

**The effects of IUU fishing on stock
assessments,
predictions and management advice**

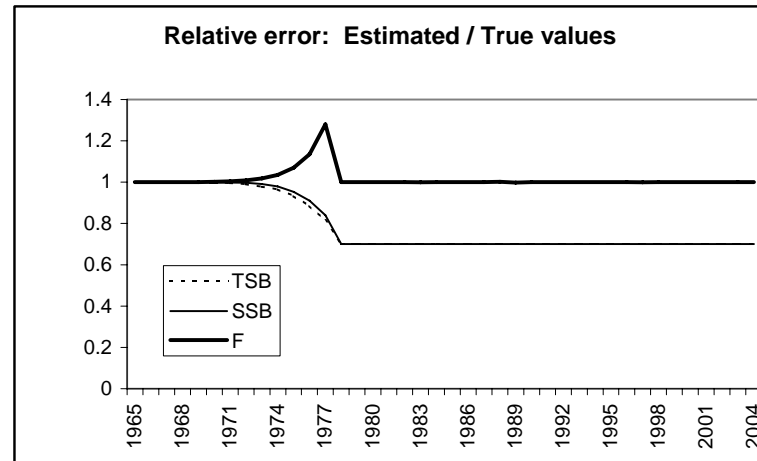
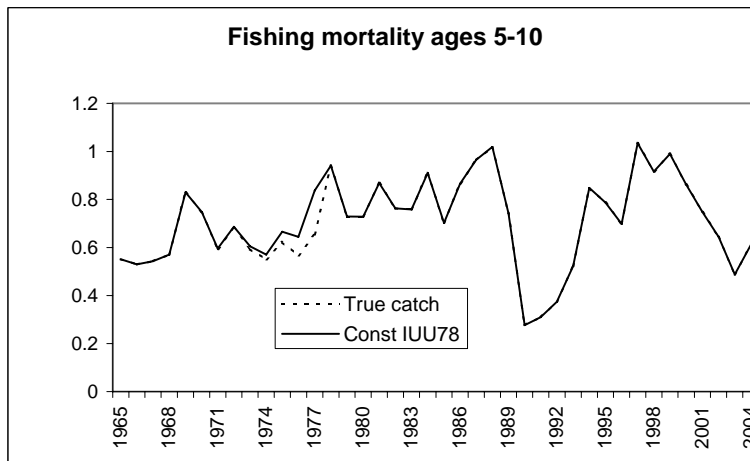
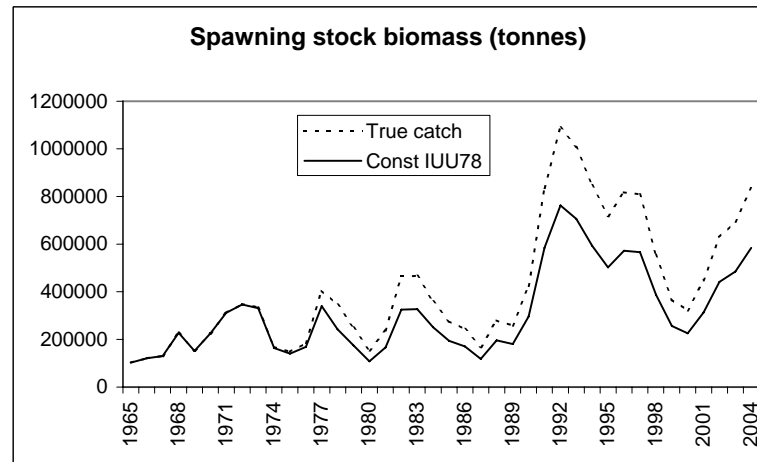
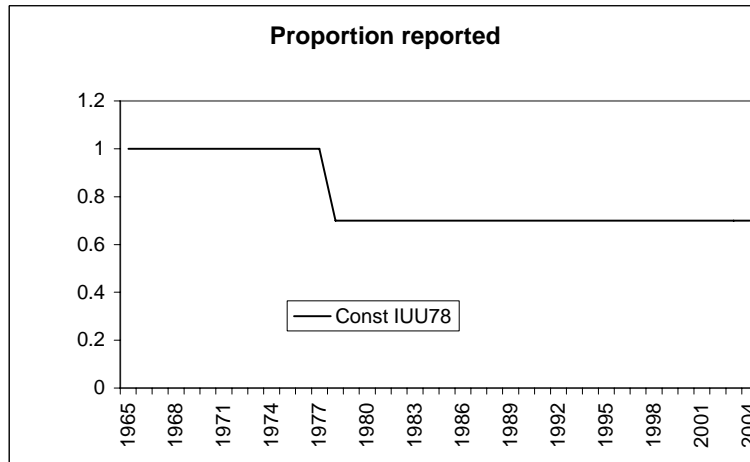
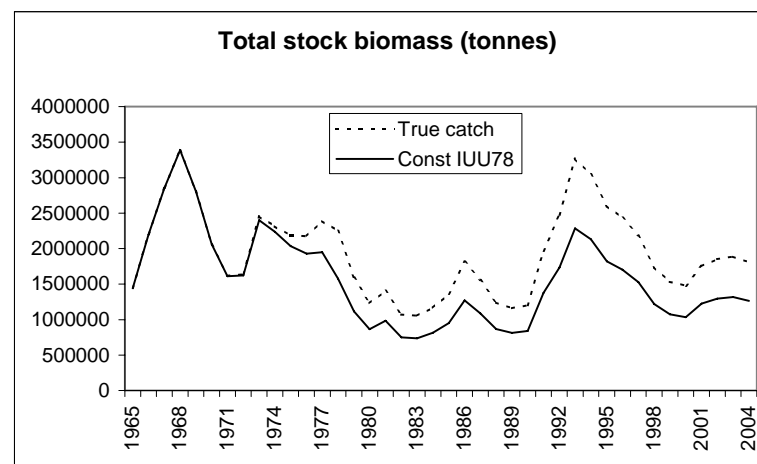
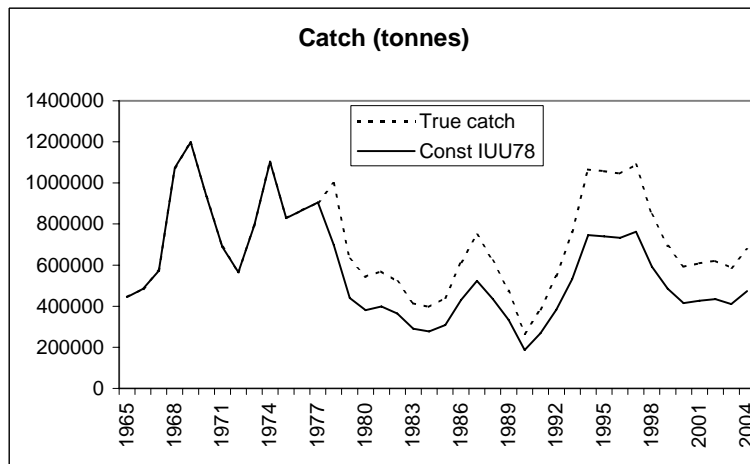
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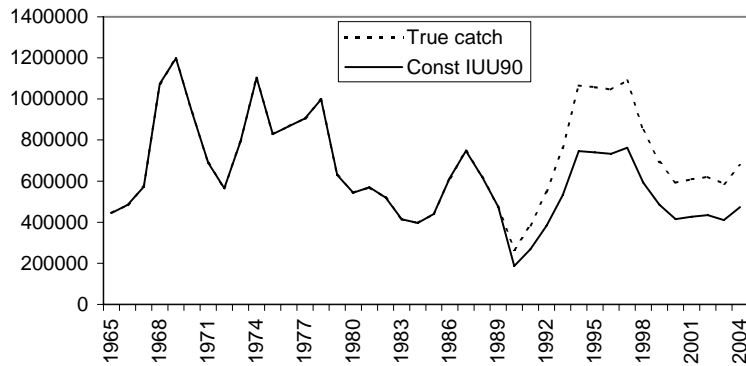
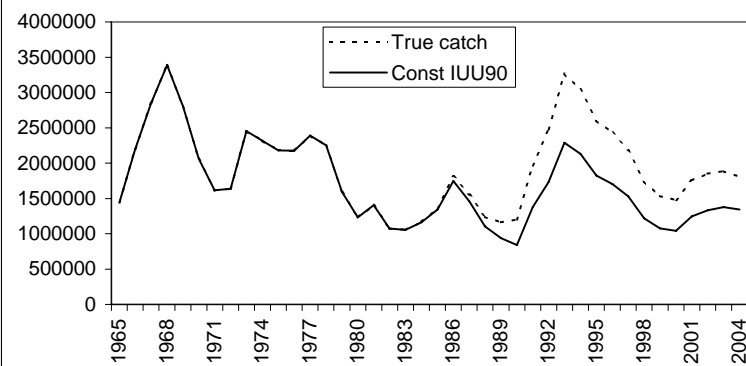
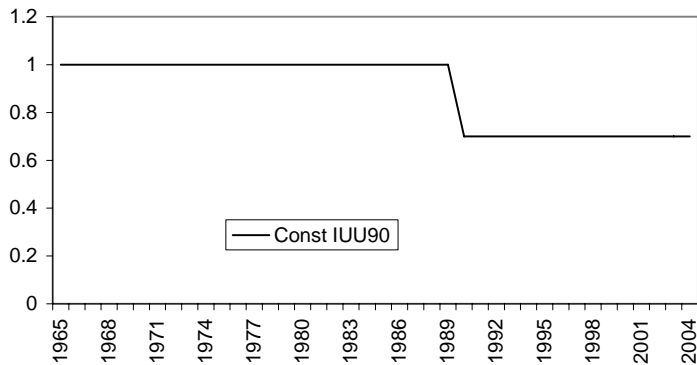
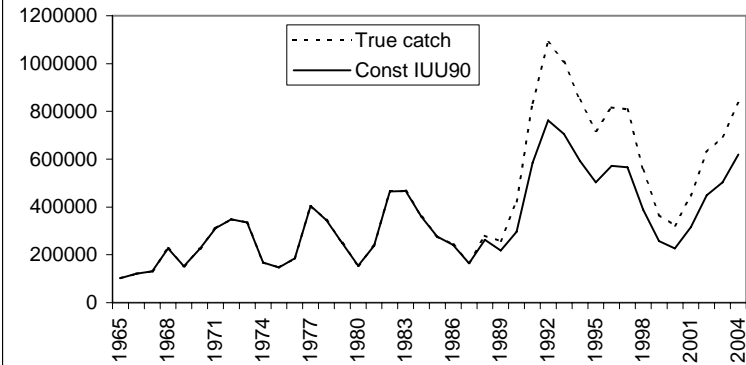
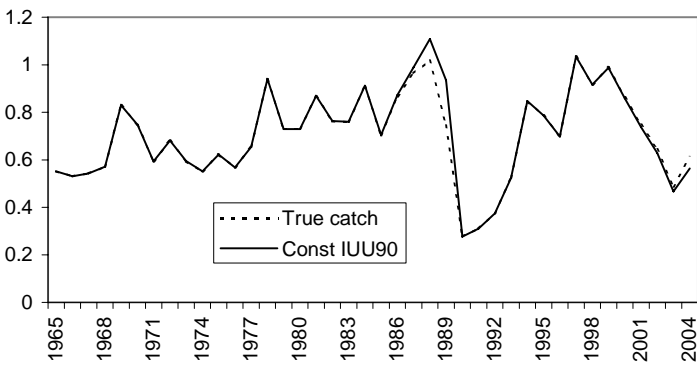
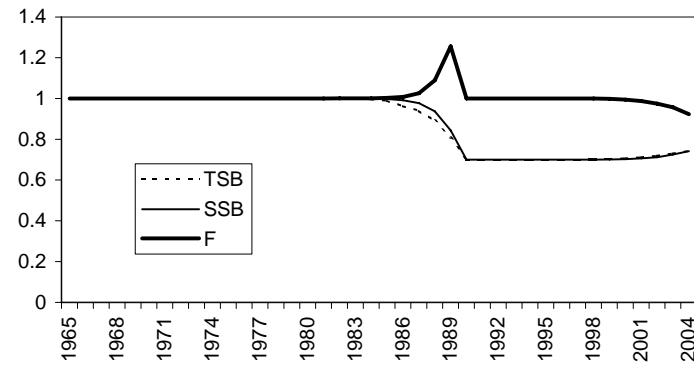
Asgeir Aglen and Odd Nakken

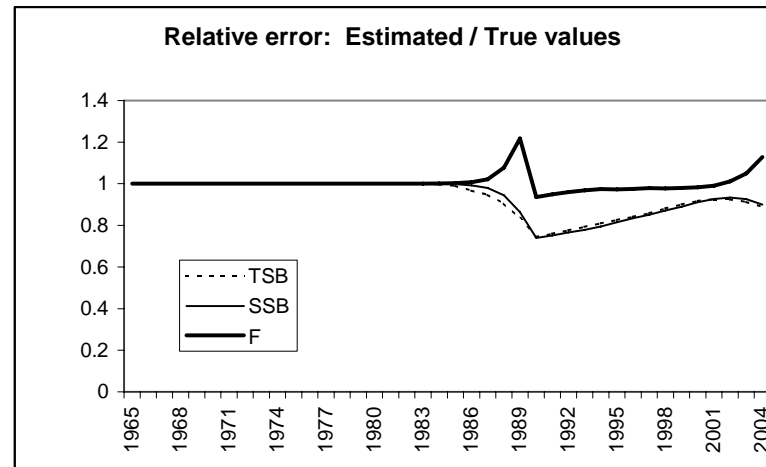
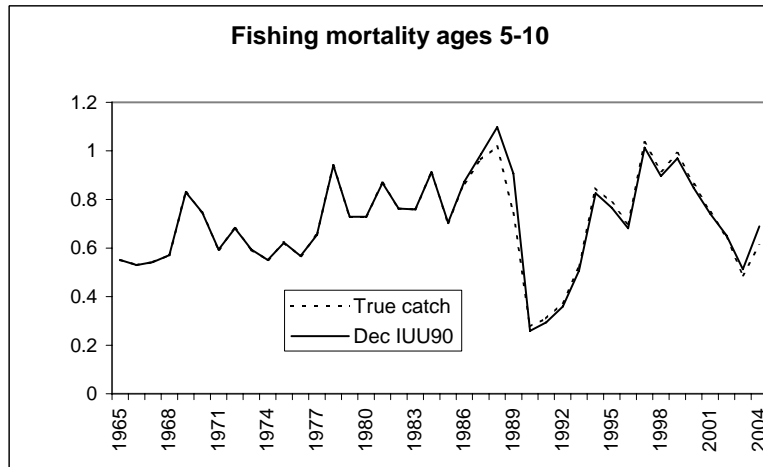
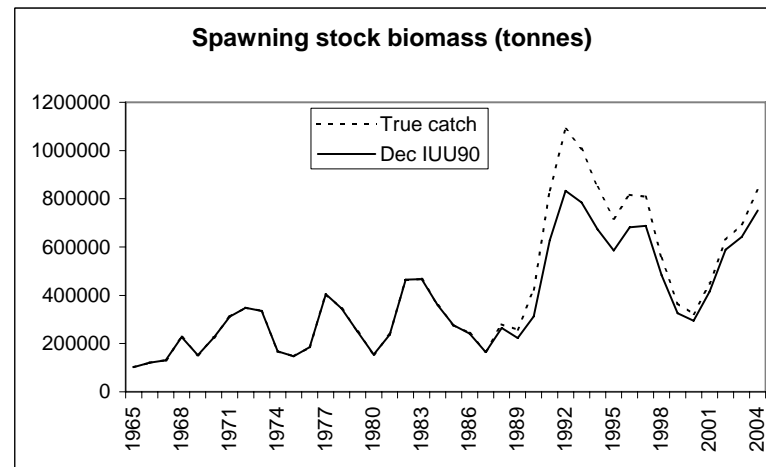
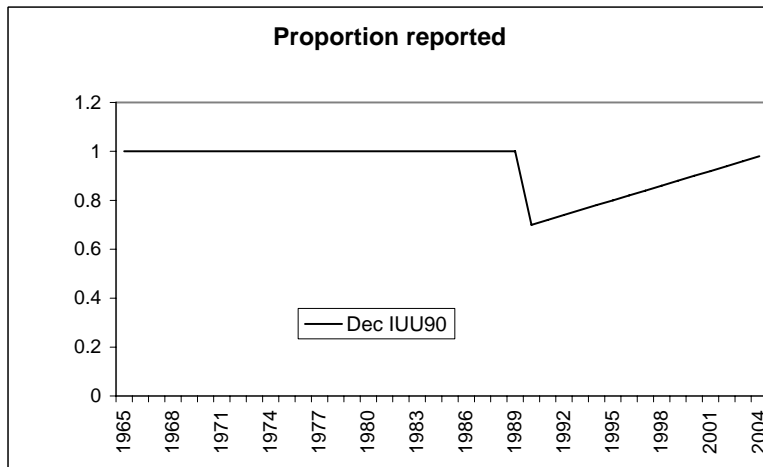
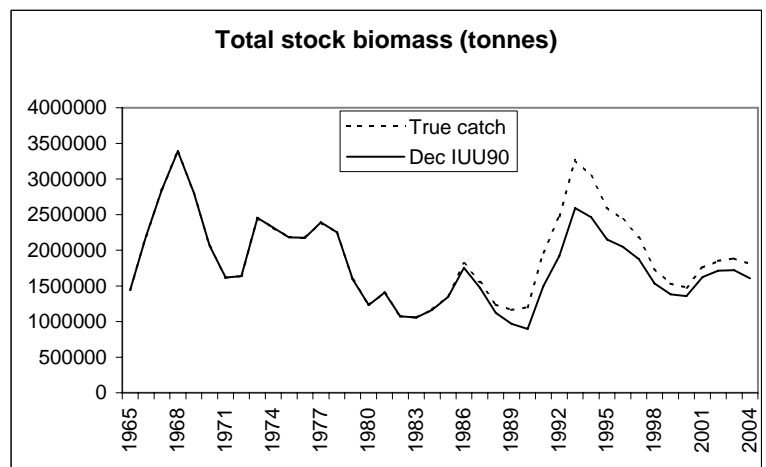
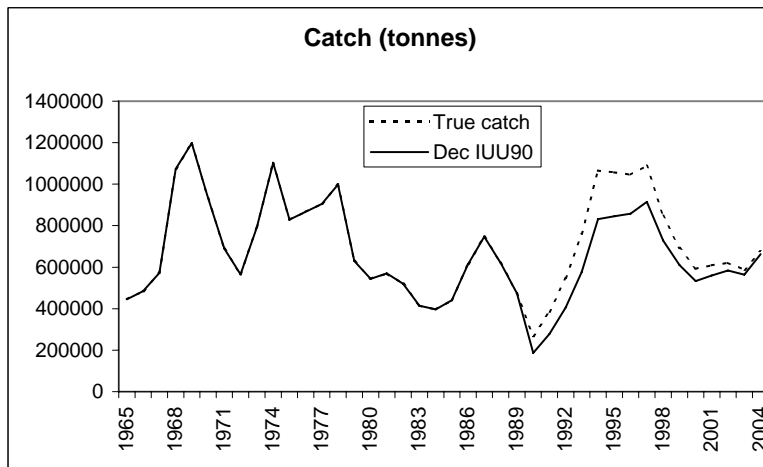
IMR Bergen, Norway

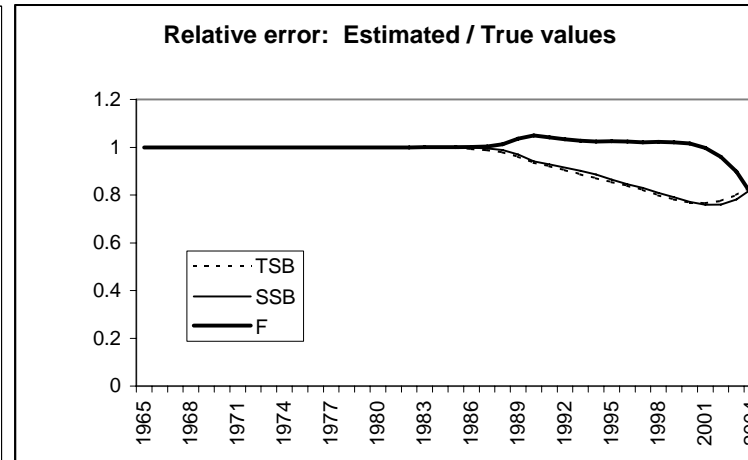
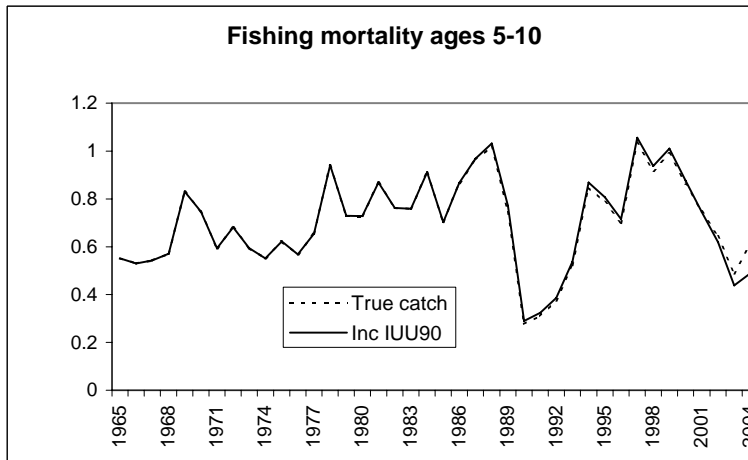
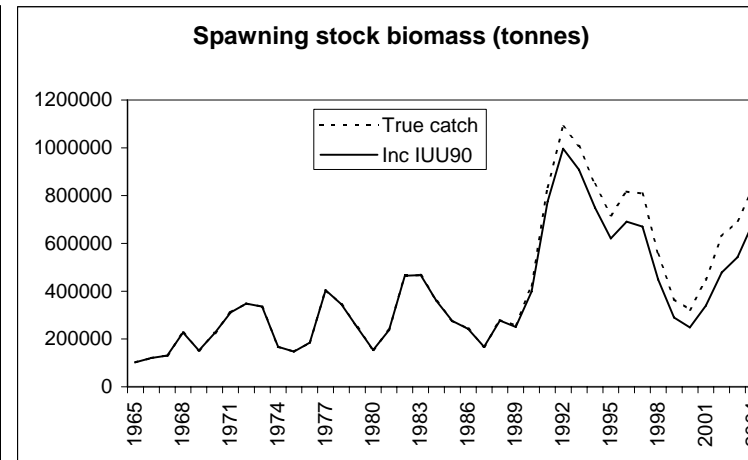
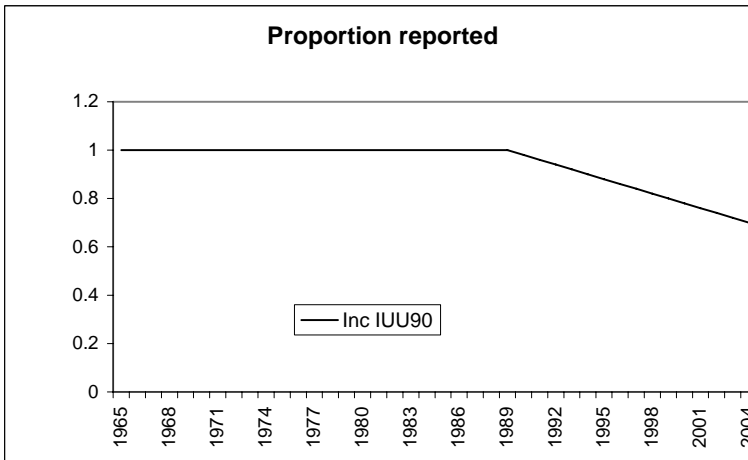
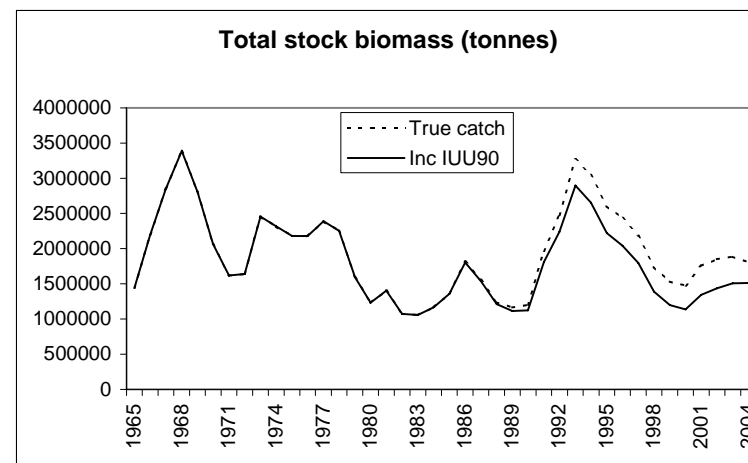
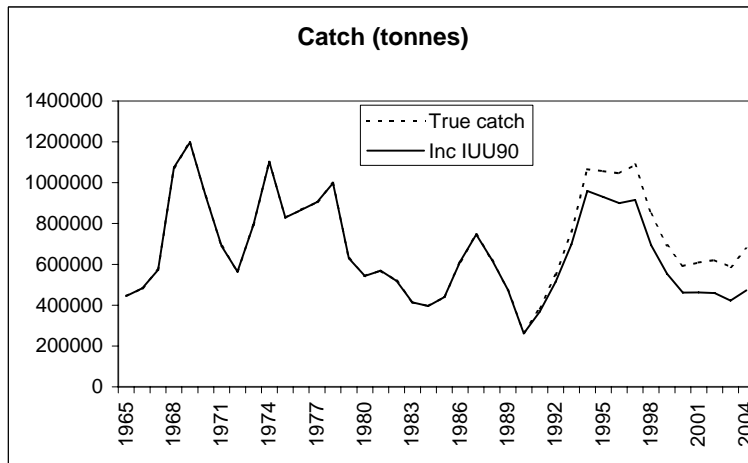
- Illegal
- Unregulated
- Unreported—assessment-prediction-advice

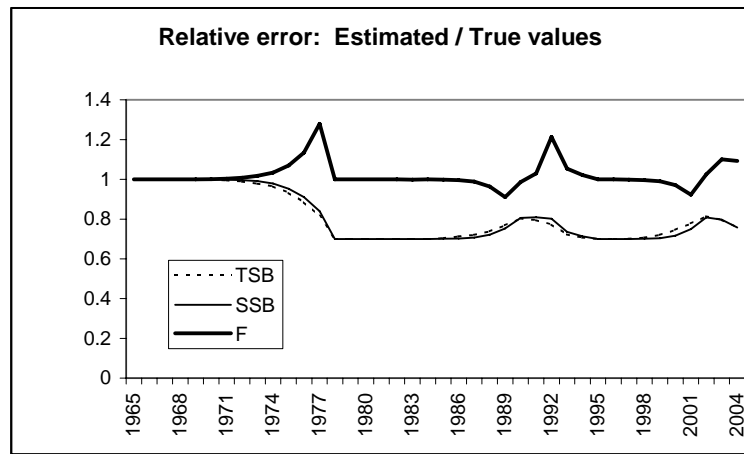
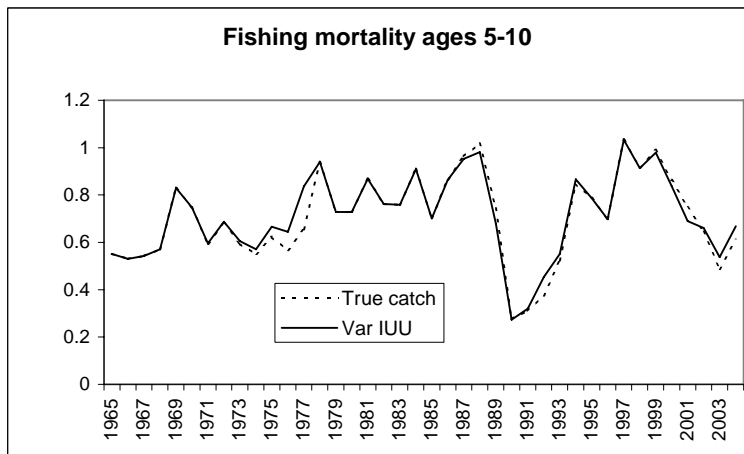
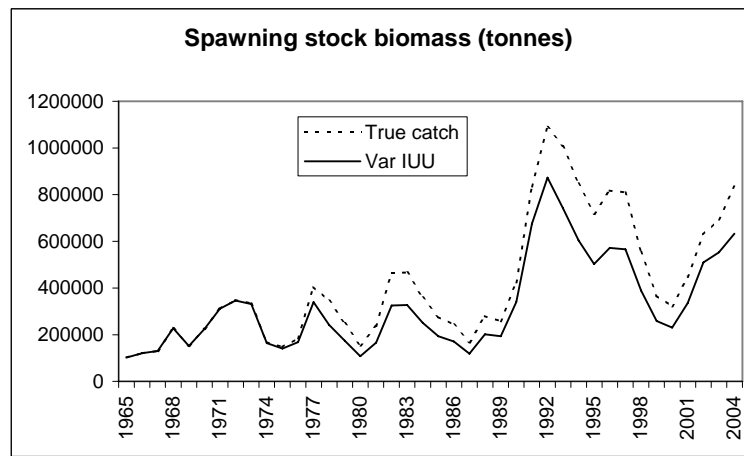
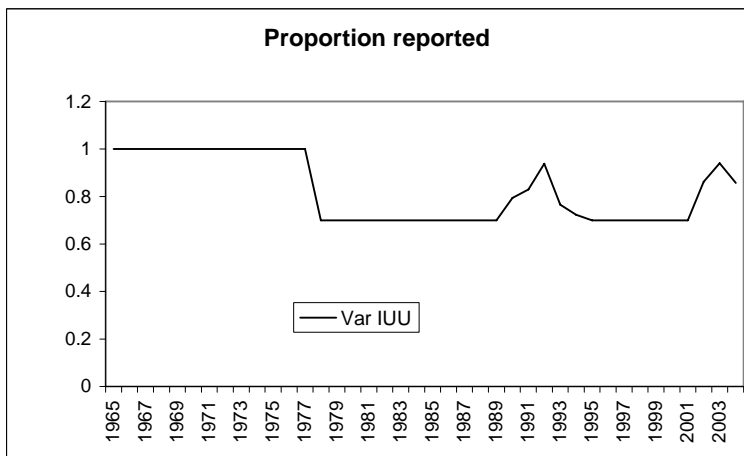
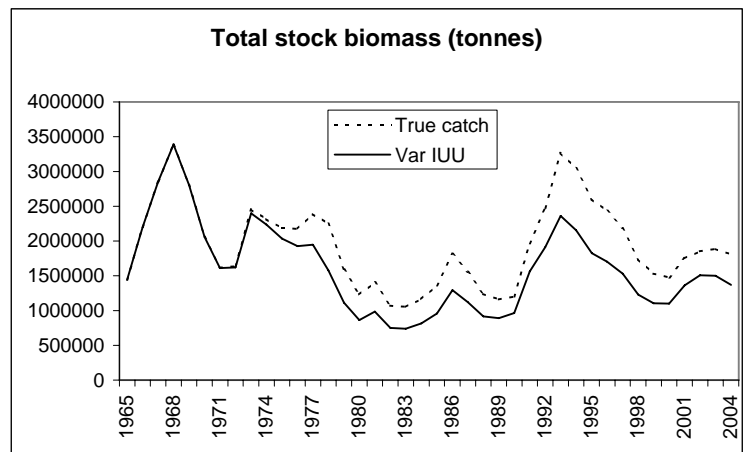
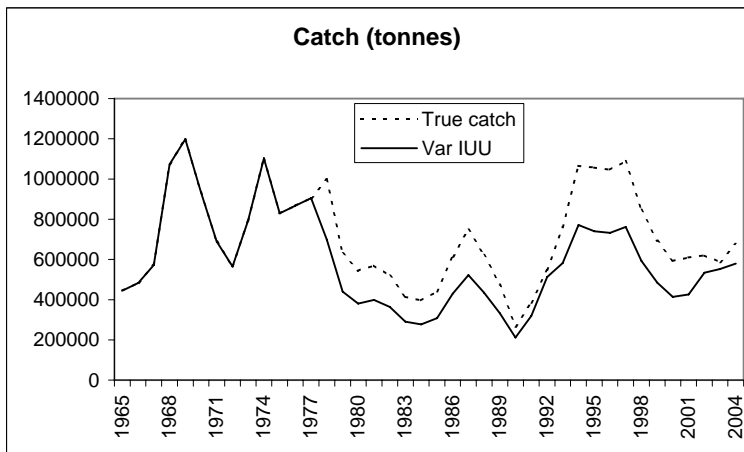
Year	Age											Catch	SSB
	3	4	5	6	7	8	9	10	11	12	13+	'000 T	'000 T
2101	600	433	319	214	129	71	35.8	17.8	8.6	4.0	3.3	714	1337
2102	600	433	319	214	129	71	35.8	17.8	8.6	4.0	3.3	714	1337
2103	600	433	319	214	129	71	35.8	17.8	8.6	4.0	3.3	983	1337
2104	600	431	308	195	110	58	28.1	13.9	6.6	3.0	2.4	842	1098
2105	600	431	307	188	100	50	23.0	10.9	5.2	2.3	1.8	757	944
2106	600	431	307	187	97	45	19.8	8.9	4.1	1.8	1.4	710	853
2107	600	431	307	187	97	44	18.0	7.7	3.3	1.4	1.1	496	805
2108	600	433	317	206	113	53	22.1	8.9	3.7	1.6	1.1	560	937
2109	600	433	319	213	124	62	26.9	11.0	4.3	1.7	1.2	613	1062
2110	600	433	319	214	128	68	31.3	13.4	5.3	2.0	1.3	652	1163
2111	600	433	319	214	129	70	34.4	15.6	6.5	2.5	1.5	678	1236
2112	600	433	319	214	129	71	35.6	17.1	7.6	3.0	1.8	695	1282
2113	600	433	319	214	129	71	35.8	17.7	8.3	3.5	2.2	704	1310
2114	600	433	319	214	129	71	35.8	17.8	8.6	3.9	2.5	709	1324
2115	600	433	319	214	129	71	35.8	17.8	8.6	4.0	2.9	712	1331
2116	600	433	319	214	129	71	35.8	17.8	8.6	4.0	3.1	713	1334
2117	600	433	319	214	129	71	35.8	17.8	8.6	4.0	3.2	714	1337
2118	600	433	319	214	129	71	35.8	17.8	8.6	4.0	3.2	714	1337
Average 2103-2116												702	1144



Catch (tonnes)**Total stock biomass (tonnes)****Proportion reported****Spawning stock biomass (tonnes)****Fishing mortality ages 5-10****Relative error: Estimated / True values**







400000

350000

300000

250000

200000

150000

100000

50000

0

1990

1992

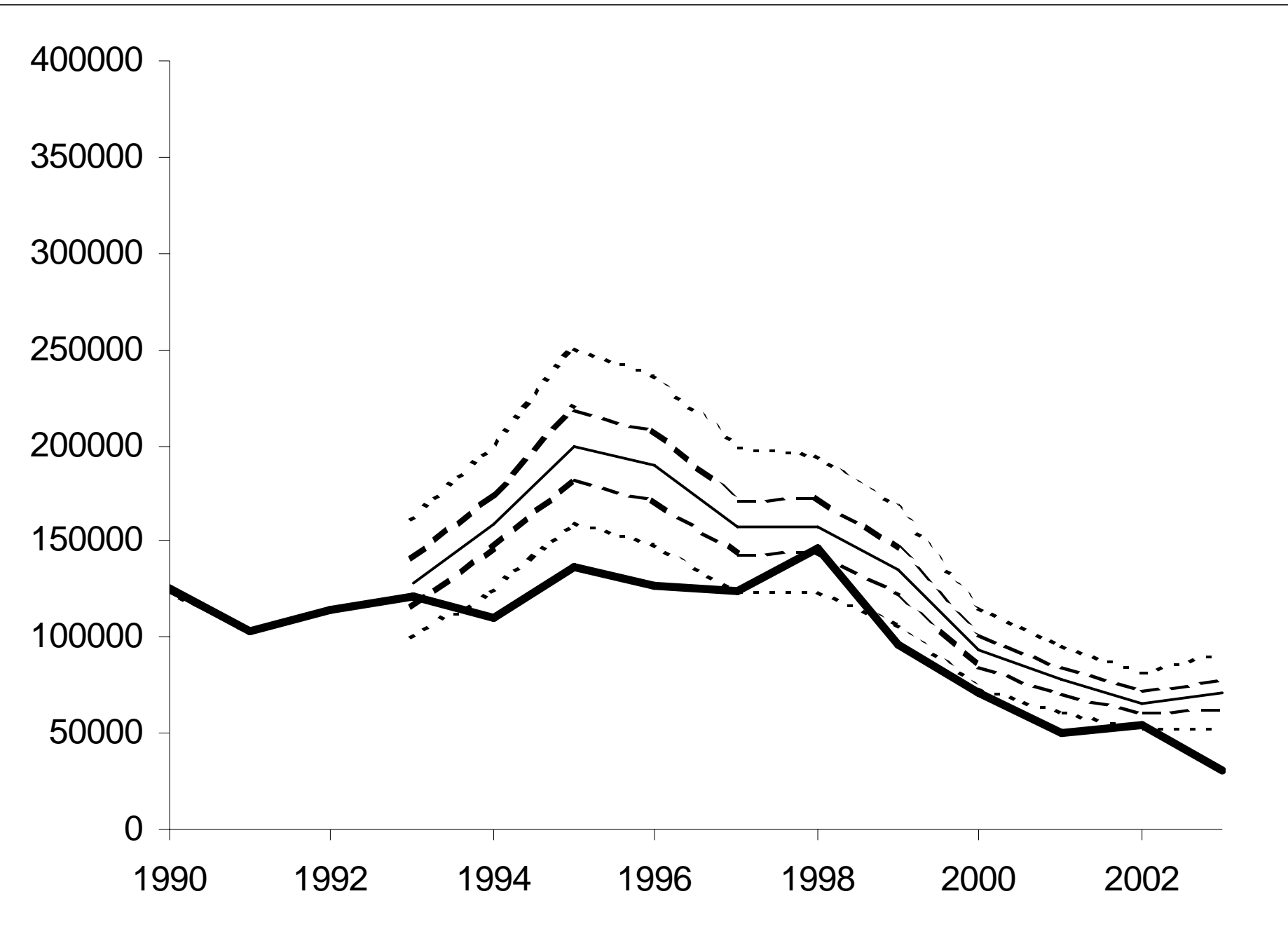
1994

1996

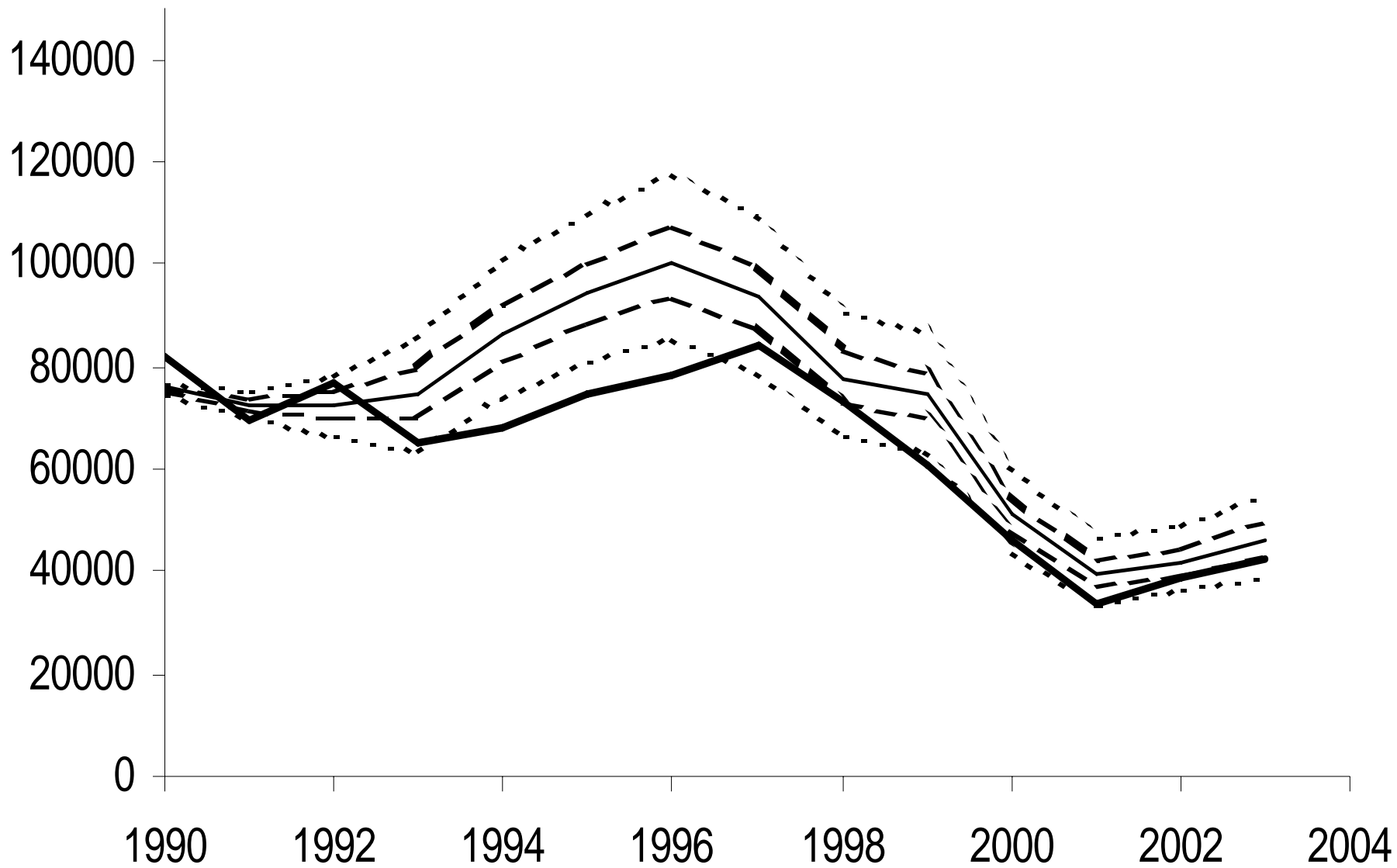
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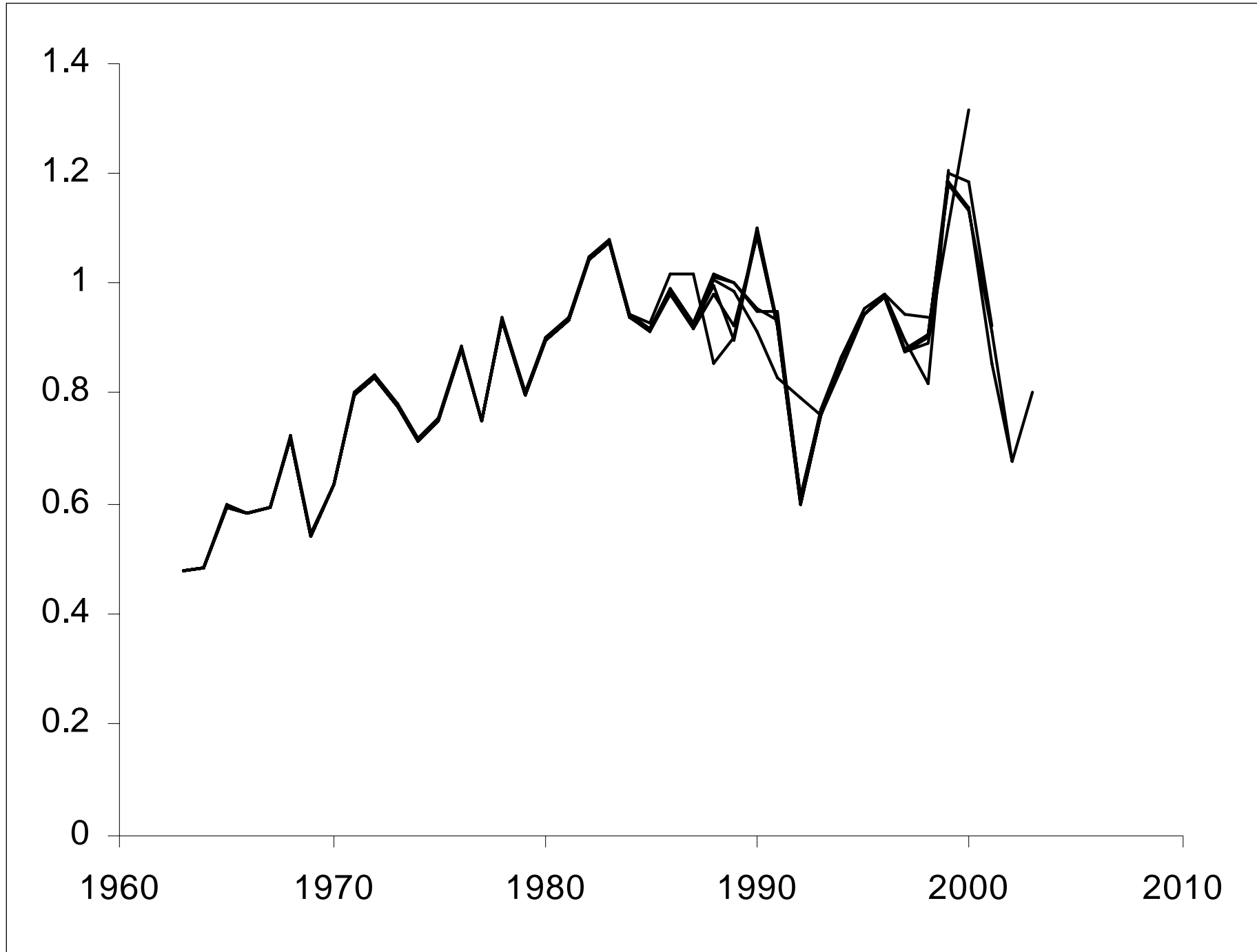
2000

2002









300000

250000

200000

150000

100000

50000

0

1960

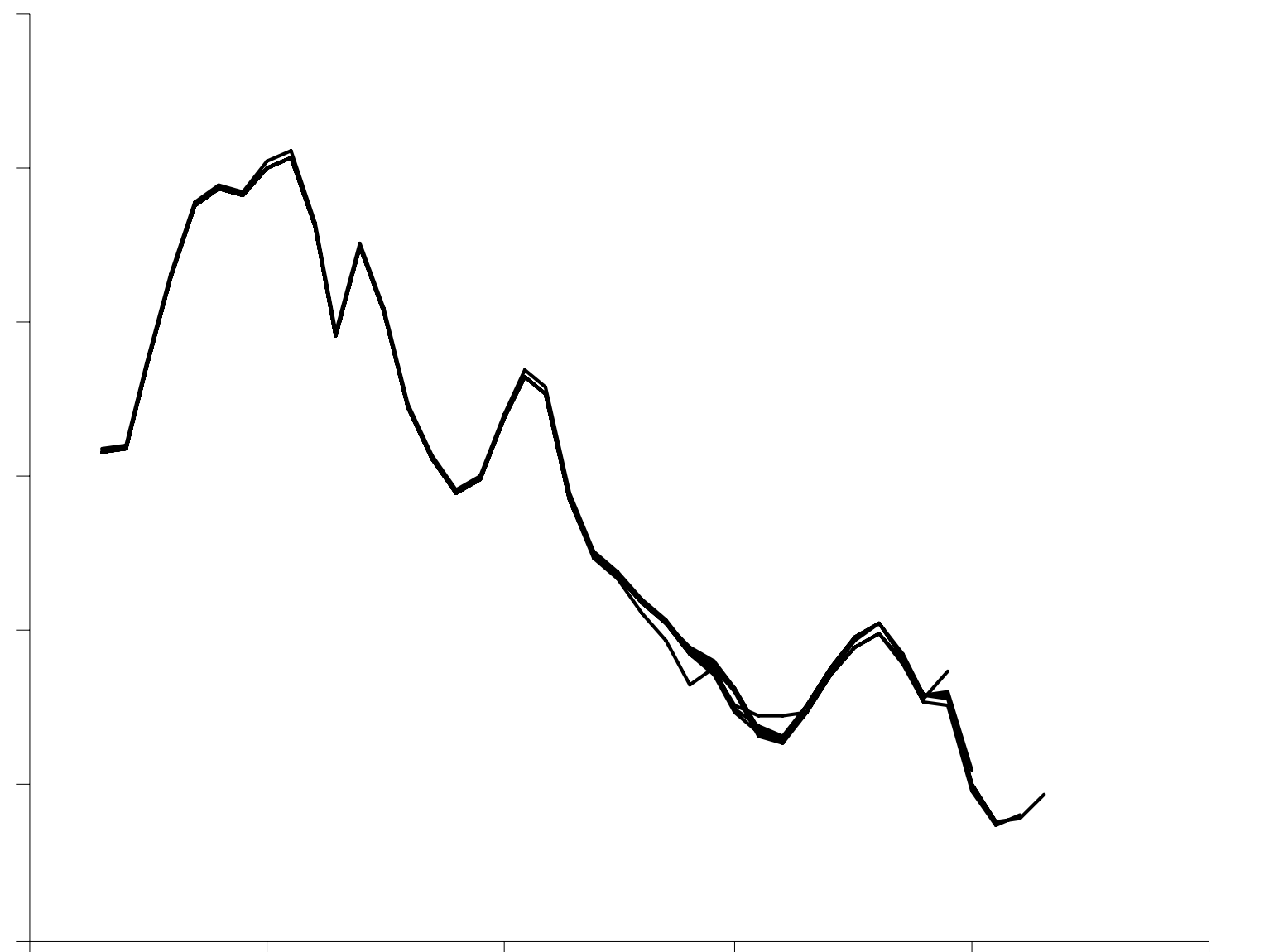
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1980

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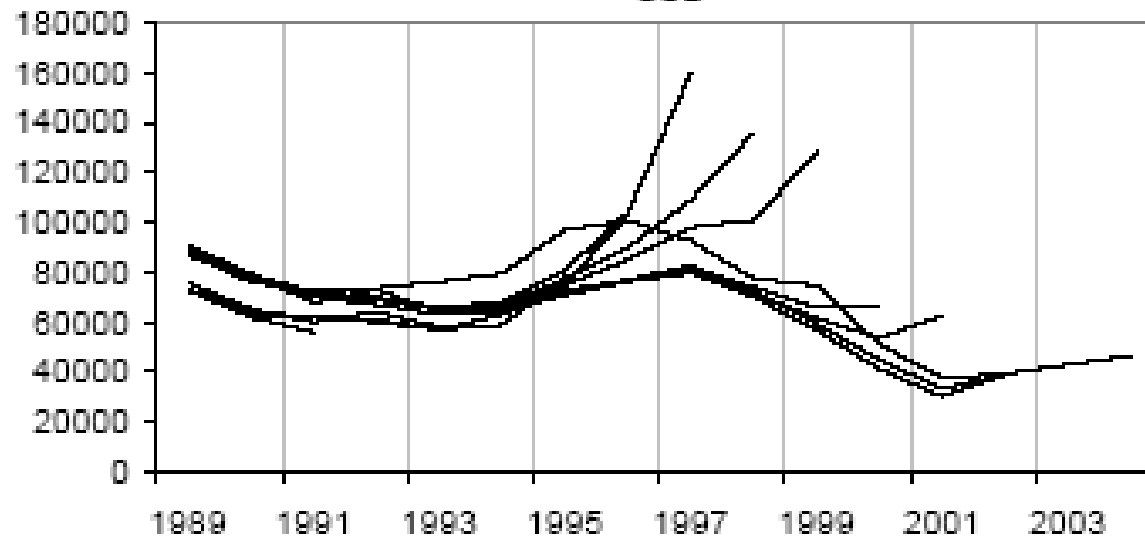
2000

2010



Cod in Sub-area IV, Division VIId & Division IIIa (Skagerrak)

SSB



Cod in Sub-area IV, Division VIId & Division IIIa (Skagerrak)

Fishing mortality: 2-8

