | 0.227049E+04 | 0.309830E+00  |
| 1968 | 0.218109E+05 | 0.718233E+04 | 0.111079E+01  |
| 1969 | 0.193445E+03 | 0.300565E+03 | -0.440672E+00 |
| 1970 | 0.967223E+02 | 0.624730E+03 | -0.186548E+01 |
| 1971 | 0.133960E+05 | 0.257221E+04 | 0.165019E+01  |
| 1972 | N/A          | 0.149590E+03 | N/A           |
| 1973 | 0.817303E+04 | 0.470506E+04 | 0.552203E+00  |
| 1974 | 0.292101E+05 | 0.937045E+04 | 0.113695E+01  |
| 1975 | 0.575498E+04 | 0.593044E+04 | -0.300339E-01 |
| 1976 | 0.203117E+04 | 0.434509E+04 | -0.760436E+00 |
| 1977 | 0.208291E+06 | 0.592701E+05 | 0.125683E+01  |
| 1978 | 0.694096E+04 | 0.787889E+04 | -0.126747E+00 |
| 1979 | 0.273679E+04 | 0.345082E+04 | -0.231826E+00 |
| 1980 | 0.147902E+06 | 0.472657E+05 | 0.114076E+01  |
| 1981 | 0.880497E+04 | 0.615688E+04 | 0.357746E+00  |
| 1982 | 0.199105E+05 | 0.414894E+04 | 0.156839E+01  |
| 1983 | N/A          | 0.145378E+04 | N/A           |
| 1984 | 0.773778E+03 | 0.185053E+04 | -0.871944E+00 |
| 1985 | 0.107845E+05 | 0.101887E+05 | 0.568305E-01  |
| 1986 | 0.210971E+04 | 0.141930E+04 | 0.396386E+00  |
| 1987 | 0.165856E+05 | 0.945907E+04 | 0.561561E+00  |
| 1988 | N/A          | 0.147514E+04 | N/A           |
| 1989 | 0.980206E+04 | 0.112757E+05 | -0.140061E+00 |
| 1990 | 0.159689E+03 | 0.768512E+03 | -0.157123E+01 |
| 1991 | 0.218242E+04 | 0.188524E+04 | 0.146376E+00  |
| 1992 | 0.665371E+03 | 0.153117E+04 | -0.833442E+00 |
| 1993 | 0.675109E+04 | 0.604024E+04 | 0.111259E+00  |
| 1994 | 0.131211E+05 | 0.882339E+04 | 0.396818E+00  |
| 1995 | 0.250569E+04 | 0.876191E+04 | -0.125185E+01 |
| 1996 | 0.231682E+05 | 0.723022E+04 | 0.116451E+01  |
| 1997 | 0.176502E+04 | 0.672315E+04 | -0.133740E+01 |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1998 | 0.800296E+04 | 0.134190E+05 | -0.516857E+00 |
| 1999 | 0.905003E+04 | 0.841730E+04 | 0.724788E-01  |
| 2000 | 0.272802E+04 | 0.284576E+05 | -0.234484E+01 |
| 2001 | 0.916103E+04 | 0.675065E+04 | 0.305319E+00  |
| 2002 | 0.284711E+05 | 0.551253E+05 | -0.660720E+00 |
| 2003 | 0.620321E+04 | 0.325435E+04 | 0.645073E+00  |
| 2004 | 0.230770E+03 | 0.162237E+04 | -0.195022E+01 |
| 2005 | 0.531168E+06 | 0.278451E+06 | 0.645837E+00  |
| 2006 | 0.574491E+04 | 0.452288E+04 | 0.239165E+00  |
| 2007 | 0.147424E+05 | 0.148019E+05 | -0.402994E-02 |
| 2008 | N/A          | 0.417343E+04 | N/A           |

Survey Index: 19 Tag: US\_Au2 AGE = 3  
Time = JAN-1 Type = NUMBER  
Catchability = 0.572374E+00 % Variance Contribution = 5.5734  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.805972E+04 | N/A           |
| 1932 | N/A          | 0.331304E+05 | N/A           |
| 1933 | N/A          | 0.135048E+05 | N/A           |
| 1934 | N/A          | 0.129747E+05 | N/A           |
| 1935 | N/A          | 0.174018E+05 | N/A           |
| 1936 | N/A          | 0.166043E+05 | N/A           |
| 1937 | N/A          | 0.154911E+05 | N/A           |
| 1938 | N/A          | 0.158771E+05 | N/A           |
| 1939 | N/A          | 0.294683E+05 | N/A           |
| 1940 | N/A          | 0.223373E+05 | N/A           |
| 1941 | N/A          | 0.188271E+05 | N/A           |
| 1942 | N/A          | 0.297478E+05 | N/A           |
| 1943 | N/A          | 0.361366E+05 | N/A           |
| 1944 | N/A          | 0.214450E+05 | N/A           |
| 1945 | N/A          | 0.854083E+04 | N/A           |
| 1946 | N/A          | 0.205774E+05 | N/A           |
| 1947 | N/A          | 0.159792E+05 | N/A           |
| 1948 | N/A          | 0.273830E+05 | N/A           |
| 1949 | N/A          | 0.168742E+05 | N/A           |
| 1950 | N/A          | 0.928070E+04 | N/A           |
| 1951 | N/A          | 0.326048E+05 | N/A           |
| 1952 | N/A          | 0.176551E+05 | N/A           |
| 1953 | N/A          | 0.266415E+05 | N/A           |
| 1954 | N/A          | 0.152904E+05 | N/A           |
| 1955 | N/A          | 0.341245E+05 | N/A           |
| 1956 | N/A          | 0.179789E+05 | N/A           |
| 1957 | N/A          | 0.282969E+05 | N/A           |
| 1958 | N/A          | 0.196982E+05 | N/A           |
| 1959 | N/A          | 0.199897E+05 | N/A           |
| 1960 | N/A          | 0.195108E+05 | N/A           |
| 1961 | N/A          | 0.415260E+05 | N/A           |
| 1962 | N/A          | 0.412779E+05 | N/A           |
| 1963 | N/A          | 0.185129E+05 | N/A           |
| 1964 | 0.299355E+05 | 0.128639E+05 | 0.844625E+00  |
| 1965 | 0.206889E+06 | 0.627696E+05 | 0.119271E+01  |
| 1966 | 0.251188E+06 | 0.107978E+06 | 0.844272E+00  |
| 1967 | 0.938206E+04 | 0.492955E+04 | 0.643553E+00  |
| 1968 | 0.116067E+04 | 0.145917E+04 | -0.228874E+00 |
| 1969 | 0.309511E+04 | 0.335202E+04 | -0.797376E-01 |
| 1970 | N/A          | 0.198967E+03 | N/A           |
| 1971 | 0.677056E+03 | 0.343968E+03 | 0.677206E+00  |
| 1972 | 0.101558E+04 | 0.104649E+04 | -0.299780E-01 |
| 1973 | N/A          | 0.100820E+03 | N/A           |
| 1974 | 0.522300E+04 | 0.211853E+04 | 0.902352E+00  |
| 1975 | 0.319184E+04 | 0.408042E+04 | -0.245603E+00 |
| 1976 | 0.232133E+04 | 0.348635E+04 | -0.406714E+00 |
| 1977 | 0.169264E+04 | 0.270530E+04 | -0.468923E+00 |
| 1978 | 0.608029E+05 | 0.301388E+05 | 0.701825E+00  |
| 1979 | 0.337132E+04 | 0.496859E+04 | -0.387832E+00 |
| 1980 | 0.119118E+03 | 0.233608E+04 | -0.297612E+01 |
| 1981 | 0.412887E+05 | 0.162468E+05 | 0.932692E+00  |
| 1982 | 0.674265E+04 | 0.328820E+04 | 0.718112E+00  |
| 1983 | 0.430414E+04 | 0.222055E+04 | 0.661825E+00  |
| 1984 | 0.677056E+03 | 0.878354E+03 | -0.260296E+00 |
| 1985 | 0.285331E+04 | 0.121139E+04 | 0.856712E+00  |
| 1986 | 0.496594E+04 | 0.566785E+04 | -0.132206E+00 |
| 1987 | 0.292114E+03 | 0.938122E+03 | -0.116673E+01 |
| 1988 | 0.256411E+04 | 0.539146E+04 | -0.743203E+00 |
| 1989 | 0.584229E+03 | 0.976916E+03 | -0.514109E+00 |
| 1990 | 0.878290E+04 | 0.692282E+04 | 0.237984E+00  |
| 1991 | 0.798446E+02 | 0.517276E+03 | -0.186849E+01 |
| 1992 | 0.771831E+03 | 0.103322E+04 | -0.291666E+00 |
| 1993 | 0.746514E+03 | 0.905811E+03 | -0.193416E+00 |
| 1994 | 0.652064E+04 | 0.392505E+04 | 0.507594E+00  |
| 1995 | 0.262189E+04 | 0.573007E+04 | -0.781832E+00 |
| 1996 | 0.159170E+05 | 0.591756E+04 | 0.989462E+00  |
| 1997 | 0.300521E+04 | 0.489383E+04 | -0.487628E+00 |
| 1998 | 0.476211E+04 | 0.450365E+04 | 0.558020E-01  |
| 1999 | 0.802763E+04 | 0.901789E+04 | -0.116322E+00 |
| 2000 | 0.109342E+05 | 0.570892E+04 | 0.649862E+00  |
| 2001 | 0.177907E+05 | 0.191663E+05 | -0.744770E-01 |
| 2002 | 0.545864E+04 | 0.452145E+04 | 0.188367E+00  |
| 2003 | 0.722756E+05 | 0.373292E+05 | 0.660710E+00  |
| 2004 | 0.146414E+04 | 0.220671E+04 | -0.410232E+00 |
| 2005 | 0.710811E+03 | 0.108760E+04 | -0.425318E+00 |

2006 0.250707E+06 0.189278E+06 0.281069E+00  
 2007 0.237424E+04 0.307007E+04 -0.257024E+00  
 2008 N/A 0.998820E+04 N/A

Survey Index: 20 Tag: US\_Au3 AGE = 4  
 Time = JAN-1 Type = NUMBER  
 Catchability = 0.653808E+00 % Variance Contribution = 3.6457  
 Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.115495E+05 | N/A           |
| 1932 | N/A          | 0.633563E+04 | N/A           |
| 1933 | N/A          | 0.158720E+05 | N/A           |
| 1934 | N/A          | 0.909200E+04 | N/A           |
| 1935 | N/A          | 0.895270E+04 | N/A           |
| 1936 | N/A          | 0.110989E+05 | N/A           |
| 1937 | N/A          | 0.880811E+04 | N/A           |
| 1938 | N/A          | 0.810548E+04 | N/A           |
| 1939 | N/A          | 0.102961E+05 | N/A           |
| 1940 | N/A          | 0.160761E+05 | N/A           |
| 1941 | N/A          | 0.136667E+05 | N/A           |
| 1942 | N/A          | 0.118526E+05 | N/A           |
| 1943 | N/A          | 0.182328E+05 | N/A           |
| 1944 | N/A          | 0.233832E+05 | N/A           |
| 1945 | N/A          | 0.150962E+05 | N/A           |
| 1946 | N/A          | 0.679241E+04 | N/A           |
| 1947 | N/A          | 0.103509E+05 | N/A           |
| 1948 | N/A          | 0.889284E+04 | N/A           |
| 1949 | N/A          | 0.143557E+05 | N/A           |
| 1950 | N/A          | 0.848588E+04 | N/A           |
| 1951 | N/A          | 0.626691E+04 | N/A           |
| 1952 | N/A          | 0.150389E+05 | N/A           |
| 1953 | N/A          | 0.112926E+05 | N/A           |
| 1954 | N/A          | 0.146191E+05 | N/A           |
| 1955 | N/A          | 0.112954E+05 | N/A           |
| 1956 | N/A          | 0.206259E+05 | N/A           |
| 1957 | N/A          | 0.128758E+05 | N/A           |
| 1958 | N/A          | 0.182193E+05 | N/A           |
| 1959 | N/A          | 0.142537E+05 | N/A           |
| 1960 | N/A          | 0.139961E+05 | N/A           |
| 1961 | N/A          | 0.146443E+05 | N/A           |
| 1962 | N/A          | 0.300572E+05 | N/A           |
| 1963 | N/A          | 0.290545E+05 | N/A           |
| 1964 | 0.221010E+05 | 0.129535E+05 | 0.534260E+00  |
| 1965 | 0.189092E+05 | 0.935209E+04 | 0.704049E+00  |
| 1966 | 0.314831E+05 | 0.326765E+05 | -0.372052E-01 |
| 1967 | 0.596777E+05 | 0.422867E+05 | 0.344484E+00  |
| 1968 | 0.324020E+04 | 0.291566E+04 | 0.105539E+00  |
| 1969 | 0.435250E+03 | 0.948422E+03 | -0.778878E+00 |
| 1970 | 0.918862E+03 | 0.213835E+04 | -0.844655E+00 |
| 1971 | 0.483611E+02 | 0.176635E+03 | -0.129539E+01 |
| 1972 | 0.241806E+03 | 0.191108E+03 | 0.235294E+00  |
| 1973 | 0.169264E+04 | 0.708235E+03 | 0.871268E+00  |
| 1974 | N/A          | 0.924584E+02 | N/A           |
| 1975 | 0.101558E+04 | 0.158029E+04 | -0.442146E+00 |
| 1976 | 0.157657E+05 | 0.268401E+04 | 0.177053E+01  |
| 1977 | 0.174100E+04 | 0.292422E+04 | -0.518568E+00 |
| 1978 | 0.182442E+04 | 0.241814E+04 | -0.281740E+00 |
| 1979 | 0.301040E+05 | 0.196681E+05 | 0.425659E+00  |
| 1980 | 0.293510E+04 | 0.362183E+04 | -0.210238E+00 |
| 1981 | 0.146739E+04 | 0.197902E+04 | -0.299117E+00 |
| 1982 | 0.120179E+05 | 0.871236E+04 | 0.321655E+00  |
| 1983 | 0.111231E+04 | 0.210963E+04 | -0.640075E+00 |
| 1984 | 0.870501E+03 | 0.159387E+04 | -0.604852E+00 |
| 1985 | 0.773778E+03 | 0.644629E+03 | 0.182611E+00  |
| 1986 | 0.714057E+03 | 0.802180E+03 | -0.116371E+00 |
| 1987 | 0.392731E+04 | 0.362897E+04 | 0.790058E-01  |
| 1988 | 0.324571E+03 | 0.799742E+03 | -0.901784E+00 |
| 1989 | 0.421943E+04 | 0.360960E+04 | 0.156103E+00  |
| 1990 | 0.638757E+03 | 0.841377E+03 | -0.275517E+00 |
| 1991 | 0.385915E+04 | 0.547486E+04 | -0.349719E+00 |
| 1992 | 0.159689E+03 | 0.411433E+03 | -0.946418E+00 |
| 1993 | 0.778971E+03 | 0.726744E+03 | 0.694004E-01  |
| 1994 | 0.984750E+03 | 0.589350E+03 | 0.513367E+00  |
| 1995 | 0.216587E+04 | 0.296954E+04 | -0.315586E+00 |
| 1996 | 0.751902E+04 | 0.499646E+04 | 0.408706E+00  |
| 1997 | 0.336970E+04 | 0.520008E+04 | -0.433851E+00 |
| 1998 | 0.243072E+04 | 0.441565E+04 | -0.596969E+00 |
| 1999 | 0.234763E+04 | 0.393409E+04 | -0.516275E+00 |
| 2000 | 0.261299E+05 | 0.789917E+04 | 0.119632E+01  |
| 2001 | 0.100766E+05 | 0.497003E+04 | 0.706794E+00  |
| 2002 | 0.241468E+05 | 0.165131E+05 | 0.380000E+00  |
| 2003 | 0.176729E+05 | 0.402477E+04 | 0.147957E+01  |
| 2004 | 0.277606E+05 | 0.337641E+05 | -0.195780E+00 |
| 2005 | 0.274068E+04 | 0.199191E+04 | 0.319111E+00  |
| 2006 | 0.904256E+03 | 0.992460E+03 | -0.930746E-01 |
| 2007 | 0.156979E+06 | 0.175147E+06 | -0.109516E+00 |
| 2008 | N/A          | 0.272956E+04 | N/A           |

Survey Index: 21 Tag: US\_Au4 AGE = 5  
 Time = JAN-1 Type = NUMBER  
 Catchability = 0.571735E+00 % Variance Contribution = 4.0993  
 Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.980210E+04 | N/A           |
| 1932 | N/A          | 0.530305E+04 | N/A           |
| 1933 | N/A          | 0.329229E+04 | N/A           |
| 1934 | N/A          | 0.622646E+04 | N/A           |
| 1935 | N/A          | 0.459211E+04 | N/A           |
| 1936 | N/A          | 0.450685E+04 | N/A           |
| 1937 | N/A          | 0.516135E+04 | N/A           |
| 1938 | N/A          | 0.342812E+04 | N/A           |
| 1939 | N/A          | 0.387675E+04 | N/A           |
| 1940 | N/A          | 0.472460E+04 | N/A           |
| 1941 | N/A          | 0.727957E+04 | N/A           |
| 1942 | N/A          | 0.567314E+04 | N/A           |
| 1943 | N/A          | 0.514076E+04 | N/A           |
| 1944 | N/A          | 0.876259E+04 | N/A           |
| 1945 | N/A          | 0.915144E+04 | N/A           |
| 1946 | N/A          | 0.752979E+04 | N/A           |
| 1947 | N/A          | 0.345695E+04 | N/A           |
| 1948 | N/A          | 0.374350E+04 | N/A           |
| 1949 | N/A          | 0.374768E+04 | N/A           |
| 1950 | N/A          | 0.536864E+04 | N/A           |
| 1951 | N/A          | 0.388544E+04 | N/A           |
| 1952 | N/A          | 0.336782E+04 | N/A           |
| 1953 | N/A          | 0.642222E+04 | N/A           |
| 1954 | N/A          | 0.514972E+04 | N/A           |
| 1955 | N/A          | 0.758420E+04 | N/A           |
| 1956 | N/A          | 0.638114E+04 | N/A           |
| 1957 | N/A          | 0.859109E+04 | N/A           |
| 1958 | N/A          | 0.689374E+04 | N/A           |
| 1959 | N/A          | 0.961929E+04 | N/A           |
| 1960 | N/A          | 0.754871E+04 | N/A           |
| 1961 | N/A          | 0.767484E+04 | N/A           |
| 1962 | N/A          | 0.832486E+04 | N/A           |
| 1963 | N/A          | 0.161533E+05 | N/A           |
| 1964 | 0.270822E+05 | 0.150728E+05 | 0.585986E+00  |
| 1965 | 0.580334E+04 | 0.682002E+04 | -0.161429E+00 |
| 1966 | 0.348200E+04 | 0.395348E+04 | -0.126988E+00 |
| 1967 | 0.108813E+05 | 0.135843E+05 | -0.221875E+00 |
| 1968 | 0.219560E+05 | 0.196775E+05 | 0.109562E+00  |
| 1969 | 0.106395E+04 | 0.110569E+04 | -0.384851E-01 |
| 1970 | 0.435250E+03 | 0.449229E+03 | -0.316116E-01 |
| 1971 | 0.918862E+03 | 0.123762E+04 | -0.297807E+00 |
| 1972 | 0.483611E+02 | 0.105865E+03 | -0.783470E+00 |
| 1973 | 0.290167E+03 | 0.942736E+02 | 0.112425E+01  |
| 1974 | 0.628695E+03 | 0.305734E+03 | 0.720932E+00  |
| 1975 | N/A          | 0.651118E+02 | N/A           |
| 1976 | 0.299839E+04 | 0.931726E+03 | 0.116879E+01  |
| 1977 | 0.265986E+04 | 0.145249E+04 | 0.604996E+00  |
| 1978 | 0.186401E+04 | 0.173860E+04 | 0.696495E-01  |
| 1979 | 0.594939E+03 | 0.157277E+04 | -0.972135E+00 |
| 1980 | 0.123746E+05 | 0.103625E+05 | 0.177449E+00  |
| 1981 | 0.594939E+03 | 0.208854E+04 | -0.125576E+01 |
| 1982 | 0.674135E+03 | 0.987239E+03 | -0.381482E+00 |
| 1983 | 0.454595E+04 | 0.430727E+04 | 0.539319E-01  |
| 1984 | 0.967223E+03 | 0.115209E+04 | -0.174900E+00 |
| 1985 | 0.918862E+03 | 0.763645E+03 | 0.185032E+00  |
| 1986 | 0.162286E+03 | 0.359329E+03 | -0.794880E+00 |
| 1987 | 0.194743E+03 | 0.458042E+03 | -0.855280E+00 |
| 1988 | 0.249920E+04 | 0.175386E+04 | 0.354154E+00  |
| 1989 | 0.389486E+03 | 0.501927E+03 | -0.253627E+00 |
| 1990 | 0.215580E+04 | 0.206016E+04 | 0.453777E-01  |
| 1991 | 0.159689E+03 | 0.464111E+03 | -0.106689E+01 |
| 1992 | 0.718601E+03 | 0.270320E+04 | -0.132488E+01 |
| 1993 | N/A          | 0.193428E+03 | N/A           |
| 1994 | N/A          | 0.345698E+03 | N/A           |
| 1995 | 0.401819E+03 | 0.297939E+03 | 0.299113E+00  |
| 1996 | 0.122169E+04 | 0.188339E+04 | -0.432841E+00 |
| 1997 | 0.158261E+04 | 0.310393E+04 | -0.673595E+00 |
| 1998 | 0.177670E+04 | 0.333890E+04 | -0.630882E+00 |
| 1999 | 0.133756E+04 | 0.287388E+04 | -0.764816E+00 |
| 2000 | 0.114295E+05 | 0.253765E+04 | 0.150495E+01  |
| 2001 | 0.356185E+04 | 0.484621E+04 | -0.307918E+00 |
| 2002 | 0.687734E+04 | 0.304519E+04 | 0.814668E+00  |
| 2003 | 0.277093E+05 | 0.101857E+05 | 0.100079E+01  |
| 2004 | 0.575887E+04 | 0.264375E+04 | 0.778544E+00  |
| 2005 | 0.442063E+05 | 0.215366E+05 | 0.719114E+00  |
| 2006 | 0.226032E+04 | 0.125142E+04 | 0.591227E+00  |
| 2007 | 0.128206E+04 | 0.673971E+03 | 0.643034E+00  |
| 2008 | N/A          | 0.119609E+06 | N/A           |

Survey Index: 22 Tag: US\_Au5 AGE = 6  
Time = JAN-1 Type = NUMBER  
Catchability = 0.560770E+00 % Variance Contribution = 5.0763  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed | Predicted    | Residual |
|------|----------|--------------|----------|
| 1931 | N/A      | 0.571844E+04 | N/A      |
| 1932 | N/A      | 0.332626E+04 | N/A      |
| 1933 | N/A      | 0.241376E+04 | N/A      |
| 1934 | N/A      | 0.159292E+04 | N/A      |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1935 | N/A          | 0.341492E+04 | N/A           |
| 1936 | N/A          | 0.220886E+04 | N/A           |
| 1937 | N/A          | 0.254093E+04 | N/A           |
| 1938 | N/A          | 0.206989E+04 | N/A           |
| 1939 | N/A          | 0.169111E+04 | N/A           |
| 1940 | N/A          | 0.203071E+04 | N/A           |
| 1941 | N/A          | 0.253102E+04 | N/A           |
| 1942 | N/A          | 0.295846E+04 | N/A           |
| 1943 | N/A          | 0.255077E+04 | N/A           |
| 1944 | N/A          | 0.256911E+04 | N/A           |
| 1945 | N/A          | 0.417951E+04 | N/A           |
| 1946 | N/A          | 0.443774E+04 | N/A           |
| 1947 | N/A          | 0.314755E+04 | N/A           |
| 1948 | N/A          | 0.170721E+04 | N/A           |
| 1949 | N/A          | 0.163010E+04 | N/A           |
| 1950 | N/A          | 0.183034E+04 | N/A           |
| 1951 | N/A          | 0.264544E+04 | N/A           |
| 1952 | N/A          | 0.189030E+04 | N/A           |
| 1953 | N/A          | 0.201837E+04 | N/A           |
| 1954 | N/A          | 0.326840E+04 | N/A           |
| 1955 | N/A          | 0.296911E+04 | N/A           |
| 1956 | N/A          | 0.443852E+04 | N/A           |
| 1957 | N/A          | 0.341099E+04 | N/A           |
| 1958 | N/A          | 0.397643E+04 | N/A           |
| 1959 | N/A          | 0.363238E+04 | N/A           |
| 1960 | N/A          | 0.574154E+04 | N/A           |
| 1961 | N/A          | 0.451578E+04 | N/A           |
| 1962 | N/A          | 0.469215E+04 | N/A           |
| 1963 | N/A          | 0.494718E+04 | N/A           |
| 1964 | 0.192961E+05 | 0.884507E+04 | 0.780042E+00  |
| 1965 | 0.123805E+05 | 0.771846E+04 | 0.472503E+00  |
| 1966 | 0.261150E+04 | 0.327124E+04 | -0.225243E+00 |
| 1967 | 0.169264E+04 | 0.178585E+04 | -0.536073E-01 |
| 1968 | 0.527136E+04 | 0.572712E+04 | -0.829237E-01 |
| 1969 | 0.125255E+05 | 0.852140E+04 | 0.385189E+00  |
| 1970 | 0.531973E+03 | 0.559136E+03 | -0.498011E-01 |
| 1971 | 0.870501E+03 | 0.266993E+03 | 0.118185E+01  |
| 1972 | 0.725417E+03 | 0.847831E+03 | -0.155935E+00 |
| 1973 | N/A          | 0.685075E+02 | N/A           |
| 1974 | 0.145083E+03 | 0.485506E+02 | 0.109470E+01  |
| 1975 | 0.483611E+02 | 0.208835E+03 | -0.146285E+01 |
| 1976 | N/A          | 0.502111E+02 | N/A           |
| 1977 | 0.967223E+03 | 0.635041E+03 | 0.420739E+00  |
| 1978 | 0.206233E+04 | 0.902986E+03 | 0.825883E+00  |
| 1979 | 0.832850E+03 | 0.110776E+04 | -0.285241E+00 |
| 1980 | 0.832850E+03 | 0.995563E+03 | -0.178454E+00 |
| 1981 | 0.551317E+04 | 0.526115E+04 | 0.467905E-01  |
| 1982 | 0.134859E+04 | 0.120175E+04 | 0.115281E+00  |
| 1983 | 0.435250E+03 | 0.594200E+03 | -0.311294E+00 |
| 1984 | 0.304675E+04 | 0.232088E+04 | 0.272132E+00  |
| 1985 | 0.193445E+03 | 0.722456E+03 | -0.131767E+01 |
| 1986 | 0.324571E+03 | 0.376009E+03 | -0.147108E+00 |
| 1987 | 0.421943E+03 | 0.213952E+03 | 0.679120E+00  |
| 1988 | 0.194743E+03 | 0.304950E+03 | -0.448467E+00 |
| 1989 | 0.129829E+04 | 0.929210E+03 | 0.334465E+00  |
| 1990 | 0.292763E+03 | 0.293563E+03 | -0.272834E-02 |
| 1991 | 0.558912E+03 | 0.108888E+04 | -0.666912E+00 |
| 1992 | 0.532297E+02 | 0.299861E+03 | -0.172870E+01 |
| 1993 | 0.152549E+04 | 0.118767E+04 | 0.250320E+00  |
| 1994 | 0.186304E+03 | 0.949832E+02 | 0.673680E+00  |
| 1995 | 0.147031E+03 | 0.205979E+03 | -0.337130E+00 |
| 1996 | 0.386240E+02 | 0.209483E+03 | -0.169077E+01 |
| 1997 | 0.462839E+03 | 0.128493E+04 | -0.102108E+01 |
| 1998 | 0.105648E+04 | 0.220878E+04 | -0.737500E+00 |
| 1999 | 0.570921E+03 | 0.229361E+04 | -0.139063E+01 |
| 2000 | 0.753557E+04 | 0.200171E+04 | 0.132564E+01  |
| 2001 | 0.214315E+04 | 0.174073E+04 | 0.207970E+00  |
| 2002 | 0.377412E+04 | 0.324490E+04 | 0.151082E+00  |
| 2003 | 0.607468E+04 | 0.197785E+04 | 0.112212E+01  |
| 2004 | 0.108926E+05 | 0.682280E+04 | 0.467816E+00  |
| 2005 | 0.381404E+04 | 0.175469E+04 | 0.776398E+00  |
| 2006 | 0.153704E+05 | 0.130063E+05 | 0.167008E+00  |
| 2007 | 0.140410E+04 | 0.815521E+03 | 0.543322E+00  |
| 2008 | N/A          | 0.443170E+03 | N/A           |

Survey Index: 23 Tag: Can\_Sp AGE = 1  
Time = JAN-1 Type = NUMBER  
Catchability = 0.282518E+00 % Variance Contribution = 4.8049  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed | Predicted    | Residual |
|------|----------|--------------|----------|
| 1931 | N/A      | 0.112833E+05 | N/A      |
| 1932 | N/A      | 0.128022E+05 | N/A      |
| 1933 | N/A      | 0.145822E+05 | N/A      |
| 1934 | N/A      | 0.168294E+05 | N/A      |
| 1935 | N/A      | 0.164464E+05 | N/A      |
| 1936 | N/A      | 0.161450E+05 | N/A      |
| 1937 | N/A      | 0.297522E+05 | N/A      |
| 1938 | N/A      | 0.220507E+05 | N/A      |
| 1939 | N/A      | 0.168060E+05 | N/A      |
| 1940 | N/A      | 0.314235E+05 | N/A      |
| 1941 | N/A      | 0.322825E+05 | N/A      |
| 1942 | N/A      | 0.174807E+05 | N/A      |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1943 | N/A          | 0.658448E+04 | N/A           |
| 1944 | N/A          | 0.184062E+05 | N/A           |
| 1945 | N/A          | 0.146363E+05 | N/A           |
| 1946 | N/A          | 0.265282E+05 | N/A           |
| 1947 | N/A          | 0.167069E+05 | N/A           |
| 1948 | N/A          | 0.931032E+04 | N/A           |
| 1949 | N/A          | 0.350722E+05 | N/A           |
| 1950 | N/A          | 0.161635E+05 | N/A           |
| 1951 | N/A          | 0.293199E+05 | N/A           |
| 1952 | N/A          | 0.119476E+05 | N/A           |
| 1953 | N/A          | 0.375157E+05 | N/A           |
| 1954 | N/A          | 0.147702E+05 | N/A           |
| 1955 | N/A          | 0.253985E+05 | N/A           |
| 1956 | N/A          | 0.170249E+05 | N/A           |
| 1957 | N/A          | 0.168466E+05 | N/A           |
| 1958 | N/A          | 0.165769E+05 | N/A           |
| 1959 | N/A          | 0.366840E+05 | N/A           |
| 1960 | N/A          | 0.345365E+05 | N/A           |
| 1961 | N/A          | 0.153441E+05 | N/A           |
| 1962 | N/A          | 0.110323E+05 | N/A           |
| 1963 | N/A          | 0.531816E+05 | N/A           |
| 1964 | N/A          | 0.130189E+06 | N/A           |
| 1965 | N/A          | 0.918553E+04 | N/A           |
| 1966 | N/A          | 0.117388E+04 | N/A           |
| 1967 | N/A          | 0.395893E+04 | N/A           |
| 1968 | N/A          | 0.153188E+03 | N/A           |
| 1969 | N/A          | 0.313847E+03 | N/A           |
| 1970 | N/A          | 0.130398E+04 | N/A           |
| 1971 | N/A          | 0.753121E+02 | N/A           |
| 1972 | N/A          | 0.240872E+04 | N/A           |
| 1973 | N/A          | 0.550861E+04 | N/A           |
| 1974 | N/A          | 0.298824E+04 | N/A           |
| 1975 | N/A          | 0.224039E+04 | N/A           |
| 1976 | N/A          | 0.297630E+05 | N/A           |
| 1977 | N/A          | 0.395066E+04 | N/A           |
| 1978 | N/A          | 0.173046E+04 | N/A           |
| 1979 | N/A          | 0.237002E+05 | N/A           |
| 1980 | N/A          | 0.308939E+04 | N/A           |
| 1981 | N/A          | 0.208048E+04 | N/A           |
| 1982 | N/A          | 0.729199E+03 | N/A           |
| 1983 | N/A          | 0.927902E+03 | N/A           |
| 1984 | N/A          | 0.510887E+04 | N/A           |
| 1985 | N/A          | 0.711673E+03 | N/A           |
| 1986 | 0.571399E+04 | 0.474443E+04 | 0.185946E+00  |
| 1987 | 0.422216E+02 | 0.739672E+03 | -0.286327E+01 |
| 1988 | 0.206886E+04 | 0.565463E+04 | -0.100548E+01 |
| 1989 | 0.422216E+02 | 0.385904E+03 | -0.221266E+01 |
| 1990 | 0.130887E+04 | 0.964812E+03 | 0.304985E+00  |
| 1991 | 0.105554E+04 | 0.769870E+03 | 0.315585E+00  |
| 1992 | 0.464437E+04 | 0.305447E+04 | 0.419049E+00  |
| 1993 | 0.557325E+04 | 0.443410E+04 | 0.228653E+00  |
| 1994 | 0.467252E+04 | 0.440150E+04 | 0.597535E-01  |
| 1995 | 0.273033E+04 | 0.363034E+04 | -0.284904E+00 |
| 1996 | 0.859913E+04 | 0.337293E+04 | 0.935879E+00  |
| 1997 | 0.244885E+04 | 0.673243E+04 | -0.101132E+01 |
| 1998 | 0.339180E+04 | 0.422208E+04 | -0.218967E+00 |
| 1999 | 0.277959E+05 | 0.142693E+05 | 0.666775E+00  |
| 2000 | 0.257974E+05 | 0.338510E+04 | 0.203089E+01  |
| 2001 | 0.313566E+05 | 0.276428E+05 | 0.126060E+00  |
| 2002 | 0.278662E+04 | 0.163255E+04 | 0.534687E+00  |
| 2003 | 0.192207E+04 | 0.814815E+03 | 0.858195E+00  |
| 2004 | 0.207872E+06 | 0.139809E+06 | 0.396644E+00  |
| 2005 | N/A          | 0.227373E+04 | N/A           |
| 2006 | N/A          | 0.747252E+04 | N/A           |
| 2007 | 0.421513E+04 | 0.209650E+04 | 0.698410E+00  |
| 2008 | 0.392321E+04 | 0.462661E+04 | -0.164913E+00 |

Survey Index: 24 Tag: Can\_Sp AGE = 2  
Time = JAN-1 Type = NUMBER  
Catchability = 0.399130E+00 % Variance Contribution = 3.8554  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed | Predicted    | Residual |
|------|----------|--------------|----------|
| 1931 | N/A      | 0.320850E+05 | N/A      |
| 1932 | N/A      | 0.124187E+05 | N/A      |
| 1933 | N/A      | 0.147654E+05 | N/A      |
| 1934 | N/A      | 0.167788E+05 | N/A      |
| 1935 | N/A      | 0.193430E+05 | N/A      |
| 1936 | N/A      | 0.185916E+05 | N/A      |
| 1937 | N/A      | 0.183572E+05 | N/A      |
| 1938 | N/A      | 0.339491E+05 | N/A      |
| 1939 | N/A      | 0.251341E+05 | N/A      |
| 1940 | N/A      | 0.192201E+05 | N/A      |
| 1941 | N/A      | 0.356113E+05 | N/A      |
| 1942 | N/A      | 0.370590E+05 | N/A      |
| 1943 | N/A      | 0.201077E+05 | N/A      |
| 1944 | N/A      | 0.760921E+04 | N/A      |
| 1945 | N/A      | 0.212668E+05 | N/A      |
| 1946 | N/A      | 0.168857E+05 | N/A      |
| 1947 | N/A      | 0.306089E+05 | N/A      |
| 1948 | N/A      | 0.192919E+05 | N/A      |
| 1949 | N/A      | 0.107401E+05 | N/A      |
| 1950 | N/A      | 0.404486E+05 | N/A      |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1951 | N/A          | 0.186641E+05 | N/A           |
| 1952 | N/A          | 0.336809E+05 | N/A           |
| 1953 | N/A          | 0.138180E+05 | N/A           |
| 1954 | N/A          | 0.430028E+05 | N/A           |
| 1955 | N/A          | 0.170453E+05 | N/A           |
| 1956 | N/A          | 0.293452E+05 | N/A           |
| 1957 | N/A          | 0.196734E+05 | N/A           |
| 1958 | N/A          | 0.194734E+05 | N/A           |
| 1959 | N/A          | 0.191289E+05 | N/A           |
| 1960 | N/A          | 0.423973E+05 | N/A           |
| 1961 | N/A          | 0.398542E+05 | N/A           |
| 1962 | N/A          | 0.177257E+05 | N/A           |
| 1963 | N/A          | 0.127340E+05 | N/A           |
| 1964 | N/A          | 0.604646E+05 | N/A           |
| 1965 | N/A          | 0.146945E+06 | N/A           |
| 1966 | N/A          | 0.718538E+04 | N/A           |
| 1967 | N/A          | 0.131671E+04 | N/A           |
| 1968 | N/A          | 0.416520E+04 | N/A           |
| 1969 | N/A          | 0.174304E+03 | N/A           |
| 1970 | N/A          | 0.362295E+03 | N/A           |
| 1971 | N/A          | 0.149169E+04 | N/A           |
| 1972 | N/A          | 0.867506E+02 | N/A           |
| 1973 | N/A          | 0.272857E+04 | N/A           |
| 1974 | N/A          | 0.543414E+04 | N/A           |
| 1975 | N/A          | 0.343920E+04 | N/A           |
| 1976 | N/A          | 0.251982E+04 | N/A           |
| 1977 | N/A          | 0.343721E+05 | N/A           |
| 1978 | N/A          | 0.456915E+04 | N/A           |
| 1979 | N/A          | 0.200121E+04 | N/A           |
| 1980 | N/A          | 0.274105E+05 | N/A           |
| 1981 | N/A          | 0.357052E+04 | N/A           |
| 1982 | N/A          | 0.240607E+04 | N/A           |
| 1983 | N/A          | 0.843081E+03 | N/A           |
| 1984 | N/A          | 0.107317E+04 | N/A           |
| 1985 | N/A          | 0.590868E+04 | N/A           |
| 1986 | 0.309625E+03 | 0.823087E+03 | -0.977700E+00 |
| 1987 | 0.427845E+04 | 0.548553E+04 | -0.248522E+00 |
| 1988 | 0.703693E+02 | 0.855469E+03 | -0.249789E+01 |
| 1989 | 0.751544E+04 | 0.653906E+04 | 0.139166E+00  |
| 1990 | 0.154812E+03 | 0.445678E+03 | -0.105738E+01 |
| 1991 | 0.235033E+04 | 0.109330E+04 | 0.765360E+00  |
| 1992 | 0.415179E+04 | 0.887961E+03 | 0.154237E+01  |
| 1993 | 0.303995E+04 | 0.350288E+04 | -0.141742E+00 |
| 1994 | 0.162131E+05 | 0.511689E+04 | 0.115327E+01  |
| 1995 | 0.368735E+04 | 0.508123E+04 | -0.320646E+00 |
| 1996 | 0.406735E+04 | 0.419297E+04 | -0.304192E-01 |
| 1997 | 0.163257E+04 | 0.389891E+04 | -0.870543E+00 |
| 1998 | 0.115124E+05 | 0.778196E+04 | 0.391617E+00  |
| 1999 | 0.479919E+04 | 0.488139E+04 | -0.169828E-01 |
| 2000 | 0.965467E+05 | 0.165032E+05 | 0.176647E+01  |
| 2001 | 0.398290E+04 | 0.391486E+04 | 0.172310E-01  |
| 2002 | 0.446141E+05 | 0.319685E+05 | 0.333301E+00  |
| 2003 | 0.358236E+04 | 0.188728E+04 | 0.640887E+00  |
| 2004 | 0.579843E+03 | 0.940849E+03 | -0.484025E+00 |
| 2005 | N/A          | 0.161480E+06 | N/A           |
| 2006 | N/A          | 0.262293E+04 | N/A           |
| 2007 | 0.150013E+05 | 0.858396E+04 | 0.558241E+00  |
| 2008 | 0.124835E+04 | 0.242027E+04 | -0.662057E+00 |

Survey Index: 25 Tag: Can\_Sp AGE = 3  
Time = JAN-1 Type = NUMBER  
Catchability = 0.655467E+00 % Variance Contribution = 1.4135  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed | Predicted    | Residual |
|------|----------|--------------|----------|
| 1931 | N/A      | 0.922977E+04 | N/A      |
| 1932 | N/A      | 0.379400E+05 | N/A      |
| 1933 | N/A      | 0.154653E+05 | N/A      |
| 1934 | N/A      | 0.148583E+05 | N/A      |
| 1935 | N/A      | 0.199281E+05 | N/A      |
| 1936 | N/A      | 0.190147E+05 | N/A      |
| 1937 | N/A      | 0.177399E+05 | N/A      |
| 1938 | N/A      | 0.181820E+05 | N/A      |
| 1939 | N/A      | 0.337463E+05 | N/A      |
| 1940 | N/A      | 0.255800E+05 | N/A      |
| 1941 | N/A      | 0.215603E+05 | N/A      |
| 1942 | N/A      | 0.340664E+05 | N/A      |
| 1943 | N/A      | 0.413827E+05 | N/A      |
| 1944 | N/A      | 0.245582E+05 | N/A      |
| 1945 | N/A      | 0.978072E+04 | N/A      |
| 1946 | N/A      | 0.235646E+05 | N/A      |
| 1947 | N/A      | 0.182989E+05 | N/A      |
| 1948 | N/A      | 0.313583E+05 | N/A      |
| 1949 | N/A      | 0.193238E+05 | N/A      |
| 1950 | N/A      | 0.106280E+05 | N/A      |
| 1951 | N/A      | 0.373381E+05 | N/A      |
| 1952 | N/A      | 0.202181E+05 | N/A      |
| 1953 | N/A      | 0.305091E+05 | N/A      |
| 1954 | N/A      | 0.175102E+05 | N/A      |
| 1955 | N/A      | 0.390784E+05 | N/A      |
| 1956 | N/A      | 0.205889E+05 | N/A      |
| 1957 | N/A      | 0.324048E+05 | N/A      |
| 1958 | N/A      | 0.225579E+05 | N/A      |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1959 | N/A          | 0.228917E+05 | N/A           |
| 1960 | N/A          | 0.223433E+05 | N/A           |
| 1961 | N/A          | 0.475544E+05 | N/A           |
| 1962 | N/A          | 0.472703E+05 | N/A           |
| 1963 | N/A          | 0.212004E+05 | N/A           |
| 1964 | N/A          | 0.147313E+05 | N/A           |
| 1965 | N/A          | 0.718819E+05 | N/A           |
| 1966 | N/A          | 0.123654E+06 | N/A           |
| 1967 | N/A          | 0.564518E+04 | N/A           |
| 1968 | N/A          | 0.167100E+04 | N/A           |
| 1969 | N/A          | 0.383864E+04 | N/A           |
| 1970 | N/A          | 0.227851E+03 | N/A           |
| 1971 | N/A          | 0.393902E+03 | N/A           |
| 1972 | N/A          | 0.119841E+04 | N/A           |
| 1973 | N/A          | 0.115457E+03 | N/A           |
| 1974 | N/A          | 0.242608E+04 | N/A           |
| 1975 | N/A          | 0.467278E+04 | N/A           |
| 1976 | N/A          | 0.399247E+04 | N/A           |
| 1977 | N/A          | 0.309803E+04 | N/A           |
| 1978 | N/A          | 0.345141E+05 | N/A           |
| 1979 | N/A          | 0.568990E+04 | N/A           |
| 1980 | N/A          | 0.267522E+04 | N/A           |
| 1981 | N/A          | 0.186054E+05 | N/A           |
| 1982 | N/A          | 0.376555E+04 | N/A           |
| 1983 | N/A          | 0.254291E+04 | N/A           |
| 1984 | N/A          | 0.100587E+04 | N/A           |
| 1985 | N/A          | 0.138725E+04 | N/A           |
| 1986 | 0.851469E+04 | 0.649066E+04 | 0.271428E+00  |
| 1987 | 0.971096E+03 | 0.107431E+04 | -0.101009E+00 |
| 1988 | 0.120050E+05 | 0.617415E+04 | 0.664953E+00  |
| 1989 | 0.101332E+04 | 0.111874E+04 | -0.989705E-01 |
| 1990 | 0.138909E+05 | 0.792782E+04 | 0.560856E+00  |
| 1991 | 0.197034E+03 | 0.592370E+03 | -0.110075E+01 |
| 1992 | 0.159035E+04 | 0.118321E+04 | 0.295721E+00  |
| 1993 | 0.774062E+03 | 0.103731E+04 | -0.292733E+00 |
| 1994 | 0.574214E+04 | 0.449485E+04 | 0.244898E+00  |
| 1995 | 0.605176E+04 | 0.656191E+04 | -0.809330E-01 |
| 1996 | 0.681175E+04 | 0.677663E+04 | 0.516942E-02  |
| 1997 | 0.139331E+04 | 0.560428E+04 | -0.139185E+01 |
| 1998 | 0.433475E+04 | 0.515746E+04 | -0.173781E+00 |
| 1999 | 0.100769E+05 | 0.103270E+05 | -0.245214E-01 |
| 2000 | 0.131168E+05 | 0.653770E+04 | 0.696312E+00  |
| 2001 | 0.153124E+05 | 0.219487E+05 | -0.360049E+00 |
| 2002 | 0.935912E+04 | 0.517784E+04 | 0.591963E+00  |
| 2003 | 0.975669E+05 | 0.427484E+05 | 0.825207E+00  |
| 2004 | 0.280689E+04 | 0.252706E+04 | 0.105021E+00  |
| 2005 | N/A          | 0.124549E+04 | N/A           |
| 2006 | N/A          | 0.216756E+06 | N/A           |
| 2007 | 0.441898E+04 | 0.351576E+04 | 0.228653E+00  |
| 2008 | 0.481327E+04 | 0.114382E+05 | -0.865583E+00 |

Survey Index: 26 Tag: Can\_Sp AGE = 4  
Time = JAN-1 Type = NUMBER  
Catchability = 0.620509E+00 % Variance Contribution = 1.5804  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed | Predicted    | Residual |
|------|----------|--------------|----------|
| 1931 | N/A      | 0.109612E+05 | N/A      |
| 1932 | N/A      | 0.601294E+04 | N/A      |
| 1933 | N/A      | 0.150636E+05 | N/A      |
| 1934 | N/A      | 0.862892E+04 | N/A      |
| 1935 | N/A      | 0.849672E+04 | N/A      |
| 1936 | N/A      | 0.105336E+05 | N/A      |
| 1937 | N/A      | 0.835950E+04 | N/A      |
| 1938 | N/A      | 0.769265E+04 | N/A      |
| 1939 | N/A      | 0.977169E+04 | N/A      |
| 1940 | N/A      | 0.152573E+05 | N/A      |
| 1941 | N/A      | 0.129706E+05 | N/A      |
| 1942 | N/A      | 0.112490E+05 | N/A      |
| 1943 | N/A      | 0.173042E+05 | N/A      |
| 1944 | N/A      | 0.221922E+05 | N/A      |
| 1945 | N/A      | 0.143274E+05 | N/A      |
| 1946 | N/A      | 0.644645E+04 | N/A      |
| 1947 | N/A      | 0.982369E+04 | N/A      |
| 1948 | N/A      | 0.843991E+04 | N/A      |
| 1949 | N/A      | 0.136245E+05 | N/A      |
| 1950 | N/A      | 0.805368E+04 | N/A      |
| 1951 | N/A      | 0.594773E+04 | N/A      |
| 1952 | N/A      | 0.142729E+05 | N/A      |
| 1953 | N/A      | 0.107174E+05 | N/A      |
| 1954 | N/A      | 0.138745E+05 | N/A      |
| 1955 | N/A      | 0.107201E+05 | N/A      |
| 1956 | N/A      | 0.195754E+05 | N/A      |
| 1957 | N/A      | 0.122200E+05 | N/A      |
| 1958 | N/A      | 0.172913E+05 | N/A      |
| 1959 | N/A      | 0.135277E+05 | N/A      |
| 1960 | N/A      | 0.132832E+05 | N/A      |
| 1961 | N/A      | 0.138985E+05 | N/A      |
| 1962 | N/A      | 0.285263E+05 | N/A      |
| 1963 | N/A      | 0.275747E+05 | N/A      |
| 1964 | N/A      | 0.122937E+05 | N/A      |
| 1965 | N/A      | 0.887577E+04 | N/A      |
| 1966 | N/A      | 0.310122E+05 | N/A      |



|      |              |              |               |
|------|--------------|--------------|---------------|
| 1967 | N/A          | 0.401330E+05 | N/A           |
| 1968 | N/A          | 0.276715E+04 | N/A           |
| 1969 | N/A          | 0.900117E+03 | N/A           |
| 1970 | N/A          | 0.202944E+04 | N/A           |
| 1971 | N/A          | 0.167639E+03 | N/A           |
| 1972 | N/A          | 0.181375E+03 | N/A           |
| 1973 | N/A          | 0.672163E+03 | N/A           |
| 1974 | N/A          | 0.877493E+02 | N/A           |
| 1975 | N/A          | 0.149980E+04 | N/A           |
| 1976 | N/A          | 0.254731E+04 | N/A           |
| 1977 | N/A          | 0.277528E+04 | N/A           |
| 1978 | N/A          | 0.229498E+04 | N/A           |
| 1979 | N/A          | 0.186664E+05 | N/A           |
| 1980 | N/A          | 0.343736E+04 | N/A           |
| 1981 | N/A          | 0.187822E+04 | N/A           |
| 1982 | N/A          | 0.826862E+04 | N/A           |
| 1983 | N/A          | 0.200218E+04 | N/A           |
| 1984 | N/A          | 0.151269E+04 | N/A           |
| 1985 | N/A          | 0.611796E+03 | N/A           |
| 1986 | 0.150590E+04 | 0.761324E+03 | 0.682089E+00  |
| 1987 | 0.353254E+04 | 0.344414E+04 | 0.253419E-01  |
| 1988 | 0.239256E+03 | 0.759010E+03 | -0.115448E+01 |
| 1989 | 0.298366E+04 | 0.342576E+04 | -0.138172E+00 |
| 1990 | 0.182960E+03 | 0.798524E+03 | -0.147350E+01 |
| 1991 | 0.126524E+05 | 0.519602E+04 | 0.889955E+00  |
| 1992 | 0.239256E+03 | 0.390478E+03 | -0.489839E+00 |
| 1993 | 0.633324E+03 | 0.689729E+03 | -0.853172E-01 |
| 1994 | 0.591102E+03 | 0.559333E+03 | 0.552437E-01  |
| 1995 | 0.312440E+04 | 0.281829E+04 | 0.103111E+00  |
| 1996 | 0.709323E+04 | 0.474198E+04 | 0.402685E+00  |
| 1997 | 0.329328E+04 | 0.493523E+04 | -0.404515E+00 |
| 1998 | 0.361698E+04 | 0.419075E+04 | -0.147239E+00 |
| 1999 | 0.311032E+04 | 0.373372E+04 | -0.182678E+00 |
| 2000 | 0.125398E+05 | 0.749685E+04 | 0.514426E+00  |
| 2001 | 0.434882E+04 | 0.471690E+04 | -0.812458E-01 |
| 2002 | 0.216174E+05 | 0.156720E+05 | 0.321623E+00  |
| 2003 | 0.722862E+04 | 0.381978E+04 | 0.637856E+00  |
| 2004 | 0.556924E+05 | 0.320444E+05 | 0.552721E+00  |
| 2005 | N/A          | 0.189046E+04 | N/A           |
| 2006 | N/A          | 0.941912E+03 | N/A           |
| 2007 | 0.804604E+05 | 0.166226E+06 | -0.725586E+00 |
| 2008 | 0.520377E+04 | 0.259053E+04 | 0.697519E+00  |

Survey Index: 27 Tag: Can\_Sp AGE = 5  
 Time = JAN-1 Type = NUMBER  
 Catchability = 0.707918E+00 % Variance Contribution = 1.7340  
 Residual = LN(Observed) - LN(Predicted)

| Year | Observed | Predicted    | Residual |
|------|----------|--------------|----------|
| 1931 | N/A      | 0.121369E+05 | N/A      |
| 1932 | N/A      | 0.656620E+04 | N/A      |
| 1933 | N/A      | 0.407649E+04 | N/A      |
| 1934 | N/A      | 0.770956E+04 | N/A      |
| 1935 | N/A      | 0.568591E+04 | N/A      |
| 1936 | N/A      | 0.558035E+04 | N/A      |
| 1937 | N/A      | 0.639074E+04 | N/A      |
| 1938 | N/A      | 0.424467E+04 | N/A      |
| 1939 | N/A      | 0.480016E+04 | N/A      |
| 1940 | N/A      | 0.584996E+04 | N/A      |
| 1941 | N/A      | 0.901351E+04 | N/A      |
| 1942 | N/A      | 0.702444E+04 | N/A      |
| 1943 | N/A      | 0.636525E+04 | N/A      |
| 1944 | N/A      | 0.108498E+05 | N/A      |
| 1945 | N/A      | 0.113312E+05 | N/A      |
| 1946 | N/A      | 0.932333E+04 | N/A      |
| 1947 | N/A      | 0.428037E+04 | N/A      |
| 1948 | N/A      | 0.463517E+04 | N/A      |
| 1949 | N/A      | 0.464035E+04 | N/A      |
| 1950 | N/A      | 0.664741E+04 | N/A      |
| 1951 | N/A      | 0.481092E+04 | N/A      |
| 1952 | N/A      | 0.417001E+04 | N/A      |
| 1953 | N/A      | 0.795195E+04 | N/A      |
| 1954 | N/A      | 0.637634E+04 | N/A      |
| 1955 | N/A      | 0.939069E+04 | N/A      |
| 1956 | N/A      | 0.790108E+04 | N/A      |
| 1957 | N/A      | 0.106374E+05 | N/A      |
| 1958 | N/A      | 0.853578E+04 | N/A      |
| 1959 | N/A      | 0.119105E+05 | N/A      |
| 1960 | N/A      | 0.934675E+04 | N/A      |
| 1961 | N/A      | 0.950293E+04 | N/A      |
| 1962 | N/A      | 0.103078E+05 | N/A      |
| 1963 | N/A      | 0.200009E+05 | N/A      |
| 1964 | N/A      | 0.186630E+05 | N/A      |
| 1965 | N/A      | 0.844449E+04 | N/A      |
| 1966 | N/A      | 0.489516E+04 | N/A      |
| 1967 | N/A      | 0.168200E+05 | N/A      |
| 1968 | N/A      | 0.243645E+05 | N/A      |
| 1969 | N/A      | 0.136906E+04 | N/A      |
| 1970 | N/A      | 0.556232E+03 | N/A      |
| 1971 | N/A      | 0.153241E+04 | N/A      |
| 1972 | N/A      | 0.131081E+03 | N/A      |
| 1973 | N/A      | 0.116729E+03 | N/A      |
| 1974 | N/A      | 0.378557E+03 | N/A      |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1975 | N/A          | 0.806209E+02 | N/A           |
| 1976 | N/A          | 0.115366E+04 | N/A           |
| 1977 | N/A          | 0.179846E+04 | N/A           |
| 1978 | N/A          | 0.215273E+04 | N/A           |
| 1979 | N/A          | 0.194739E+04 | N/A           |
| 1980 | N/A          | 0.128308E+05 | N/A           |
| 1981 | N/A          | 0.258602E+04 | N/A           |
| 1982 | N/A          | 0.122239E+04 | N/A           |
| 1983 | N/A          | 0.533323E+04 | N/A           |
| 1984 | N/A          | 0.142650E+04 | N/A           |
| 1985 | N/A          | 0.945540E+03 | N/A           |
| 1986 | 0.267403E+03 | 0.444918E+03 | -0.509132E+00 |
| 1987 | 0.942949E+03 | 0.567143E+03 | 0.508400E+00  |
| 1988 | 0.401105E+04 | 0.217161E+04 | 0.613584E+00  |
| 1989 | 0.267403E+03 | 0.621482E+03 | -0.843348E+00 |
| 1990 | 0.472882E+04 | 0.255088E+04 | 0.617237E+00  |
| 1991 | 0.154812E+03 | 0.574658E+03 | -0.131156E+01 |
| 1992 | 0.537621E+04 | 0.334708E+04 | 0.473897E+00  |
| 1993 | 0.562954E+02 | 0.239501E+03 | -0.144794E+01 |
| 1994 | 0.337773E+03 | 0.428040E+03 | -0.236845E+00 |
| 1995 | 0.788136E+03 | 0.368906E+03 | 0.759129E+00  |
| 1996 | 0.410957E+04 | 0.233200E+04 | 0.566592E+00  |
| 1997 | 0.333550E+04 | 0.384327E+04 | -0.141699E+00 |
| 1998 | 0.529177E+04 | 0.413420E+04 | 0.246859E+00  |
| 1999 | 0.197034E+04 | 0.355841E+04 | -0.591108E+00 |
| 2000 | 0.296958E+04 | 0.314210E+04 | -0.564704E-01 |
| 2001 | 0.581250E+04 | 0.600054E+04 | -0.318380E-01 |
| 2002 | 0.607991E+04 | 0.377054E+04 | 0.477772E+00  |
| 2003 | 0.186403E+05 | 0.126118E+05 | 0.390691E+00  |
| 2004 | 0.554130E+04 | 0.327347E+04 | 0.526379E+00  |
| 2005 | N/A          | 0.266664E+05 | N/A           |
| 2006 | N/A          | 0.154950E+04 | N/A           |
| 2007 | 0.112062E+04 | 0.834506E+03 | 0.294800E+00  |
| 2008 | 0.109124E+06 | 0.148099E+06 | -0.305394E+00 |

Survey Index: 28 Tag: Can\_Sp AGE = 6  
Time = JAN-1 Type = NUMBER  
Catchability = 0.523142E+00 % Variance Contribution = 3.1484  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed | Predicted    | Residual |
|------|----------|--------------|----------|
| 1931 | N/A      | 0.533473E+04 | N/A      |
| 1932 | N/A      | 0.310307E+04 | N/A      |
| 1933 | N/A      | 0.225180E+04 | N/A      |
| 1934 | N/A      | 0.148604E+04 | N/A      |
| 1935 | N/A      | 0.318577E+04 | N/A      |
| 1936 | N/A      | 0.206065E+04 | N/A      |
| 1937 | N/A      | 0.237043E+04 | N/A      |
| 1938 | N/A      | 0.193100E+04 | N/A      |
| 1939 | N/A      | 0.157763E+04 | N/A      |
| 1940 | N/A      | 0.189445E+04 | N/A      |
| 1941 | N/A      | 0.236119E+04 | N/A      |
| 1942 | N/A      | 0.275994E+04 | N/A      |
| 1943 | N/A      | 0.237961E+04 | N/A      |
| 1944 | N/A      | 0.239672E+04 | N/A      |
| 1945 | N/A      | 0.389906E+04 | N/A      |
| 1946 | N/A      | 0.413996E+04 | N/A      |
| 1947 | N/A      | 0.293635E+04 | N/A      |
| 1948 | N/A      | 0.159266E+04 | N/A      |
| 1949 | N/A      | 0.152072E+04 | N/A      |
| 1950 | N/A      | 0.170752E+04 | N/A      |
| 1951 | N/A      | 0.246793E+04 | N/A      |
| 1952 | N/A      | 0.176345E+04 | N/A      |
| 1953 | N/A      | 0.188294E+04 | N/A      |
| 1954 | N/A      | 0.304909E+04 | N/A      |
| 1955 | N/A      | 0.276988E+04 | N/A      |
| 1956 | N/A      | 0.414069E+04 | N/A      |
| 1957 | N/A      | 0.318211E+04 | N/A      |
| 1958 | N/A      | 0.370960E+04 | N/A      |
| 1959 | N/A      | 0.338864E+04 | N/A      |
| 1960 | N/A      | 0.535628E+04 | N/A      |
| 1961 | N/A      | 0.421277E+04 | N/A      |
| 1962 | N/A      | 0.437731E+04 | N/A      |
| 1963 | N/A      | 0.461522E+04 | N/A      |
| 1964 | N/A      | 0.825156E+04 | N/A      |
| 1965 | N/A      | 0.720055E+04 | N/A      |
| 1966 | N/A      | 0.305173E+04 | N/A      |
| 1967 | N/A      | 0.166602E+04 | N/A      |
| 1968 | N/A      | 0.534283E+04 | N/A      |
| 1969 | N/A      | 0.794961E+04 | N/A      |
| 1970 | N/A      | 0.521618E+03 | N/A      |
| 1971 | N/A      | 0.249077E+03 | N/A      |
| 1972 | N/A      | 0.790941E+03 | N/A      |
| 1973 | N/A      | 0.639106E+02 | N/A      |
| 1974 | N/A      | 0.452928E+02 | N/A      |
| 1975 | N/A      | 0.194822E+03 | N/A      |
| 1976 | N/A      | 0.468419E+02 | N/A      |
| 1977 | N/A      | 0.592430E+03 | N/A      |
| 1978 | N/A      | 0.842395E+03 | N/A      |
| 1979 | N/A      | 0.103343E+04 | N/A      |
| 1980 | N/A      | 0.928759E+03 | N/A      |
| 1981 | N/A      | 0.490812E+04 | N/A      |
| 1982 | N/A      | 0.112111E+04 | N/A      |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1983 | N/A          | 0.554328E+03 | N/A           |
| 1984 | N/A          | 0.216514E+04 | N/A           |
| 1985 | N/A          | 0.673979E+03 | N/A           |
| 1986 | 0.408142E+03 | 0.350779E+03 | 0.151459E+00  |
| 1987 | 0.112591E+03 | 0.199595E+03 | -0.572531E+00 |
| 1988 | 0.253329E+03 | 0.284487E+03 | -0.115998E+00 |
| 1989 | 0.591102E+03 | 0.866859E+03 | -0.382888E+00 |
| 1990 | 0.323699E+03 | 0.273865E+03 | 0.167178E+00  |
| 1991 | 0.225182E+04 | 0.101581E+04 | 0.796048E+00  |
| 1992 | 0.422216E+02 | 0.279740E+03 | -0.189093E+01 |
| 1993 | 0.180145E+04 | 0.110798E+04 | 0.486060E+00  |
| 1994 | 0.281477E+02 | 0.886098E+02 | -0.114678E+01 |
| 1995 | 0.422216E+02 | 0.192157E+03 | -0.151538E+01 |
| 1996 | 0.365920E+03 | 0.195427E+03 | 0.627231E+00  |
| 1997 | 0.239256E+04 | 0.119871E+04 | 0.691118E+00  |
| 1998 | 0.516511E+04 | 0.206057E+04 | 0.918942E+00  |
| 1999 | 0.189997E+04 | 0.213970E+04 | -0.118829E+00 |
| 2000 | 0.218145E+04 | 0.186739E+04 | 0.155448E+00  |
| 2001 | 0.181553E+04 | 0.162392E+04 | 0.111530E+00  |
| 2002 | 0.748729E+04 | 0.302716E+04 | 0.905581E+00  |
| 2003 | 0.413293E+04 | 0.184514E+04 | 0.806433E+00  |
| 2004 | 0.103840E+05 | 0.636498E+04 | 0.489453E+00  |
| 2005 | N/A          | 0.163695E+04 | N/A           |
| 2006 | N/A          | 0.121336E+05 | N/A           |
| 2007 | 0.177506E+03 | 0.760799E+03 | -0.145536E+01 |
| 2008 | 0.100900E+04 | 0.413433E+03 | 0.892218E+00  |

Survey Index: 29 Tag: Can\_Sp AGE = 7  
Time = JAN-1 Type = NUMBER  
Catchability = 0.679959E+00 % Variance Contribution = 2.5699  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.373337E+04 | N/A           |
| 1932 | N/A          | 0.202576E+04 | N/A           |
| 1933 | N/A          | 0.154659E+04 | N/A           |
| 1934 | N/A          | 0.143459E+04 | N/A           |
| 1935 | N/A          | 0.941333E+03 | N/A           |
| 1936 | N/A          | 0.189482E+04 | N/A           |
| 1937 | N/A          | 0.135378E+04 | N/A           |
| 1938 | N/A          | 0.138221E+04 | N/A           |
| 1939 | N/A          | 0.108245E+04 | N/A           |
| 1940 | N/A          | 0.108913E+04 | N/A           |
| 1941 | N/A          | 0.111636E+04 | N/A           |
| 1942 | N/A          | 0.142888E+04 | N/A           |
| 1943 | N/A          | 0.152069E+04 | N/A           |
| 1944 | N/A          | 0.905630E+03 | N/A           |
| 1945 | N/A          | 0.116730E+04 | N/A           |
| 1946 | N/A          | 0.273703E+04 | N/A           |
| 1947 | N/A          | 0.207592E+04 | N/A           |
| 1948 | N/A          | 0.146321E+04 | N/A           |
| 1949 | N/A          | 0.990454E+03 | N/A           |
| 1950 | N/A          | 0.972057E+03 | N/A           |
| 1951 | N/A          | 0.112784E+04 | N/A           |
| 1952 | N/A          | 0.132771E+04 | N/A           |
| 1953 | N/A          | 0.130027E+04 | N/A           |
| 1954 | N/A          | 0.138593E+04 | N/A           |
| 1955 | N/A          | 0.194679E+04 | N/A           |
| 1956 | N/A          | 0.194170E+04 | N/A           |
| 1957 | N/A          | 0.235283E+04 | N/A           |
| 1958 | N/A          | 0.195165E+04 | N/A           |
| 1959 | N/A          | 0.250523E+04 | N/A           |
| 1960 | N/A          | 0.253254E+04 | N/A           |
| 1961 | N/A          | 0.460312E+04 | N/A           |
| 1962 | N/A          | 0.334854E+04 | N/A           |
| 1963 | N/A          | 0.338181E+04 | N/A           |
| 1964 | N/A          | 0.356413E+04 | N/A           |
| 1965 | N/A          | 0.525222E+04 | N/A           |
| 1966 | N/A          | 0.360395E+04 | N/A           |
| 1967 | N/A          | 0.167335E+04 | N/A           |
| 1968 | N/A          | 0.103686E+04 | N/A           |
| 1969 | N/A          | 0.355307E+04 | N/A           |
| 1970 | N/A          | 0.483613E+04 | N/A           |
| 1971 | N/A          | 0.424223E+03 | N/A           |
| 1972 | N/A          | 0.115991E+03 | N/A           |
| 1973 | N/A          | 0.766374E+03 | N/A           |
| 1974 | N/A          | 0.493154E+02 | N/A           |
| 1975 | N/A          | 0.469093E+02 | N/A           |
| 1976 | N/A          | 0.180724E+03 | N/A           |
| 1977 | N/A          | 0.498420E+02 | N/A           |
| 1978 | N/A          | 0.409668E+03 | N/A           |
| 1979 | N/A          | 0.578677E+03 | N/A           |
| 1980 | N/A          | 0.846601E+03 | N/A           |
| 1981 | N/A          | 0.624246E+03 | N/A           |
| 1982 | N/A          | 0.364145E+04 | N/A           |
| 1983 | N/A          | 0.842987E+03 | N/A           |
| 1984 | N/A          | 0.422097E+03 | N/A           |
| 1985 | N/A          | 0.139043E+04 | N/A           |
| 1986 | 0.478511E+03 | 0.574324E+03 | -0.182514E+00 |
| 1987 | 0.422216E+03 | 0.266150E+03 | 0.461455E+00  |
| 1988 | 0.239256E+03 | 0.166824E+03 | 0.360596E+00  |
| 1989 | 0.422216E+02 | 0.209698E+03 | -0.160274E+01 |
| 1990 | 0.153405E+04 | 0.630838E+03 | 0.888619E+00  |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1991 | 0.126665E+03 | 0.197270E+03 | -0.443032E+00 |
| 1992 | 0.149183E+04 | 0.764878E+03 | 0.668042E+00  |
| 1993 | 0.281477E+02 | 0.187240E+03 | -0.189492E+01 |
| 1994 | 0.985170E+03 | 0.727295E+03 | 0.303482E+00  |
| 1995 | N/A          | 0.496840E+02 | N/A           |
| 1996 | 0.337773E+03 | 0.186454E+03 | 0.594186E+00  |
| 1997 | 0.323699E+03 | 0.167570E+03 | 0.658410E+00  |
| 1998 | 0.278662E+04 | 0.114202E+04 | 0.892035E+00  |
| 1999 | 0.177331E+04 | 0.184324E+04 | -0.386785E-01 |
| 2000 | 0.273033E+04 | 0.193058E+04 | 0.346601E+00  |
| 2001 | 0.161849E+04 | 0.166402E+04 | -0.277391E-01 |
| 2002 | 0.223774E+04 | 0.132718E+04 | 0.522411E+00  |
| 2003 | 0.377939E+04 | 0.254506E+04 | 0.395411E+00  |
| 2004 | 0.173897E+04 | 0.159325E+04 | 0.875131E-01  |
| 2005 | N/A          | 0.497950E+04 | N/A           |
| 2006 | N/A          | 0.126680E+04 | N/A           |
| 2007 | 0.417721E+04 | 0.960028E+04 | -0.832149E+00 |
| 2008 | 0.194692E+03 | 0.619187E+03 | -0.115699E+01 |

Survey Index: 30 Tag: Can\_Sp AGE = 8  
Time = JAN-1 Type = NUMBER  
Catchability = 0.620286E+00 % Variance Contribution = 2.2809  
Residual = LN(Observed) - LN(Predicted)

| Year | Observed     | Predicted    | Residual      |
|------|--------------|--------------|---------------|
| 1931 | N/A          | 0.191396E+04 | N/A           |
| 1932 | N/A          | 0.928022E+03 | N/A           |
| 1933 | N/A          | 0.781384E+03 | N/A           |
| 1934 | N/A          | 0.486658E+03 | N/A           |
| 1935 | N/A          | 0.726851E+03 | N/A           |
| 1936 | N/A          | 0.425771E+03 | N/A           |
| 1937 | N/A          | 0.661519E+03 | N/A           |
| 1938 | N/A          | 0.484105E+03 | N/A           |
| 1939 | N/A          | 0.508964E+03 | N/A           |
| 1940 | N/A          | 0.345945E+03 | N/A           |
| 1941 | N/A          | 0.397030E+03 | N/A           |
| 1942 | N/A          | 0.314839E+03 | N/A           |
| 1943 | N/A          | 0.494007E+03 | N/A           |
| 1944 | N/A          | 0.696681E+03 | N/A           |
| 1945 | N/A          | 0.400320E+03 | N/A           |
| 1946 | N/A          | 0.366907E+03 | N/A           |
| 1947 | N/A          | 0.103198E+04 | N/A           |
| 1948 | N/A          | 0.719949E+03 | N/A           |
| 1949 | N/A          | 0.659423E+03 | N/A           |
| 1950 | N/A          | 0.393726E+03 | N/A           |
| 1951 | N/A          | 0.437076E+03 | N/A           |
| 1952 | N/A          | 0.432253E+03 | N/A           |
| 1953 | N/A          | 0.696401E+03 | N/A           |
| 1954 | N/A          | 0.669322E+03 | N/A           |
| 1955 | N/A          | 0.634936E+03 | N/A           |
| 1956 | N/A          | 0.860759E+03 | N/A           |
| 1957 | N/A          | 0.703832E+03 | N/A           |
| 1958 | N/A          | 0.854722E+03 | N/A           |
| 1959 | N/A          | 0.955204E+03 | N/A           |
| 1960 | N/A          | 0.121905E+04 | N/A           |
| 1961 | N/A          | 0.145246E+04 | N/A           |
| 1962 | N/A          | 0.273131E+04 | N/A           |
| 1963 | N/A          | 0.162969E+04 | N/A           |
| 1964 | N/A          | 0.174338E+04 | N/A           |
| 1965 | N/A          | 0.150630E+04 | N/A           |
| 1966 | N/A          | 0.183546E+04 | N/A           |
| 1967 | N/A          | 0.139906E+04 | N/A           |
| 1968 | N/A          | 0.698705E+03 | N/A           |
| 1969 | N/A          | 0.404651E+03 | N/A           |
| 1970 | N/A          | 0.177760E+04 | N/A           |
| 1971 | N/A          | 0.232815E+04 | N/A           |
| 1972 | N/A          | 0.158955E+03 | N/A           |
| 1973 | N/A          | 0.424396E+02 | N/A           |
| 1974 | N/A          | 0.528518E+03 | N/A           |
| 1975 | N/A          | 0.356566E+02 | N/A           |
| 1976 | N/A          | 0.327408E+02 | N/A           |
| 1977 | N/A          | 0.121611E+03 | N/A           |
| 1978 | N/A          | 0.349311E+02 | N/A           |
| 1979 | N/A          | 0.227855E+03 | N/A           |
| 1980 | N/A          | 0.255560E+03 | N/A           |
| 1981 | N/A          | 0.328001E+03 | N/A           |
| 1982 | N/A          | 0.280983E+03 | N/A           |
| 1983 | N/A          | 0.209083E+04 | N/A           |
| 1984 | N/A          | 0.524643E+03 | N/A           |
| 1985 | N/A          | 0.183750E+03 | N/A           |
| 1986 | 0.520733E+03 | 0.738397E+03 | -0.349244E+00 |
| 1987 | 0.140739E+03 | 0.344093E+03 | -0.894008E+00 |
| 1988 | 0.154812E+03 | 0.148153E+03 | 0.439719E-01  |
| 1989 | 0.422216E+02 | 0.932026E+02 | -0.791844E+00 |
| 1990 | 0.182960E+03 | 0.122190E+03 | 0.403693E+00  |
| 1991 | 0.619250E+03 | 0.349835E+03 | 0.571049E+00  |
| 1992 | 0.562954E+02 | 0.764428E+02 | -0.305929E+00 |
| 1993 | 0.450364E+03 | 0.334839E+03 | 0.296404E+00  |
| 1994 | 0.140739E+02 | 0.104936E+03 | -0.200903E+01 |
| 1995 | 0.675545E+03 | 0.368721E+03 | 0.605480E+00  |
| 1996 | 0.562954E+02 | 0.323560E+02 | 0.553813E+00  |
| 1997 | 0.126665E+03 | 0.126895E+03 | -0.181633E-02 |
| 1998 | 0.337773E+03 | 0.115362E+03 | 0.107429E+01  |

|      |              |              |               |
|------|--------------|--------------|---------------|
| 1999 | 0.464437E+03 | 0.758495E+03 | -0.490509E+00 |
| 2000 | 0.160442E+04 | 0.116240E+04 | 0.322278E+00  |
| 2001 | 0.198441E+04 | 0.123122E+04 | 0.477315E+00  |
| 2002 | 0.185775E+04 | 0.998514E+03 | 0.620853E+00  |
| 2003 | 0.169745E+04 | 0.767174E+03 | 0.794167E+00  |
| 2004 | 0.102345E+04 | 0.149951E+04 | -0.381956E+00 |
| 2005 | N/A          | 0.807658E+03 | N/A           |
| 2006 | N/A          | 0.269216E+04 | N/A           |
| 2007 | 0.299037E+03 | 0.763849E+03 | -0.937801E+00 |
| 2008 | 0.859467E+04 | 0.576797E+04 | 0.398822E+00  |

Plus Group Diagnostic Report

Calculation Method Selected = Backward

| Year | Population Backward | Population Forward | F Forward | F Backward | Ratio     |
|------|---------------------|--------------------|-----------|------------|-----------|
| 1931 | 961.                | 961.               | 0.997338  | 0.997338   | 1.000000  |
| 1932 | 881.                | 1222.              | 0.431489  | 0.662343   | 1.535018  |
| 1933 | 1515.               | 1282.              | 0.797975  | 0.628024   | 0.787022  |
| 1934 | 527.                | 1023.              | 0.199216  | 0.429368   | 2.155290  |
| 1935 | 289.                | 1104.              | 0.115073  | 0.531930   | 4.622531  |
| 1936 | 329.                | 1369.              | 0.105061  | 0.532164   | 5.065289  |
| 1937 | 492.                | 1339.              | 0.201204  | 0.677471   | 3.367082  |
| 1938 | 413.                | 1340.              | 0.153215  | 0.611821   | 3.993205  |
| 1939 | 602.                | 1288.              | 0.228104  | 0.569606   | 2.497133  |
| 1940 | 342.                | 1220.              | 0.130993  | 0.571032   | 4.359253  |
| 1941 | 801.                | 1134.              | 0.463332  | 0.739804   | 1.596702  |
| 1942 | 394.                | 834.               | 0.263676  | 0.669485   | 2.539046  |
| 1943 | 400.                | 737.               | 0.307844  | 0.663752   | 2.156132  |
| 1944 | 259.                | 780.               | 0.165397  | 0.609012   | 3.682115  |
| 1945 | 499.                | 1041.              | 0.243833  | 0.595311   | 2.441468  |
| 1946 | 50.                 | 959.               | 0.026798  | 0.696294   | 25.982882 |
| 1947 | 1021.               | 1006.              | 0.684379  | 0.670668   | 0.979966  |
| 1948 | 952.                | 1112.              | 0.451606  | 0.551452   | 1.221091  |
| 1949 | 918.                | 1127.              | 0.420336  | 0.545878   | 1.298672  |
| 1950 | 705.                | 1110.              | 0.284028  | 0.490916   | 1.728409  |
| 1951 | 510.                | 1002.              | 0.268664  | 0.616813   | 2.295855  |
| 1952 | 410.                | 939.               | 0.134093  | 0.337640   | 2.517965  |
| 1953 | 506.                | 1079.              | 0.168389  | 0.398986   | 2.369426  |
| 1954 | 300.                | 1363.              | 0.082512  | 0.443634   | 5.376612  |
| 1955 | 553.                | 1595.              | 0.127195  | 0.419358   | 3.296968  |
| 1956 | 495.                | 1701.              | 0.139372  | 0.585777   | 4.202980  |
| 1957 | 878.                | 1844.              | 0.246063  | 0.607592   | 2.469251  |
| 1958 | 443.                | 1686.              | 0.097350  | 0.432913   | 4.446967  |
| 1959 | 1213.               | 1984.              | 0.204673  | 0.359507   | 1.756495  |
| 1960 | 1685.               | 2204.              | 0.190751  | 0.257421   | 1.349512  |
| 1961 | 3182.               | 2735.              | 0.315374  | 0.264856   | 0.839813  |
| 1962 | 3337.               | 3105.              | 0.381446  | 0.349849   | 0.917164  |
| 1963 | 3994.               | 4277.              | 0.330192  | 0.358086   | 1.084478  |
| 1964 | 3642.               | 4020.              | 0.450717  | 0.511085   | 1.133936  |
| 1965 | 3032.               | 3478.              | 0.561041  | 0.676381   | 1.205583  |
| 1966 | 2023.               | 2636.              | 0.446717  | 0.630925   | 1.412359  |
| 1967 | 1717.               | 2670.              | 0.338098  | 0.587421   | 1.737430  |
| 1968 | 2094.               | 2585.              | 0.441266  | 0.578910   | 1.311930  |
| 1969 | 1653.               | 1878.              | 0.404375  | 0.474116   | 1.172465  |
| 1970 | 1782.               | 1359.              | 0.468203  | 0.336330   | 0.718342  |
| 1971 | 2371.               | 2373.              | 0.557867  | 0.558371   | 1.000903  |
| 1972 | 4801.               | 2870.              | 0.655735  | 0.341057   | 0.520114  |
| 1973 | 2036.               | 1369.              | 0.452785  | 0.281800   | 0.622371  |
| 1974 | 4002.               | 755.               | 0.469353  | 0.073789   | 0.157215  |
| 1975 | 1276.               | 1035.              | 0.101909  | 0.081847   | 0.803140  |
| 1976 | 1495.               | 808.               | 0.172004  | 0.089460   | 0.520102  |
| 1977 | 558.                | 597.               | 0.232196  | 0.250219   | 1.077616  |
| 1978 | 270.                | 512.               | 0.156647  | 0.321284   | 2.051003  |
| 1979 | 176.                | 392.               | 0.139579  | 0.341648   | 2.447705  |
| 1980 | 218.                | 493.               | 0.200414  | 0.524776   | 2.618460  |
| 1981 | 315.                | 530.               | 0.218758  | 0.400135   | 1.829126  |
| 1982 | 470.                | 639.               | 0.211610  | 0.299537   | 1.415513  |
| 1983 | 320.                | 698.               | 0.129109  | 0.305359   | 2.365130  |
| 1984 | 1720.               | 2536.              | 0.271873  | 0.430723   | 1.584282  |
| 1985 | 577.                | 2032.              | 0.088132  | 0.350782   | 3.980209  |
| 1986 | 268.                | 1694.              | 0.040374  | 0.285942   | 7.082384  |
| 1987 | 707.                | 2064.              | 0.076342  | 0.240983   | 3.156647  |
| 1988 | 395.                | 1923.              | 0.064146  | 0.357793   | 5.577774  |
| 1989 | 230.                | 1613.              | 0.039524  | 0.315082   | 7.972007  |
| 1990 | 174.                | 1359.              | 0.040470  | 0.368750   | 9.111686  |
| 1991 | 213.                | 1180.              | 0.062614  | 0.406510   | 6.492349  |
| 1992 | 263.                | 1215.              | 0.094522  | 0.533648   | 5.645729  |
| 1993 | 262.                | 964.               | 0.098590  | 0.420721   | 4.267376  |
| 1994 | 336.                | 1006.              | 0.127947  | 0.442203   | 3.456140  |
| 1995 | 157.                | 813.               | 0.022209  | 0.120740   | 5.436524  |
| 1996 | 591.                | 1083.              | 0.082924  | 0.157314   | 1.897093  |
| 1997 | 543.                | 852.               | 0.065176  | 0.104321   | 1.600621  |
| 1998 | 386.                | 805.               | 0.068873  | 0.149052   | 2.164142  |
| 1999 | 357.                | 746.               | 0.072888  | 0.158837   | 2.179195  |
| 2000 | 715.                | 1422.              | 0.079388  | 0.164339   | 2.070067  |
| 2001 | 1451.               | 2377.              | 0.129461  | 0.221529   | 1.711162  |
| 2002 | 2896.               | 3012.              | 0.224577  | 0.234696   | 1.045057  |
| 2003 | 2265.               | 3012.              | 0.153201  | 0.209156   | 1.365239  |
| 2004 | 1753.               | 2937.              | 0.165935  | 0.295248   | 1.779301  |
| 2005 | 1418.               | 3511.              | 0.113909  | 0.308869   | 2.711543  |
| 2006 | 1173.               | 3348.              | 0.077874  | 0.239744   | 3.078605  |

2007 3036. 5331. 0.123935 0.228544 1.844055  
 2008 300. 4658. N/A N/A

Warning \*\*\*\* Infeasible Mass Balance in Plus Group  
 Year = 1947  
 Year = 1974  
 Year = 1976

YPR input GB haddock

```
##
## YPR Version 2.6
##
TITLE
Georges_Bank_Haddock_vpa_Garm3_rev flat5
AGES
1 9 100 1
FMORT
2.0 0.01 0.0001
MMORT
0.2000
TSPAWN
0.2500 0.2500
REFMSP
0.4000
BIODATA
1 0.0139 1.0000 0.1126 0.1883 0.1126 0.0630
2 0.0298 1.0000 0.3633 0.5937 0.3633 0.4690
3 0.1484 1.0000 0.8029 1.0900 0.8029 0.9200
4 0.3958 1.0000 1.2505 1.3772 1.2505 0.9930
5 1.0000 1.0000 1.5597 1.6560 1.5597 0.9990
6 1.0000 1.0000 1.8176 1.8887 1.8176 1.0000
7 1.0000 1.0000 2.0522 2.0880 2.0522 1.0000
8 1.0000 1.0000 2.3401 2.3539 2.3401 1.0000
9 1.0000 1.0000 2.6388 2.6388 2.6388 1.0000
```

YPR output GB haddock

```
## Yield per Recruit and Spawning Stock Biomass per Recruit
##
## YPR Version 2.7
##
## Date of Run: 12 Jul 2008 15:57
##
## Input Data File: C:\X-APPS\YPR_TOOLBOX\V27\GARM3-REVIEW\VPA_GARM3_BRP.DAT
##
```

Model Title: Georges\_Bank\_Haddock\_vpa\_Garm3\_rev flat5

Start Age = 1  
 End Age = 9 - Includes Plus Group with Maximum Age = 100

Fishing Mortality Upper Bound = 2.0000  
 Fishing Mortality Calculation Increment = 0.0001  
 Fishing Mortality Printing Increment = 0.01

Natural Mortality = 0.2000

Proportion Fishing Mortality Before Spawning = 0.2500  
 Proportion Natural Mortality Before Spawning = 0.2500

| Age | Selectivity F | Selectivity M | Stock Weight | Catch Weight | SSB Weight | Maturity |
|-----|---------------|---------------|--------------|--------------|------------|----------|
| 1   | 0.0139        | 1.0000        | 0.1126       | 0.1883       | 0.1126     | 0.0630   |
| 2   | 0.0298        | 1.0000        | 0.3633       | 0.5937       | 0.3633     | 0.4690   |
| 3   | 0.1484        | 1.0000        | 0.8029       | 1.0900       | 0.8029     | 0.9200   |
| 4   | 0.3958        | 1.0000        | 1.2505       | 1.3772       | 1.2505     | 0.9930   |
| 5   | 1.0000        | 1.0000        | 1.5597       | 1.6560       | 1.5597     | 0.9990   |
| 6   | 1.0000        | 1.0000        | 1.8176       | 1.8887       | 1.8176     | 1.0000   |
| 7   | 1.0000        | 1.0000        | 2.0522       | 2.0880       | 2.0522     | 1.0000   |
| 8   | 1.0000        | 1.0000        | 2.3401       | 2.3539       | 2.3401     | 1.0000   |
| 9   | 1.0000        | 1.0000        | 2.6388       | 2.6388       | 2.6388     | 1.0000   |

Reference Point F YPR SSBR TSBR Mean Age Mean GT Exp Spawn







|         |         |         |         |         |         |         |          |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|
| 1.83000 | 0.51584 | 0.65805 | 2.97950 | 1.66422 | 1.32722 | 1.09072 | 16.79752 | 2.31781 | 3.69278 | 0.87105 |
| 1.84000 | 0.51634 | 0.65799 | 2.97708 | 1.66088 | 1.32481 | 1.08754 | 16.74861 | 2.31601 | 3.68992 | 0.86895 |
| 1.85000 | 0.51684 | 0.65793 | 2.97468 | 1.65757 | 1.32241 | 1.08439 | 16.70008 | 2.31422 | 3.68708 | 0.86685 |
| 1.86000 | 0.51734 | 0.65787 | 2.97229 | 1.65429 | 1.32002 | 1.08126 | 16.65192 | 2.31244 | 3.68426 | 0.86477 |
| 1.87000 | 0.51784 | 0.65781 | 2.96991 | 1.65102 | 1.31765 | 1.07816 | 16.60411 | 2.31067 | 3.68147 | 0.86271 |
| 1.88000 | 0.51833 | 0.65774 | 2.96754 | 1.64778 | 1.31530 | 1.07508 | 16.55667 | 2.30891 | 3.67870 | 0.86066 |
| 1.89000 | 0.51882 | 0.65768 | 2.96519 | 1.64456 | 1.31296 | 1.07202 | 16.50958 | 2.30717 | 3.67594 | 0.85862 |
| 1.90000 | 0.51931 | 0.65761 | 2.96285 | 1.64137 | 1.31063 | 1.06899 | 16.46284 | 2.30544 | 3.67321 | 0.85659 |
| 1.91000 | 0.51980 | 0.65755 | 2.96053 | 1.63819 | 1.30832 | 1.06597 | 16.41644 | 2.30372 | 3.67051 | 0.85458 |
| 1.92000 | 0.52028 | 0.65748 | 2.95822 | 1.63504 | 1.30602 | 1.06298 | 16.37038 | 2.30201 | 3.66782 | 0.85258 |
| 1.93000 | 0.52076 | 0.65741 | 2.95592 | 1.63191 | 1.30374 | 1.06001 | 16.32466 | 2.30031 | 3.66515 | 0.85059 |
| 1.94000 | 0.52124 | 0.65734 | 2.95363 | 1.62880 | 1.30146 | 1.05707 | 16.27927 | 2.29862 | 3.66250 | 0.84862 |
| 1.95000 | 0.52171 | 0.65727 | 2.95136 | 1.62572 | 1.29920 | 1.05414 | 16.23420 | 2.29695 | 3.65987 | 0.84665 |
| 1.96000 | 0.52218 | 0.65720 | 2.94910 | 1.62265 | 1.29696 | 1.05123 | 16.18946 | 2.29528 | 3.65726 | 0.84470 |
| 1.97000 | 0.52265 | 0.65713 | 2.94685 | 1.61960 | 1.29473 | 1.04835 | 16.14503 | 2.29363 | 3.65467 | 0.84276 |
| 1.98000 | 0.52312 | 0.65705 | 2.94461 | 1.61657 | 1.29251 | 1.04549 | 16.10092 | 2.29198 | 3.65210 | 0.84084 |
| 1.99000 | 0.52359 | 0.65698 | 2.94238 | 1.61357 | 1.29030 | 1.04264 | 16.05712 | 2.29035 | 3.64955 | 0.83892 |
| 2.00000 | 0.52405 | 0.65690 | 2.94017 | 1.61058 | 1.28811 | 1.03982 | 16.01362 | 2.28873 | 3.64701 | 0.83702 |