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Faroe Plateau cod

Tables and Figures

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Tables

Table 2.2.1.2. Faroe Plateau (Sub-division VB1) COD. Nominal catch (tonnes) 1986-2001, as used in the assessment.

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Denmark	8	30	10	-	-	-	-	-	-	-	-	-	-
Faroe Islands	34,492	21,303	22,272	20,535	12,232	8,203	5,938	5,744	8,724	19,079	39,406	33,556	23,308
France	4	17	17	-	-	- [1]	3 [2]	1 [2]	-	2 [2]	1 [2]	-	- *
Germany	8	12	5	7	24	16	12	+	2 [2]	2	+	+	-
Norway	83	21	163	285	124	89	39	57	36	38	507	410	405
Greenland	-	-	-	-	-	-	-	-	-	-	-	-	-
UK (Engl. and Wales)	-	8	-	-	-	1	74	186	56	43	126	61 [2]	27 [2]
UK (Scotland)	-	-	-	-	-	-	-	-	-	-	-	-	-
United Kingdom	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	34,595	21,391	22,467	20,827	12,380	8,309	6,066	5,988	8,818	19,164	40,040	34,027	23,740

	1999	2000	2001 *
Denmark	-		
Faroe Islands	19,156	21,793 [3]	28,099 [3]
France [1)]	- *		
Germany	39	2	9 [2]
Norway	450	374 *	544
Greenland			
UK (Engl. and Wales)	51 [2]	18 [2]	
UK (Scotland)	-		
United Kingdom			338 [2]
Total	19,696	22,187	28,990

* Preliminary

[1)] Included in Vb2.

[2)] Reported as Vb.

[3)] Not officially reported.

Table 2.2.1.2. Faroe Plateau (Sub-division VB1) COD. Nominal catch (tonnes) 1986-2001, as used in the assessment.

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Officially reported	34,595	21,391	22,467	20,827	12,380	8,309	6,066	5,988	8,818	19,164	40,040	34,027	23,740
Faroese catches in IIA within Faroe area jurisdiction			715	1,229	1,090	351	154						
Expected misreporting/discard										3330			
French catches as reported to Faroese authorities				12	17								
Catches reported as Vb2:													
UK (E/W/NI)					-	-	+	1	1	-	-	-	-
UK (Scotland)					205	90	176	118	227	551	382	277	265
Used in the assessment	34,595	21,391	23,182	22,068	13,487	8,750	6,396	6,107	9,046	23,045	40,422	34,304	24,005

	1999	2000	2001 *
Officially reported	19,696	22,187	28,990
Faroese catches in IIA within Faroe area jurisdiction			
Expected misreporting/discard			
French catches as reported to Faroese authorities			
Catches reported as Vb2:			
UK (E/W/NI)	-	-	-
UK (Scotland)	210	245	-
Used in the assessment	19,906	22,432	28,990

*) Preliminary

Table 2.2.1.3. Faroe Plateau (sub-division Vb1) COD. The landings of faroese fleets (in percents) of total catch.

Year	Open boats	Longliners <100 GRT	Singletrawl <400 HP	Gill net	Jiggers	Singletrawl 400-1000 HP	Singletrawl >1000 HP	Pairtrawl <1000 HP	Pairtrawl >1000 HP	Longliners >100 GRT	Industrial trawlers	Others	Total Round.weig
1986	9.5	15.1	5.1	1.3	2.9	6.2	8.5	29.6	14.9	5.1	0.4	1.3	34,492
1987	9.9	14.8	6.2	0.5	2.9	6.7	8.0	26.0	14.5	9.9	0.5	0.1	21,303
1988	2.6	13.8	4.9	2.6	7.5	7.4	6.8	25.3	15.6	12.7	0.6	0.2	22,272
1989	4.4	29.0	5.7	3.2	9.3	5.7	5.5	10.5	8.3	17.7	0.7	0.0	20,535
1990	3.9	35.5	4.8	1.4	8.2	3.7	4.3	7.1	10.5	19.6	0.6	0.2	12,232
1991	4.3	31.6	7.1	2.0	8.0	3.4	4.7	8.3	12.9	17.2	0.6	0.1	8,203
1992	2.6	26.0	6.9	0.0	7.0	2.2	3.6	12.0	20.8	13.4	5.0	0.4	5,938
1993	2.2	16.0	15.4	0.0	9.0	4.1	3.6	14.2	21.7	12.6	0.8	0.4	5,744
1994	3.1	13.4	9.6	0.5	19.2	2.7	5.3	8.3	23.7	13.7	0.5	0.1	8,724
1995	4.2	17.9	6.5	0.3	24.9	4.1	4.7	6.4	12.3	18.5	0.1	0.0	19,079
1996	4.0	19.0	4.0	0.0	20.0	3.0	2.0	8.0	19.0	21.0	0.0	0.0	39,406
1997	3.1	28.4	4.4	0.5	9.8	5.1	2.9	4.8	11.3	29.7	0.0	0.1	33,556
1998	2.4	31.2	6.0	1.3	6.5	6.3	5.5	3.1	8.6	29.1	0.1	0.0	23,308
1999	2.7	24.0	5.4	2.3	5.4	5.2	11.8	6.4	14.5	21.9	0.4	0.1	19,156
2000	2.3	19.3	9.1	0.9	10.5	9.6	12.7	5.7	13.9	15.7	0.1	0.1	21,793
2001	3.7	28.3	7.4	0.2	15.6	6.4	6.4	5.2	9.2	17.8	0.0	0.0	28,099

Table 2.2.2.1. Faroe Plateau COD. Catch in numbers at age for each fleet in 2001. Numbers are in thousands and the catch is in tonnes, round weight.

Age\Fleet	Open boat	LL < 100 G	Gill netters	Jiggers	ST 0-399H	ST 400-10(	ST > 1000	PT < 1000	PT > 1000	LL > 100 G	Others	Foreign	Catch-at-age
2	231	1643	5	665	95	135	81	100	168	758	0	142	4024
3	165	1000	6	539	308	298	206	297	393	549	0	104	3867
4	95	617	2	363	203	161	96	116	163	289	0	55	2161
5	19	102	0	77	35	22	21	16	33	45	0	8	378
6	6	125	0	71	42	23	15	7	18	59	0	11	377
7	21	243	0	138	39	29	34	14	46	149	0	28	739
8	13	152	1	57	18	12	33	7	21	114	0	21	449
9	0	6	0	11	0	0	2	0	1	15	0	3	37
10+	0	0	0	0	0	0	1	0	0	4	0	0	5
Sum	550	3888	14	1921	740	680	489	557	843	1982	0	372	12037
Round.wei	1026	7955	47	4376	2074	1807	1786	1450	2584	5001	1	891	28990

Others include industrial bottom trawlers and longlining for Atlantic salmon and halibut.

Run as last year

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Run title : COD FAROE PLATEAU (ICES SUBDIVISION Vb1)                COD_IND7

 
    At 28/04/2002  23:39


       Table  1    Catch numbers at age                          Numbers*10**-3
       YEAR,       1961,

       AGE
         2,         3093,
         3,         2686,
         4,         1331,
         5,         1066,
         6,          232,
         7,          372,
         8,           78,
         9,           29,
        +gp,           0,
0    TOTALNUM,      8887,
     TONSLAND,     21598,
     SOPCOF %,        91,


       Table  1    Catch numbers at age                          Numbers*10**-3
       YEAR,       1962,    1963,    1964,    1965,    1966,    1967,    1968,    1969,    1970,    1971,

       AGE
         2,         4424,    4110,    2033,     852,    1337,    1609,    1529,     878,     402,     328,
         3,         2500,    3958,    3021,    3230,     970,    2690,    3322,    3106,    1163,     757,
         4,         1255,    1280,    2300,    2564,    2080,     860,    2663,    3300,    2172,     821,
         5,          855,     662,     630,    1416,    1339,    1706,     945,    1538,    1685,    1287,
         6,          481,     284,     350,     363,     606,     847,    1226,     477,     752,    1451,
         7,           93,     204,     158,     155,     197,     309,     452,     713,     244,     510,
         8,           94,      48,      79,      48,     104,      64,     105,     203,     300,     114,
         9,           22,      30,      41,      63,      33,      27,      11,      92,      44,     179,
        +gp,           0,       0,       0,       0,       0,       0,       0,       0,       0,       0,
0    TOTALNUM,      9724,   10576,    8612,    8691,    6666,    8112,   10253,   10307,    6762,    5447,
     TONSLAND,     20967,   22215,   21078,   24212,   20418,   23562,   29930,   32371,   24183,   23010,
     SOPCOF %,        94,      96,      98,     113,     109,     102,     106,     109,      99,     123,
1


       Table  1    Catch numbers at age                          Numbers*10**-3
       YEAR,       1972,    1973,    1974,    1975,    1976,    1977,    1978,    1979,    1980,    1981,

       AGE
         2,          875,     723,    2161,    2584,    1497,     425,     555,     575,    1129,     646,
         3,         1176,    3124,    1266,    5689,    4158,    3282,    1219,    1732,    2263,    4137,
         4,          810,    1590,    1811,    2157,    3799,    6844,    2643,    1673,    1461,    1981,
         5,          596,     707,     934,    2211,    1380,    3718,    3216,    1601,     895,     947,
         6,         1021,     384,     563,     813,    1427,     788,    1041,    1906,     807,     582,
         7,          596,     312,     452,     295,     617,    1160,     268,     493,     832,     487,
         8,          154,     227,     149,     190,     273,     239,     201,     134,     339,     527,
         9,           25,     120,     141,     118,     120,     134,      66,      87,      42,     123,
        +gp,           0,      97,      91,     150,     186,       9,      56,      38,      18,      55,
0    TOTALNUM,      5253,    7284,    7568,   14207,   13457,   16599,    9265,    8239,    7786,    9485,
     TONSLAND,     18727,   22228,   24581,   36775,   39799,   34927,   26585,   23112,   20513,   22963,
     SOPCOF %,       125,     101,     101,      97,      97,      70,     100,      98,     106,     104,


       Table  1    Catch numbers at age                          Numbers*10**-3
       YEAR,       1982,    1983,    1984,    1985,    1986,    1987,    1988,    1989,    1990,    1991,

       AGE
         2,         1139,    2149,    4396,     998,     210,     257,     509,    2237,     243,     192,
         3,         1965,    5771,    5234,    9484,    3586,    1362,    2122,    2151,    2849,     451,
         4,         3073,    2760,    3487,    3795,    8462,    2611,    1945,    2187,    1481,    2152,
         5,         1286,    2746,    1461,    1669,    2373,    3083,    1484,    1121,     852,     622,
         6,          471,    1204,     912,     770,     907,     812,    2178,    1026,     404,     303,
         7,          314,     510,     314,     872,     236,     224,     492,     997,     294,     142,
         8,          169,     157,      82,     309,     147,      68,     168,     220,     291,      93,
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         9,          254,     104,      34,      65,      47,      69,      33,      61,      50,      53,
        +gp,         122,     102,      66,      80,      38,      26,      25,       9,      26,      24,
0    TOTALNUM,      8793,   15503,   15986,   18042,   16006,    8512,    8956,   10009,    6490,    4032,
     TONSLAND,     21489,   38133,   36979,   39484,   34595,   21391,   23182,   22068,   13487,    8750,
     SOPCOF %,       100,      97,      97,      95,      96,      96,     101,      98,      99,     106,


       Table  1    Catch numbers at age                              Numbers*10**-3
       YEAR,       1992,    1993,    1994,    1995,    1996,    1997,    1998,    1999,    2000,    2001,

       AGE
         2,          205,     120,     573,    2615,     351,     200,     455,    1295,    2236,    4032,
         3,          455,     802,     788,    2716,    5164,    1278,     745,    1085,    2820,    3874,
         4,          466,     603,    1062,    2008,    4608,    6710,    1558,     873,     836,    2165,
         5,          911,     222,     532,    1012,    1542,    3731,    5140,    1210,     456,     379,
         6,          293,     329,     125,     465,    1526,     657,    1529,    2433,     721,     377,
         7,          132,      96,     176,     118,     596,     639,     159,     480,     865,     740,
         8,           53,      33,      39,     175,     147,     170,     118,      65,     111,     451,
         9,           30,      22,      23,      44,     347,      51,      28,      19,       8,      38,
        +gp,          34,      25,      16,      49,      47,     120,      25,       8,       1,       6,
0    TOTALNUM,      2579,    2252,    3334,    9202,   14328,   13556,    9757,    7468,    8054,   12062,
     TONSLAND,      6396,    6107,    9046,   23045,   40422,   34304,   24005,   20013,   22496,   29047,
     SOPCOF %,       102,     102,     101,     101,      99,     101,     103,     101,     104,     100,
1


    Run title : COD FAROE PLATEAU (ICES SUBDIVISION Vb1)                COD_IND7

    At 28/04/2002  23:39


       Table  2    Catch weights at age (kg)
       YEAR,       1961,

       AGE
         2,       1.0800,
         3,       2.2200,
         4,       3.4500,
         5,       4.6900,
         6,       5.5200,
         7,       7.0900,
         8,       9.9100,
         9,       8.0300,
        +gp,     10.2700,
0    SOPCOFAC,     .9068,




       Table  2    Catch weights at age (kg)
       YEAR,       1962,    1963,    1964,    1965,    1966,    1967,    1968,    1969,    1970,    1971,

       AGE
         2,       1.0000,  1.0400,   .9700,   .9200,   .9800,   .9600,   .8800,  1.0900,   .9600,   .8100,
         3,       2.2700,  1.9400,  1.8300,  1.4500,  1.7700,  1.9300,  1.7200,  1.8000,  2.2300,  1.8000,
         4,       3.3500,  3.5100,  3.1500,  2.5700,  2.7500,  3.1300,  3.0700,  2.8500,  2.6900,  2.9800,
         5,       4.5800,  4.6000,  4.3300,  3.7800,  3.5100,  4.0400,  4.1200,  3.6700,  3.9400,  3.5800,
         6,       4.9300,  5.5000,  6.0800,  5.6900,  4.8000,  4.7800,  4.6500,  4.8900,  5.1400,  3.9400,
         7,       9.0800,  6.7800,  7.0000,  7.3100,  6.3200,  6.2500,  5.5000,  5.0500,  6.4600,  4.8700,
         8,       6.5900,  8.7100,  6.2500,  7.9300,  7.5100,  7.0000,  7.6700,  7.4100, 10.3100,  6.4800,
         9,       6.6600, 11.7200,  6.1900,  8.0900, 10.3400, 11.0100, 10.9500,  8.6600,  7.3900,  6.3700,
        +gp,     10.2700, 10.8200, 14.3900, 11.1100, 11.6500, 10.6900,  9.2800, 14.3900,  9.3400, 10.2200,
0    SOPCOFAC,     .9444,   .9573,   .9824,  1.1262,  1.0905,  1.0224,  1.0598,  1.0851,   .9943,  1.2264,
1


       Table  2    Catch weights at age (kg)
       YEAR,       1972,    1973,    1974,    1975,    1976,    1977,    1978,    1979,    1980,    1981,

       AGE
         2,        .6600,  1.1100,  1.0800,   .7900,   .9400,   .8700,  1.1120,   .8970,   .9270,  1.0800,
         3,       1.6100,  2.0000,  2.2200,  1.7900,  1.7200,  1.7900,  1.3850,  1.6820,  1.4320,  1.4700,
         4,       2.5800,  3.4100,  3.4400,  2.9800,  2.8400,  2.5300,  2.1400,  2.2110,  2.2200,  2.1800,
         5,       3.2600,  3.8900,  4.8000,  4.2600,  3.7000,  3.6800,  3.1250,  3.0520,  3.1050,  3.2100,
         6,       4.2900,  5.1000,  5.1800,  5.4600,  5.2600,  4.6500,  4.3630,  3.6420,  3.5390,  3.7000,
         7,       4.9500,  5.1000,  5.8800,  6.2500,  6.4300,  5.3400,  5.9270,  4.7190,  4.3920,  4.2400,
         8,       6.4800,  6.1200,  6.1400,  7.5100,  6.3900,  6.2300,  6.3480,  7.2720,  6.1000,  4.4300,
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          9,       6.9000,  8.6600,  8.6300,  7.3900,  8.5500,  8.3800,  8.7150,  8.3680,  7.6030,  6.6900,
         +gp,      11.5500,  7.5700,  7.6200,  8.1700, 13.6200, 10.7200, 12.3000, 13.0420,  9.6680, 10.0000,
0    SOPCOFAC,    1.2481,  1.0134,  1.0134,   .9709,   .9653,   .7012,   .9964,   .9843,  1.0584,  1.0408,


        Table  2    Catch weights at age (kg)
        YEAR,       1982,    1983,    1984,    1985,    1986,    1987,    1988,    1989,    1990,    1991,

        AGE
          2,       1.2300,  1.3380,  1.1950,   .9050,  1.0990,  1.0930,  1.0610,  1.0100,   .9450,   .7790,
          3,       1.4130,  1.9500,  1.8880,  1.6580,  1.4590,  1.5170,  1.7490,  1.5970,  1.3000,  1.2710,
          4,       2.1380,  2.4030,  2.9800,  2.6260,  2.0460,  2.1600,  2.3000,  2.2000,  1.9590,  1.5700,
          5,       3.1070,  3.1070,  3.6790,  3.4000,  2.9360,  2.7660,  2.9140,  2.9340,  2.5310,  2.5240,
          6,       4.0120,  4.1100,  4.4700,  3.7520,  3.7860,  3.9080,  3.1090,  3.4680,  3.2730,  3.1850,
          7,       5.4420,  5.0200,  5.4880,  4.2200,  4.6990,  5.4610,  3.9760,  3.7500,  4.6520,  4.0860,
          8,       5.5630,  5.6010,  6.4660,  4.7390,  5.8930,  6.3410,  4.8960,  4.6820,  4.7580,  5.6560,
          9,       5.2160,  8.0130,  6.6280,  6.5110,  9.7000,  8.5090,  7.0870,  6.1400,  6.7040,  5.9730,
         +gp,      6.7070,  8.0310, 10.9810, 10.9810,  8.8150,  9.8110,  8.2870,  9.1560,  8.6890,  8.1470,
0    SOPCOFAC,    1.0030,   .9695,   .9685,   .9491,   .9625,   .9642,  1.0061,   .9774,   .9897,  1.0600,


        Table  2    Catch weights at age (kg)
        YEAR,       1992,    1993,    1994,    1995,    1996,    1997,    1998,    1999,    2000,    2001,

        AGE
          2,        .9890,  1.1550,  1.1940,  1.2180,  1.0160,   .9010,  1.0040,  1.0500,  1.4160,  1.1640,
          3,       1.3640,  1.7040,  1.8430,  1.9860,  1.7370,  1.3410,  1.4170,  1.5860,  2.1700,  2.0760,
          4,       1.7790,  2.4210,  2.6130,  2.6220,  2.7450,  1.9580,  1.8020,  2.3500,  3.1870,  3.0530,
          5,       2.3120,  3.1320,  3.6540,  3.9250,  3.8000,  3.0120,  2.2800,  2.7740,  3.7950,  3.9760,
          6,       3.4770,  3.7230,  4.5840,  5.1800,  4.4550,  4.1580,  3.4780,  3.2140,  4.0480,  4.3940,
          7,       4.5450,  4.9710,  4.9760,  6.0790,  4.9780,  4.4910,  5.4330,  5.4960,  4.5770,  4.8710,
          8,       6.2750,  6.1590,  7.1460,  6.2410,  5.2700,  5.3120,  5.8510,  8.2760,  8.1820,  5.5640,
          9,       7.6190,  7.6140,  8.5640,  7.7820,  5.5930,  6.1720,  7.9700,  9.1290, 11.8950,  7.2800,
         +gp,      9.7250,  9.5870,  8.7960,  8.6270,  7.4820,  7.0560,  7.3630, 10.6520, 13.0090, 12.7780,
0    SOPCOFAC,    1.0202,  1.0225,  1.0141,  1.0108,   .9940,  1.0108,  1.0294,  1.0137,  1.0427,  1.0024,
1

    Run title : COD FAROE PLATEAU (ICES SUBDIVISION Vb1)                COD_IND7

    At 28/04/2002  23:39


        Table  5    Proportion mature at age
        YEAR,       1961,

        AGE
          2,        .1700,
          3,        .6400,
          4,        .8700,
          5,        .9500,
          6,       1.0000,
          7,       1.0000,
          8,       1.0000,
          9,       1.0000,
         +gp,      1.0000,


        Table  5    Proportion mature at age
        YEAR,       1962,    1963,    1964,    1965,    1966,    1967,    1968,    1969,    1970,    1971,

        AGE
          2,        .1700,   .1700,   .1700,   .1700,   .1700,   .1700,   .1700,   .1700,   .1700,   .1700,
          3,        .6400,   .6400,   .6400,   .6400,   .6400,   .6400,   .6400,   .6400,   .6400,   .6400,
          4,        .8700,   .8700,   .8700,   .8700,   .8700,   .8700,   .8700,   .8700,   .8700,   .8700,
          5,        .9500,   .9500,   .9500,   .9500,   .9500,   .9500,   .9500,   .9500,   .9500,   .9500,
          6,       1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,
          7,       1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,
          8,       1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,
          9,       1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,
         +gp,      1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,  1.0000,
1


        Table  5    Proportion mature at age
        YEAR,       1972,    1973,    1974,    1975,    1976,    1977,    1978,    1979,    1980,    1981,
```

AGE										
2,	.1700,	.1700,	.1700,	.1700,	.1700,	.1700,	.1700,	.1700,	.1700,	.1700,
3,	.6400,	.6400,	.6400,	.6400,	.6400,	.6400,	.6400,	.6400,	.6400,	.6400,
4,	.8700,	.8700,	.8700,	.8700,	.8700,	.8700,	.8700,	.8700,	.8700,	.8700,
5,	.9500,	.9500,	.9500,	.9500,	.9500,	.9500,	.9500,	.9500,	.9500,	.9500,
6,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,
7,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,
8,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,
9,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,
+gp,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,

Table 5 Proportion mature at age

YEAR,	1982,	1983,	1984,	1985,	1986,	1987,	1988,	1989,	1990,	1991,
AGE										
2,	.1700,	.0300,	.0700,	.0000,	.0000,	.0000,	.0600,	.0500,	.0000,	.0000,
3,	.6400,	.7100,	.9600,	.5000,	.3800,	.6700,	.7200,	.5400,	.6800,	.7200,
4,	.8700,	.9300,	.9800,	.9600,	.9300,	.9100,	.9000,	.9800,	.9000,	.8600,
5,	.9500,	.9400,	.9700,	.9600,	1.0000,	1.0000,	.9700,	1.0000,	.9900,	1.0000,
6,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	.9600,	1.0000,
7,	1.0000,	1.0000,	1.0000,	1.0000,	.9600,	1.0000,	1.0000,	1.0000,	.9800,	1.0000,
8,	1.0000,	1.0000,	1.0000,	1.0000,	.9400,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,
9,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,
+gp,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,

Table 5 Proportion mature at age

YEAR,	1992,	1993,	1994,	1995,	1996,	1997,	1998,	1999,	2000,	2001,
AGE										
2,	.0600,	.0300,	.0500,	.0800,	.0400,	.0700,	.0000,	.0200,	.0200,	.0700,
3,	.5000,	.7300,	.8900,	.5300,	.4400,	.7500,	.7400,	.4300,	.3900,	.4700,
4,	.8200,	.7800,	.9800,	.5500,	.7500,	.9500,	.9300,	.8800,	.7000,	.8600,
5,	.9800,	.9100,	.9900,	.7400,	.8700,	.9800,	.9900,	.9800,	.9200,	.9400,
6,	1.0000,	.9900,	1.0000,	.9700,	.9400,	1.0000,	1.0000,	1.0000,	.9900,	1.0000,
7,	1.0000,	1.0000,	.9800,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,
8,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,
9,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,
+gp,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,	1.0000,

1

Lowestoft VPA Version 3.1

28/04/2002 23:34

Extended Survivors Analysis

COD FAROE PLATEAU (ICES SUBDIVISION Vb1) COD_IND7

CPUE data from file C8L54.dat

Catch data for 41 years. 1961 to 2001. Ages 2 to 10.

Fleet,	First year,	Last year,	First age ,	Last age	Alpha,	Beta
CUBA TRAWLERS	1985,	2001,	2,	7,	.000,	1.000
LONGLINERS	1986,	2001,	3,	6,	.000,	1.000

Time series weights :

Tapered time weighting applied
Power = 3 over 20 years

Catchability analysis :

Catchability dependent on stock size for ages < 3

Regression type = C
Minimum of 5 points used for regression
Survivor estimates shrunk to the population mean for ages < 3

Catchability independent of age for ages >= 6

Terminal population estimation :

Survivor estimates shrunk towards the mean F
of the final 5 years or the 5 oldest ages.

S.E. of the mean to which the estimates are shrunk = 2.000

Minimum standard error for population
estimates derived from each fleet = .300

Prior weighting not applied

Tuning had not converged after 80 iterations

Total absolute residual between iterations
79 and 80 = .00121

Final year F values

Age	2,	3,	4,	5,	6,	7,	8,	9
Iteration 79,	.1459,	.1931,	.5122,	.6042,	1.2565,	1.8235,	1.2605,	.0733
Iteration 80,	.1459,	.1931,	.5122,	.6041,	1.2561,	1.8231,	1.2606,	.0733

1

Regression weights
, .751, .820, .877, .921, .954, .976, .990, .997, 1.000, 1.000

Fishing mortalities

Age,	1992,	1993,	1994,	1995,	1996,	1997,	1998,	1999,	2000,	2001
2,	.020,	.012,	.023,	.071,	.034,	.046,	.105,	.107,	.080,	.146
3,	.099,	.100,	.103,	.147,	.195,	.168,	.243,	.391,	.356,	.193
4,	.324,	.185,	.186,	.410,	.398,	.419,	.318,	.501,	.598,	.512
5,	.386,	.252,	.247,	.272,	.645,	.661,	.668,	.439,	.536,	.604
6,	.425,	.233,	.219,	.356,	.859,	.637,	.633,	.797,	.512, 1.256	
7,	.422,	.238,	.188,	.332, 1.104,		1.191,	.306,	.414,	.754, 1.823	
8,	.354,	.175,	.143,	.290,	.912, 1.213,		.727,	.197,	.156, 1.261	
9,	.425,	.243,	.177,	.239, 1.680,		.998,	.645,	.236,	.033,	.073

1
XSA population numbers (Thousands)

YEAR ,	2,	AGE 3,	4,	5,	6,	7,	8,
9,							
1992 ,	1.16E+04,	5.32E+03,	1.86E+03,	3.14E+03,	9.35E+02,	4.24E+02,	1.96E+02, 9.58E+01,
1993 ,	1.10E+04,	9.32E+03,	3.95E+03,	1.10E+03,	1.75E+03,	5.00E+02,	2.27E+02, 1.13E+02,
1994 ,	2.74E+04,	8.93E+03,	6.90E+03,	2.69E+03,	7.02E+02,	1.13E+03,	3.23E+02, 1.56E+02,
1995 ,	4.22E+04,	2.19E+04,	6.60E+03,	4.69E+03,	1.72E+03,	4.62E+02,	7.69E+02, 2.29E+02,
1996 ,	1.15E+04,	3.22E+04,	1.55E+04,	3.59E+03,	2.93E+03,	9.85E+02,	2.72E+02, 4.71E+02,
1997 ,	4.88E+03,	9.13E+03,	2.17E+04,	8.52E+03,	1.54E+03,	1.01E+03,	2.67E+02, 8.93E+01,
1998 ,	5.03E+03,	3.82E+03,	6.32E+03,	1.17E+04,	3.60E+03,	6.67E+02,	2.52E+02, 6.51E+01,
1999 ,	1.41E+04,	3.71E+03,	2.45E+03,	3.77E+03,	4.89E+03,	1.57E+03,	4.02E+02, 9.99E+01,
2000 ,	3.23E+04,	1.04E+04,	2.05E+03,	1.22E+03,	1.99E+03,	1.81E+03,	8.48E+02, 2.71E+02,
2001 ,	3.28E+04,	2.44E+04,	5.97E+03,	9.24E+02,	5.83E+02,	9.75E+02,	6.96E+02, 5.94E+02,

Estimated population abundance at 1st Jan 2002

, 0.00E+00, 2.32E+04, 1.65E+04, 2.93E+03, 4.13E+02, 1.36E+02, 1.29E+02, 1.61E+02,

Taper weighted geometric mean of the VPA populations:

, 1.32E+04, 9.38E+03, 5.63E+03, 3.02E+03, 1.67E+03, 8.41E+02, 3.65E+02, 1.58E+02,

Standard error of the weighted Log(VPA populations) :

, .7814, .7521, .7402, .7910, .6736, .5140, .5104, .6940,
1

Log catchability residuals.

Fleet : CUBA TRAWLERS

Age ,	1985,	1986,	1987,	1988,	1989,	1990,	1991
2 ,	-.10,	.31,	-.22,	-.18,	-.20,	.35,	-.70
3 ,	.01,	.10,	-.25,	-.08,	-.09,	-.07,	-.75
4 ,	-.27,	.08,	-.17,	-.33,	.11,	.07,	-.60
5 ,	-.43,	.17,	-.27,	-.51,	.23,	-.06,	-.24
6 ,	-.35,	.29,	.02,	-.31,	.27,	-.13,	-.23
7 ,	-.08,	.28,	-.13,	-.18,	.30,	-.11,	-.05

Age ,	1992,	1993,	1994,	1995,	1996,	1997,	1998,	1999,	2000,	2001
2 ,	-.87,	-.21,	-.18,	-.32,	.52,	.33,	.00,	.17,	.34,	.40
3 ,	-1.06,	-.25,	-.01,	-.46,	.71,	-.37,	.16,	.94,	.45,	.24
4 ,	-.29,	-.09,	-.45,	.33,	.47,	.01,	-.47,	.46,	.54,	-.12

```
    5 ,  -.09,   .06,   .37,  -.05,   .62,   .51,  -.47,  -.30,  -.02,  -.18
    6 ,   .07,  -.28,   .28,   .14,   .27,   .33,   .05,   .01,  -.44,  -.22
    7 ,   .06,  -.01,   .00,  -.05,   .03,   .30,  -.29,  -.09,  -.16,   .41
```

Mean log catchability and standard error of ages with catchability
independent of year class strength and constant w.r.t. time

Age ,	3,	4,	5,	6,	7
Mean Log q,	-14.6360,	-13.5999,	-13.2357,	-13.0764,	-13.0764,
S.E(Log q),	.5454,	.3823,	.3441,	.2562,	.2057,

Regression statistics :

Ages with q dependent on year class strength

Age,	Slope ,	t-value ,	Intercept,	RSquare,	No Pts,	Reg s.e,	Mean Log q
2,	.48,	3.135,	13.25,	.78,	17,	.43,	-17.41,

Ages with q independent of year class strength and constant w.r.t. time.

Age,	Slope ,	t-value ,	Intercept,	RSquare,	No Pts,	Reg s.e,	Mean Q
3,	.88,	.610,	13.97,	.72,	17,	.49,	-14.64,
4,	1.06,	-.343,	13.89,	.77,	17,	.42,	-13.60,
5,	1.00,	-.024,	13.25,	.84,	17,	.36,	-13.24,
6,	.97,	.217,	12.93,	.88,	17,	.26,	-13.08,
7,	.96,	.360,	12.79,	.87,	17,	.20,	-13.06,

1

Fleet : LONGLINERS

Age ,	1985,	1986,	1987,	1988,	1989,	1990,	1991
2 ,	No data for this fleet at this age						
3 ,	99.99,	-.55,	-1.49,	.41,	.78,	.52,	-.20
4 ,	99.99,	-.31,	-.33,	.35,	.63,	.37,	.33
5 ,	99.99,	.00,	-.16,	.31,	.55,	.54,	.23
6 ,	99.99,	.09,	.26,	.15,	.66,	.51,	-.01
7 ,	No data for this fleet at this age						

Age ,	1992,	1993,	1994,	1995,	1996,	1997,	1998,	1999,	2000,	2001
2 ,	No data for this fleet at this age									
3 ,	-.51,	-.08,	.14,	-.42,	-.17,	-.15,	.58,	.56,	.24,	-.52
4 ,	.04,	.18,	-.86,	-.26,	.03,	.43,	.02,	.12,	-.28,	-.21
5 ,	-.06,	.18,	-.60,	-.59,	.44,	.77,	.64,	-.47,	-.77,	-.42
6 ,	-.20,	-.08,	-.82,	-.45,	.68,	.60,	.33,	-.19,	-.99,	.21
7 ,	No data for this fleet at this age									

Mean log catchability and standard error of ages with catchability
independent of year class strength and constant w.r.t. time

Age ,	3,	4,	5,	6
Mean Log q,	-14.5357,	-13.9296,	-13.6892,	-13.3097,
S.E(Log q),	.4919,	.3718,	.5449,	.5376,

Regression statistics :

Ages with q independent of year class strength and constant w.r.t. time.

Age, Slope , t-value , Intercept, RSquare, No Pts, Reg s.e, Mean Q

 3,   1.39,   -1.470,   16.64,   .59,   16,   .65, -14.54,
 4,   .96,   .269,   13.71,   .81,   16,   .37, -13.93,
 5,   .76,   1.649,   12.32,   .83,   16,   .38, -13.69,
 6,   .89,   .484,   12.68,   .67,   16,   .50, -13.31,

1

Terminal year survivor and F summaries :

Age 2   Catchability dependent on age and year class strength

Year class = 1999

Fleet,	Estimated, Survivors,	Int, s.e,	Ext, s.e,	Var, Ratio,	N, Scaled, Weights,	Estimated F
CUBA TRAWLERS	34518.,	.489,	.000,	.00,	1, .641,	.100
LONGLINERS	1.,	.000,	.000,	.00,	0, .000,	.000
P shrinkage mean	9378.,	.75,,,,			.314,	.329
F shrinkage mean	47061.,	2.00,,,,			.044,	.075

Weighted prediction :

Survivors, at end of year,	Int, s.e,	Ext, s.e,	N,	Var, Ratio,	F
23237.,	.40,	.52,	3,	1.287,	.146

Age 3   Catchability constant w.r.t. time and dependent on age

Year class = 1998

Fleet,	Estimated, Survivors,	Int, s.e,	Ext, s.e,	Var, Ratio,	N, Scaled, Weights,	Estimated F
CUBA TRAWLERS	22201.,	.369,	.049,	.13,	2, .630,	.147
LONGLINERS	9778.,	.512,	.000,	.00,	1, .342,	.306
F shrinkage mean	11208.,	2.00,,,,			.027,	.272

Weighted prediction :

Survivors, at end of year,	Int, s.e,	Ext, s.e,	N,	Var, Ratio,	F
16458.,	.30,	.23,	4,	.766,	.193

1

Age 4   Catchability constant w.r.t. time and dependent on age

Year class = 1997

Fleet,	Estimated, Survivors,	Int, s.e,	Ext, s.e,	Var, Ratio,	N, Scaled, Weights,	Estimated F
CUBA TRAWLERS	3118.,	.270,	.156,	.58,	3, .543,	.487
LONGLINERS	2691.,	.313,	.206,	.66,	2, .438,	.547
F shrinkage mean	3446.,	2.00,,,,			.020,	.450

Weighted prediction :

Survivors, at end of year,	Int, s.e,	Ext, s.e,	N, ,	Var, Ratio,	F
2929.,	.20,	.10,	6,	.493,	.512

Age 5 Catchability constant w.r.t. time and dependent on age

Year class = 1996

Fleet,	Estimated, Survivors,	Int, s.e,	Ext, s.e,	Var, Ratio,	N, ,	Scaled, Weights,	Estimated F
CUBA TRAWLERS	461.,	.234,	.224,	.96,	4,	.617,	.556
LONGLINERS	343.,	.290,	.245,	.84,	3,	.363,	.693
F shrinkage mean	422.,	2.00,,,,				.020,	.595

Weighted prediction :

Survivors, at end of year,	Int, s.e,	Ext, s.e,	N, ,	Var, Ratio,	F
413.,	.18,	.15,	8,	.815,	.604

1
Age 6 Catchability constant w.r.t. time and dependent on age

Year class = 1995

Fleet,	Estimated, Survivors,	Int, s.e,	Ext, s.e,	Var, Ratio,	N, ,	Scaled, Weights,	Estimated F
CUBA TRAWLERS	130.,	.195,	.118,	.61,	5,	.683,	1.290
LONGLINERS	138.,	.276,	.252,	.91,	4,	.287,	1.244
F shrinkage mean	340.,	2.00,,,,				.030,	.694

Weighted prediction :

Survivors, at end of year,	Int, s.e,	Ext, s.e,	N, ,	Var, Ratio,	F
136.,	.17,	.12,	10,	.698,	1.256

Age 7 Catchability constant w.r.t. time and age (fixed at the value for age) 6

Year class = 1994

Fleet,	Estimated, Survivors,	Int, s.e,	Ext, s.e,	Var, Ratio,	N, ,	Scaled, Weights,	Estimated F
CUBA TRAWLERS	130.,	.170,	.185,	1.09,	6,	.767,	1.816
LONGLINERS	84.,	.262,	.243,	.93,	4,	.184,	2.199
F shrinkage mean	587.,	2.00,,,,				.049,	.761

Weighted prediction :

Survivors, at end of year,	Int, s.e,	Ext, s.e,	N, ,	Var, Ratio,	F
129.,	.17,	.18,	11,	1.047,	1.823

1
Age 8 Catchability constant w.r.t. time and age (fixed at the value for age) 6

Year class = 1993

Fleet,	Estimated,	Int,	Ext,	Var,	N,	Scaled,	Estimated

```
     ,                 Survivors,    s.e,       s.e,   Ratio,    , Weights,    F
CUBA TRAWLERS        ,       143.,   .190,       .079,    .42,   6,  .783,    1.351
LONGLINERS           ,       187.,   .281,       .206,    .73,   4,  .143,    1.156

  F shrinkage mean   ,       449.,   2.00,,,,                        .075,     .647

Weighted prediction :

Survivors,        Int,      Ext,    N,    Var,     F
at end of year,   s.e,      s.e,     ,   Ratio,
      161.,       .21,      .12,   11,    .557,  1.261


Age  9   Catchability constant w.r.t. time and age (fixed at the value for age)  6

Year class = 1992

Fleet,                 Estimated,    Int,       Ext,    Var,    N, Scaled,  Estimated
     ,                 Survivors,    s.e,       s.e,   Ratio,    , Weights,    F
CUBA TRAWLERS        ,       464.,   .183,       .097,    .53,   6,  .818,     .071
LONGLINERS           ,       571.,   .281,       .207,    .74,   4,  .163,     .058

  F shrinkage mean   ,        17.,   2.00,,,,                        .018,    1.104

Weighted prediction :

Survivors,        Int,      Ext,    N,    Var,     F
at end of year,   s.e,      s.e,     ,   Ratio,
      452.,       .16,      .16,   11,   1.019,   .073


1
1
```

```
FAROE PLATEAU COD (ICES SUBDIVISION VB1)        SUC8L5.txt
103
CUBA TRAWLERS
1985 2001
1 1 0.0 1.0
2 7
   3429    1.6    41.5    24.5    11       4.4    5.3
   3726    1.2    18.6    69.8    27.1    11.6    3.1
   6401    0.8    13.7    37.3    56.6    20.2    5.4
   6669    0.7    17.4    21.1    19.8    30.2    7.3
   5975    1.7    12.8    26.6    20.8    18.2   17.3
   6679    0.3    22.7    24.3    15       7.7    4.7
   5488    0.1     2.6    16.8    10.3     5.6    3.1
   4997    0.2     3.5     6.7    19.3     7.8    3.5
   6222    0.9    17.2    23.1    10.5    14      5.2
   7798    8.1    26.2    35.4    43.5    12.4   15.3
   9391   17.7    48.4    80.3    59.7    29.9    6.7
  10759    7.9   255.4   250.2    86.1    53.5   12.8
  14818    1.2    34.6   300.2   251.5    45.1   22.9
  12121    0.5    19.3    46.5   105      65.4    9.9
  13298    6.9    41.8    46.1    49      87.1   29.8
  11646   50.1    63.9    34.9    17.5    22.4   24.2
  12582   60.9   142.6    59.1    11.9     6.5   16.6
LONGLINERS
1986 2001
1 1 0.0 1.0
3 6
   6628    19.1    60.2    25.7    13.4
   8023     5.5    28.8    50.7    25.6
   8013    37.7    36.1    34.2    45.2
  15809    89.7    85.1    47.8    56.3
  23273   157.2    81.8    60.8    40.2
  17928    16.4   100.6    34.1    18.1
  18753    25.2    25.2    47.8    17.7
  18437    66.5    64.8    22.2    40.1
  16633    71.6    35.8    22.5     7
  19469   115.5    66.5    45.7    27.1
  26874   294.5   287.5   115.2   158.3
  37378   119.3   824.3   525.7   117.8
  39275   105     176.4   660.2   220.9
  33744    80.3    59.7    66.8   143.6
  39034   193      37.3    17.6    34.3
  36708   214     112.8    17.4    23
SUMMER SURVEY
1996 2001
1 1 0.6 0.7
2 8
 200  849   5942.8  3637.4  1357.7  674.8  242.2  57.6
 200  623.9 1853.4  6359.6  1597.1  177.4  144.6  35.4
 200  560    572.9  1160.5  3668.8  978.2   52.5  38.3
 200  400   1341.7   818.7   796.7 1363.9  267    42.3
 200 1346.4 1129.9   701.5   317.7  435.7  610.6  35.5
 200 3554.6 2460    1501.2   420.8  241.2  290.5 242.7
```

Table 8 Fishing mortality (F) at age

YEAR,	1962,	1963,	1964,	1965,	1966,	1967,	1968,	1969,	1970,	1971,
AGE										
2,	.2701,	.2534,	.1086,	.1209,	.0829,	.0789,	.1010,	.1099,	.0530,	.0309,
3,	.4982,	.4138,	.2997,	.2518,	.1969,	.2389,	.2318,	.3063,	.2081,	.1337,
4,	.4838,	.5172,	.4523,	.4498,	.2552,	.2687,	.3949,	.3806,	.3654,	.2225,
5,	.7076,	.5124,	.5229,	.5622,	.4499,	.3442,	.5339,	.4180,	.3409,	.3845,
6,	.5569,	.5405,	.5659,	.6604,	.5016,	.5779,	.4472,	.5709,	.3709,	.5572,
7,	.3662,	.4879,	.6677,	.5305,	.9680,	.5203,	.7132,	.5118,	.6559,	.4651,
8,	.6826,	.3269,	.3531,	.4345,	.8520,	1.0438,	.3331,	.8457,	.4208,	.7528,
9,	.5641,	.4806,	.5164,	.5318,	.6106,	.5556,	.4882,	.5499,	.4339,	.4800,
+gp,	.5641,	.4806,	.5164,	.5318,	.6106,	.5556,	.4882,	.5499,	.4339,	.4800,
0 FBAR 3- 7,	.5226,	.4944,	.5017,	.4909,	.4743,	.3900,	.4642,	.4375,	.3882,	.3526,

1

Table 8 Fishing mortality (F) at age

YEAR,	1972,	1973,	1974,	1975,	1976,	1977,	1978,	1979,	1980,	1981,
AGE										
2,	.0464,	.0657,	.0816,	.0774,	.0933,	.0481,	.0588,	.0433,	.0544,	.0522,
3,	.1476,	.2322,	.1568,	.3193,	.1723,	.3036,	.1896,	.2622,	.2391,	.2878,
4,	.2070,	.3048,	.2046,	.4359,	.3665,	.4748,	.4290,	.4308,	.3695,	.3407,
5,	.2497,	.2813,	.2953,	.4134,	.5568,	.7532,	.4289,	.5048,	.4336,	.4367,
6,	.6058,	.2526,	.3797,	.4544,	.5167,	.7333,	.4850,	.4905,	.5180,	.5642,
7,	.4686,	.3722,	.5330,	.3504,	.7619,	1.1137,	.5968,	.4479,	.4119,	.6937,
8,	.2464,	.3259,	.3052,	.4485,	.6429,	.7776,	.5673,	.6902,	.6436,	.5013,
9,	.3578,	.3091,	.3457,	.4235,	.5738,	.7782,	.5054,	.5169,	.4789,	.5114,
+gp,	.3578,	.3091,	.3457,	.4235,	.5738,	.7782,	.5054,	.5169,	.4789,	.5114,
0 FBAR 3- 7,	.3358,	.2886,	.3139,	.3947,	.4748,	.6757,	.4259,	.4273,	.3944,	.4646,

Table 8 Fishing mortality (F) at age

YEAR,	1982,	1983,	1984,	1985,	1986,	1987,	1988,	1989,	1990,	1991,
AGE										
2,	.0586,	.0991,	.1068,	.0656,	.0245,	.0278,	.0628,	.1726,	.0763,	.0321,
3,	.2219,	.4674,	.3711,	.3525,	.3531,	.2183,	.3342,	.4073,	.3469,	.1981,
4,	.3604,	.5556,	.5793,	.5073,	.6172,	.4726,	.5543,	.6922,	.5496,	.4822,
5,	.3885,	.6415,	.6547,	.6139,	.7026,	.4779,	.5437,	.7369,	.6442,	.4713,
6,	.4045,	.7828,	.4539,	.9043,	.8269,	.5549,	.7522,	.9418,	.6530,	.4990,
7,	.6922,	1.0767,	.4753,	1.1111,	.7993,	.4909,	.7962,	.9865,	.7931,	.5034,
8,	.5522,	.9404,	.4780,	1.3143,	.5440,	.5634,	.8691,	1.0928,	.9153,	.6304,
9,	.4832,	.8076,	.5325,	.8998,	.7046,	.5352,	.5951,	.9521,	.7992,	.4051,
+gp,	.4832,	.8076,	.5325,	.8998,	.7046,	.5352,	.5951,	.9521,	.7992,	.4051,
0 FBAR 3- 7,	.4135,	.7048,	.5068,	.6978,	.6598,	.4429,	.5961,	.7529,	.5974,	.4308,

Table 8 Fishing mortality (F) at age

YEAR,	1992,	1993,	1994,	1995,	1996,	1997,	1998,	1999,	2000,	2001,	FBAR 99-**
AGE											
2,	.0197,	.0121,	.0234,	.0710,	.0342,	.0463,	.1054,	.1067,	.0797,	.1459,	.1108,
3,	.0992,	.0999,	.1026,	.1471,	.1954,	.1680,	.2431,	.3910,	.3559,	.1931,	.3133,
4,	.3236,	.1850,	.1863,	.4099,	.3982,	.4192,	.3180,	.5007,	.5982,	.5122,	.5370,
5,	.3862,	.2515,	.2471,	.2723,	.6447,	.6611,	.6680,	.4387,	.5355,	.6041,	.5261,
6,	.4253,	.2331,	.2190,	.3556,	.8591,	.6371,	.6330,	.7972,	.5121,	1.2561,	.8551,
7,	.4221,	.2384,	.1882,	.3316,	1.1043,	1.1910,	.3057,	.4135,	.7538,	1.8231,	.9968,
8,	.3543,	.1748,	.1434,	.2896,	.9122,	1.2132,	.7269,	.1966,	.1562,	1.2606,	.5378,
9,	.4248,	.2428,	.1774,	.2388,	1.6798,	.9978,	.6455,	.2359,	.0332,	.0733,	.1142,
+gp,	.4248,	.2428,	.1774,	.2388,	1.6798,	.9978,	.6455,	.2359,	.0332,	.0733,	
0 FBAR 3- 7,	.3313,	.2016,	.1886,	.3033,	.6403,	.6153,	.4336,	.5082,	.5511,	.8777,	

1

Table 10 Stock number at age (start of year) Numbers*10**-3

YEAR,	1961,
AGE	
2,	12019,
3,	7385,
4,	3747,
5,	2699,
6,	666,
7,	668,
8,	155,
9,	66,
+gp,	0,
0 TOTAL,	27403,

Table 10 Stock number at age (start of year) Numbers*10**-3

YEAR,	1962,	1963,	1964,	1965,	1966,	1967,	1968,	1969,	1970,	1971,
AGE										
2,	20654,	20290,	21834,	8269,	18566,	23451,	17582,	9325,	8609,	11928,
3,	7042,	12907,	12893,	16037,	5999,	13990,	17744,	13012,	6840,	6684,
4,	3616,	3503,	6986,	7823,	10207,	4034,	9020,	11522,	7843,	4548,
5,	1863,	1825,	1710,	3639,	4085,	6475,	2525,	4976,	6447,	4456,
6,	1245,	752,	895,	830,	1698,	2133,	3757,	1212,	2682,	3754,
7,	335,	584,	358,	416,	351,	842,	980,	1967,	561,	1516,
8,	210,	190,	294,	151,	200,	109,	410,	393,	965,	238,
9,	56,	87,	112,	169,	80,	70,	31,	240,	138,	519,
+gp,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0 TOTAL,	35021,	40138,	45083,	37333,	41186,	51104,	52050,	42647,	34085,	33643,

1

Run title : COD FAROE PLATEAU (ICES SUBDIVISION Vb1) COD_IND7

At 28/04/2002 23:39

Terminal Fs derived using XSA (With F shrinkage)

Table 10 Stock number at age (start of year) Numbers*10**-3

YEAR,	1972,	1973,	1974,	1975,	1976,	1977,	1978,	1979,	1980,	1981,
AGE										
2,	21320,	12573,	30481,	38320,	18576,	9996,	10750,	15001,	23577,	14041,
3,	9469,	16664,	9640,	23000,	29036,	13854,	7799,	8299,	11762,	18281,
4,	4788,	6689,	10817,	6747,	13683,	20010,	8373,	5283,	5227,	7582,
5,	2981,	3187,	4037,	7217,	3572,	7765,	10190,	4464,	2811,	2958,
6,	2483,	1901,	1970,	2460,	3908,	1676,	2994,	5433,	2206,	1492,
7,	1760,	1109,	1209,	1103,	1279,	1909,	659,	1509,	2724,	1076,
8,	779,	902,	626,	581,	636,	489,	513,	297,	789,	1477,
9,	92,	499,	533,	378,	304,	274,	184,	238,	122,	340,
+gp,	0,	400,	342,	476,	466,	18,	154,	103,	52,	150,
0 TOTAL,	43673,	43924,	59654,	80283,	71459,	55991,	41616,	40626,	49269,	47397,

Table 10 Stock number at age (start of year) Numbers*10**-3

YEAR,	1982,	1983,	1984,	1985,	1986,	1987,	1988,	1989,	1990,	1991,
AGE										
2,	22124,	25165,	47953,	17373,	9607,	10367,	9241,	15592,	3656,	6714,
3,	10911,	17083,	18659,	35283,	13321,	7675,	8255,	7105,	10742,	2773,
4,	11224,	7155,	8765,	10541,	20306,	7662,	5052,	4839,	3871,	6217,
5,	4415,	6409,	3361,	4021,	5196,	8968,	3910,	2376,	1983,	1829,
6,	1565,	2451,	2763,	1430,	1782,	2107,	4553,	1859,	931,	852,
7,	695,	855,	917,	1437,	474,	638,	991,	1757,	593,	397,
8,	440,	285,	238,	467,	387,	174,	320,	366,	536,	220,
9,	733,	207,	91,	121,	103,	184,	81,	110,	100,	176,
+gp,	348,	200,	175,	147,	82,	69,	61,	16,	51,	79,

0 TOTAL, 52456, 59812, 82923, 70819, 51258, 37845, 32464, 34019, 22464, 19257,

Table 10 Stock number at age (start of year) Numbers*10**-3

YEAR,	1992,	1993,	1994,	1995,	1996,	1997,	1998,	1999,	2000,	2001,	2002,	GMST 61-99	AMST 61-99
AGE													
2,	11609,	11042,	27429,	42167,	11543,	4881,	5029,	14144,	32250,	32834,	0,	14508,	16995,
3,	5323,	9319,	8932,	21938,	32157,	9133,	3815,	3706,	10408,	24381,	23237,	10816,	12679,
4,	1863,	3946,	6904,	6600,	15504,	21655,	6321,	2449,	2052,	5970,	16458,	6902,	8024,
5,	3143,	1103,	2685,	4692,	3586,	8524,	11658,	3766,	1215,	924,	2929,	3830,	4398,
6,	935,	1749,	702,	1717,	2926,	1541,	3603,	4894,	1988,	583,	413,	1866,	2167,
7,	424,	500,	1134,	462,	985,	1015,	667,	1566,	1806,	975,	136,	852,	985,
8,	196,	227,	323,	769,	272,	267,	252,	402,	848,	696,	129,	356,	424,
9,	96,	113,	156,	229,	471,	89,	65,	100,	271,	594,	161,	152,	199,
+gp,	108,	127,	108,	253,	62,	206,	57,	42,	34,	94,	523,		
0 TOTAL,	23696,	28127,	48374,	78827,	67506,	47312,	31469,	31069,	50872,	67049,	43987,		

1

Run title : COD FAROE PLATEAU (ICES SUBDIVISION Vb1) COD_IND7
,

At 28/04/2002 23:39

Table 16 Summary (without SOP correction)

Terminal Fs derived using XSA (With F shrinkage)

,	RECRUITS, Age 2	TOTALBIO,	TOTSPBIO,	LANDINGS,	YIELD/SSB,	FBAR 3- 7,
1961,	12019,	65428,	46439,	21598,	.4651,	.6059,
1962,	20654,	68225,	43326,	20967,	.4839,	.5226,
1963,	20290,	77602,	49054,	22215,	.4529,	.4944,
1964,	21834,	84666,	55362,	21078,	.3807,	.5017,
1965,	8269,	75043,	57057,	24212,	.4244,	.4909,
1966,	18566,	83919,	60629,	20418,	.3368,	.4743,
1967,	23451,	105289,	73934,	23562,	.3187,	.3900,
1968,	17582,	110433,	82484,	29930,	.3629,	.4642,
1969,	9325,	105537,	83487,	32371,	.3877,	.4375,
1970,	8609,	98398,	82035,	24183,	.2948,	.3882,
1971,	11928,	78218,	63308,	23010,	.3635,	.3526,
1972,	21320,	76439,	57180,	18727,	.3275,	.3358,
1973,	12573,	110714,	83548,	22228,	.2661,	.2886,
1974,	30481,	139267,	98434,	24581,	.2497,	.3139,
1975,	38320,	153665,	109567,	36775,	.3356,	.3947,
1976,	18576,	161264,	123079,	39799,	.3234,	.4748,
1977,	9996,	136216,	112061,	34927,	.3117,	.6757,
1978,	10750,	96245,	78513,	26585,	.3386,	.4259,
1979,	15001,	85123,	66730,	23112,	.3464,	.4273,
1980,	23577,	85044,	58895,	20513,	.3483,	.3944,
1981,	14041,	88461,	63576,	22963,	.3612,	.4646,
1982,	22124,	99011,	67068,	21489,	.3204,	.4135,
1983,	25165,	123323,	78603,	38133,	.4851,	.7048,
1984,	47953,	152466,	96870,	36979,	.3817,	.5068,
1985,	17373,	131612,	84985,	39484,	.4646,	.6978,
1986,	9607,	99769,	74027,	34595,	.4673,	.6598,
1987,	10367,	79395,	62732,	21391,	.3410,	.4429,
1988,	9241,	67996,	53234,	23182,	.4355,	.5961,
1989,	15592,	60279,	39885,	22068,	.5533,	.7529,
1990,	3656,	39501,	30591,	13487,	.4409,	.5974,
1991,	6714,	30405,	22821,	8750,	.3834,	.4308,
1992,	11609,	37506,	22341,	6396,	.2863,	.3313,
1993,	11042,	54122,	34985,	6107,	.1746,	.2016,
1994,	27429,	90524,	57030,	9046,	.1586,	.1886,
1995,	42167,	151120,	70551,	23045,	.3266,	.3033,
1996,	11543,	146241,	90509,	40422,	.4466,	.6403,
1997,	4881,	99112,	89327,	34304,	.3840,	.6153,
1998,	5029,	67001,	59483,	24005,	.4036,	.4336,
1999,	14144,	65957,	47153,	20013,	.4244,	.5082,
2000,	32250,	106315,	45373,	22496,	.4958,	.5511,
2001,	32834,	127432,	62291,	29047,	.4663,	.8777,
Arith. Mean ,	17753,	95470,	66794,	24590,	.3737,	.4822,
0 Units,	(Thousands),	(Tonnes),	(Tonnes),	(Tonnes),		
1						

Alternative run: Survey alone

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Lowestoft VPA Version 3.1
□

□
   29/04/2002   0:37
□

□
 Extended Survivors Analysis
□

□
 COD FAROE PLATEAU (ICES SUBDIVISION Vb1)                 COD_IND7

 CPUE data from file survey2.txt

 Catch data for  41 years. 1961 to 2001. Ages  2 to  10.

      Fleet,            First, Last, First, Last, Alpha,  Beta
                      ,    year, year,  age ,  age
 SUMMER SURVEY         ,   1996, 2001,   2,     8,   .600,   .700


 Time series weights :

      Tapered time weighting applied
      Power =    3 over  20 years


 Catchability analysis :

      Catchability dependent on stock size for ages <    3

         Regression type = C
         Minimum of   5 points used for regression
         Survivor estimates shrunk to the population mean for ages <  3


      Catchability independent of age for ages >=    6


 Terminal population estimation :

      Survivor estimates shrunk towards the mean F
      of the final   5 years or the   5 oldest ages.

      S.E. of the mean to which the estimates  are shrunk =   2.000

      Minimum standard error for population
      estimates derived from each fleet =    .300

      Prior weighting not applied


 Tuning had not converged after   60 iterations


 Total absolute residual between iterations
 59 and  60 =     .00027

 Final year F values
 Age          ,      2,      3,      4,      5,      6,      7,      8,      9
 Iteration 59,  .2196,  .3443,  .6200,  .2801,  .7504, 1.6170,  .7562, 1.1792
 Iteration 60,  .2196,  .3443,  .6199,  .2801,  .7504, 1.6169,  .7562, 1.1792


1
```

Regression weights
, .954, .976, .990, .997, 1.000, 1.000

Fishing mortalities

Age,	1996,	1997,	1998,	1999,	2000,	2001
2,	.034,	.042,	.081,	.117,	.129,	.220
3,	.191,	.166,	.219,	.282,	.401,	.344
4,	.450,	.407,	.313,	.431,	.365,	.620
5,	.797,	.825,	.634,	.429,	.420,	.280
6,	.906,	1.007,	1.028,	.716,	.494,	.750
7,	1.160,	1.405,	.721,	1.165,	.606,	1.617
8,	.959,	1.438,	1.182,	.749,	.977,	.756
9,	.863,	1.145,	1.039,	.588,	.184,	1.179

1
XSA population numbers (Thousands)

	AGE						
YEAR ,	2,	3,	4,	5,	6,	7,	8,
9,							
1996 ,	1.17E+04,	3.28E+04,	1.41E+04,	3.10E+03,	2.83E+03,	9.60E+02,	2.63E+02,
6.63E+02,							
1997 ,	5.34E+03,	9.23E+03,	2.22E+04,	7.34E+03,	1.14E+03,	9.36E+02,	2.46E+02,
8.27E+01,							
1998 ,	6.47E+03,	4.19E+03,	6.40E+03,	1.21E+04,	2.63E+03,	3.42E+02,	1.88E+02,
4.79E+01,							
1999 ,	1.30E+04,	4.89E+03,	2.76E+03,	3.83E+03,	5.26E+03,	7.71E+02,	1.36E+02,
4.72E+01,							
2000 ,	2.04E+04,	9.44E+03,	3.02E+03,	1.47E+03,	2.04E+03,	2.10E+03,	1.97E+02,
5.27E+01,							
2001 ,	2.26E+04,	1.47E+04,	5.18E+03,	1.71E+03,	7.89E+02,	1.02E+03,	9.39E+02,
6.06E+01,							

Estimated population abundance at 1st Jan 2002

, 0.00E+00, 1.49E+04, 8.53E+03, 2.28E+03, 1.06E+03, 3.05E+02, 1.66E+02, 3.61E+02,

Taper weighted geometric mean of the VPA populations:

, 1.25E+04, 9.10E+03, 5.73E+03, 3.17E+03, 1.64E+03, 7.56E+02, 2.92E+02, 1.03E+02,

Standard error of the weighted Log(VPA populations) :

, .6716, .6662, .6835, .6978, .6415, .5854, .6248, .7279,
1

Log catchability residuals.

Fleet : SUMMER SURVEY

Age ,	1996,	1997,	1998,	1999,	2000,	2001
2 ,	-.12,	.36,	.08,	-.92,	-.16,	.77
3 ,	-.01,	.08,	-.27,	.47,	-.28,	.01
4 ,	.03,	.10,	-.41,	.16,	-.13,	.25
5 ,	.67,	-.01,	.20,	-.31,	-.28,	-.24
6 ,	.02,	-.35,	.54,	-.02,	-.36,	.17
7 ,	.24,	-.09,	-.54,	.56,	.02,	.66
8 ,	-.03,	-.14,	.04,	.18,	-.21,	.00

Mean log catchability and standard error of ages with catchability
independent of year class strength and constant w.r.t. time

Age ,	3,	4,	5,	6,	7,	8
Mean Log q,	-6.7462,	-6.2587,	-6.1488,	-6.0319,	-6.0319,	-6.0319,
S.E(Log q),	.2776,	.2418,	.3780,	.3391,	.4729,	.1434,

Regression statistics :

Ages with q dependent on year class strength

Age, Slope , t-value , Intercept, RSquare, No Pts, Reg s.e, Mean Log q

 2,   1.00,   .003,   7.65,   .51,   6,   .64,   -7.64,

Ages with q independent of year class strength and constant w.r.t. time.

Age, Slope , t-value , Intercept, RSquare, No Pts, Reg s.e, Mean Q

 3,   1.04,   -.183,   6.66,   .87,   6,   .32,   -6.75,
 4,   .98,   .129,   6.31,   .93,   6,   .27,   -6.26,
 5,   .86,   .757,   6.44,   .88,   6,   .34,   -6.15,
 6,   .93,   .283,   6.14,   .83,   6,   .35,   -6.03,
 7,   .75,   .933,   6.11,   .79,   6,   .34,   -5.89,
 8,   1.03,   -.259,   6.07,   .96,   6,   .16,   -6.06,
1

Terminal year survivor and F summaries :

Age 2   Catchability dependent on age and year class strength

Year class = 1999

Fleet,	Estimated, Survivors,	Int, s.e,	Ext, s.e,	Var, Ratio,	N,	Scaled, Weights,	Estimated F
SUMMER SURVEY	31996.,	.858,	.000,	.00,	1,	.303,	.108
P shrinkage mean	9098.,	.67,,,,				.627,	.337
F shrinkage mean	43342.,	2.00,,,,				.070,	.081

Weighted prediction :

Survivors, at end of year,	Int, s.e,	Ext, s.e,	N,	Var, Ratio,	F
14853.,	.51,	.71,	3,	1.381,	.220

Age 3   Catchability constant w.r.t. time and dependent on age

Year class = 1998

Fleet,	Estimated, Survivors,	Int, s.e,	Ext, s.e,	Var, Ratio,	N,	Scaled, Weights,	Estimated F
SUMMER SURVEY	8446.,	.277,	.060,	.22,	2,	.973,	.347
F shrinkage mean	12182.,	2.00,,,,				.027,	.253

Weighted prediction :

Survivors, at end of year,	Int, s.e,	Ext, s.e,	N,	Var, Ratio,	F
8529.,	.27,	.06,	3,	.216,	.344

1
Age 4   Catchability constant w.r.t. time and dependent on age

Year class = 1997

Fleet,	Estimated, Survivors,	Int, s.e,	Ext, s.e,	Var, Ratio,	N,	Scaled, Weights,	Estimated F

```
SUMMER SURVEY       ,      2251.,   .209,       .238,   1.14,   3,  .977,     .626

  F shrinkage mean  ,      4034.,   2.00,,,,                          .023,     .396

Weighted prediction :

Survivors,        Int,      Ext,    N,    Var,     F
at end of year,   s.e,      s.e,     ,   Ratio,
     2281.,       .21,      .20,    4,    .952,   .620


Age  5   Catchability constant w.r.t. time and dependent on age

Year class = 1996

Fleet,                Estimated,    Int,       Ext,    Var,    N, Scaled,  Estimated
     ,                Survivors,    s.e,       s.e,   Ratio,    , Weights,    F
SUMMER SURVEY       ,      1078.,   .188,       .169,    .90,   4,  .984,     .276

  F shrinkage mean  ,       393.,   2.00,,,,                          .016,     .627

Weighted prediction :

Survivors,        Int,      Ext,    N,    Var,     F
at end of year,   s.e,      s.e,     ,   Ratio,
     1061.,       .19,      .16,    5,    .844,   .280


1
Age  6   Catchability constant w.r.t. time and dependent on age

Year class = 1995

Fleet,                Estimated,    Int,       Ext,    Var,    N, Scaled,  Estimated
     ,                Survivors,    s.e,       s.e,   Ratio,    , Weights,    F
SUMMER SURVEY       ,       306.,   .179,       .109,    .61,   5,  .975,     .748

  F shrinkage mean  ,       260.,   2.00,,,,                          .025,     .839

Weighted prediction :

Survivors,        Int,      Ext,    N,    Var,     F
at end of year,   s.e,      s.e,     ,   Ratio,
      305.,       .18,      .10,    6,    .533,   .750


Age  7   Catchability constant w.r.t. time and age (fixed at the value for age)  6

Year class = 1994

Fleet,                Estimated,    Int,       Ext,    Var,    N, Scaled,  Estimated
     ,                Survivors,    s.e,       s.e,   Ratio,    , Weights,    F
SUMMER SURVEY       ,       156.,   .178,       .187,   1.05,   6,  .931,    1.666

  F shrinkage mean  ,       376.,   2.00,,,,                          .069,    1.023

Weighted prediction :

Survivors,        Int,      Ext,    N,    Var,     F
at end of year,   s.e,      s.e,     ,   Ratio,
      166.,       .22,      .19,    7,    .880,  1.617


1
Age  8   Catchability constant w.r.t. time and age (fixed at the value for age)  6

Year class = 1993
```

```
Fleet,                 Estimated,    Int,       Ext,    Var,    N, Scaled,  Estimated
     ,                 Survivors,    s.e,       s.e,   Ratio,    , Weights,    F
SUMMER SURVEY       ,       367.,   .202,       .022,    .11,   6,  .971,     .748

  F shrinkage mean  ,       212.,   2.00,,,,                        .029,    1.073

Weighted prediction :

Survivors,        Int,      Ext,    N,    Var,     F
at end of year,   s.e,      s.e,     ,   Ratio,
      361.,       .20,      .04,    7,    .209,   .756


Age  9   Catchability constant w.r.t. time and age (fixed at the value for age)  6

Year class = 1992

Fleet,                 Estimated,    Int,       Ext,    Var,    N, Scaled,  Estimated
     ,                 Survivors,    s.e,       s.e,   Ratio,    , Weights,    F
SUMMER SURVEY       ,        14.,   .248,       .136,    .55,   5,  .864,    1.244

  F shrinkage mean  ,        27.,   2.00,,,,                        .136,     .813

Weighted prediction :

Survivors,        Int,      Ext,    N,    Var,     F
at end of year,   s.e,      s.e,     ,   Ratio,
       15.,       .35,      .16,    6,    .458,  1.179


1
1
```

Run title : COD FAROE PLATEAU (ICES SUBDIVISION Vb1) COD_IND7

At 29/04/2002 0:39

Terminal Fs derived using XSA (With F shrinkage)

Table 8 Fishing mortality (F) at age
YEAR, 1961,

AGE
2, .3346,
3, .5141,
4, .4986,
5, .5737,
6, .4863,
7, .9566,
8, .8116,
9, .6715,
+gp, .6715,
0 FBAR 3- 7, .6059,

Table 8 Fishing mortality (F) at age

YEAR,	1962,	1963,	1964,	1965,	1966,	1967,	1968,	1969,	1970,	1971,
AGE										
2,	.2701,	.2534,	.1086,	.1209,	.0829,	.0789,	.1010,	.1099,	.0530,	.0309,
3,	.4982,	.4138,	.2997,	.2518,	.1969,	.2389,	.2318,	.3063,	.2081,	.1337,
4,	.4838,	.5172,	.4523,	.4498,	.2552,	.2687,	.3949,	.3806,	.3654,	.2225,
5,	.7076,	.5124,	.5229,	.5622,	.4499,	.3442,	.5339,	.4180,	.3409,	.3845,
6,	.5569,	.5405,	.5659,	.6604,	.5016,	.5779,	.4472,	.5709,	.3709,	.5572,
7,	.3662,	.4879,	.6677,	.5305,	.9680,	.5203,	.7132,	.5118,	.6559,	.4651,
8,	.6826,	.3269,	.3531,	.4345,	.8520,	1.0438,	.3331,	.8457,	.4208,	.7528,
9,	.5641,	.4806,	.5164,	.5318,	.6106,	.5556,	.4882,	.5499,	.4339,	.4800,
+gp,	.5641,	.4806,	.5164,	.5318,	.6106,	.5556,	.4882,	.5499,	.4339,	.4800,
0 FBAR 3- 7,	.5226,	.4944,	.5017,	.4909,	.4743,	.3900,	.4642,	.4375,	.3882,	.3526,

1

Run title : COD FAROE PLATEAU (ICES SUBDIVISION Vb1) COD_IND7

At 29/04/2002 0:39

Terminal Fs derived using XSA (With F shrinkage)

Table 8 Fishing mortality (F) at age

YEAR,	1972,	1973,	1974,	1975,	1976,	1977,	1978,	1979,	1980,	1981,
AGE										
2,	.0464,	.0657,	.0816,	.0774,	.0933,	.0481,	.0588,	.0433,	.0544,	.0523,
3,	.1476,	.2322,	.1568,	.3193,	.1723,	.3036,	.1896,	.2622,	.2391,	.2877,
4,	.2070,	.3048,	.2046,	.4359,	.3665,	.4748,	.4291,	.4308,	.3695,	.3408,
5,	.2497,	.2813,	.2953,	.4134,	.5568,	.7532,	.4289,	.5049,	.4337,	.4368,
6,	.6058,	.2526,	.3797,	.4544,	.5167,	.7333,	.4850,	.4906,	.5181,	.5643,
7,	.4686,	.3722,	.5330,	.3504,	.7619,	1.1138,	.5968,	.4480,	.4119,	.6939,
8,	.2464,	.3259,	.3052,	.4485,	.6429,	.7776,	.5674,	.6902,	.6437,	.5014,
9,	.3578,	.3091,	.3457,	.4235,	.5738,	.7783,	.5054,	.5170,	.4790,	.5115,
+gp,	.3578,	.3091,	.3457,	.4235,	.5738,	.7783,	.5054,	.5170,	.4790,	.5115,
0 FBAR 3- 7,	.3358,	.2886,	.3139,	.3947,	.4748,	.6757,	.4259,	.4273,	.3945,	.4647,

Table 8 Fishing mortality (F) at age

YEAR,	1982,	1983,	1984,	1985,	1986,	1987,	1988,	1989,	1990,	1991,

```
        AGE
          2,        .0585,   .0991,   .1071,   .0655,   .0244,   .0280,   .0645,   .1637,   .0769,   .0325,
          3,        .2226,   .4669,   .3707,   .3537,   .3524,   .2175,   .3369,   .4213,   .3240,   .1998,
          4,        .3601,   .5583,   .5783,   .5065,   .6207,   .4712,   .5513,   .7017,   .5810,   .4354,
          5,        .3886,   .6408,   .6604,   .6121,   .7005,   .4826,   .5411,   .7292,   .6616,   .5177,
          6,        .4046,   .7833,   .4530,   .9220,   .8220,   .5519,   .7662,   .9318,   .6397,   .5232,
          7,        .6925,  1.0775,   .4758,  1.1060,   .8368,   .4855,   .7876,  1.0325,   .7737,   .4855,
          8,        .5525,   .9413,   .4787,  1.3184,   .5385,   .6174,   .8498,  1.0622,  1.0343,   .6000,
          9,        .4833,   .8084,   .5336,   .9026,   .7104,   .5259,   .7058,   .9011,   .7453,   .5164,
        +gp,        .4833,   .8084,   .5336,   .9026,   .7104,   .5259,   .7058,   .9011,   .7453,   .5164,
0  FBAR  3- 7,     .4137,   .7053,   .5077,   .7001,   .6665,   .4417,   .5966,   .7633,   .5960,   .4323,
```

```
        Table  8    Fishing mortality (F) at age
        YEAR,       1992,    1993,    1994,    1995,    1996,    1997,    1998,    1999,    2000,    2001,       FBAR 99-**

        AGE
          2,        .0201,   .0131,   .0254,   .0696,   .0338,   .0423,   .0809,   .1170,   .1290,   .2196,       .1552,
          3,        .1004,   .1020,   .1122,   .1611,   .1910,   .1660,   .2187,   .2816,   .4006,   .3443,       .3422,
          4,        .3274,   .1874,   .1907,   .4611,   .4500,   .4066,   .3132,   .4305,   .3654,   .6199,       .4720,
          5,        .3314,   .2554,   .2512,   .2804,   .7974,   .8255,   .6337,   .4291,   .4205,   .2801,       .3766,
          6,        .4947,   .1903,   .2232,   .3636,   .9063,  1.0071,  1.0278,   .7162,   .4943,   .7504,       .6536,
          7,        .4554,   .2958,   .1473,   .3402,  1.1597,  1.4045,   .7208,  1.1655,   .6060,  1.6169,      1.1295,
          8,        .3353,   .1937,   .1873,   .2141,   .9588,  1.4379,  1.1817,   .7492,   .9769,   .7562,       .8274,
          9,        .3914,   .2256,   .2008,   .3339,   .8635,  1.1446,  1.0388,   .5878,   .1835,  1.1792,       .6502,
        +gp,        .3914,   .2256,   .2008,   .3339,   .8635,  1.1446,  1.0388,   .5878,   .1835,  1.1792,
0  FBAR  3- 7,     .3418,   .2062,   .1849,   .3213,   .7009,   .7619,   .5828,   .6046,   .4574,   .7223,
1
```

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    Run title : COD FAROE PLATEAU (ICES SUBDIVISION Vb1)                COD_IND7

    At 29/04/2002   0:39

                  Terminal Fs derived using XSA (With F shrinkage)

        Table 10    Stock number at age (start of year)              Numbers*10**-3
        YEAR,       1961,

        AGE
          2,        12019,
          3,         7385,
          4,         3747,
          5,         2699,
          6,          666,
          7,          668,
          8,          155,
          9,           66,
        +gp,            0,
0        TOTAL,     27403,
```

```
        Table 10    Stock number at age (start of year)              Numbers*10**-3
        YEAR,       1962,    1963,    1964,    1965,    1966,    1967,    1968,    1969,    1970,    1971,

        AGE
          2,        20654,   20290,   21834,    8269,   18566,   23451,   17582,    9325,    8608,   11928,
          3,         7042,   12907,   12893,   16037,    5999,   13990,   17744,   13012,    6840,    6684,
          4,         3616,    3503,    6986,    7823,   10207,    4034,    9020,   11522,    7843,    4548,
          5,         1863,    1825,    1710,    3639,    4085,    6475,    2525,    4976,    6447,    4456,
          6,         1245,     752,     895,     830,    1698,    2133,    3757,    1212,    2682,    3754,
          7,          335,     584,     358,     416,     351,     842,     980,    1967,     561,    1516,
          8,          210,     190,     294,     151,     200,     109,     410,     393,     965,     238,
          9,           56,      87,     112,     169,      80,      70,      31,     240,     138,     519,
        +gp,            0,       0,       0,       0,       0,       0,       0,       0,       0,       0,
0        TOTAL,     35021,   40138,   45083,   37333,   41186,   51104,   52050,   42647,   34085,   33643,
1
```

Run title : COD FAROE PLATEAU (ICES SUBDIVISION Vb1) COD_IND7

At 29/04/2002 0:39

Terminal Fs derived using XSA (With F shrinkage)

Table 10 Stock number at age (start of year)	Numbers*10**-3									
YEAR,	1972,	1973,	1974,	1975,	1976,	1977,	1978,	1979,	1980,	1981,
AGE										
2,	21320,	12573,	30480,	38320,	18575,	9995,	10749,	14999,	23587,	14003,
3,	9469,	16664,	9640,	23000,	29036,	13853,	7799,	8298,	11760,	18290,
4,	4788,	6689,	10817,	6747,	13683,	20010,	8373,	5282,	5227,	7580,
5,	2981,	3187,	4037,	7217,	3572,	7765,	10190,	4463,	2811,	2957,
6,	2483,	1901,	1969,	2460,	3908,	1676,	2994,	5433,	2206,	1492,
7,	1760,	1109,	1209,	1103,	1279,	1909,	659,	1509,	2724,	1076,
8,	779,	902,	626,	581,	636,	489,	513,	297,	789,	1477,
9,	92,	499,	533,	378,	304,	274,	184,	238,	122,	340,
+gp,	0,	400,	342,	476,	466,	18,	154,	103,	52,	150,
0 TOTAL,	43673,	43924,	59653,	80282,	71458,	55989,	41614,	40622,	49276,	47365,

Table 10 Stock number at age (start of year)	Numbers*10**-3									
YEAR,	1982,	1983,	1984,	1985,	1986,	1987,	1988,	1989,	1990,	1991,
AGE										
2,	22139,	25185,	47829,	17400,	9638,	10299,	9007,	16370,	3629,	6644,
3,	10881,	17096,	18675,	35181,	13343,	7701,	8200,	6914,	11378,	2752,
4,	11231,	7130,	8775,	10554,	20223,	7679,	5072,	4793,	3714,	6738,
5,	4414,	6415,	3340,	4029,	5207,	8900,	3925,	2393,	1946,	1701,
6,	1564,	2450,	2767,	1413,	1789,	2116,	4497,	1871,	945,	822,
7,	695,	855,	917,	1440,	460,	644,	998,	1711,	603,	408,
8,	440,	285,	238,	466,	390,	163,	324,	372,	499,	228,
9,	732,	207,	91,	121,	102,	186,	72,	114,	105,	145,
+gp,	348,	200,	175,	146,	81,	70,	54,	16,	54,	65,
0 TOTAL,	52444,	59822,	82807,	70751,	51233,	37758,	32149,	34554,	22874,	19503,

Table 10 Stock number at age (start of year)	Numbers*10**-3												
YEAR,	1992,	1993,	1994,	1995,	1996,	1997,	1998,	1999,	2000,	2001,	2002,	GMST 61-99	AMST 61-99
AGE													
2,	11396,	10158,	25266,	42976,	11665,	5341,	6470,	12964,	20424,	22598,	0,	14545,	16962,
3,	5266,	9144,	8208,	20168,	32820,	9233,	4192,	4886,	9442,	14699,	14853,	10877,	12676,
4,	1845,	3900,	6761,	6007,	14054,	22198,	6403,	2758,	3018,	5179,	8529,	6894,	7997,
5,	3569,	1089,	2647,	4575,	3101,	7337,	12103,	3833,	1468,	1715,	2281,	3805,	4369,
6,	830,	2098,	690,	1686,	2830,	1144,	2631,	5258,	2043,	789,	1061,	1839,	2142,
7,	399,	414,	1420,	452,	960,	936,	342,	771,	2103,	1020,	305,	820,	957,
8,	206,	207,	252,	1003,	263,	246,	188,	136,	197,	939,	166,	342,	418,
9,	102,	120,	140,	171,	663,	83,	48,	47,	53,	61,	361,	147,	200,
+gp,	115,	136,	97,	189,	88,	191,	42,	20,	7,	9,	18,		
0 TOTAL,	23727,	27267,	45482,	77228,	66445,	46709,	32419,	30672,	38755,	47010,	27574,		

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Run title : COD FAROE PLATEAU (ICES SUBDIVISION Vb1) COD_IND7

At 29/04/2002 0:39

Table 16 Summary (without SOP correction)

Terminal Fs derived using XSA (With F shrinkage)

,	RECRUITS, Age 2	TOTALBIO,	TOTSPBIO,	LANDINGS,	YIELD/SSB,	FBAR 3- 7,
1961,	12019,	65428,	46439,	21598,	.4651,	.6059,
1962,	20654,	68225,	43326,	20967,	.4839,	.5226,
1963,	20290,	77602,	49054,	22215,	.4529,	.4944,
1964,	21834,	84666,	55362,	21078,	.3807,	.5017,
1965,	8269,	75043,	57057,	24212,	.4244,	.4909,
1966,	18566,	83919,	60629,	20418,	.3368,	.4743,
1967,	23451,	105289,	73934,	23562,	.3187,	.3900,
1968,	17582,	110433,	82484,	29930,	.3629,	.4642,
1969,	9325,	105537,	83487,	32371,	.3877,	.4375,
1970,	8608,	98398,	82035,	24183,	.2948,	.3882,
1971,	11928,	78218,	63308,	23010,	.3635,	.3526,
1972,	21320,	76439,	57180,	18727,	.3275,	.3358,
1973,	12573,	110714,	83547,	22228,	.2661,	.2886,
1974,	30480,	139266,	98434,	24581,	.2497,	.3139,
1975,	38320,	153664,	109566,	36775,	.3356,	.3947,
1976,	18575,	161262,	123078,	39799,	.3234,	.4748,
1977,	9995,	136213,	112058,	34927,	.3117,	.6757,
1978,	10749,	96240,	78510,	26585,	.3386,	.4259,
1979,	14999,	85116,	66725,	23112,	.3464,	.4273,
1980,	23587,	85046,	58891,	20513,	.3483,	.3945,
1981,	14003,	88424,	63569,	22963,	.3612,	.4647,
1982,	22139,	98991,	67047,	21489,	.3205,	.4137,
1983,	25185,	123321,	78572,	38133,	.4853,	.7053,
1984,	47829,	152311,	96854,	36979,	.3818,	.5077,
1985,	17400,	131473,	84904,	39484,	.4650,	.7001,
1986,	9638,	99664,	73882,	34595,	.4682,	.6665,
1987,	10299,	79232,	62627,	21391,	.3416,	.4417,
1988,	9007,	67495,	52986,	23182,	.4375,	.5966,
1989,	16370,	60634,	39637,	22068,	.5568,	.7633,
1990,	3629,	39869,	30749,	13487,	.4386,	.5960,
1991,	6644,	30516,	22880,	8750,	.3824,	.4323,
1992,	11396,	37874,	22933,	6396,	.2789,	.3418,
1993,	10158,	53532,	35483,	6107,	.1721,	.2062,
1994,	25266,	86716,	55801,	9046,	.1621,	.1849,
1995,	42976,	146815,	67815,	23045,	.3398,	.3213,
1996,	11665,	142366,	87131,	40422,	.4639,	.7009,
1997,	5341,	94882,	84696,	34304,	.4050,	.7619,
1998,	6470,	64370,	55246,	24005,	.4345,	.5828,
1999,	12964,	61377,	42631,	20013,	.4695,	.6046,
2000,	20424,	84821,	40566,	22496,	.5546,	.4574,
2001,	22598,	93675,	50416,	29047,	.5761,	.7223,
Arith. Mean ,	17184,	93538,	65891,	24590,	.3808,	.4884,
0 Units,	(Thousands),	(Tonnes),	(Tonnes),	(Tonnes),		

Alternative run: All tuning series together

```
Lowestoft VPA Version 3.1
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 Extended Survivors Analysis
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 COD FAROE PLATEAU (ICES SUBDIVISION Vb1)                 COD_IND12
□

□
 CPUE data from file SU2C8L5.TXT

 Catch data for  41 years. 1961 to 2001. Ages  2 to  10.

      Fleet,            First, Last, First, Last, Alpha,  Beta
                     ,    year, year,  age ,  age
 CUBA TRAWLERS        ,   1985, 2001,   2,     7,   .000,  1.000
 LONGLINERS           ,   1986, 2001,   3,     6,   .000,  1.000
 SUMMER SURVEY        ,   1996, 2001,   2,     8,   .600,   .700


 Time series weights :

      Tapered time weighting applied
      Power =    3 over  20 years


 Catchability analysis :

      Catchability dependent on stock size for ages <    3

         Regression type = C
         Minimum of   5 points used for regression
         Survivor estimates shrunk to the population mean for ages <  3


      Catchability independent of age for ages >=    6


 Terminal population estimation :

      Survivor estimates shrunk towards the mean F
      of the final   5 years or the   5 oldest ages.

      S.E. of the mean to which the estimates  are shrunk =   2.000

      Minimum standard error for population
      estimates derived from each fleet =    .300

      Prior weighting not applied


 Tuning had not converged after   50 iterations


 Total absolute residual between iterations
 49 and  50 =     .00159

 Final year F values
 Age          ,      2,      3,      4,      5,      6,      7,      8,      9
 Iteration 49,  .1400,  .2497,  .5597,  .4292, 1.0550, 2.1173,  .9164, 1.1254
 Iteration 50,  .1400,  .2496,  .5596,  .4292, 1.0546, 2.1167,  .9163, 1.1251
```

1

Regression weights
, .751, .820, .877, .921, .954, .976, .990, .997, 1.000, 1.000

Fishing mortalities

Age	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
2	.020	.013	.025	.070	.035	.045	.095	.111	.099	.140
3	.101	.102	.111	.161	.193	.170	.236	.344	.376	.250
4	.332	.188	.191	.457	.450	.412	.323	.479	.489	.560
5	.388	.260	.252	.281	.784	.825	.649	.449	.498	.429
6	.445	.235	.228	.365	.909	.966	1.026	.750	.532	1.055
7	.449	.254	.190	.350	1.172	1.420	.656	1.159	.664	2.117
8	.394	.190	.155	.292	1.017	1.497	1.231	.621	.961	.916
9	.481	.281	.196	.263	1.728	1.380	1.196	.648	.138	1.125

1
XSA population numbers (Thousands)

YEAR	AGE 2	3	4	5	6	7	8	9
1992	1.14E+04	5.25E+03	1.82E+03	3.13E+03	9.01E+02	4.04E+02	1.80E+02	8.68E+01
1993	1.02E+04	9.13E+03	3.89E+03	1.07E+03	1.74E+03	4.73E+02	2.11E+02	9.94E+01
1994	2.53E+04	8.26E+03	6.75E+03	2.64E+03	6.77E+02	1.13E+03	3.00E+02	1.43E+02
1995	4.26E+04	2.02E+04	6.05E+03	4.57E+03	1.68E+03	4.41E+02	7.63E+02	2.10E+02
1996	1.14E+04	3.25E+04	1.41E+04	3.14E+03	2.82E+03	9.54E+02	2.54E+02	4.66E+02
1997	5.01E+03	9.03E+03	2.20E+04	7.34E+03	1.17E+03	9.31E+02	2.42E+02	7.53E+01
1998	5.53E+03	3.92E+03	6.24E+03	1.19E+04	2.63E+03	3.65E+02	1.84E+02	4.43E+01
1999	1.36E+04	4.12E+03	2.53E+03	3.70E+03	5.10E+03	7.73E+02	1.55E+02	4.40E+01
2000	2.61E+04	9.94E+03	2.39E+03	1.28E+03	1.93E+03	1.97E+03	1.99E+02	6.84E+01
2001	3.41E+04	1.94E+04	5.58E+03	1.20E+03	6.39E+02	9.30E+02	8.31E+02	6.22E+01

Estimated population abundance at 1st Jan 2002

, 0.00E+00, 2.43E+04, 1.24E+04, 2.61E+03, 6.40E+02, 1.82E+02, 9.17E+01, 2.72E+02,

Taper weighted geometric mean of the VPA populations:

, 1.29E+04, 9.12E+03, 5.57E+03, 3.01E+03, 1.59E+03, 7.38E+02, 2.85E+02, 9.97E+01,

Standard error of the weighted Log(VPA populations) :

, .7523, .7103, .7110, .7404, .6521, .5438, .5548, .6674,
1

Log catchability residuals.

Fleet : CUBA TRAWLERS

Age	1985	1986	1987	1988	1989	1990	1991
2	-.12	.29	-.22	-.17	-.22	.37	-.66
3	-.01	.08	-.28	-.10	-.11	-.10	-.77
4	-.28	.08	-.18	-.33	.11	.08	-.61
5	-.43	.17	-.27	-.51	.24	-.05	-.22
6	-.41	.22	-.05	-.36	.21	-.17	-.27
7	-.15	.24	-.20	-.25	.26	-.15	-.06
8	No data for this fleet at this age						

Age	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001

```
    2 ,  -.84,  -.15,  -.14,  -.38,   .50,   .31,  -.09,   .18,   .50,   .29
    3 , -1.08,  -.26,   .04,  -.40,   .67,  -.38,   .10,   .78,   .47,   .47
    4 ,  -.28,  -.09,  -.43,   .43,   .58,  -.02,  -.46,   .41,   .32,  -.04
    5 ,  -.10,   .09,   .38,  -.03,   .80,   .72,  -.51,  -.28,  -.10,  -.53
    6 ,   .04,  -.35,   .25,   .10,   .26,   .67,   .45,  -.13,  -.47,  -.46
    7 ,   .04,  -.03,  -.07,  -.07,   .02,   .40,   .39,   .85,  -.36,   .48
    8 , No data for this fleet at this age
```

Mean log catchability and standard error of ages with catchability
independent of year class strength and constant w.r.t. time

```
   Age ,         3,         4,         5,         6,         7
Mean Log q,  -14.6058,  -13.5888,  -13.2271,  -13.0017,  -13.0017,
S.E(Log q),     .5337,     .3733,     .4364,     .3675,     .3693,
```

Regression statistics :

Ages with q dependent on year class strength

```
Age, Slope , t-value , Intercept, RSquare, No Pts, Reg s.e, Mean Log q

 2,     .46,    3.118,     13.11,     .77,     17,     .43,  -17.38,
```

Ages with q independent of year class strength and constant w.r.t. time.

```
Age, Slope , t-value , Intercept, RSquare, No Pts, Reg s.e,  Mean Q

 3,     .81,    1.037,     13.56,     .75,     17,     .43,  -14.61,
 4,    1.00,    -.007,     13.59,     .78,     17,     .39,  -13.59,
 5,     .96,     .244,     13.00,     .76,     17,     .44,  -13.23,
 6,     .96,     .215,     12.79,     .77,     17,     .37,  -13.00,
 7,    1.09,    -.426,     13.45,     .68,     17,     .39,  -12.88,
1
```

Fleet : LONGLINERS

```
 Age  ,  1985,  1986,  1987,  1988,  1989,  1990,  1991
    2 , No data for this fleet at this age
    3 , 99.99,  -.57, -1.52,   .39,   .76,   .49,  -.21
    4 , 99.99,  -.32,  -.33,   .35,   .63,   .38,   .33
    5 , 99.99,  -.01,  -.16,   .31,   .56,   .55,   .25
    6 , 99.99,   .02,   .19,   .09,   .60,   .47,  -.04
    7 , No data for this fleet at this age
    8 , No data for this fleet at this age
```

```
 Age  ,  1992,  1993,  1994,  1995,  1996,  1997,  1998,  1999,  2000,  2001
    2 , No data for this fleet at this age
    3 ,  -.53,  -.09,   .19,  -.36,  -.21,  -.17,   .52,   .40,   .27,  -.30
    4 ,   .05,   .19,  -.85,  -.16,   .14,   .40,   .02,   .06,  -.49,  -.14
    5 ,  -.06,   .20,  -.59,  -.57,   .63,   .98,   .60,  -.45,  -.85,  -.77
    6 ,  -.23,  -.15,  -.85,  -.50,   .66,   .93,   .73,  -.32, -1.03,  -.04
    7 , No data for this fleet at this age
    8 , No data for this fleet at this age
```

Mean log catchability and standard error of ages with catchability
independent of year class strength and constant w.r.t. time

```
   Age ,         3,         4,         5,         6
Mean Log q,  -14.5052,  -13.9184,  -13.6806,  -13.2344,
S.E(Log q),     .4541,     .3798,     .6254,     .6205,
```

Regression statistics :

Ages with q independent of year class strength and constant w.r.t. time.

```
Age, Slope , t-value , Intercept, RSquare, No Pts, Reg s.e,  Mean Q

 3,    1.27,   -1.080,     15.95,     .62,     16,     .57,  -14.51,
 4,     .91,     .585,     13.45,     .81,     16,     .36,  -13.92,
 5,     .72,    1.693,     12.07,     .78,     16,     .41,  -13.68,
 6,     .89,     .404,     12.60,     .59,     16,     .58,  -13.23,
1
```

Fleet : SUMMER SURVEY

Age	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
2	99.99	99.99	99.99	99.99	-.04	.40	.21	-1.11	-.23	.78
3	99.99	99.99	99.99	99.99	.02	.12	-.18	.69	-.34	-.31
4	99.99	99.99	99.99	99.99	-.03	.06	-.44	.21	.12	.08
5	99.99	99.99	99.99	99.99	.54	-.13	.11	-.38	-.21	.09
6	99.99	99.99	99.99	99.99	-.06	-.48	.46	-.05	-.36	.49
7	99.99	99.99	99.99	99.99	.17	-.16	-.73	.47	.04	.99
8	99.99	99.99	99.99	99.99	-.04	-.17	.01	-.12	-.32	.14

Mean log catchability and standard error of ages with catchability independent of year class strength and constant w.r.t. time

```
   Age ,         3,         4,         5,         6,         7,         8
Mean Log q,   -6.7601,   -6.1977,   -6.0319,   -5.9486,   -5.9486,   -5.9486,
S.E(Log q),     .3868,     .2314,     .3181,     .4060,     .6032,     .1835,
```

Regression statistics :

Ages with q dependent on year class strength

```
Age, Slope , t-value , Intercept, RSquare, No Pts, Reg s.e, Mean Log q

 2,    1.27,    -.654,      7.27,     .59,      6,     .73,   -7.73,
```

Ages with q independent of year class strength and constant w.r.t. time.

```
Age, Slope , t-value , Intercept, RSquare, No Pts, Reg s.e,  Mean Q

 3,    1.23,    -.879,      6.20,     .79,      6,     .49,   -6.76,
 4,    1.07,    -.538,      6.01,     .93,      6,     .27,   -6.20,
 5,     .98,     .099,      6.07,     .90,      6,     .35,   -6.03,
 6,    1.10,    -.328,      5.79,     .73,      6,     .49,   -5.95,
 7,     .68,     .941,      6.12,     .69,      6,     .40,   -5.82,
 8,     .85,    1.791,      5.96,     .97,      6,     .11,   -6.03,
1
```

Terminal year survivor and F summaries :

Age 2 Catchability dependent on age and year class strength

Year class = 1999

Fleet,	Estimated, Survivors,	Int, s.e,	Ext, s.e,	Var, Ratio,	N, Scaled, Weights,	Estimated F
CUBA TRAWLERS	32528.,	.487,	.000,	.00,	1, .538,	.106
LONGLINERS	1.,	.000,	.000,	.00,	0, .000,	.000
SUMMER SURVEY	52737.,	.972,	.000,	.00,	1, .135,	.067
P shrinkage mean	9120.,	.71,,,,			.291,	.337
F shrinkage mean	45355.,	2.00,,,,			.037,	.077

Weighted prediction :

Survivors, at end of year,	Int, s.e,	Ext, s.e,	N,	Var, Ratio,	F
24288.,	.37,	.44,	4,	1.193,	.140

Age 3 Catchability constant w.r.t. time and dependent on age

Year class = 1998

Fleet,	Estimated, Survivors,	Int, s.e,	Ext, s.e,	Var, Ratio,	N, Scaled, Weights,	Estimated F
CUBA TRAWLERS	20058.,	.365,	.013,	.03,	2, .374,	.161
LONGLINERS	9203.,	.473,	.000,	.00,	1, .235,	.323
SUMMER SURVEY	9214.,	.371,	.033,	.09,	2, .374,	.322
F shrinkage mean	11538.,	2.00,,,,			.017,	.265

Weighted prediction :

Survivors, at end of year,	Int, s.e,	Ext, s.e,	N,	Var, Ratio,	F
12370.,	.23,	.17,	6,	.740,	.250

1

Age 4 Catchability constant w.r.t. time and dependent on age

Year class = 1997

Fleet,	Estimated, Survivors,	Int, s.e,	Ext, s.e,	Var, Ratio,	N, Scaled, Weights,	Estimated F
CUBA TRAWLERS	2915.,	.266,	.139,	.52,	3, .316,	.514
LONGLINERS	2594.,	.308,	.189,	.61,	2, .251,	.563
SUMMER SURVEY	2396.,	.238,	.212,	.89,	3, .421,	.598
F shrinkage mean	3608.,	2.00,,,,			.012,	.434

Weighted prediction :

Survivors, at end of year,	Int, s.e,	Ext, s.e,	N,	Var, Ratio,	F
2613.,	.15,	.09,	9,	.596,	.560

Age 5 Catchability constant w.r.t. time and dependent on age

Year class = 1996

Fleet,	Estimated, Survivors,	Int, s.e,	Ext, s.e,	Var, Ratio,	N, Scaled, Weights,	Estimated F

```
CUBA TRAWLERS       ,       623.,   .243,       .270,   1.11,   4,  .310,     .438
LONGLINERS          ,       447.,   .288,       .310,   1.07,   3,  .211,     .569
SUMMER SURVEY       ,       773.,   .204,       .116,    .57,   4,  .470,     .367

  F shrinkage mean  ,       377.,   2.00,,,,                        .010,     .647

Weighted prediction :

Survivors,        Int,      Ext,    N,    Var,     F
at end of year,   s.e,      s.e,     ,   Ratio,
      640.,       .14,      .13,   12,    .914,   .429



1
Age  6   Catchability constant w.r.t. time and dependent on age

Year class = 1995

Fleet,                Estimated,    Int,       Ext,    Var,    N, Scaled,  Estimated
     ,                Survivors,    s.e,       s.e,   Ratio,    , Weights,    F
CUBA TRAWLERS       ,       159.,   .220,       .175,    .80,   5,  .369,    1.145
LONGLINERS          ,       171.,   .283,       .247,    .87,   4,  .191,    1.097
SUMMER SURVEY       ,       208.,   .195,       .150,    .77,   5,  .421,     .970

  F shrinkage mean  ,       257.,   2.00,,,,                        .018,     .845

Weighted prediction :

Survivors,        Int,      Ext,    N,    Var,     F
at end of year,   s.e,      s.e,     ,   Ratio,
      182.,       .13,      .10,   15,    .741,  1.055



Age  7   Catchability constant w.r.t. time and age (fixed at the value for age)  6

Year class = 1994

Fleet,                Estimated,    Int,       Ext,    Var,    N, Scaled,  Estimated
     ,                Survivors,    s.e,       s.e,   Ratio,    , Weights,    F
CUBA TRAWLERS       ,        93.,   .203,       .204,   1.01,   6,  .444,    2.104
LONGLINERS          ,        62.,   .272,       .247,    .91,   4,  .138,    2.470
SUMMER SURVEY       ,        84.,   .194,       .236,   1.22,   6,  .362,    2.195

  F shrinkage mean  ,       374.,   2.00,,,,                        .057,    1.026

Weighted prediction :

Survivors,        Int,      Ext,    N,    Var,     F
at end of year,   s.e,      s.e,     ,   Ratio,
       92.,       .17,      .15,   17,    .909,  2.117



1
Age  8   Catchability constant w.r.t. time and age (fixed at the value for age)  6

Year class = 1993

Fleet,                Estimated,    Int,       Ext,    Var,    N, Scaled,  Estimated
     ,                Survivors,    s.e,       s.e,   Ratio,    , Weights,    F
CUBA TRAWLERS       ,       210.,   .226,       .098,    .43,   6,  .271,    1.078
LONGLINERS          ,       295.,   .291,       .223,    .77,   4,  .068,     .868
SUMMER SURVEY       ,       304.,   .220,       .027,    .12,   6,  .636,     .851

  F shrinkage mean  ,       210.,   2.00,,,,                        .025,    1.078

Weighted prediction :

Survivors,        Int,      Ext,    N,    Var,     F
at end of year,   s.e,      s.e,     ,   Ratio,
```

```
      272.,       .16,      .06,   17,    .356,   .916


Age  9   Catchability constant w.r.t. time and age (fixed at the value for age)  6

Year class = 1992

Fleet,                Estimated,    Int,       Ext,    Var,    N, Scaled,  Estimated
     ,                Survivors,    s.e,       s.e,   Ratio,    , Weights,    F
CUBA TRAWLERS       ,        33.,   .251,       .125,    .50,   6,  .181,     .718
LONGLINERS          ,        25.,   .309,       .265,    .86,   4,  .035,     .856
SUMMER SURVEY       ,        13.,   .257,       .118,    .46,   5,  .680,    1.283

  F shrinkage mean  ,        19.,   2.00,,,,                        .104,    1.027

Weighted prediction :

Survivors,        Int,      Ext,    N,    Var,     F
at end of year,   s.e,      s.e,     ,   Ratio,
       17.,       .28,      .11,   16,    .406,  1.125
```

Run title : COD FAROE PLATEAU (ICES SUBDIVISION Vb1) COD_IND12

At 29/04/2002 0:48

Terminal Fs derived using XSA (With F shrinkage)

Table 8 Fishing mortality (F) at age
YEAR, 1961,

AGE
2, .3346,
3, .5141,
4, .4986,
5, .5737,
6, .4863,
7, .9566,
8, .8116,
9, .6715,
+gp, .6715,
0 FBAR 3- 7, .6059,

Table 8 Fishing mortality (F) at age

YEAR,	1962,	1963,	1964,	1965,	1966,	1967,	1968,	1969,	1970,	1971,
AGE										
2,	.2701,	.2534,	.1086,	.1209,	.0829,	.0789,	.1010,	.1099,	.0530,	.0309,
3,	.4982,	.4138,	.2997,	.2518,	.1969,	.2389,	.2318,	.3063,	.2081,	.1337,
4,	.4838,	.5172,	.4523,	.4498,	.2552,	.2687,	.3949,	.3806,	.3654,	.2225,
5,	.7076,	.5124,	.5229,	.5622,	.4499,	.3442,	.5339,	.4180,	.3409,	.3845,
6,	.5569,	.5405,	.5659,	.6604,	.5016,	.5779,	.4472,	.5709,	.3709,	.5572,
7,	.3662,	.4879,	.6677,	.5305,	.9680,	.5203,	.7132,	.5118,	.6559,	.4651,
8,	.6826,	.3269,	.3531,	.4345,	.8520,	1.0438,	.3331,	.8457,	.4208,	.7528,
9,	.5641,	.4806,	.5164,	.5318,	.6106,	.5556,	.4882,	.5499,	.4339,	.4800,
+gp,	.5641,	.4806,	.5164,	.5318,	.6106,	.5556,	.4882,	.5499,	.4339,	.4800,
0 FBAR 3- 7,	.5226,	.4944,	.5017,	.4909,	.4743,	.3900,	.4642,	.4375,	.3882,	.3526,

1

Run title : COD FAROE PLATEAU (ICES SUBDIVISION Vb1) COD_IND12

At 29/04/2002 0:48

Terminal Fs derived using XSA (With F shrinkage)

Table 8 Fishing mortality (F) at age

YEAR,	1972,	1973,	1974,	1975,	1976,	1977,	1978,	1979,	1980,	1981,
AGE										
2,	.0464,	.0657,	.0816,	.0774,	.0933,	.0481,	.0588,	.0433,	.0544,	.0523,
3,	.1476,	.2322,	.1568,	.3193,	.1723,	.3036,	.1896,	.2623,	.2391,	.2880,
4,	.2070,	.3048,	.2046,	.4359,	.3665,	.4748,	.4291,	.4309,	.3696,	.3409,
5,	.2497,	.2813,	.2953,	.4134,	.5568,	.7532,	.4290,	.5049,	.4337,	.4369,
6,	.6058,	.2526,	.3797,	.4544,	.5167,	.7333,	.4851,	.4906,	.5182,	.5644,
7,	.4686,	.3722,	.5330,	.3504,	.7619,	1.1138,	.5968,	.4480,	.4120,	.6940,
8,	.2464,	.3259,	.3052,	.4485,	.6429,	.7776,	.5674,	.6903,	.6438,	.5016,
9,	.3578,	.3091,	.3457,	.4235,	.5738,	.7783,	.5054,	.5170,	.4791,	.5116,
+gp,	.3578,	.3091,	.3457,	.4235,	.5738,	.7783,	.5054,	.5170,	.4791,	.5116,
0 FBAR 3- 7,	.3358,	.2886,	.3139,	.3947,	.4749,	.6758,	.4259,	.4273,	.3945,	.4648,

Table 8 Fishing mortality (F) at age

YEAR,	1982,	1983,	1984,	1985,	1986,	1987,	1988,	1989,	1990,	1991,
AGE										
2,	.0586,	.0992,	.1071,	.0657,	.0246,	.0279,	.0633,	.1729,	.0775,	.0325,
3,	.2224,	.4677,	.3713,	.3537,	.3541,	.2197,	.3364,	.4117,	.3476,	.2018,
4,	.3607,	.5576,	.5799,	.5079,	.6206,	.4746,	.5597,	.6998,	.5593,	.4836,
5,	.3887,	.6425,	.6589,	.6151,	.7041,	.4824,	.5475,	.7508,	.6582,	.4853,
6,	.4047,	.7836,	.4551,	.9173,	.8304,	.5571,	.7656,	.9558,	.6782,	.5184,
7,	.6926,	1.0782,	.4761,	1.1179,	.8267,	.4949,	.8025,	1.0305,	.8216,	.5388,
8,	.5527,	.9418,	.4795,	1.3205,	.5514,	.6024,	.8834,	1.1158,	1.0289,	.6779,
9,	.4836,	.8089,	.5342,	.9055,	.7134,	.5478,	.6731,	.9926,	.8430,	.5108,
+gp,	.4836,	.8089,	.5342,	.9055,	.7134,	.5478,	.6731,	.9926,	.8430,	.5108,
0 FBAR 3- 7,	.4138,	.7059,	.5083,	.7024,	.6672,	.4457,	.6023,	.7698,	.6130,	.4456,

Table 8 Fishing mortality (F) at age

YEAR,	1992,	1993,	1994,	1995,	1996,	1997,	1998,	1999,	2000,	2001,	FBAR 99-**
AGE											
2,	.0201,	.0131,	.0254,	.0702,	.0346,	.0451,	.0953,	.1115,	.0993,	.1400,	.1169,
3,	.1006,	.1021,	.1114,	.1611,	.1929,	.1701,	.2359,	.3442,	.3764,	.2496,	.3234,
4,	.3316,	.1879,	.1909,	.4570,	.4498,	.4121,	.3230,	.4792,	.4887,	.5596,	.5092,
5,	.3879,	.2598,	.2520,	.2809,	.7839,	.8249,	.6485,	.4489,	.4980,	.4292,	.4587,
6,	.4453,	.2345,	.2282,	.3653,	.9094,	.9657,	1.0259,	.7501,	.5316,	1.0546,	.7788,
7,	.4486,	.2542,	.1896,	.3504,	1.1719,	1.4205,	.6556,	1.1590,	.6638,	2.1167,	1.3132,
8,	.3937,	.1898,	.1551,	.2924,	1.0175,	1.4970,	1.2310,	.6208,	.9614,	.9163,	.8328,
9,	.4813,	.2805,	.1959,	.2628,	1.7283,	1.3801,	1.1965,	.6479,	.1385,	1.1251,	.6372,
+gp,	.4813,	.2805,	.1959,	.2628,	1.7283,	1.3801,	1.1965,	.6479,	.1385,	1.1251,	
0 FBAR 3- 7,	.3428,	.2077,	.1944,	.3229,	.7016,	.7587,	.5778,	.6363,	.5117,	.8819,	

1

Run title : COD FAROE PLATEAU (ICES SUBDIVISION Vb1) COD_IND12

At 29/04/2002 0:48

Terminal Fs derived using XSA (With F shrinkage)

Table 10 Stock number at age (start of year) Numbers*10**-3
YEAR, 1961,

AGE
2, 12019,
3, 7385,
4, 3747,
5, 2699,
6, 666,
7, 668,
8, 155,
9, 66,
+gp, 0,
0 TOTAL, 27403,

Table 10 Stock number at age (start of year) Numbers*10**-3

YEAR,	1962,	1963,	1964,	1965,	1966,	1967,	1968,	1969,	1970,	1971,
AGE										
2,	20654,	20290,	21834,	8269,	18566,	23451,	17582,	9325,	8608,	11928,
3,	7042,	12907,	12893,	16037,	5999,	13990,	17744,	13012,	6840,	6684,
4,	3616,	3503,	6986,	7823,	10207,	4034,	9020,	11522,	7843,	4548,
5,	1863,	1825,	1710,	3639,	4085,	6475,	2525,	4976,	6447,	4456,
6,	1245,	752,	895,	830,	1698,	2133,	3757,	1212,	2682,	3754,
7,	335,	584,	358,	416,	351,	842,	980,	1967,	561,	1516,
8,	210,	190,	294,	151,	200,	109,	410,	393,	965,	238,
9,	56,	87,	112,	169,	80,	70,	31,	240,	138,	519,
+gp,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0 TOTAL,	35021,	40138,	45083,	37333,	41186,	51104,	52049,	42647,	34085,	33643,

1

Table 10 Stock number at age (start of year) Numbers*10**-3

YEAR,	1972,	1973,	1974,	1975,	1976,	1977,	1978,	1979,	1980,	1981,
AGE										
2,	21320,	12573,	30480,	38319,	18575,	9995,	10748,	14997,	23564,	14013,
3,	9469,	16664,	9639,	23000,	29035,	13853,	7799,	8297,	11759,	18271,
4,	4788,	6688,	10816,	6747,	13683,	20009,	8372,	5282,	5226,	7580,
5,	2981,	3187,	4037,	7217,	3572,	7765,	10189,	4463,	2811,	2957,
6,	2483,	1901,	1969,	2460,	3908,	1676,	2993,	5432,	2205,	1491,
7,	1760,	1109,	1209,	1103,	1279,	1909,	659,	1509,	2723,	1075,
8,	779,	902,	626,	581,	636,	489,	513,	297,	789,	1477,
9,	92,	499,	533,	378,	304,	274,	184,	238,	122,	339,
+gp,	0,	400,	342,	476,	466,	18,	154,	103,	52,	150,
0 TOTAL,	43673,	43924,	59653,	80280,	71457,	55987,	41612,	40619,	49251,	47354,

Table 10 Stock number at age (start of year) Numbers*10**-3

YEAR,	1982,	1983,	1984,	1985,	1986,	1987,	1988,	1989,	1990,	1991,
AGE										
2,	22113,	25152,	47834,	17337,	9553,	10312,	9166,	15572,	3599,	6630,
3,	10889,	17074,	18648,	35186,	13291,	7631,	8210,	7044,	10725,	2727,
4,	11216,	7137,	8757,	10532,	20226,	7637,	5015,	4802,	3821,	6203,
5,	4413,	6402,	3346,	4015,	5189,	8903,	3890,	2346,	1953,	1788,
6,	1564,	2450,	2757,	1417,	1777,	2101,	4499,	1842,	907,	828,
7,	694,	854,	916,	1432,	464,	634,	985,	1713,	580,	377,
8,	440,	284,	238,	466,	383,	166,	316,	362,	500,	209,
9,	732,	207,	91,	121,	102,	181,	74,	107,	97,	146,

	+gp,	348,	200,	174,	146,	81,	67,	56,	16,	50,	66,
0	TOTAL,	52409,	59760,	82761,	70650,	51065,	37633,	32213,	33803,	22231,	18973,

Table 10 Stock number at age (start of year) Numbers*10**-3

YEAR,	1992,	1993,	1994,	1995,	1996,	1997,	1998,	1999,	2000,	2001,	2002,	GMST 61-99	AMST 61-99
AGE													
2,	11383,	10221,	25272,	42615,	11419,	5007,	5533,	13567,	26149,	34115,	0,	14450,	16908,
3,	5254,	9134,	8260,	20173,	32524,	9032,	3919,	4118,	9936,	19386,	24288,	10785,	12619,
4,	1825,	3890,	6752,	6050,	14058,	21956,	6238,	2534,	2390,	5583,	12370,	6858,	7966,
5,	3131,	1072,	2639,	4567,	3136,	7341,	11905,	3698,	1285,	1200,	2613,	3788,	4349,
6,	901,	1739,	677,	1680,	2824,	1172,	2634,	5096,	1932,	639,	640,	1829,	2128,
7,	404,	473,	1126,	441,	954,	931,	365,	773,	1971,	930,	182,	815,	949,
8,	180,	211,	300,	763,	254,	242,	184,	155,	199,	831,	92,	340,	412,
9,	87,	99,	143,	210,	466,	75,	44,	44,	68,	62,	272,	144,	194,
+gp,	97,	112,	99,	233,	61,	173,	39,	18,	9,	10,	19,		
0 TOTAL,	23262,	26952,	45269,	76732,	65698,	45929,	30861,	30003,	43939,	62756,	40475,		

1

Run title : COD FAROE PLATEAU (ICES SUBDIVISION Vb1) COD_IND12

At 29/04/2002 0:48

Table 16 Summary (without SOP correction)

Terminal Fs derived using XSA (With F shrinkage)

	RECRUITS, Age 2	TOTALBIO,	TOTSPBIO,	LANDINGS,	YIELD/SSB,	FBAR 3- 7,
1961,	12019,	65428,	46439,	21598,	.4651,	.6059,
1962,	20654,	68225,	43326,	20967,	.4839,	.5226,
1963,	20290,	77602,	49054,	22215,	.4529,	.4944,
1964,	21834,	84666,	55362,	21078,	.3807,	.5017,
1965,	8269,	75043,	57057,	24212,	.4244,	.4909,
1966,	18566,	83919,	60629,	20418,	.3368,	.4743,
1967,	23451,	105289,	73934,	23562,	.3187,	.3900,
1968,	17582,	110433,	82484,	29930,	.3629,	.4642,
1969,	9325,	105537,	83487,	32371,	.3877,	.4375,
1970,	8608,	98398,	82034,	24183,	.2948,	.3882,
1971,	11928,	78218,	63308,	23010,	.3635,	.3526,
1972,	21320,	76439,	57179,	18727,	.3275,	.3358,
1973,	12573,	110713,	83547,	22228,	.2661,	.2886,
1974,	30480,	139266,	98433,	24581,	.2497,	.3139,
1975,	38319,	153663,	109565,	36775,	.3356,	.3947,
1976,	18575,	161259,	123076,	39799,	.3234,	.4749,
1977,	9995,	136210,	112056,	34927,	.3117,	.6758,
1978,	10748,	96236,	78506,	26585,	.3386,	.4259,
1979,	14997,	85110,	66721,	23112,	.3464,	.4273,
1980,	23564,	85018,	58881,	20513,	.3484,	.3945,
1981,	14013,	88400,	63547,	22963,	.3614,	.4648,
1982,	22113,	98930,	67013,	21489,	.3207,	.4138,
1983,	25152,	123206,	78513,	38133,	.4857,	.7059,
1984,	47834,	152181,	96721,	36979,	.3823,	.5083,
1985,	17337,	131291,	84780,	39484,	.4657,	.7024,
1986,	9553,	99376,	73735,	34595,	.4692,	.6672,
1987,	10312,	78895,	62319,	21391,	.3432,	.4457,
1988,	9166,	67402,	52746,	23182,	.4395,	.6023,
1989,	15572,	59731,	39404,	22068,	.5600,	.7698,
1990,	3599,	38899,	30065,	13487,	.4486,	.6130,
1991,	6630,	29648,	22150,	8750,	.3950,	.4456,
1992,	11383,	36615,	21720,	6396,	.2945,	.3428,
1993,	10221,	52103,	34010,	6107,	.1796,	.2077,
1994,	25272,	85633,	54730,	9046,	.1653,	.1944,
1995,	42615,	145548,	66905,	23045,	.3444,	.3229,
1996,	11419,	140343,	85617,	40422,	.4721,	.7016,
1997,	5007,	93751,	83936,	34304,	.4087,	.7587,
1998,	5533,	62354,	54297,	24005,	.4421,	.5778,
1999,	13567,	59498,	40895,	20013,	.4894,	.6363,
2000,	26149,	90472,	38280,	22496,	.5877,	.5117,
2001,	34115,	114309,	53376,	29047,	.5442,	.8819,
Arith. Mean ,	17553,	93787,	65606,	24590,	.3834,	.4958,

```
0 Units,   (Thousands),    (Tonnes),    (Tonnes),    (Tonnes),
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Figures

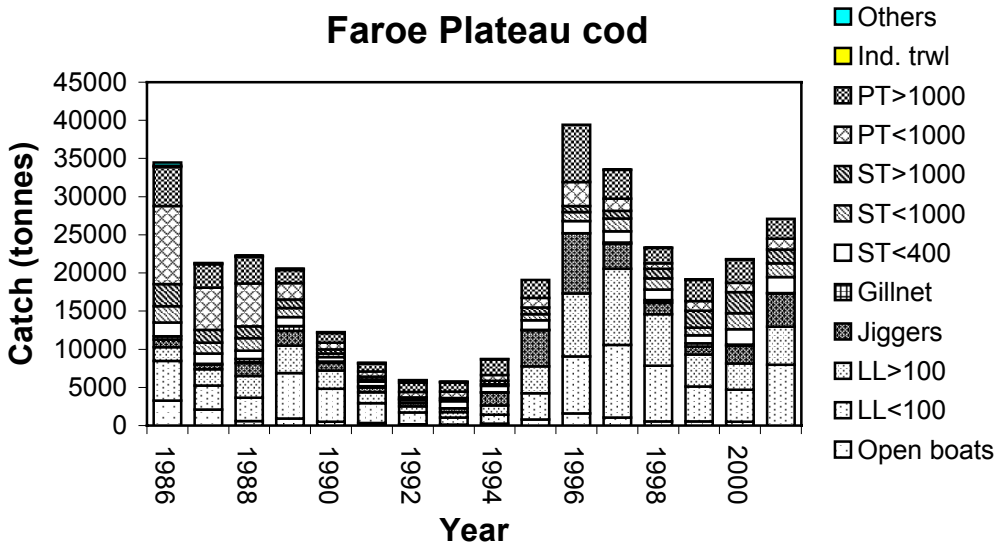


Figure 2.2.1.1. Faroe Plateau (sub-division Vb1) COD. Catch landed by faroese fleets 1986-2001.

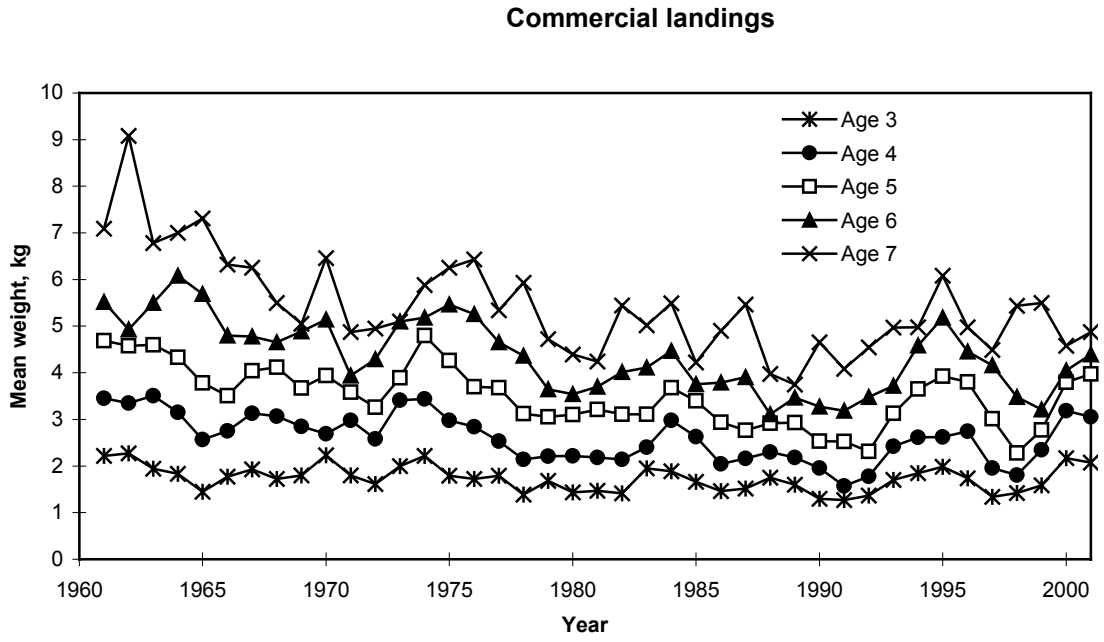


Figure 2.2.3.1. Faroe Plateau (sub-division Vb1) COD. Mean weight at age 1961-2001.

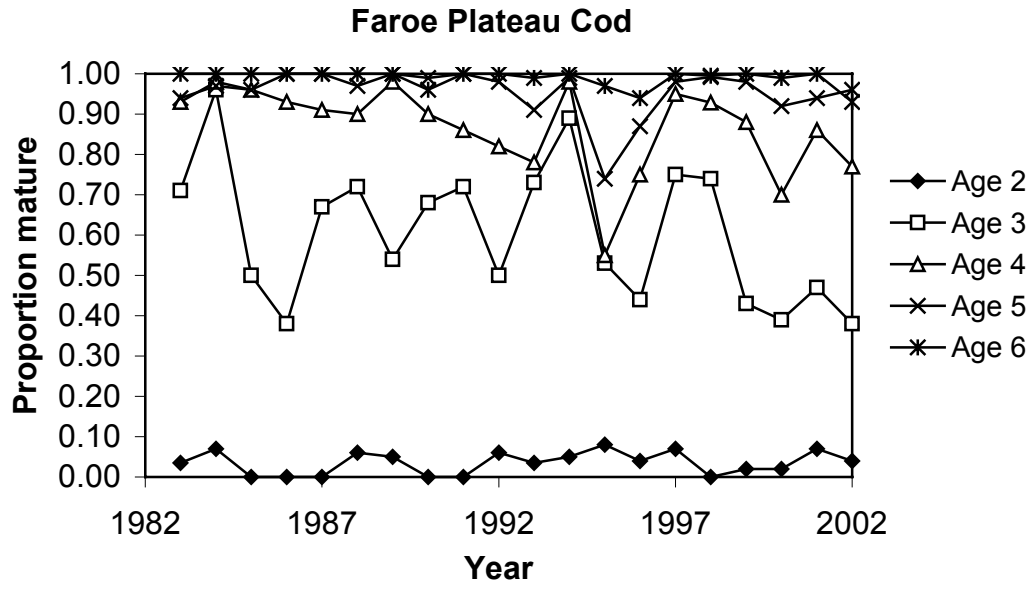


Figure 2.2.4.1. Faroe Plateau (sub-division Vb1) COD. Proportion mature as observed in the spring groundfish survey.

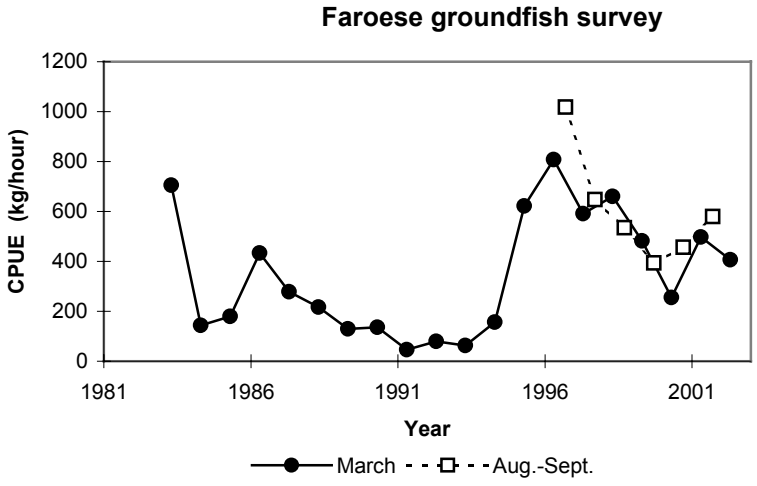


Figure 2.2.5.1. Faroe Plateau (sub-division Vb1) COD. Catch per unit effort in the spring and summer survey.

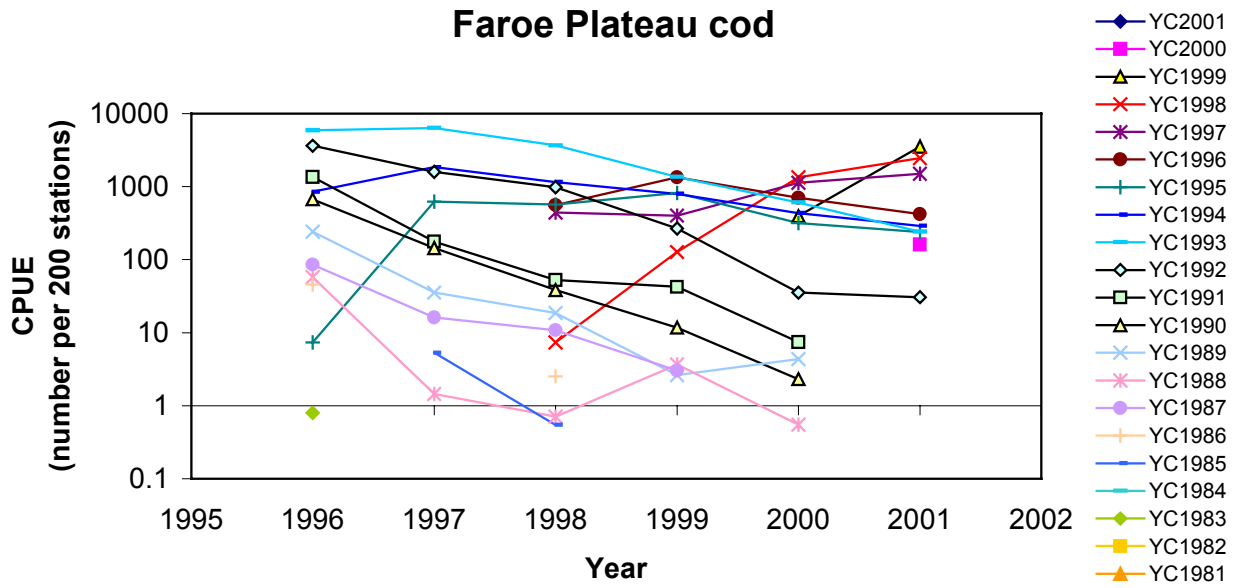


Figure 2.2.5.2. Faroe Plateau (sub-division Vb1) COD. Catch per unit of effort in the summer series segregated into year classes by year.

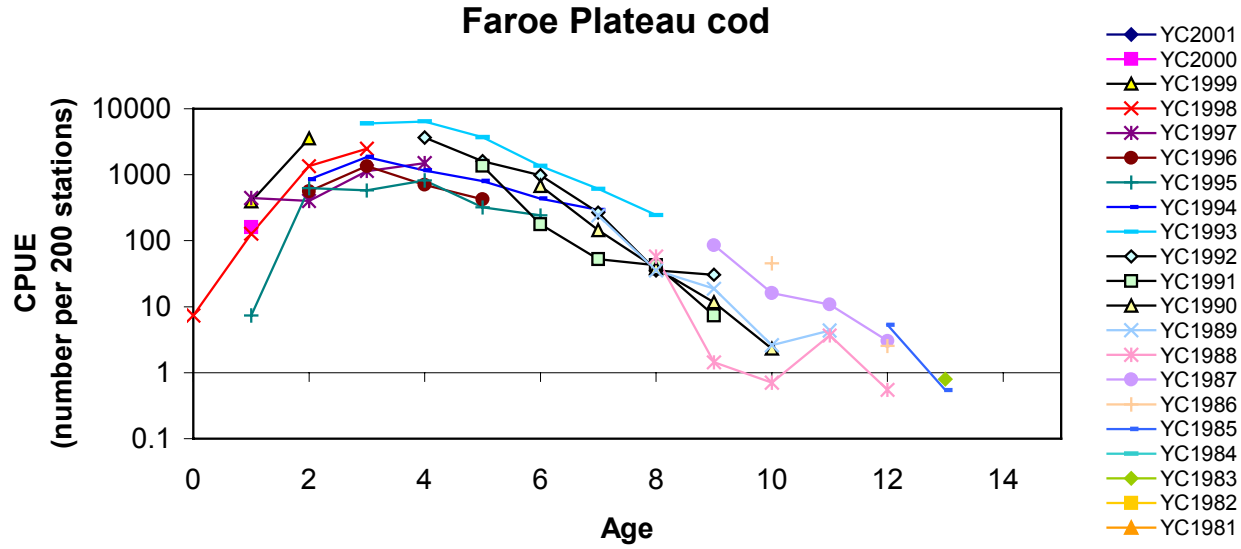


Figure 2.2.5.3. Faroe Plateau (sub-division Vb1) COD. Catch per unit of effort in the summer series segregated into year classes by age.

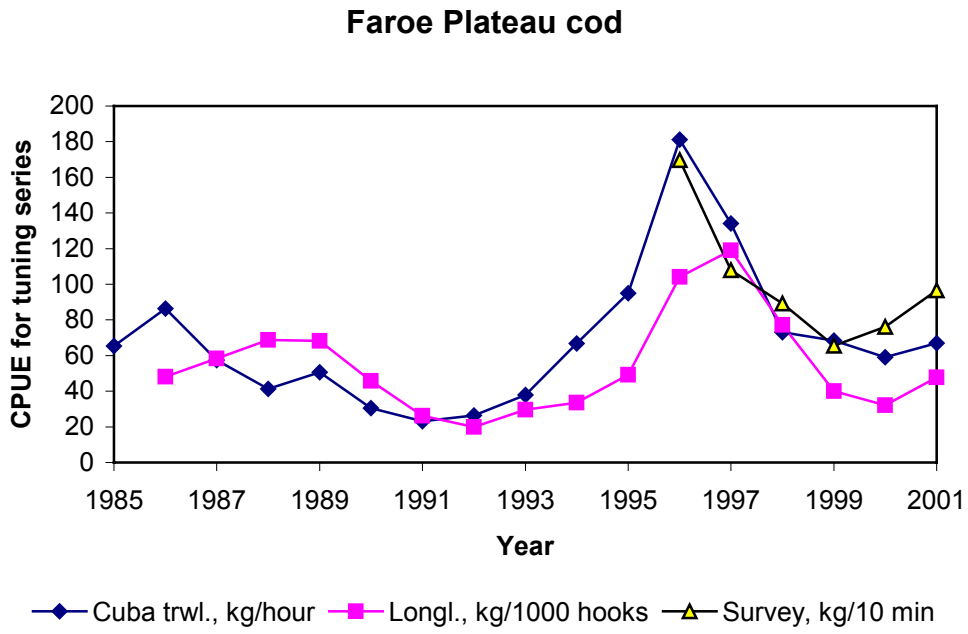


Figure 2.2.6.1. Faroe Plateau (sub-division Vb1) COD. Catch per unit effort for Cuba trawlers and longliners.

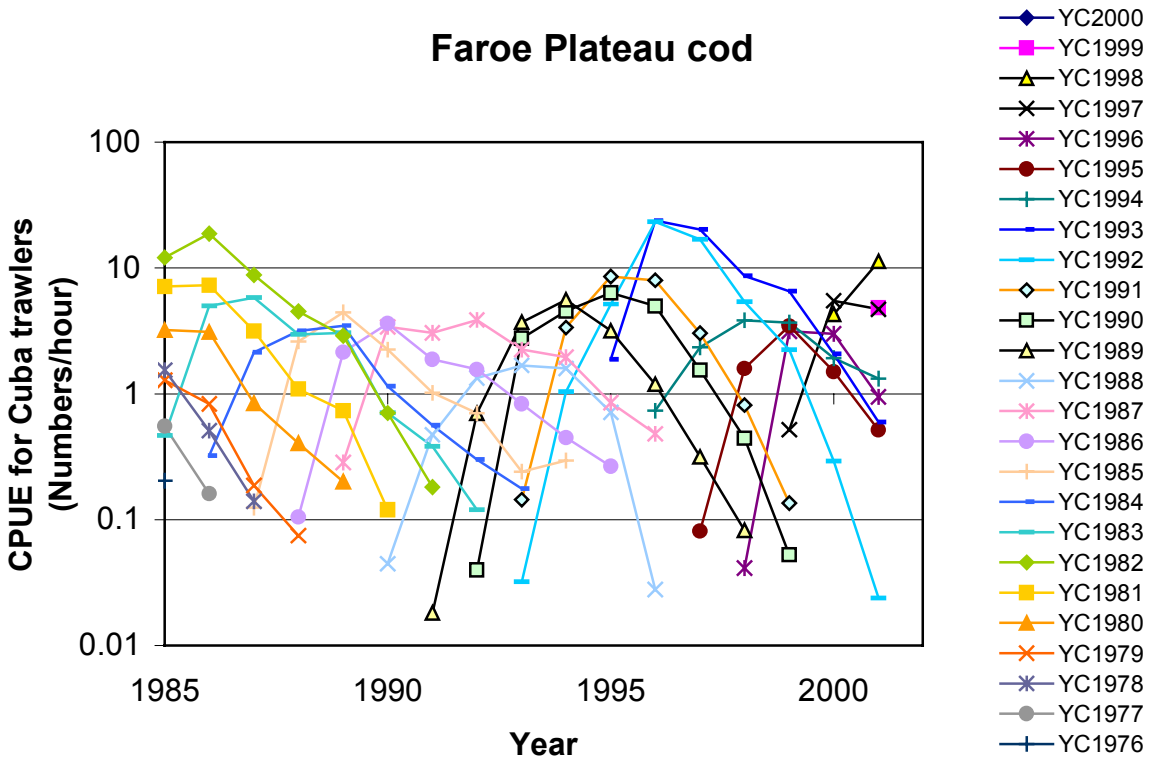


Figure 2.2.6.1.3. Faroe Plateau (sub-division Vb1) COD. Catch per unit effort for Cuba trawlers segregated to age classes.

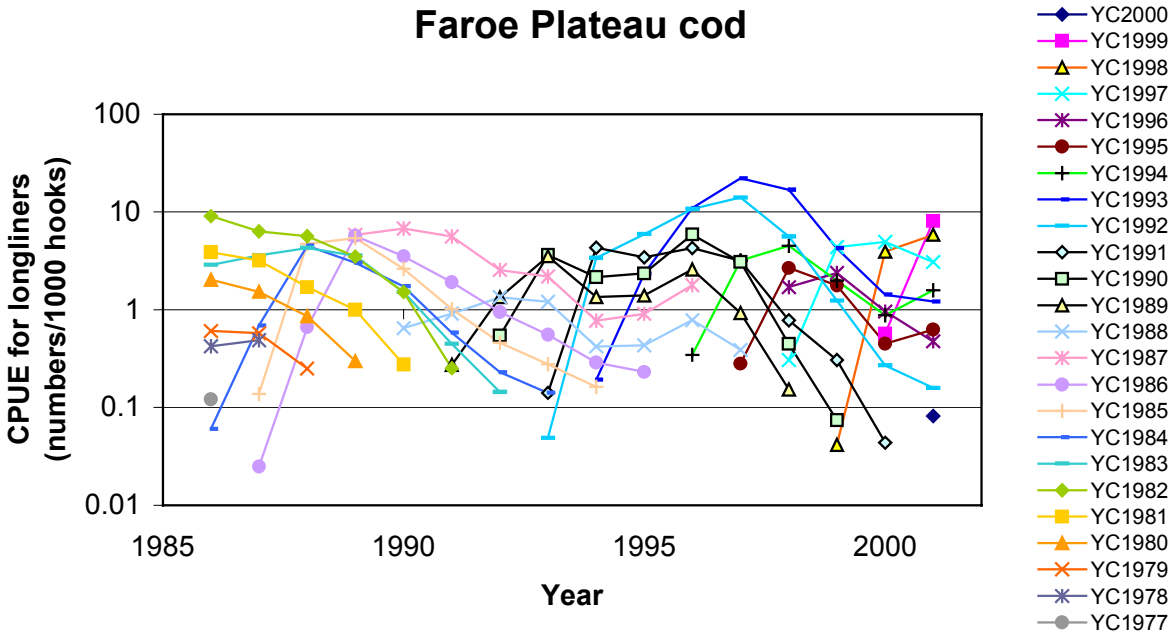


Figure 2.2.6.1.4. Faroe Plateau (sub-division Vb1) COD. Catch per unit effort for longliners segregated to age classes.

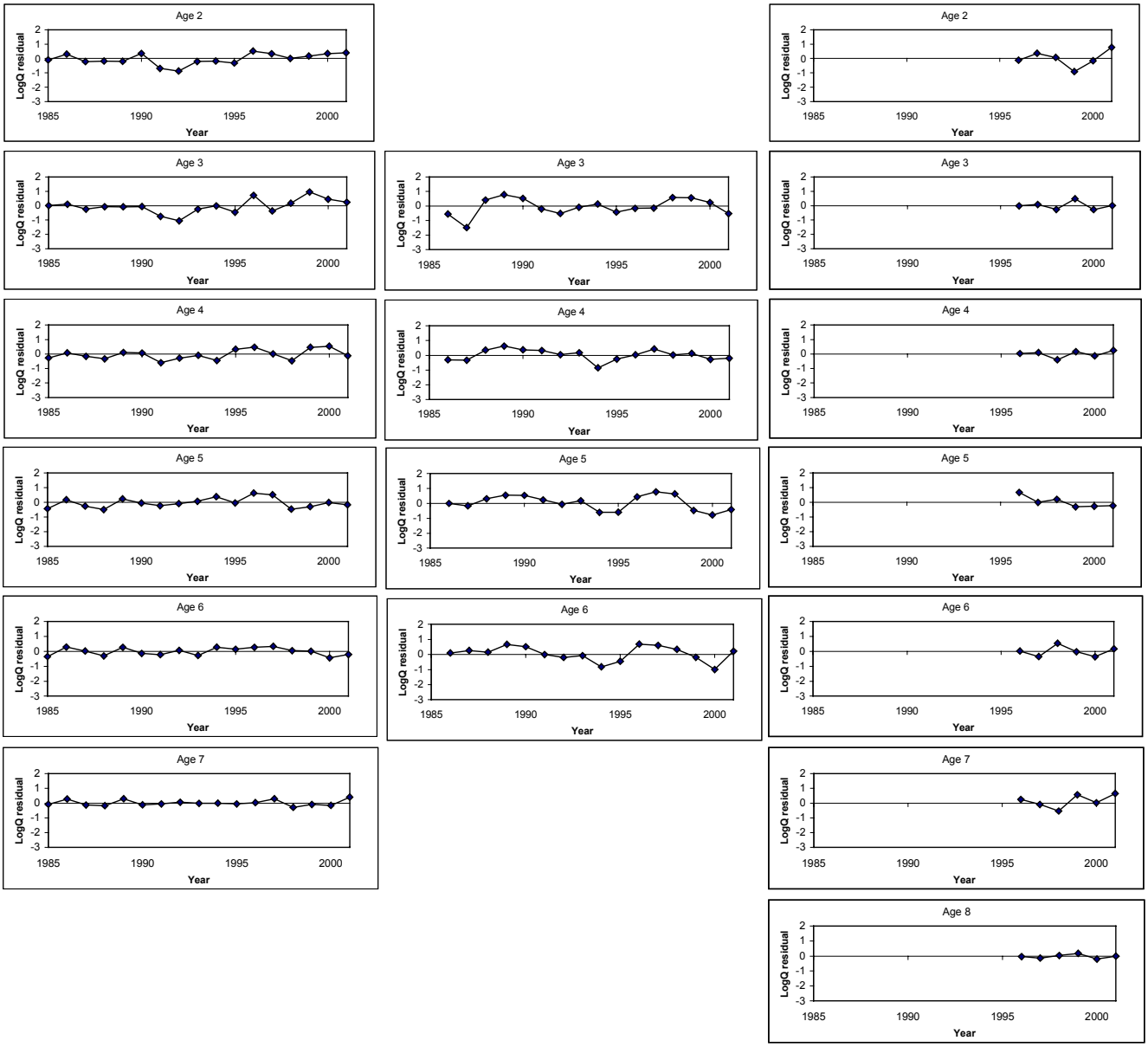
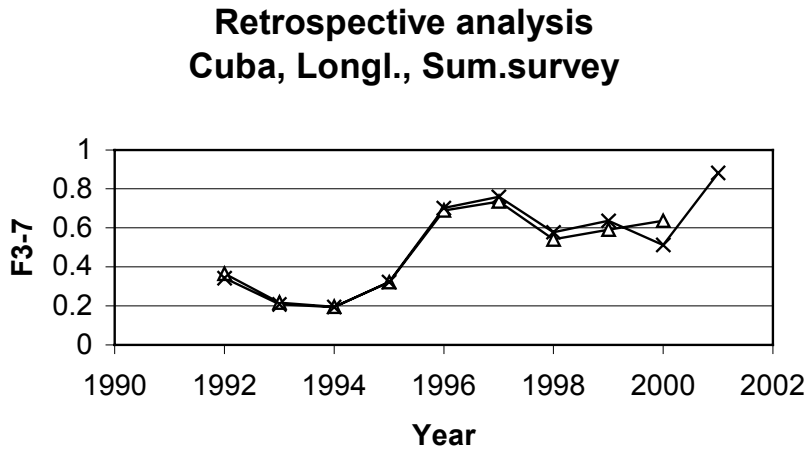
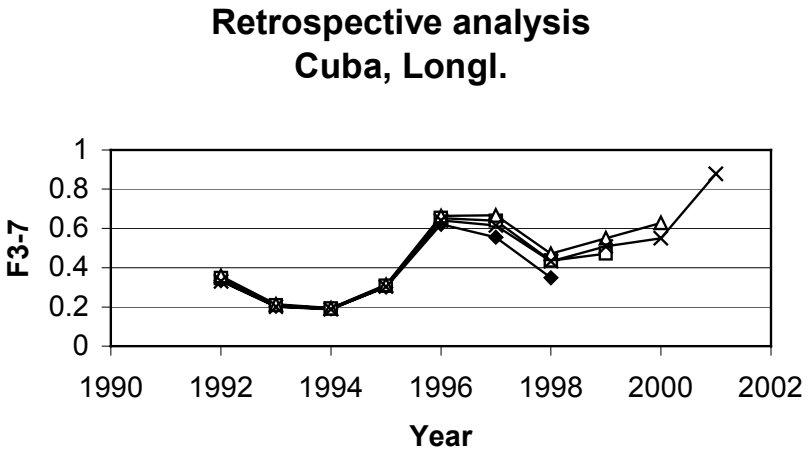


Figure 2.2.6.1.5. Faroe Plateau (sub-division Vb1) COD. Log catchability residuals for Cuba trawlers (left), longliners (middle) and summer survey (right).





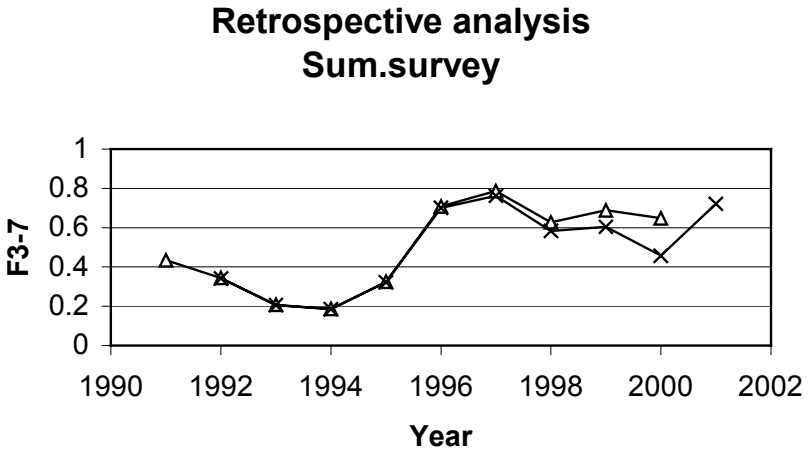
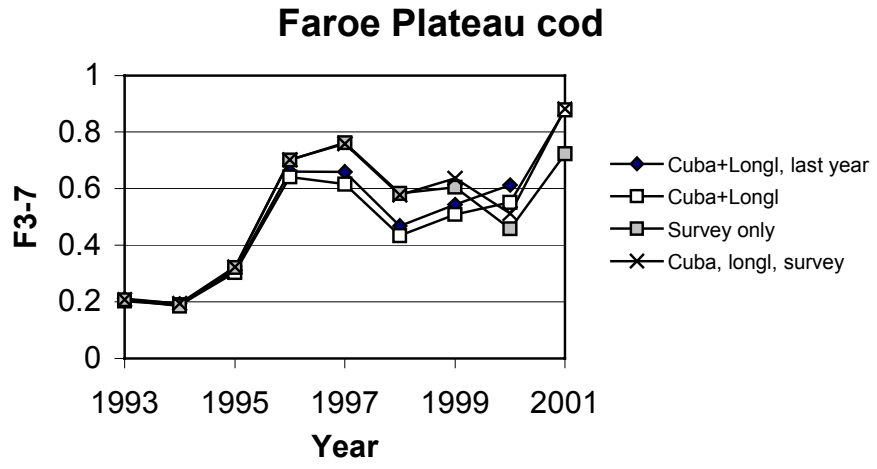
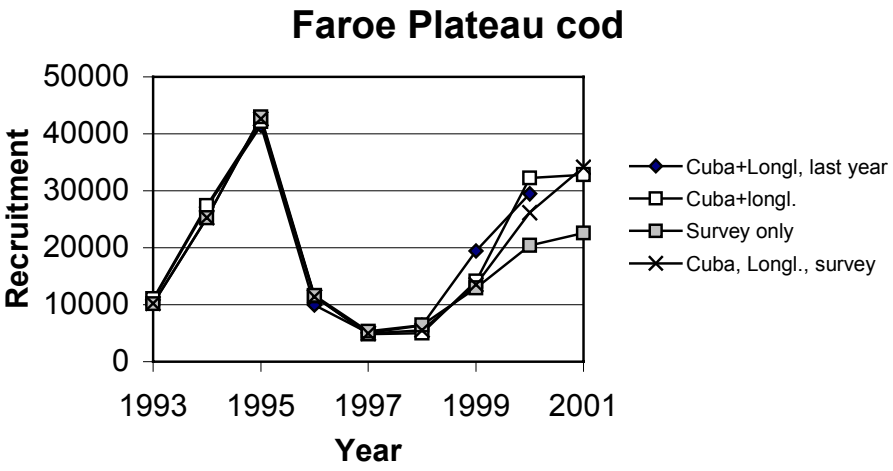


Figure 2.2.6.1.6. Faroe Plateau (sub-division Vb1) COD. Results from the retrospective analysis.





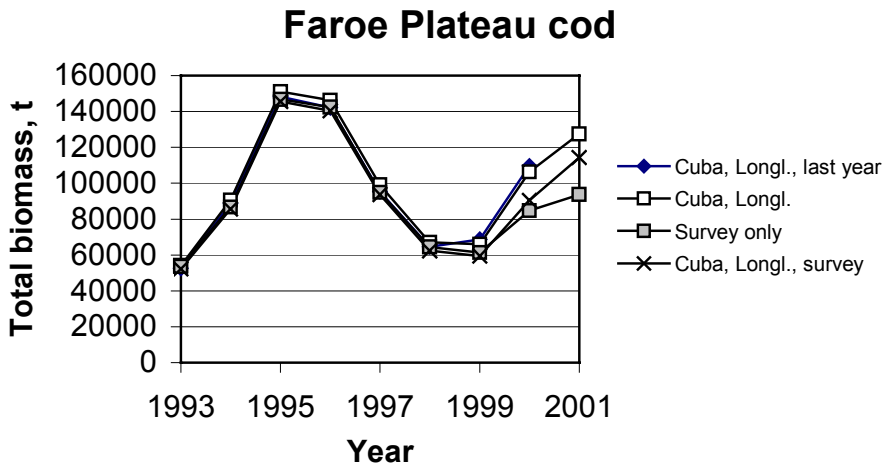


Figure 2.2.6.1.7. Faroe Plateau (sub-division Vb1) COD. Comparison of assessments using different tuning series, including the assessment from last year.