Living Resources Committee **ICES CM 2003/G:14**
Ref. ACFM, D

REPORT OF THE

Working Group on Beam Trawl Surveys

By Correspondence

International Council for the Exploration of the Sea

Conseil International pour l'Exploration de la Mer

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https://doi.org/**10.17895/ices.pub.9748**

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1 INTRODUCTION

Fisheries independent beam trawl surveys using research vessels were established in the 1980s by countries bordering the North Sea to monitor stocks of plaice and sole. Collation and analysis of some of the data derived from these surveys was undertaken by the Beam Trawl Study Group, which in 1998 was re-established as the Working Group on Beam Trawl Surveys. Although the initial focus of its efforts was in the North Sea and Eastern Channel, the Working Group now evaluates all major surveys in Subarea IV and VII (ICES 1991).

The Working Group comprises regular participants from Belgium, Germany, Netherlands and the UK. In addition this year there was a representative from ICES. An annual report describing the surveys and summarising the distribution and catch rate of fish species has been produced every year since 1990.

1.1 Terms of reference

At the 2002 Annual Science Conference it was resolved that the **Working Group on Beam Trawl Surveys** [WGBEAM] (Chair: Dr. G.J. Piet, Netherlands) will work by correspondence to:

a) Prepare a progress report in May 2003 summarising the results of the 2002 beam trawl surveys;
b) calculate population abundance indices by age-group for sole and plaice in the North Sea, Division VIIa and Divisions VIId-g;
c) Prepare for a meeting in December 2003

1.2 Participants

Bart Maertens	Belgium
Brian Harley	UK, England
Gerjan Piet	Netherlands
Ingeborg de Boois	Netherlands
Thomas Neudecker	Germany
Ulrich Damm	Germany

2 RESULTS OFFSHORE SURVEYS 2002

2.1 Coverage of the area

The total number of beam trawl hauls by these surveys is shown by rectangle in Figure 2.1.1.The areas covered by surveys from the various participants are shown in Figure 2.1.2.

Figure 2.1.1 Total number of beam trawl hauls per rectangle.
Total hauls in 2002 (above) and total for 1990−2002 (below) for BEL .

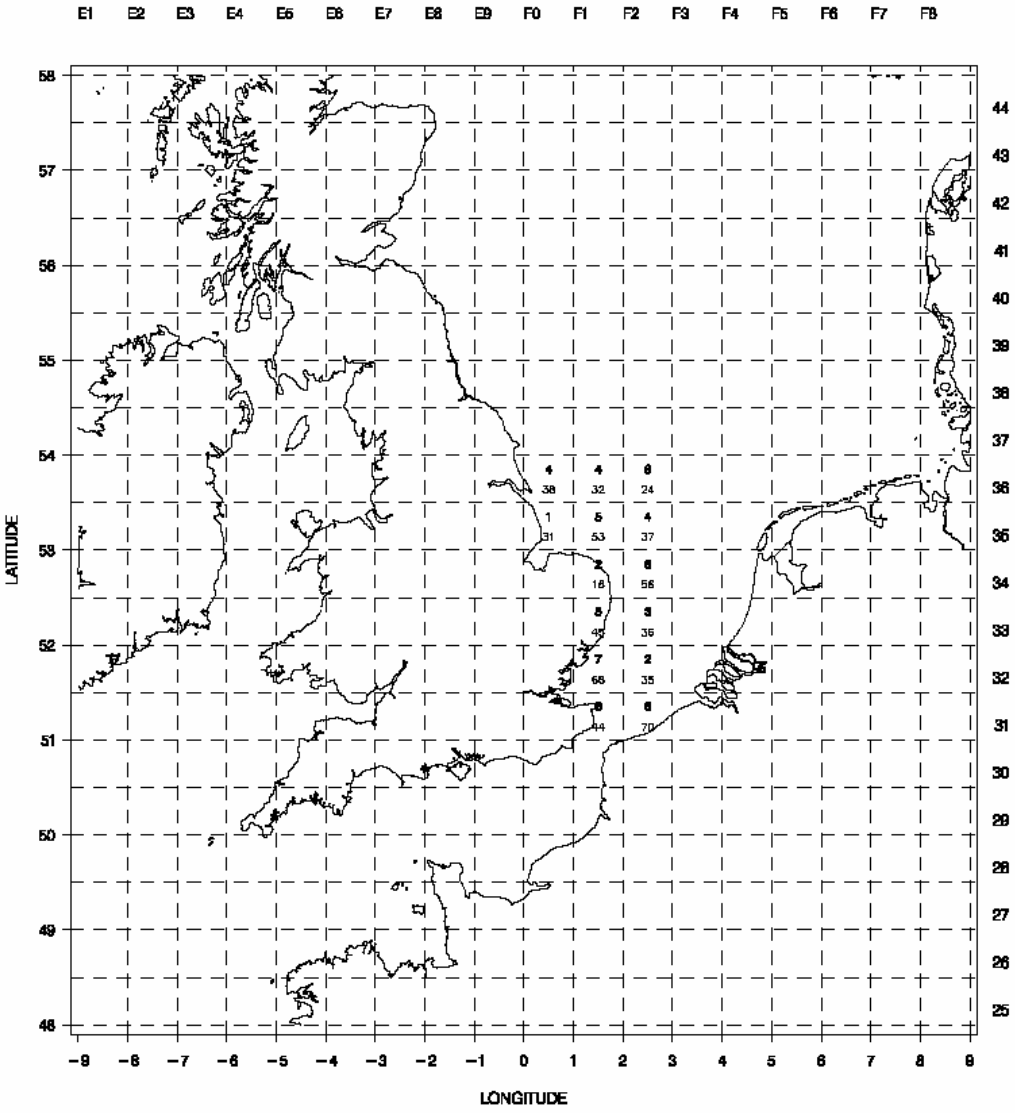


Figure 2.1.2 Total number of beam trawl hauls per rectangle.
Total hauls in 2002 (above) and total for 1990−2002 (below) for ENG .

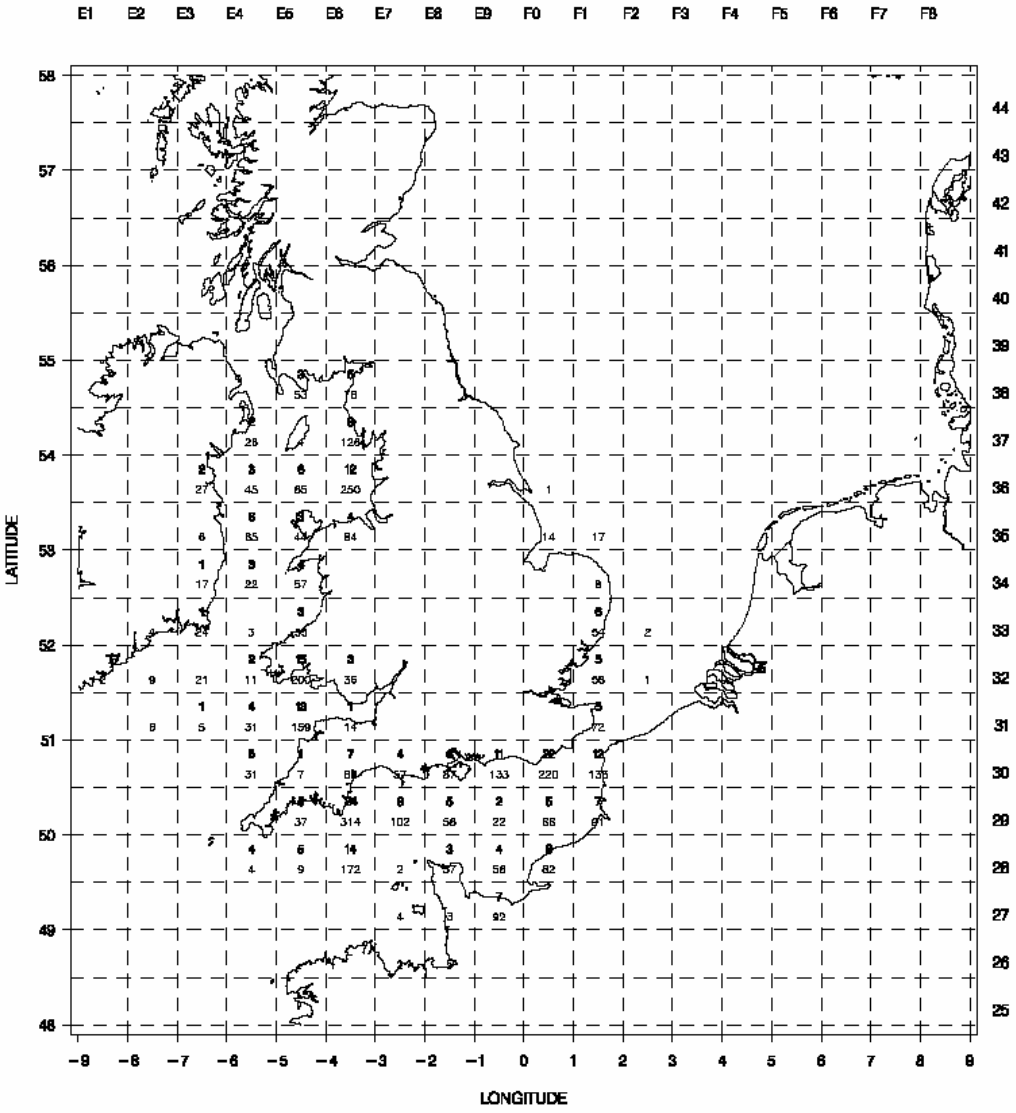


Figure 2.1.3 Total number of beam trawl hauls per rectangle.
Total hauls in 2002 (above) and total for 1990−2002 (below) for GFR .

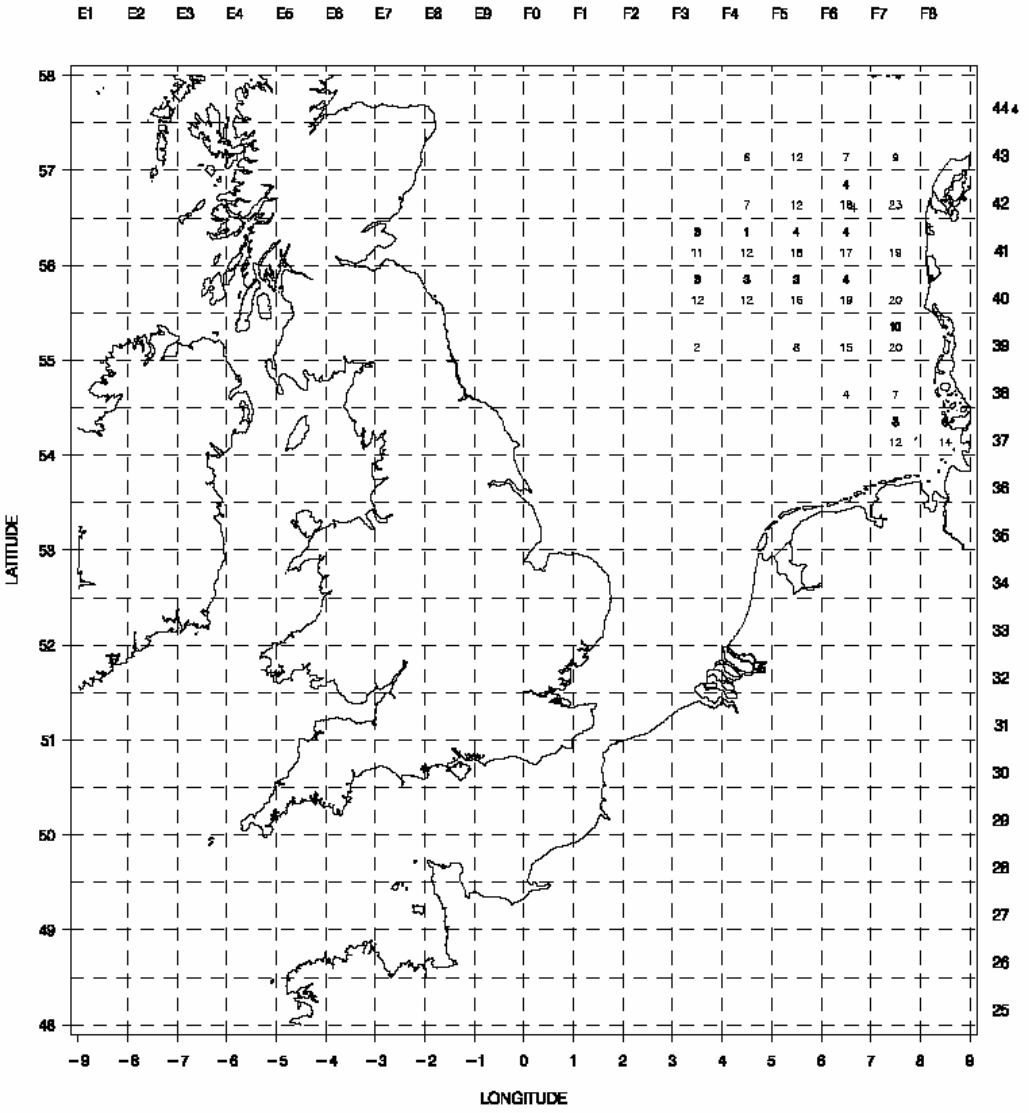
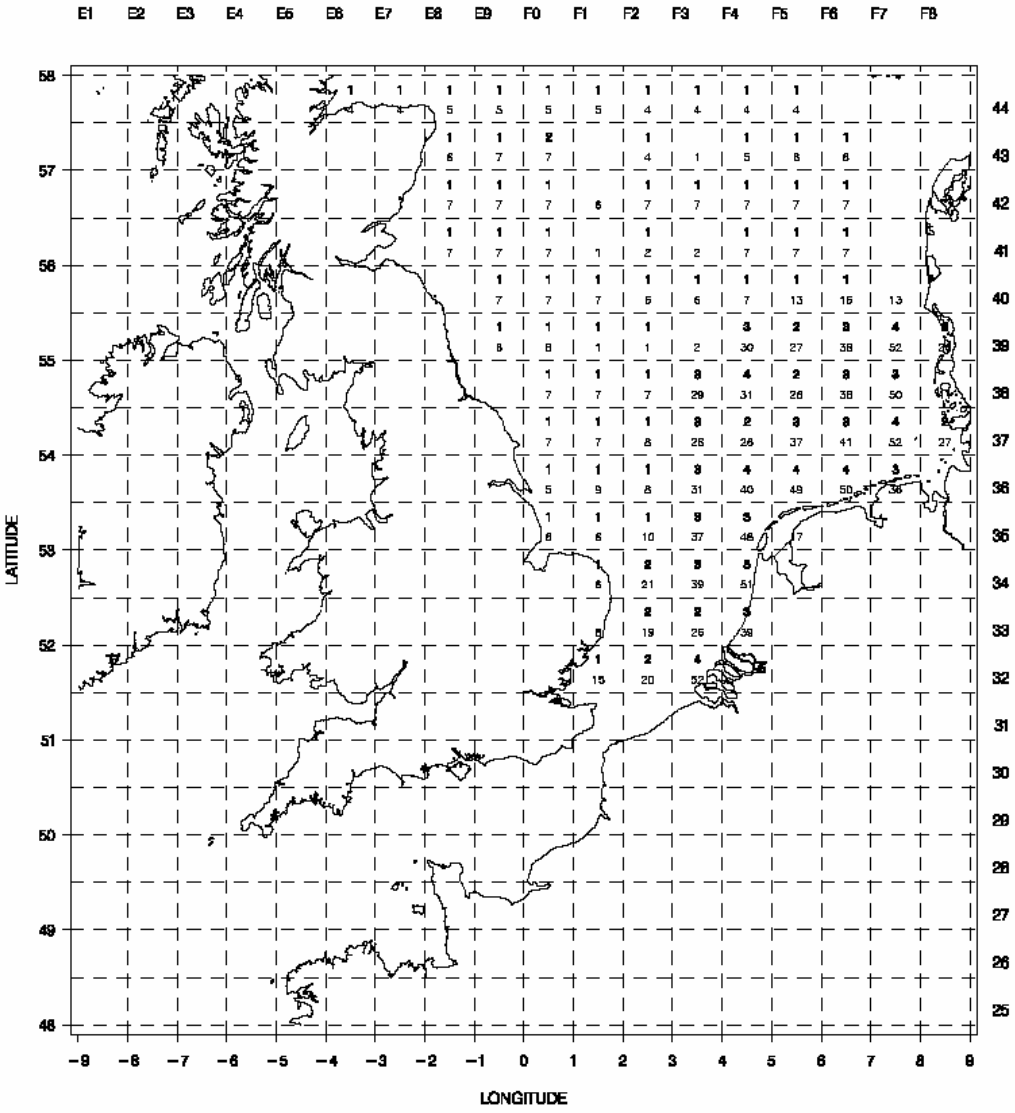


Figure 2.1.4 Total number of beam trawl hauls per rectangle.
Total hauls in 2002 (above) and total for 1990–2002 (below) for NED .



2.2 Target species

Table 2.2.1 Catch rate of sole from Netherlands and UK surveys in the North Sea and VII d,a,e,f&g

Netherlands (N.hr^-1/8m trawl) North Sea

Age	0	1	2	3	4	5	6	7	8	9	10+
1985	0.0	2.6	7.3	3.8	2.0	0.8	0.3	0.0	0.0	0.0	0.0
1986	0.0	7.8	4.6	1.7	0.8	0.6	0.2	0.1	0.0	0.0	0.1
1987	0.1	7.0	12.5	1.8	0.5	0.6	0.2	0.2	0.1	0.0	0.0
1988	0.0	81.2	12.8	2.8	1.0	0.1	0.2	0.1	0.1	0.0	0.1
1989	0.8	8.7	67.8	4.2	4.1	0.7	0.1	0.2	0.0	0.1	0.0
1990	0.1	22.4	22.3	20.1	0.6	0.7	0.5	0.1	0.1	0.0	0.0
1991	1.0	3.4	23.2	5.8	6.0	0.2	0.1	0.1	0.0	0.0	0.0
1992	0.1	72.7	22.7	9.6	2.3	2.9	0.1	0.1	0.1	0.0	0.1
1993	0.0	4.6	26.6	1.6	5.2	2.7	4.8	0.2	0.1	0.2	0.0
1994	0.9	5.9	4.9	15.5	0.1	1.4	0.1	1.0	0.0	0.0	0.0
1995	0.7	26.3	8.7	8.3	6.5	0.4	1.0	0.3	0.9	0.0	0.0
1996	0.2	3.5	5.9	1.8	1.4	2.4	0.3	0.4	0.1	0.3	0.1
1997	1.0	173.5	5.4	3.2	0.8	0.8	0.4	0.1	0.0	0.0	0.1
1998	0.3	14.2	29.1	2.0	1.3	0.1	0.0	0.4	0.0	0.0	0.0
1999	6.6	11.2	19.5	16.6	0.6	2.1	0.3	0.2	0.7	0.0	0.3
2000	0.1	13.6	6.1	4.5	1.1	0.3	0.1	0.0	0.0	0.1	0.0
2001	9.4	8.1	10.1	2.4	2.1	1.0	0.1	0.0	0.0	0.0	0.2
2002	8.3	25.9	5.1	4.1	1.1	0.4	0.4	0.0	0.1	0.0	0.1

Table 2.2.1 (Continued)

United Kingdom (N.hr^-1/8m trawl) Eastern Channel (VIId)

Age	0	1	2	3	4	5	6	7	8	9	10+
1988	0.0	8.2	14.2	9.9	0.8	1.3	0.6	0.1	0.1	0.2	0.2
1989	0.0	2.6	15.4	3.4	1.7	0.6	0.2	0.2	0.0	0.0	0.7
1990	0.0	12.1	3.7	3.7	0.7	0.8	0.2	0.1	0.2	0.0	0.1
1991	0.0	8.9	22.8	2.2	2.3	0.3	0.5	0.1	0.2	0.1	0.1
1992	0.0	1.4	12.0	10.0	0.7	1.1	0.3	0.5	0.1	0.2	0.6
1993	0.0	0.5	17.5	8.4	7.0	0.8	1.0	0.3	0.2	0.0	0.4
1994	0.0	4.8	3.2	8.3	3.3	3.3	0.2	0.6	0.1	0.3	0.3
1995	0.0	5.2	16.9	2.1	3.8	2.2	2.4	0.2	0.3	0.2	0.2
1996	0.0	3.5	7.3	3.8	0.7	1.3	0.9	1.1	0.1	0.5	0.4
1997	0.0	19.0	7.3	3.2	1.3	0.2	0.5	0.4	0.9	0.0	0.7
1998	0.1	2.1	20.9	2.3	0.9	0.9	0.1	0.3	0.0	0.1	0.3
1999	1.2	25.5	9.0	12.4	2.6	1.5	0.7	0.2	0.9	0.8	0.5
2000	0.1	11.0	26.8	5.3	4.6	1.4	0.7	0.4	0.0	0.2	0.9
2001	1.2	8.5	25.1	11.2	1.9	2.4	0.8	0.6	0.3	0.1	0.9
2002	0.0	46.1	18.4	8.5	5.2	0.4	1.0	0.5	0.2	0.0	0.7

United Kingdom (N.hr^-1/8m trawl) Western Channel (VIIe)

Age	0	1	2	3	4	5	6	7	8	9	10+
1989	0.0	0.2	2.5	4.9	4.3	1.5	1.6	0.7	0.3	0.3	0.4
1990	0.0	0.6	1.7	3.1	1.3	1.0	0.3	0.6	0.1	0.2	0.5
1991	0.0	0.3	7.9	2.9	2.1	1.0	0.8	0.3	0.7	0.2	0.7
1992	0.0	0.2	5.8	11.6	1.5	1.3	0.5	0.3	0.2	0.4	0.5
1993	0.0	0.3	2.7	5.4	5.4	1.0	0.5	0.3	0.2	0.1	0.7
1994	0.0	0.1	1.7	3.3	2.4	1.4	0.2	0.3	0.0	0.1	0.3
1995	0.1	1.1	1.5	1.9	1.7	1.0	1.3	0.2	0.2	0.2	0.5
1996	0.0	1.9	4.7	2.4	1.0	1.3	0.7	0.6	0.1	0.0	0.4
1997	0.2	3.0	5.5	5.1	1.7	0.5	0.6	0.5	0.4	0.2	0.6
1998	0.0	0.9	6.0	4.4	2.6	0.9	0.3	0.4	0.2	0.3	0.4
1999	0.0	0.9	4.4	5.5	2.0	1.0	0.2	0.2	0.1	0.1	0.7
2000	0.0	0.9	5.3	2.9	2.0	1.1	0.6	0.2	0.1	0.2	0.3
2001	0.0	0.6	7.8	5.9	2.2	1.3	.4	0.5	0.2	0.0	0.3
2002	0.00	0.48	1.33	4.18	1.64	0.85	0.36	0.06	0.06	0.00	0.24

United Kingdom (N.hr^-1/8m trawl) Bristol Channel (VIIf)

Age	0	1	2	3	4	5	6	7	8	9	10+
1988	3.7	10.0	40.3	6.0	2.3	0.7	0.0	0.0	0.0	0.0	1.0
1989	22.0	34.0	50.7	27.0	3.0	2.3	1.0	0.7	0.3	0.3	0.7
1990	4.2	53.8	43.8	7.0	2.2	0.6	1.0	0.4	0.0	0.0	0.2
1991	4.8	36.0	77.3	10.1	2.5	2.2	0.6	0.0	0.4	0.2	0.1
1992	0.6	58.0	38.2	20.5	4.4	2.7	1.4	0.1	0.2	0.1	0.6
1993	0.7	24.2	51.2	6.1	3.3	0.4	0.2	0.2	0.1	0.1	0.2
1994	0.1	51.4	52.1	16.1	2.8	1.3	1.1	0.0	0.0	0.4	0.4
1995	4.3	16.3	29.4	6.6	1.6	0.9	1.6	0.4	0.3	0.3	0.5
1996	0.7	22.5	30.2	7.6	3.4	0.7	0.4	0.5	0.4	0.4	0.4
1997	4.8	64.9	27.8	2.9	1.7	2.1	0.7	0.5	0.8	0.0	0.7
1998	12.0	105.6	57.5	6.9	1.1	1.7	0.9	0.3	0.1	0.7	0.7
1999	3.5	358.2	35.2	4.7	2.0	0.8	0.5	0.8	0.3	0.0	1.1
2000	1.8	128.3	173.3	4.9	3.4	0.6	0.0	0.3	0.1	0.3	0.5
2001	2.6	42.8	72.3	31.7	2.7	0.8	0.3	0.3	0.1	0.0	1.2
2002	0.8	66.2	27.0	12.7	12.3	1.2	0.7	0.2	0.4	0.0	0.7

Table 2.2.1 (Continued)

Catch rate United Kingdom sole (N.hr^-1/8m trawl) in Irish Sea (VIIa)

Age	0	1	2	3	4	5	6	7	8	9	10+
1988	0.2	8.8	24.3	23.3	43.8	8.6	4.6	0.1	0.0	0.0	0.0
1989	2.0	15.8	25.9	22.1	9.9	25.0	4.9	1.8	0.0	0.0	0.2
1990	0.9	122.7	53.8	12.1	4.0	9.5	15.2	2.6	1.4	0.6	0.1
1991	0.3	13.2	105.2	17.0	2.8	1.1	2.1	8.4	2.3	0.2	0.3
1992	0.1	14.9	26.2	53.9	14.3	6.2	1.2	0.5	7.9	1.7	0.8
1993	0.0	3.6	13.3	7.0	11.3	2.7	1.0	0.4	0.7	1.9	0.9
1994	0.0	1.7	17.9	10.0	4.3	6.5	2.4	0.7	0.5	0.2	1.6
1995	1.8	13.2	8.8	11.2	4.8	2.2	2.9	0.6	0.3	0.1	1.2
1996	0.2	46.2	8.3	2.5	5.8	3.3	1.7	2.1	0.6	0.2	0.7
1997	0.5	65.7	39.8	4.9	1.8	3.9	1.9	1.1	2.3	0.6	0.8
1998	0.5	35.9	44.2	21.9	2.5	0.6	2.2	1.8	0.3	1.5	0.9
1999	0.3	29.6	22.4	23.2	18.0	2.5	1.1	2.1	0.4	0.6	1.9
2000	0.0	15.8	41.2	10.3	12.0	6.3	1.1	0.1	0.8	0.4	1.6
2001	0.3	5.2	17.6	15.1	4.6	5.6	3.6	0.5	0.2	0.7	0.9
2002	0.1	15.1	7.6	7.8	9.2	3.0	4.7	2.8	0.1	0.1	1.1

Table 2.2.2 Catch rate of plaice from Netherlands and UK surveys in the North Sea and VII d,a,e,f&g

Netherlands (N.hr^-1/8m trawl) North Sea

Age	0	1	2	3	4	5	6	7	8	9	10+
1985	120.1	130.0	180.0	38.8	11.8	1.4	1.0	0.4	0.2	0.1	0.2
1986	16.5	660.2	131.8	50.9	8.9	3.3	0.5	0.4	0.1	0.1	0.2
1987	44.1	225.1	765.0	33.1	4.8	2.0	1.0	0.3	0.1	0.1	0.3
1988	51.3	605.1	139.9	173.2	9.2	2.7	0.7	0.4	0.1	0.1	0.2
1989	56.9	426.6	332.6	38.6	47.3	5.9	0.8	0.4	0.6	0.1	0.1
1990	12.0	107.0	99.8	57.7	24.8	7.6	0.8	0.2	0.3	0.2	0.1
1991	5.4	184.4	122.1	28.5	11.9	4.3	5.7	0.3	0.2	0.1	0.1
1992	11.1	172.8	125.7	27.3	5.6	3.2	2.7	1.1	0.3	0.1	0.1
1993	54.7	122.6	181.0	38.8	6.1	1.0	0.8	0.6	0.4	0.1	0.1
1994	144.1	141.7	65.7	37.4	11.9	3.2	0.7	0.8	1.0	0.4	0.1
1995	94.8	249.4	43.6	14.2	8.3	1.2	0.9	0.4	1.1	0.2	0.1
1996	209.9	215.8	206.8	22.8	4.8	3.7	0.9	0.0	0.2	0.1	0.1
1997	31.9	443.6	739.3	19.9	2.8	0.2	0.4	0.2	0.1	0.0	0.0
1998	242.9	337.0	433.1	47.3	8.9	1.5	0.7	0.1	0.1	0.1	0.1
1999	203.4	298.9	133.1	181.8	4.0	2.0	0.1	0.1	0.0	0.0	0.1
2000	178.8	275.9	72.9	32.4	23.0	0.7	0.2	0.5	0.0	0.0	0.0
2001	604.4	219.0	84.2	19.5	10.8	9.5	0.4	0.1	0.1	0.0	0.2
2002	241.4	568.7	45.5	15.4	5.5	2.7	1.4	0.1	0.1	0.0	0.1

United Kingdom (N.hr^-1/8m trawl) Eastern Channel (VIId)

Age	0	1	2	3	4	5	6	7	8	9	10+
1988	0.0	26.5	31.3	43.8	7.0	4.6	1.5	0.8	0.7	0.6	1.2
1989	0.0	2.3	12.1	16.6	19.9	3.3	1.5	1.3	0.5	0.3	1.7
1990	0.6	5.2	4.9	5.8	6.7	7.5	1.8	0.7	1.0	0.8	0.4
1991	0.0	11.7	9.1	7.0	5.3	5.4	3.2	1.2	1.0	0.1	1.2
1992	0.0	16.5	12.5	4.2	4.2	5.6	4.9	3.4	0.7	0.5	0.7
1993	0.1	3.2	13.4	5.0	1.7	1.9	1.6	2.0	2.8	0.4	0.6
1994	1.2	8.3	7.5	9.2	5.6	2.0	0.8	0.9	1.8	1.2	0.8
1995	0.0	11.3	4.1	3.0	3.7	1.5	0.6	0.6	1.3	0.8	0.8
1996	13.6	13.2	11.9	1.3	0.7	1.3	0.9	0.4	0.3	0.4	2.8
1997	0.7	33.2	13.5	4.2	0.7	0.3	0.3	0.2	0.2	0.2	1.9
1998	0.3	11.4	27.3	7.0	3.1	0.3	0.2	0.2	0.1	0.0	1.0
1999	1.6	9.2	11.6	15.7	2.8	0.9	0.1	0.0	0.2	0.1	0.6
2000	1.2	17.9	24.9	14.6	19.1	4.5	1.7	0.5	0.3	0.4	2.2
2001	4.9	21.6	26.7	16.2	9.3	14.6	2.9	0.8	0.4	0.3	1.9
2002	2.0	34.0	22.1	12.2	5.7	2.5	5.4	1.3	0.1	0.2	1.0

United Kingdom (N.hr^-1/8m trawl) Western Channel (VIIe)

Age	0	1	2	3	4	5	6	7	8	9	10+
1989	0.0	0.8	2.2	10.6	7.5	1.4	0.2	0.3	0.2	0.1	0.3
1990	0.0	0.8	1.1	7.0	3.4	2.4	0.0	0.2	0.1	0.1	0.3
1991	0.0	0.6	0.8	1.4	2.7	2.1	1.6	0.7	0.1	0.0	0.3
1992	0.0	4.3	1.0	1.4	0.5	1.3	0.7	0.5	0.1	0.2	0.2
1993	0.0	0.7	2.4	3.3	1.1	0.5	1.2	0.7	0.6	0.0	0.1
1994	0.0	0.8	0.8	3.6	1.2	0.4	0.2	0.5	0.6	0.3	0.0
1995	0.3	2.1	1.7	1.9	2.1	0.5	0.2	0.3	0.2	0.1	0.2
1996	5.4	2.3	3.9	1.3	0.8	0.9	0.2	0.0	0.1	0.3	0.4
1997	10.4	8.1	4.8	8.1	0.9	0.3	0.6	0.3	0.1	0.0	0.4
1998	0.1	5.7	5.2	4.7	3.2	0.4	0.2	0.2	0.1	0.0	6.0
1999	5.1	2.0	2.1	8.2	2.1	1.3	0.1	0.1	0.3	0.1	0.1
2000	0.0	3.3	2.7	5.7	7.0	1.6	1.0	0.0	0.1	0.0	0.3
2001	4.1	1.4	2.8	1.9	3.9	3.7	0.8	0.6	0.0	0.1	0.2
2002	0.00	6.00	3.21	2.97	0.85	1.03	1.39	0.18	0.06	0.00	0.12

Table 2.2.2 (continued)

United Kingdom (N.hr^-1/8m trawl) Bristol Channel (VIIf)

Age	0	1	2	3	4	5	6	7	8	9	10+
1988	0.0	12.8	45.2	11.5	0.0	0.3	0.3	0.0	0.0	0.3	0.0
1989	0.3	34.3	52.2	12.0	2.5	0.8	0.0	0.3	0.0	0.0	0.0
1990	2.4	32.2	43.0	12.8	3.0	1.2	0.0	0.0	0.4	0.0	0.2
1991	0.2	101.9	4.0	7.9	2.5	1.5	0.4	0.0	0.1	0.0	0.0
1992	0.4	57.3	36.1	1.5	0.6	1.8	0.2	0.6	0.0	0.0	0.2
1993	0.5	14.1	12.6	5.2	0.2	0.6	0.1	0.1	0.0	0.0	0.0
1994	17.5	15.4	4.8	2.4	1.3	0.1	0.0	0.0	0.0	0.0	0.0
1995	0.1	31.4	11.0	2.1	0.5	1.0	0.1	0.0	0.0	0.3	0.0
1996	1.2	32.0	41.8	4.8	0.1	0.4	0.1	0.0	0.0	0.0	0.0
1997	1.1	34.3	15.2	5.2	0.7	0.3	0.1	0.1	0.0	0.0	0.0
1998	0.7	31.5	18.2	6.7	1.5	0.5	0.3	0.0	0.0	0.0	0.1
1999	24.9	22.1	11.7	4.3	2.9	1.4	0.0	0.0	0.1	0.0	0.0
2000	11.2	46.1	8.1	4.3	0.8	0.8	0.0	0.3	0.0	0.0	0.0
2001	3.8	26.6	18.5	2.3	1.2	0.4	0.5	0.2	0.0	0.0	0.0
2002	0.1	14.6	19.1	10.0	0.9	0.6	0.2	0.3	0.1	0.0	0.0

United Kingdom (N.hr^-1/8m trawl) Irish Sea (VIIa)

Age	0	1	2	3	4	5	6	7	8	9	10+
1988	2.9	72.6	145.3	30.8	1.2	6.8	1.2	0.5	0.0	0.1	0.8
1989	5.9	41.3	67.6	64.8	11.3	1.4	3.4	0.3	0.0	0.0	0.1
1990	63.4	146.9	36.7	19.9	9.1	4.8	4.1	0.2	0.1	0.9	0.3
1991	6.7	60.4	59.8	8.1	4.4	0.1	0.9	1.8	0.1	0.0	0.4
1992	4.8	50.7	96.1	38.0	2.0	2.1	1.5	1.6	0.1	0.0	2.0
1993	9.3	168.5	155.4	38.7	13.0	2.0	1.9	1.0	0.4	0.4	0.6
1994	14.6	207.0	124.6	81.4	17.5	5.6	1.4	1.4	0.6	0.2	0.6
1995	17.8	249.7	101.0	38.8	32.2	2.9	1.5	0.6	0.4	0.4	0.3
1996	6.3	144.0	69.3	20.4	9.1	7.1	2.3	1.0	0.1	0.4	0.5
1997	33.3	169.2	98.1	41.4	13.5	7.4	6.1	2.7	0.9	0.5	0.9
1998	23.8	124.4	112.1	41.9	1.6	10.4	4.9	4.3	1.1	0.5	1.2
1999	52.9	108.2	106.4	61.8	28.1	13.3	4.8	3.2	2.1	2.0	0.3
2000	61.3	200.4	81.7	44.0	34.6	16.3	3.6	3.0	1.6	1.5	0.9
2001	34.2	121.5	88.4	28.1	15.9	13.1	6.1	2.1	1.2	0.8	0.3
2002	8.1	155.6	147.0	83.5	31.9	16.2	17.4	7.1	2.1	2.4	1.7

Table 2.2.3 Indices of juvenile sole and plaice abundance from other coastal beam trawl surveys. Abundance indices for sole and plaice are given as numbers per 1000 m2 sampled during the DYFS (NL), as millions of fish sampled during the UKYFS (IVc and VIId) and as numbers per 100 fishing hours of the SNS, (see section 3.2 for details).

SOLE

	DYFS		UKYFS(IVc)		SNS				UKYFS(VIId)	
Year class	0	1	0	1	0	1	2	3	0	1
1967								204		
1968							745	99		
1969		0.66				4938	1961	161		
1970	12.18	0.04			669	613	341	73		
1971	7.93	0.07			6327	1410	905	69		
1972	0.29	0.22			24	4686	397	174		
1973	4.53	0.33			847	1924	887	187		
1974	0.84	0.03			140	597	79	77		
1975	8.07	0.19			565	1413	762	267		
1976	3.38	0.22			475	3724	1379	325		
1977	1.07	0.03			1620	1552	388	99		
1978	4.36	0.13			10529	104	80	51		
1979	20.65	2.05			3908	4483	1411	231		
1980	19.83	0.51		5.99	5518	3739	1124	107		0.45
1981	15.15	0.67	32.06	4.02	3194	5098	1137	307	0.11	0.36
1982	17.61	1.11	26.99	5.64	2528	2640	1081	159	4.63	1.52
1983	4.93	0.41	70.66	11.30	769	2359	709	67	25.45	4.04
1984	9.17	0.10	59.84	2.80	3473	2151	456	59	4.33	2.94
1985	15.80	0.58	20.53	3.10	4268	3791	955	284	7.65	1.45
1986	3.50	0.24	28.98	1.89	901	1890	594	248	6.45	1.38
1987	28.55	0.76	20.87	9.70	13690	11227	5369	907	16.85	1.87
1988	2.07	0.28	35.55	3.78	523	3052	1078	527	2.59	0.62
1989	2.62	0.21	47.20	12.27	2171	2900	2515	319	6.67	1.90
1990	0.60	0.03	36.82	19.69	53	1265	114	46	6.70	3.69
1991	19.37	0.54	22.72	5.21	3640	11081	3489	943	1.81	1.50
1992	0.82	0.03	33.45	24.46	303	1351	475	126	2.26	1.33
1993	0.76	0.03	36.42	9.14	231	559	234	27	14.19	2.68
1994	3.62	0.11	27.32	13.04	5114	1501	473	231	13.07	2.91
1995	0.47	0.07	33.55	6.78	1365	691	143	131	7.53	0.57
1996	2.32	0.48	50.16	4.91	2197	10132	1993	381	1.85	1.12
1997	2.69	0.52	14.87	2.12	972	2875	919	189	4.23	1.12
1998	5.06	0.17	37.99	7.67	235	1649	150	99	7.97	1.47
1999	4.57	0.05	19.02	9.76	1867	1735	638	185	2.63	2.47
2000	0.65	0.11	13.54	2.31	71	949	379		1.16	0.38
2001	4.10	0.79	39.83	7.76	8340	7542			4.75	4.15
2002	3.00		32.48		1206				4.45	

Table 2.2.3 (Continued)

Plaice

Year class	DYFS		UKYFS(IVc)		SNS				UKYFS(VIId)	
	0	1	0	1	0	1	2	3	0	1
1967								2813		
1968							9450	1008		
1969		2.87				8033	23848	4484		
1970	6.70	0.93			3678	18101	9584	1631		
1971	4.59	2.63			6705	6437	4191	1261		
1972	2.46	6.79			9242	57238	17985	10744		
1973	2.57	1.96			5451	15648	9171	791		
1974	2.29	3.03			2193	9781	2274	1720		
1975	2.17	4.04			1151	9037	2900	345		
1976	7.03	4.84			11544	19119	12714	1577		
1977	3.70	2.99			4378	13924	9540	456		
1978	8.11	7.91			3252	21681	12084	785		
1979	17.06	10.53			27835	58049	16106	1146		
1980	5.02	6.92		5.95	4039	19611	8503	308		0.11
1981	28.84	13.83	59.24	13.15	31541	70108	14708	2480	0.55	0.06
1982	24.01	7.82	11.65	6.86	23987	34884	10413	1584	0.58	0.77
1983	17.99	5.74	74.11	10.85	36722	44667	13789	1155	10.71	0.41
1984	10.72	4.65	76.52	13.74	7958	27832	7558	1232	3.62	1.16
1985	36.98	13.41	48.33	17.93	47385	93573	33021	13140	5.18	1.08
1986	17.69	9.98	23.62	5.41	8658	33426	14430	3709	12.53	1.07
1987	28.46	4.97	20.38	7.72	21270	36672	14952	3248	13.95	0.81
1988	15.50	6.32	28.12	12.90	15598	37238	7287	1507	9.31	0.70
1989	22.35	6.25	27.80	10.25	24198	24903	11149	2257	2.26	0.52
1990	22.02	6.88	31.75	9.06	9559	57349	13742	988	4.73	0.43
1991	24.50	5.88	14.89	5.64	17120	48223	9484	884	1.34	1.09
1992	10.84	3.41	26.16	7.96	5398	22184	4866	415	2.92	0.64
1993	12.32	0.87	43.10	9.38	9226	18225	2786	1189	5.77	0.59
1994	22.92	0.95	19.14	11.65	27901	24900	10377	1393	12.63	2.47
1995	6.94	6.17	51.58	4.07	13029	24663	36374	5739	7.42	0.72
1996	24.68	8.11	60.16	5.48	91713	64524	29431	14347	1.22	0.26
1997	8.17	1.67	11.19	0.92	15363	33391	9235	902	1.20	0.29
1998	4.30	0.34	40.26	1.65	22720	35188	2487	226	5.23	0.16
1999	3.70	0.40	14.38	4.82	39201	23027	1828	265	4.83	0.72
2000	8.66	0.23	10.57	0.74	18874	7983	1103		0.29	0.05
2001	21.47	0.56	76.96	4.59	50280	30813			2.52	1.61
2002	9.96		40.04		31350				0.33	

Table 2.2.4 Mean length-at-age for plaice and sole in the North Sea based on BTS

Plaice	Age0	Age1	Age2	Age3	Age4	Age5	Age6	Age7	Age8	Age9	Age10+
1985	7.91	15.56	23.64	27.67	30.33	34.26	39.25	41.19	42.53	42.76	47.72
1986	9.18	16.53	23.30	28.22	30.29	34.56	37.33	37.16	38.72	39.49	45.61
1987	9.66	16.34	22.03	24.55	28.01	31.16	31.77	38.07	38.00	39.71	43.01
1988	10.79	15.22	21.68	26.20	30.11	36.61	37.95	41.02	41.21	46.26	51.67
1989	12.14	16.05	21.06	26.55	27.65	29.82	40.84	40.07	42.62	43.68	50.20
1990	9.20	17.05	23.30	25.15	27.73	30.87	36.40	39.08	40.63	41.19	44.87
1991	13.16	17.44	23.90	27.39	28.72	32.17	34.71	33.83	34.94	33.69	45.06
1992	12.43	17.66	23.20	27.98	30.79	32.44	31.21	34.83	38.24	45.25	46.26
1993	11.64	17.85	21.86	25.49	30.78	35.93	34.89	38.23	36.91	45.39	46.16
1994	11.03	17.53	21.91	26.88	29.16	33.98	37.41	38.63	31.01	44.46	47.78
1995	11.72	17.85	23.97	29.48	34.19	37.04	36.23	35.26	33.86	38.08	45.86
1996	9.54	17.50	22.92	27.95	29.46	31.74	32.75	34.29	35.40	41.30	43.49
1997	8.80	14.74	16.68	26.77	28.31	27.89	31.64	38.12	33.58	37.87	43.36
1998	9.87	15.76	20.27	21.91	25.48	27.29	28.64	33.48	35.20	39.99	39.26
1999	10.43	16.71	20.68	24.96	31.06	35.97	41.34	40.54	41.42	47.00	44.00
2000	10.23	17.56	23.01	25.52	27.75	29.96	37.56	24.00	43.00	.	40.27
2001	10.74	17.80	22.38	26.87	28.58	31.79	36.65	42.53	39.86	46.77	47.40
2002	11.59	16.96	22.67	27.24	29.55	31.95	35.44	35.58	43.31		29.73

Sole	Age0	Age1	Age2	Age3	Age4	Age5	Age6	Age7	Age8	Age9	Age10+
1985	.	17.13	23.38	27.21	30.59	31.21	31.85	.	.	.	37.00
1986	.	17.22	22.82	27.30	30.05	32.94	35.92	37.89	.	40.00	41.16
1987	11.00	16.64	24.22	28.00	33.61	33.67	34.04	33.52	38.00	.	.
1988	.	16.30	21.53	26.98	24.50	32.00	29.32	26.82	29.65	24.10	40.57
1989	10.29	18.24	23.02	26.94	29.41	30.95	35.05	36.06	.	39.29	35.65
1990	12.40	18.05	22.42	26.42	30.01	32.90	35.22	31.66	40.49	43.00	45.00
1991	9.74	20.00	23.92	26.62	28.72	29.95	33.92	34.02	36.99	39.00	30.02
1992	12.94	18.29	21.51	26.52	29.39	30.33	32.40	35.78	34.12	40.31	32.40
1993	8.67	19.78	22.88	23.72	25.90	26.21	27.09	24.39	32.14	25.41	38.31
1994	13.91	19.40	22.94	25.78	31.66	27.88	27.64	32.84	46.00	.	34.00
1995	11.74	18.61	22.96	24.53	27.38	29.74	30.64	30.65	28.57	42.23	33.00
1996	8.88	19.07	23.03	25.18	26.67	28.14	28.04	27.87	31.00	32.05	34.70
1997	10.51	17.82	24.73	26.68	27.64	29.28	33.75	29.32	30.91	31.00	38.40
1998	11.20	18.89	23.44	22.94	25.64	24.01	23.58	26.05	28.00	23.93	27.00
1999	9.19	19.44	22.93	26.04	26.48	25.88	32.32	28.25	27.52	32.00	29.29
2000	8.35	18.95	23.27	26.84	29.10	29.17	27.70	35.40	32.14	31.79	31.41
2001	7.55	18.53	22.73	25.21	27.26	28.46	25.87	28.00	26.49	.	26.47
2002	8.37	17.62	21.68	24.76	26.09	29.83	28.83	25.51	30.78		32.76

2.3 Abundance and distribution of fish species

The catch rates of fish from the 2002 beam trawl surveys (numbers/8m beam/hour) were averaged by rectangle, and these averages were averaged for the subareas shown in ICES 1999. The data for selected fish species are presented by management area and year for the last 10 years, and by ICES rectangle (Tables 2.3.1 to 2.3.9; Figures 2.3.1 to 2.3.26).

Table 2.3.1 Abundance of fish species (per hour fishing) in subarea VIIa per year

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
AMERICAN PLAICE (LR DAB)	2	3	8	17	8	29	9	6	4	2	2
ANGLERFISH (MONK)	4	9	6	5	5	4	4	4	3	4	7
BRILL	3	4	2	2	3	2	2	2	2	3	1
COD	8	46	30	17	15	13	1	21	22	11	4
COMMON DRAGONET	423	394	350	269	255	283	247	324	377	206	247
DAB	448	762	1097	960	823	1172	1032	1544	1447	1515	1269
EUROPEAN PLAICE	360	596	547	544	493	716	682	742	913	798	931
FLOUNDER (EUROPEAN)	4	2	2	1	1	4	4	3	3	9	1
GREY GURNARD	199	180	161	86	90	111	101	112	99	96	65
HADDOCK	1	1	23	3	15	9	7	22	7	12	2
JOHN DORY	1	1	1	1	1	2	1	2	1	1	1
LEMON SOLE	6	26	22	25	17	24	20	16	15	20	21
LESSER SPOTTED DOGFISH	55	46	39	37	40	80	67	58	55	77	71
LESSER WEEVER FISH	102	90	111	104	38	67	57	51	114	34	65
POGGE (ARMED BULLHEAD)	88	131	114	103	93	78	77	63	83	60	69
POOR COD	184	438	248	302	209	279	187	358	325	144	188
RED GURNARD	6	8	11	6	11	18	20	23	19	22	17
RED MULLET	1	1		1		1	1	1	1	1	1
SCALD FISH	73	80	94	66	92	81	98	132	201	189	224
SOLE (DOVER SOLE)	321	152	131	118	155	256	224	178	185	124	102
SOLENETTE	292	419	392	497	334	480	460	568	608	606	1192
THICKBACK SOLE	68	60	49	43	51	48	55	52	74	56	63
TUB GURNARD	29	16	14	15	18	19	27	21	22	20	19
TURBOT	1	1	1	1	1	1	1	1	1	1	1
WHITING	156	195	166	341	163	247	203	174	121	159	130
WHITING POUT (BIB)	55	15	3	22	7	33	58	23	13	11	14

Table 2.3.2 Abundance of fish species (per hour fishing) in subarea VIId per year

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
ANGLERFISH (MONK)		1	1		1	1	1				
BRILL	1	2	2	3	3	3	2	2	3	2	3
COD	1	1	1	1	1	1	1	1	1	1	2
COMMON DRAGONET	540	440	594	247	405	508	978	548	367	421	334
DAB	375	133	258	136	94	138	66	102	70	123	128
EUROPEAN PLAICE	133	116	70	62	127	133	221	107	140	153	142
FLOUNDER (EUROPEAN)	24	9	4	5	30	5	5	7	11	7	16
GREY GURNARD	1	1	1	1	1	1	1	4	1	1	2
JOHN DORY	1	1	1	1	1	1	1	1	1	1	2
LEMON SOLE	7	14	22	26	16	6	5	2	8	14	17
LESSER SPOTTED DOGFISH	14	21	13	13	11	20	11	12	10	11	18
LESSER WEEVER FISH	23	25	21	10	20	9	17	18	23	27	16
POGGE (ARMED BULLHEAD)	81	83	86	70	51	107	41	64	38	75	88
POOR COD	118	98	193	195	139	111	100	190	80	108	89
RED GURNARD	13	15	24	19	24	13	22	18	23	27	19
RED MULLET	1	1		1	1	1	1	1	1	1	1
SCALD FISH	27	30	20	12	16	19	15	29	16	13	18
SOLE (DOVER SOLE)	74	117	66	55	58	76	63	110	87	89	127
SOLENETTE	312	372	351	154	289	280	184	307	168	180	177
THICKBACK SOLE	12	19	14	12	17	18	20	16	18	33	23
TUB GURNARD	11	11	8	7	4	6	6	8	5	6	7
TURBOT	1	1	1	1	1	1	1	1	1	1	1
WHITING	12	2	3	8	1	1	1	1	5	5	18
WHITING POUT (BIB)	99	67	122	92	127	183	273	182	41	133	30

Table 2.3.3 Abundance of fish species (per hour fishing) in subarea VIIe per year

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
ANGLERFISH (MONK)	1	5	2	4	3	1	1	1	1	1	5
BRILL	1	1	1	1	1	1	1	1	1	1	1
COD	1		1			1	1	1	1	1	1
COMMON DRAGONET	3	1	1	1	1	1	1	3	4	31	268
DAB	17	20	64	43	40	39	32	40	20	85	111
EUROPEAN PLAICE	29	19	19	18	30	68	39	43	44	54	29
FLOUNDER (EUROPEAN)		1		1	1		1	1	1	1	
GREY GURNARD	5	8	20	6	13	5	13	25	17	2	15
HADDOCK				1							1
JOHN DORY	2	4	2	1	1	1	1	2	1	4	3
LEMON SOLE	1	1	2	3	2	2	2	1	1	3	3
LESSER SPOTTED DOGFISH	1	29	22	30	26	56	41	54	25	51	31
LESSER WEEVER FISH	1	1	1	1	1	1	1	1	1	1	10
POGGE (ARMED BULLHEAD)	1	1	1	1	1	1	1	1	1	1	29
POOR COD	11	1	1	1	1	1	1	16	10	13	132
RED GURNARD	47	66	101	63	51	43	42	62	55	20	61
RED MULLET	2	3	2	3	4	3	2	8	4	8	1
SCALD FISH	1	1	1	1	1	1	1	1	1	12	136
SOLE (DOVER SOLE)	44	26	21	18	26	36	33	30	28	38	17
SOLENETTE	1	1	1	1	1	1	1	1	2	41	678
THICKBACK SOLE	1	1	1	1	1	1	1	1	6	8	201
TUB GURNARD	3	1	1	1	2	1	3	2	2	2	2
TURBOT	1	1	1	1	1	1	1	1	1	1	1
WHITING	10	22	4	7	9	13	7	3	3	10	9
WHITING POUT (BIB)	22	15	9	2	11	28	15	4	2	1	9

Table 2.3.4 Abundance of fish species (per hour fishing) in subarea VIIf per year

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
ANGLERFISH (MONK)	22	10	10	6	5	2	1	18	3	3	12
BRILL	3	3	4	5	3	4	2	3	7	1	2
COD	3	1	2	2	1	1	1	3	7	2	1
COMMON DRAGONET	152	88	238	99	173	93	81	148	174	87	73
DAB	306	198	335	165	210	162	246	359	250	236	188
EUROPEAN PLAICE	203	57	73	83	144	96	119	139	138	117	97
FLOUNDER (EUROPEAN)	2	1	3	3	2	1	3	1	5	11	6
GREY GURNARD	170	106	90	50	46	49	66	111	124	85	86
HADDOCK			1		1	1			1		1
JOHN DORY	1	5	2	1	1	3	2	6	5	12	6
LEMON SOLE	7	8	18	12	24	11	8	11	13	18	33
LESSER SPOTTED DOGFISH	201	82	80	64	68	93	103	168	93	75	93
LESSER WEEVER FISH	2	5	6	7	7	3	4	5	15	8	7
POGGE (ARMED BULLHEAD)	6	13	7	8	9	5	31	22	18	14	17
POOR COD	670	502	226	227	243	334	763	646	593	159	311
RED GURNARD	2	12	21	13	19	12	1	8	11	21	22
RED MULLET		1	1	1	2	3		6	3	5	1
SCALD FISH	3	2	6	7	8	7	1	4	6	8	8
SOLE (DOVER SOLE)	260	136	220	107	118	178	378	834	625	330	257
SOLENETTE	306	232	494	233	222	137	282	492	368	306	249
THICKBACK SOLE	62	46	47	45	45	31	20	46	56	30	33
TUB GURNARD	25	5	17	13	12	11	21	42	21	17	22
TURBOT	2	2	4	5	3	1	3	9	6	3	4
WHITING	246	275	106	109	183	283	146	355	135	40	126
WHITING POUT (BIB)	58	23	11	15	31	316	229	109	23	35	85

Table 2.3.5 Abundance of fish species (per hour fishing) in subarea VIIg per year

comnam	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
AMERICAN PLAICE (LR DAB)		45	174	112	85	43					23
ANGLERFISH (MONK)		26	52	38	19	9	13	19		5	13
BRILL	8	1	1				8				
COD		2	2	2	1	1		5			
COMMON DRAGONET	8	101	194	121	83	80	67	133	8	131	64
DAB		150	131	101	87	197	365	681	8	184	80
EUROPEAN PLAICE	8	14	15	17	23	35	104	56	24	8	11
GREY GURNARD	8	124	198	97	77	50	256	267	16	173	91
HADDOCK		36	88	31	41	33	3	133		43	58
JOHN DORY		1	1		1		5	11			6
LEMON SOLE		26	38	31	25	13	32	8		8	2
LESSER SPOTTED DOGFISH	16	21	27	35	29	91	8	72	16	277	414
LESSER WEEVER FISH			1		2						
POGGE (ARMED BULLHEAD)		39	19	23	10	32	59	83		32	194
POOR COD	360	252	136	103	105	325	277	429	464	115	216
RED GURNARD		5	3	1	1	3	5	3		5	
SCALD FISH		106	88	82	88	42	173	141		3	24
SOLE (DOVER SOLE)	32	27	25	22	16	46	21	107	56	163	32
SOLENETTE	8	98	89	77	18	41	251	189			
THICKBACK SOLE		105	137	129	95	72	123	352		160	266
TUB GURNARD					1	1	3	3			
TURBOT	8	1		1			5		8	8	5
WHITING	80	86	38	67	57	248	189	1586	616	333	95
WHITING POUT (BIB)	8		2			15	3				2

Table 2.3.6 Abundance of fish species (per hour fishing) in roundfish area 4 per year

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
AMERICAN PLAICE (LR DAB)					39	66	73	103	56	65	68
ANGLERFISH (MONK)	1				2	1	2	1	1	1	1
BRILL	3	5	1	2	2	1	1	1	1		1
COD	3	11	1	10	8	100	9	5	5	2	10
COMMON DRAGONET					12	9	15	14	39	21	20
DAB	295	316	128	291	503	398	217	471	412	415	281
EUROPEAN PLAICE	62	93	33	259	45	54	35	55	65	56	54
FLOUNDER (EUROPEAN)					1						
GREY GURNARD	27		3	24	143	37	40	120	43	79	27
HADDOCK				6	27	34	29	12	32	29	16
LEMON SOLE	7	45	24	87	55	87	32	27	38	37	60
LESSER SPOTTED DOGFISH								1			
LESSER WEEVER FISH					72	2	6	9	9	6	16
POGGE (ARMED BULLHEAD)					1	4	2	22	20	9	80
POOR COD		1				2	1	1	1	1	2
RED GURNARD	8	16	8	17							
RED MULLET							1		1		1
SCALD FISH	8			15	69	7	2	11	12	17	9
SOLE (DOVER SOLE)	24	35	81	130	38	29	30	18	29	9	30
SOLENETTE	9			39	61	52	9	4	11	10	3
THICKBACK SOLE									1		
TUB GURNARD	2	13		3					1		1
TURBOT	1			1		1			1	1	
WHITING	1	20	24	126	39	64	165	13	66	35	49
WHITING POUT (BIB)		32	43	8	9	18	2	3	9	3	25

Table 2.3.7 Abundance of fish species (per hour fishing) in roundfish area 5 per year

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
AMERICAN PLAICE (LR DAB)											1
ANGLERFISH (MONK)	1							1	1		
BRILL	1	1	1	1	1	1	1	1	1	1	1
COD	2	1	4	3	4	21	4	2	1	2	2
COMMON DRAGONET	3	3	3	66	50	4	8	14	12	44	8
DAB	221	50	96	194	292	266	124	199	187	216	154
EUROPEAN PLAICE	38	20	48	74	75	66	57	53	53	69	80
FLOUNDER (EUROPEAN)	2	1	2	20	9	13	2	14	14	10	48
GREY GURNARD	32	8	19	13	20	26	15	22	7	6	10
HADDOCK							1		1		
LEMON SOLE	8	25	53	65	60	30	24	23	19	33	30
LESSER SPOTTED DOGFISH	2	10	5	6	6	3	8	6	13	9	24
LESSER WEEVER FISH	32	27	39	4	69	36	19	23	17	21	30
POGGE (ARMED BULLHEAD)	6	18	29	115	103	45	12	22	44	59	27
POOR COD	10	28	47	44	17	7	21	31	20	58	43
RED GURNARD	1	1	1	8	2	1	1	1	1	1	1
RED MULLET	1	1	1	1	1	1	1	1	1	1	1
SCALD FISH	47	26	16	64	36	25	17	28	25	16	23
SOLE (DOVER SOLE)	79	147	211	173	144	160	133	215	222	196	159
SOLENETTE	69	18	9	72	98	72	45	38	54	27	38
THICKBACK SOLE		1				1	1			1	1
TUB GURNARD	2	5	1	1	1	1	1	1	2	1	2
TURBOT	1	1	1	1	1	1		1	1	1	1
WHITING	43	70	43	74	59	49	124	69	105	114	123
WHITING POUT (BIB)	25	24	162	181	34	42	157	262	60	174	73

Table 2.3.8 Abundance of fish species (per hour fishing) in roundfish area 6 per year

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
AMERICAN PLAICE (LR DAB)	1	1	2	2	3	8	34	14	6	4	9
ANGLERFISH (MONK)	1	1	1	1	1		1		1	1	1
BRILL	3	3	2	1	1	1	2	1	2	1	1
COD	2	1	11	9	9	25	3	1	3	2	1
COMMON DRAGONET				139	14	111	104	114	64	68	124
DAB	1102	1136	1074	764	1475	1374	1370	1267	985	931	794
EUROPEAN PLAICE	586	652	597	523	778	1200	1067	808	587	1207	751
FLOUNDER (EUROPEAN)	5	9	5	7	10	12	5	2	3	4	4
GREY GURNARD	33	35	61	36	36	37	61	95	44	25	37
HADDOCK		1		1			1		1	1	1
JOHN DORY			1		1						
LEMON SOLE	1	2	13	9	9	85	6	6	5	8	10
LESSER SPOTTED DOGFISH	1		1			1		1	1		1
LESSER WEEVER FISH	31	44	58	59	19	50	37	48	37	74	41
POGGE (ARMED BULLHEAD)	59	40	157	111	58	189	159	40	44	60	86
POOR COD	1	1	1	5	2	1	6	2	1	1	2
RED GURNARD	1	1		1	1	1	1	1	1	1	1
RED MULLET	1	1	4	2	1	1	1	13	1	2	4
SCALD FISH	73	189	91	83	17	40	89	87	76	138	167
SOLE (DOVER SOLE)	137	75	49	59	24	154	73	49	34	36	53
SOLENETTE	122	178	166	140	34	89	67	295	396	219	269
THICKBACK SOLE				1			1			1	
TUB GURNARD	13	12	11	6	5	4	7	4	6	4	5
TURBOT	3	3	5	3	2	2	3	3	5	3	3
WHITING	76	80	121	110	40	51	207	172	178	269	104
WHITING POUT (BIB)	11	2	4	30	3	30	40	99	14	9	9

Table 2.3.9 Abundance of fish species (per hour fishing) in roundfish area 7 per year

	1993	1996	1997	1998	1999	2000	2001	2002
AMERICAN PLAICE (LR DAB)	73	184	75	200	63	116	88	135
ANGLERFISH (MONK)		3	1	2	1	2	1	1
BRILL	1	1	1	1	1	1		
COD	2	101	15	18	3	15	7	7
COMMON DRAGONET		6	1	11	9	7	3	5
DAB	3382	1646	467	1622	574	2849	649	508
EUROPEAN PLAICE	286	200	291	644	215	671	89	99
FLOUNDER (EUROPEAN)	1	6	2	1	1	1		
GREY GURNARD	92	84	34	111	63	251	51	38
HADDOCK		3	5	2	5	46	13	2
LEMON SOLE	1	10	9	8	2	7	8	10
LESSER WEEVER FISH	5				1			1
POGGE (ARMED BULLHEAD)	84	27	9	25	4	24	5	3
POOR COD			1					
SCALD FISH	21			4	3	54	15	11
SOLE (DOVER SOLE)	9	4	1	7	2	10	2	1
SOLENETTE	24	2	1	1	1	27	13	15
TUB GURNARD	2	5	6	3	1	2	1	1
TURBOT	1	1	1	1	1	4	1	1
WHITING	89	11	2	9	9	43	153	26
WHITING POUT (BIB)								

Figure 2.3.1 International Beam Trawl Surveys 1990−2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Dab

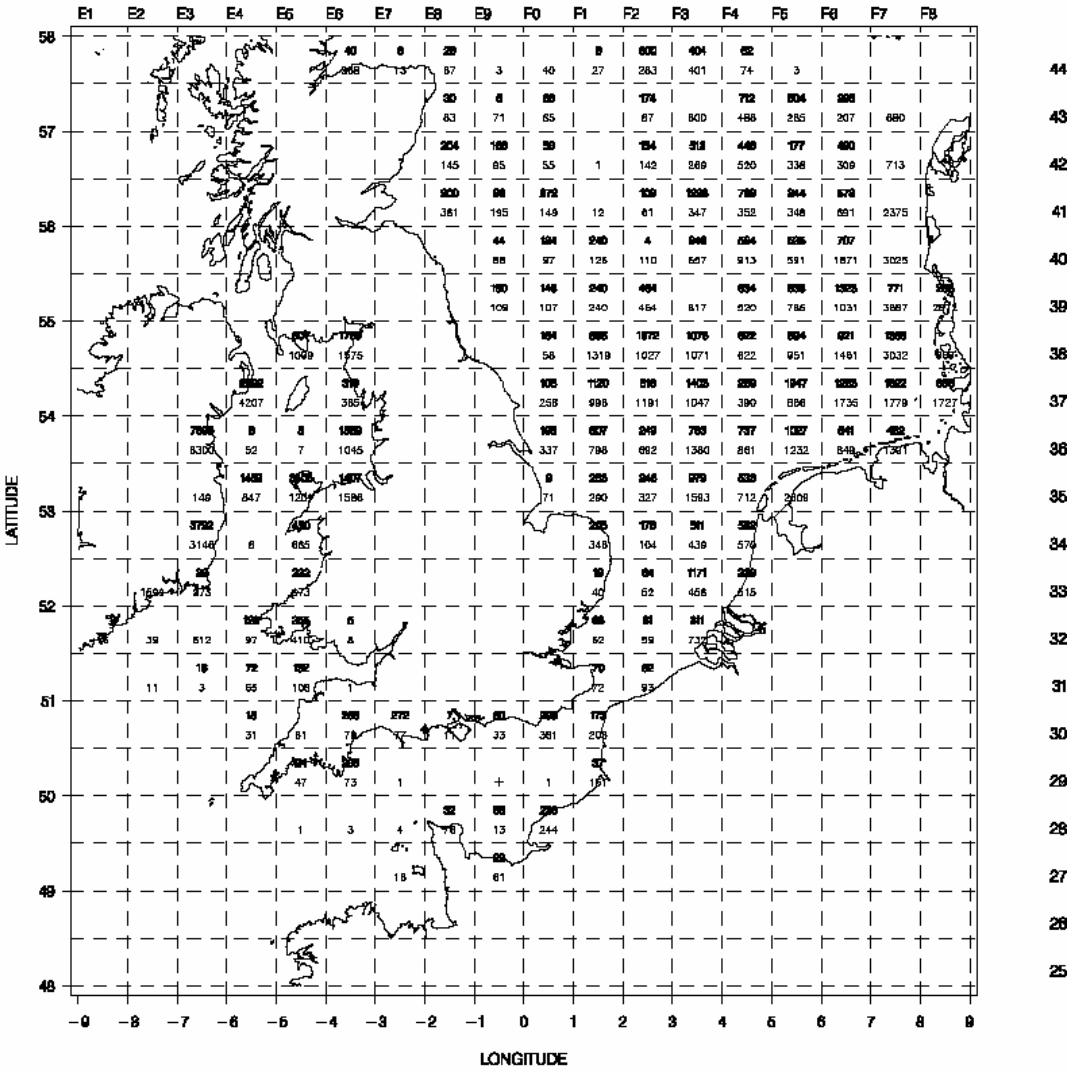


Figure 2.3.2 International Beam Trawl Surveys 1990–2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)

Sole

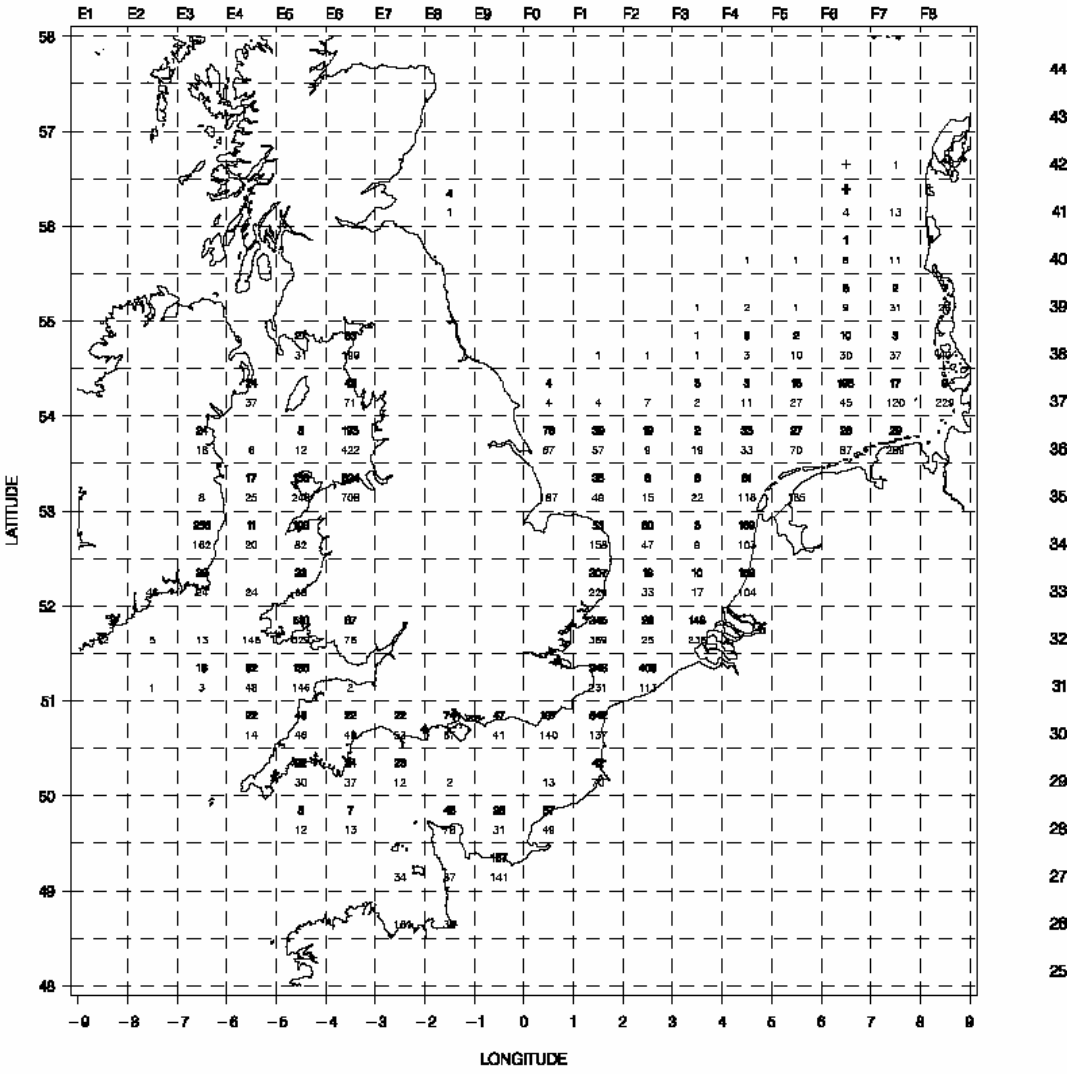


Figure 2.3.3 International Beam Trawl Surveys 1990–2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Plaice

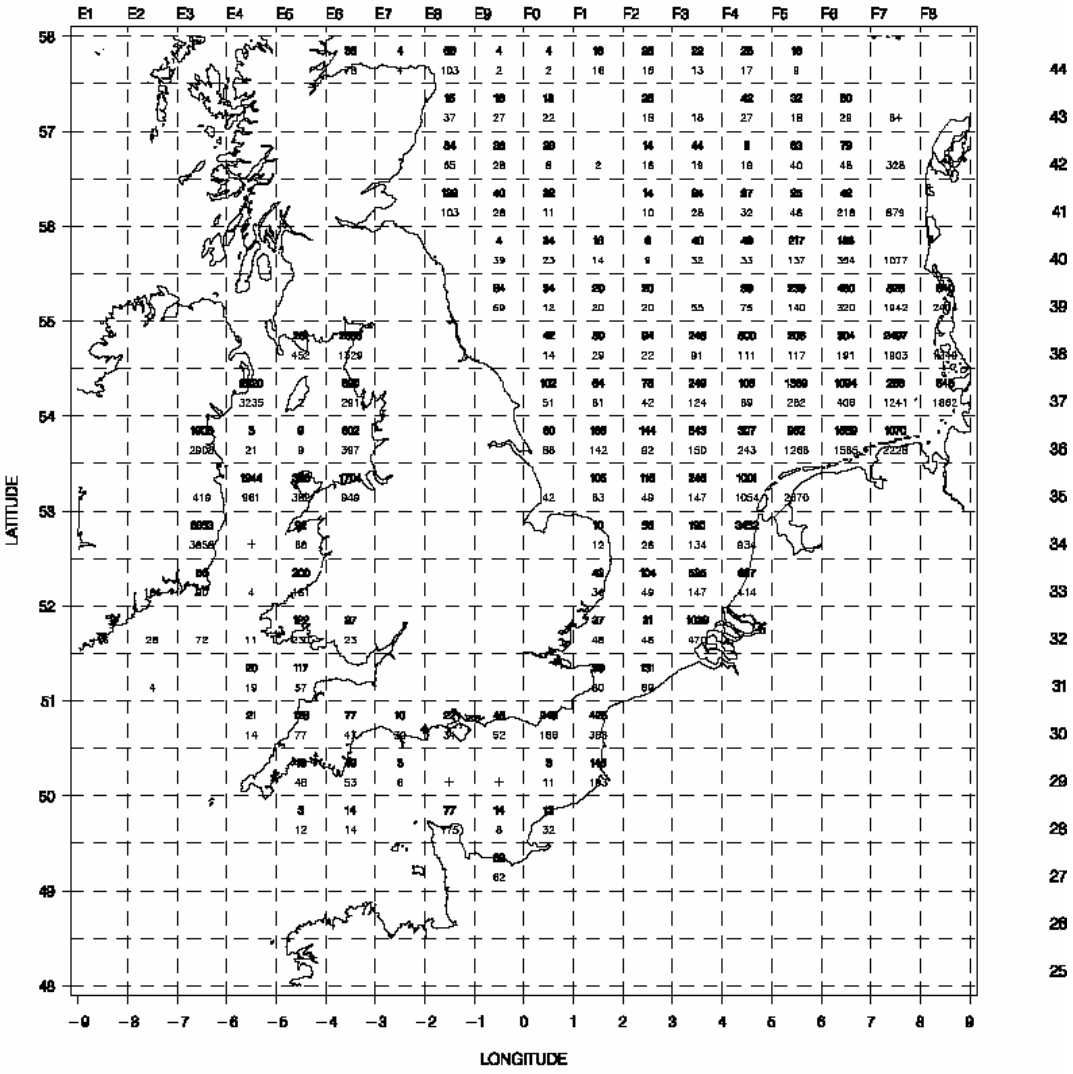


Figure 2.3.4 International Beam Trawl Surveys 1990–2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Turbot

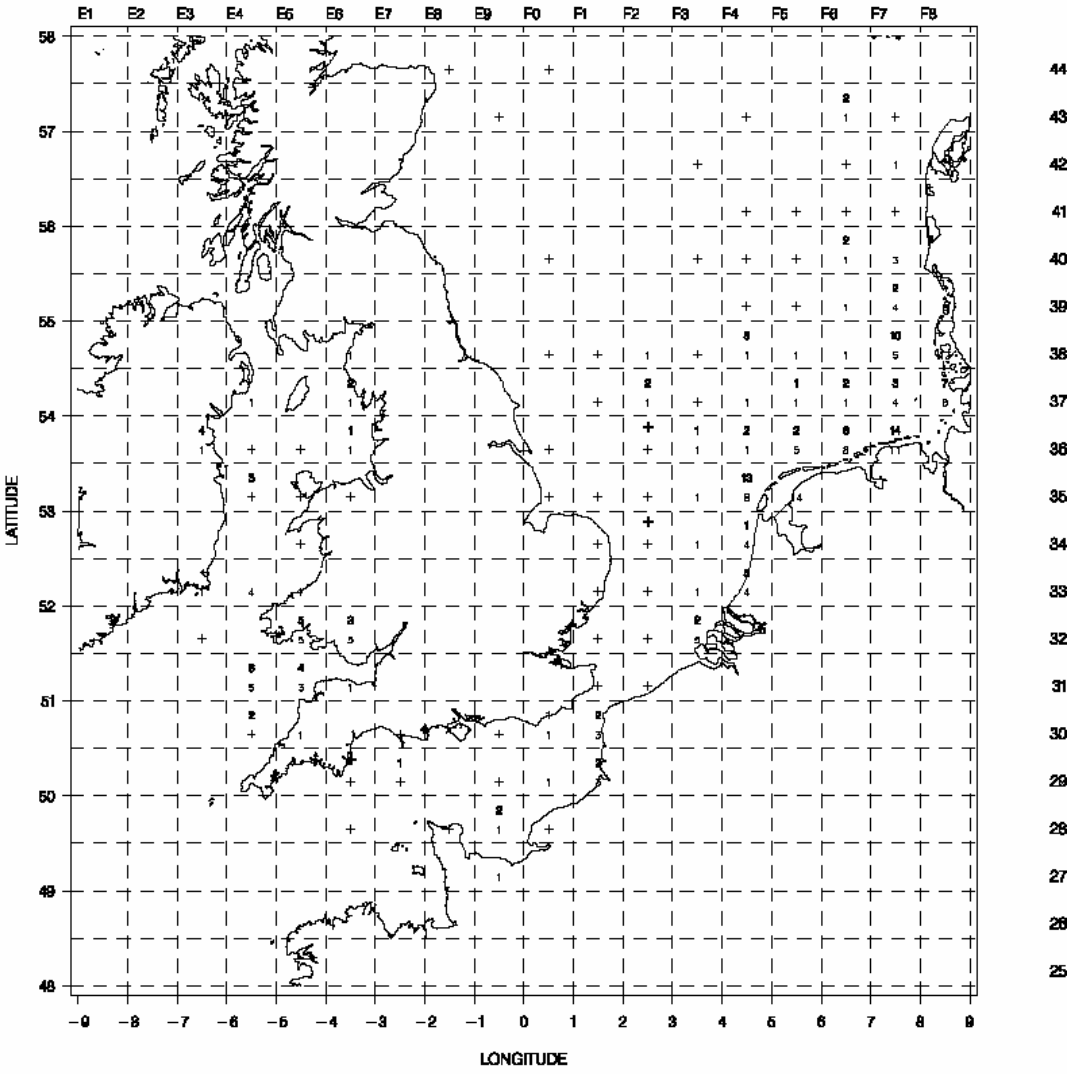


Figure 2.3.5 International Beam Trawl Surveys 1990–2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Brill

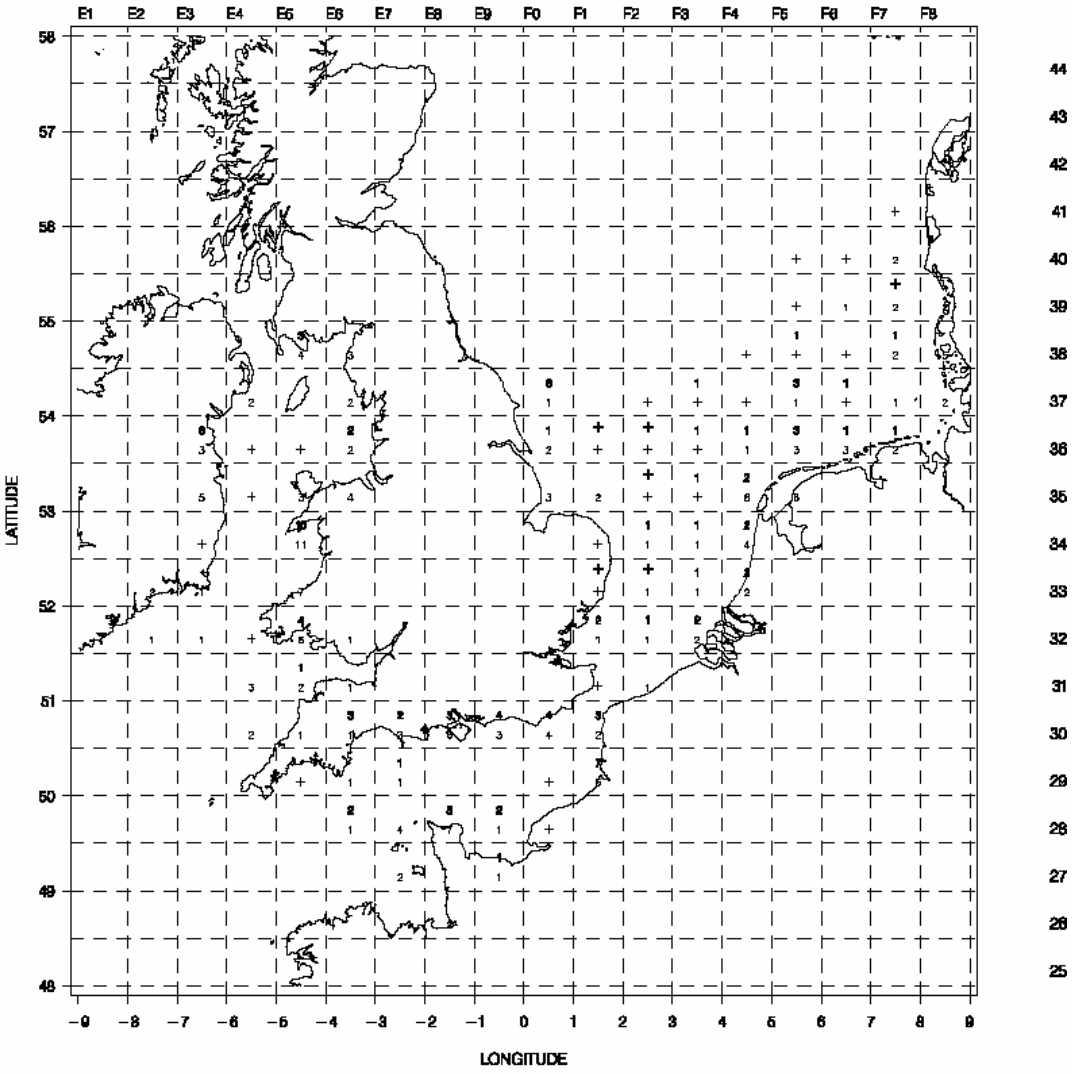


Figure 2.3.6 International Beam Trawl Surveys 1990–2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Scaldfish

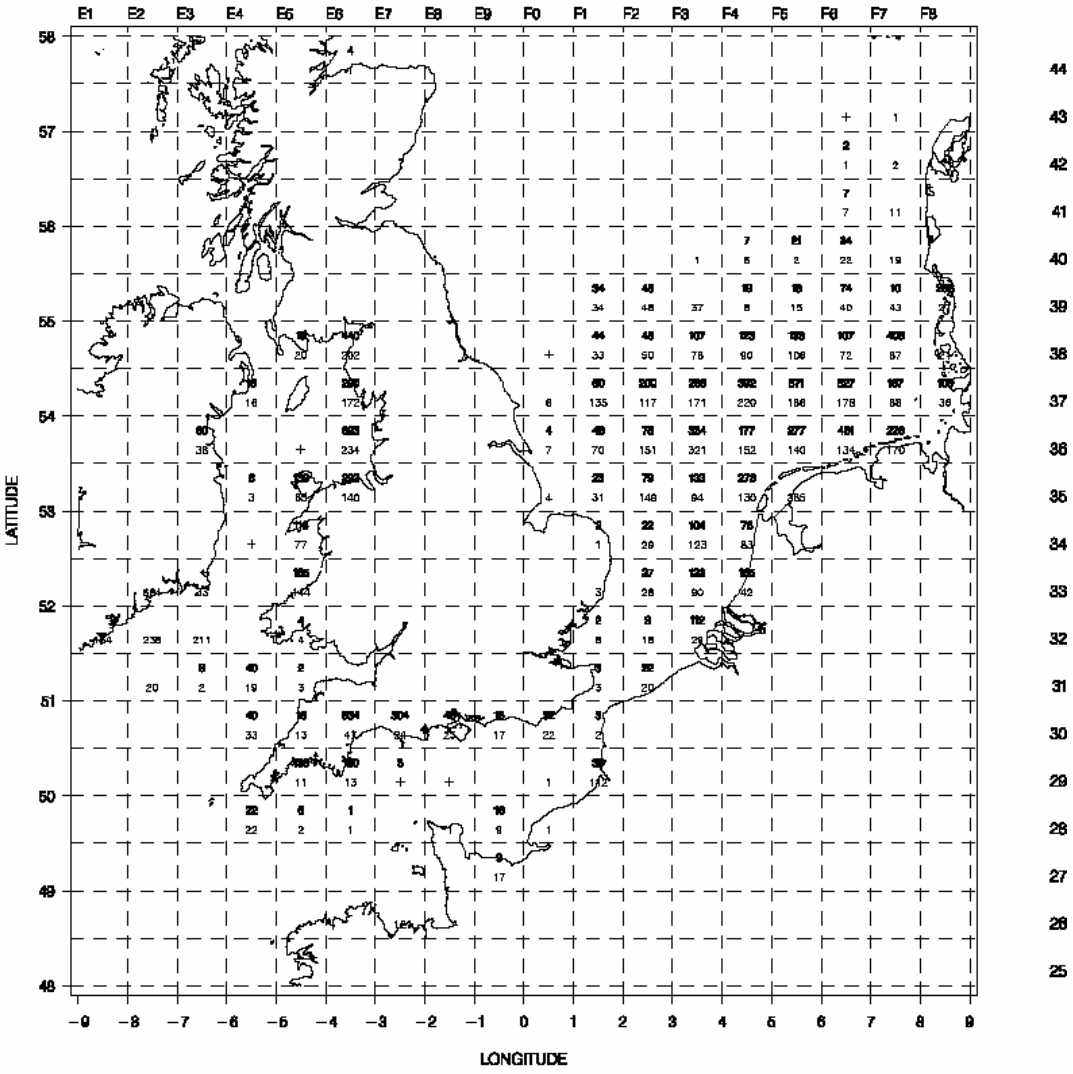


Figure 2.3.7 International Beam Trawl Surveys 1990–2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Lemon sole

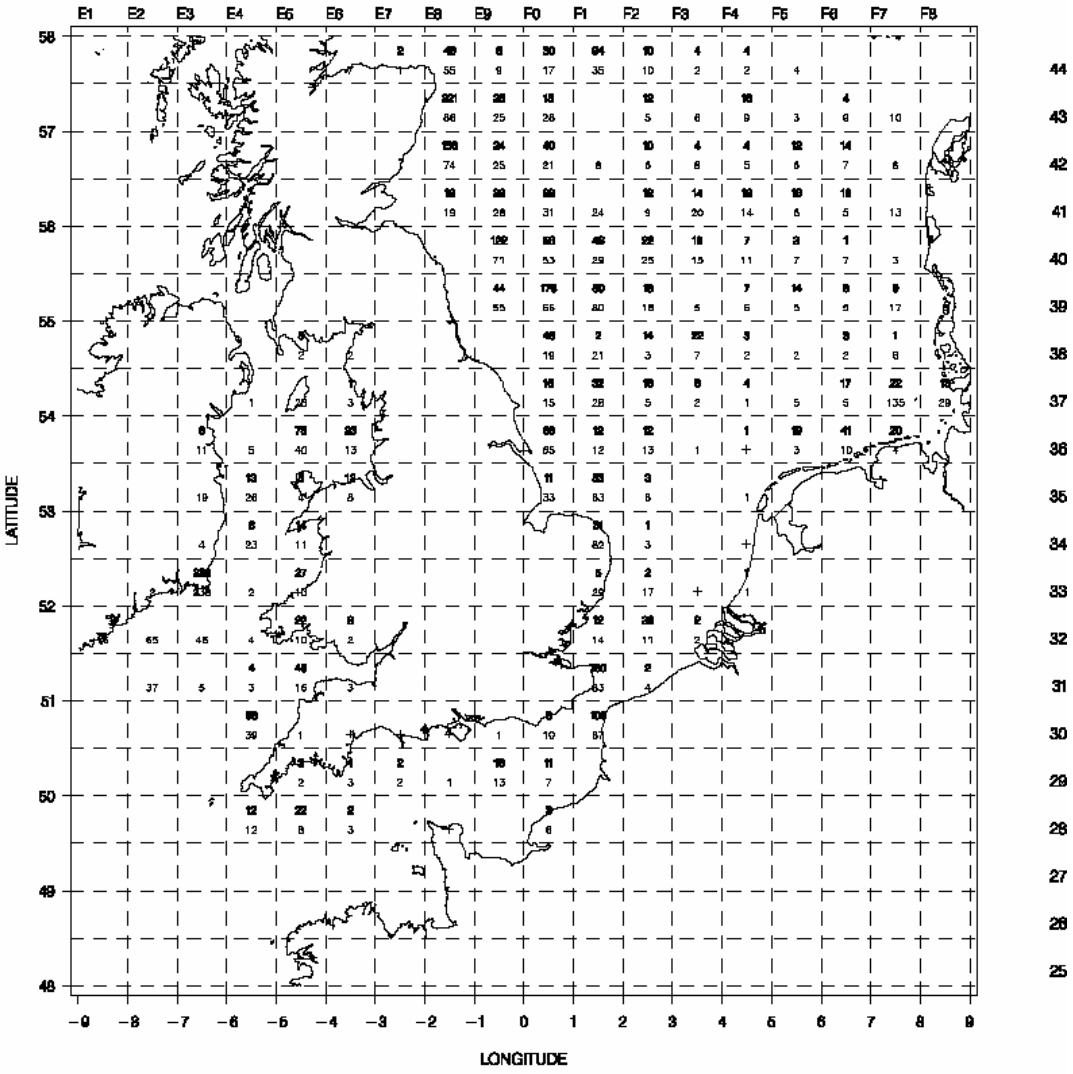


Figure 2.3.8 International Beam Trawl Surveys 1990–2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
American plaice (Long rough dab)

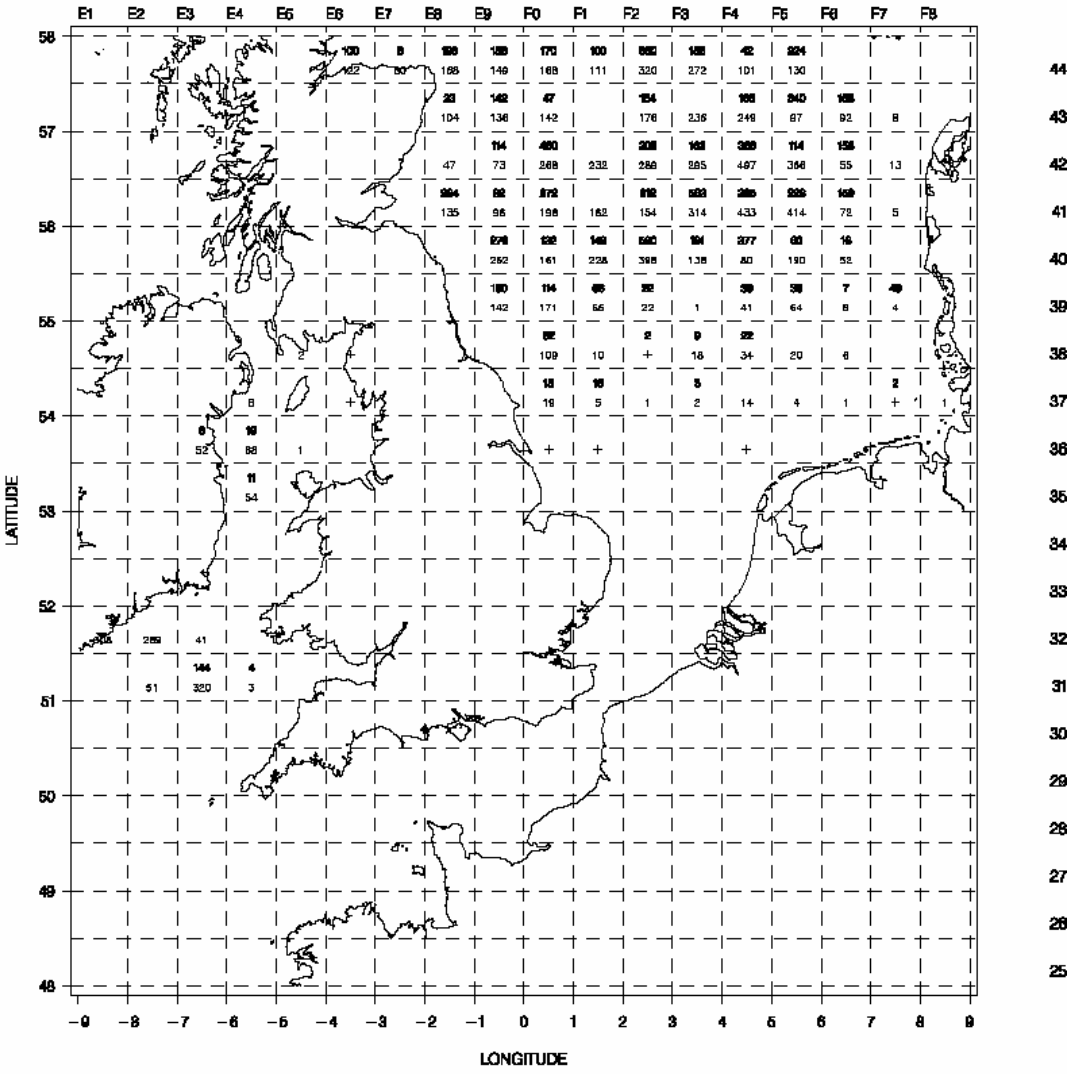


Figure 2.3.9 International Beam Trawl Surveys 1990–2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Flounder

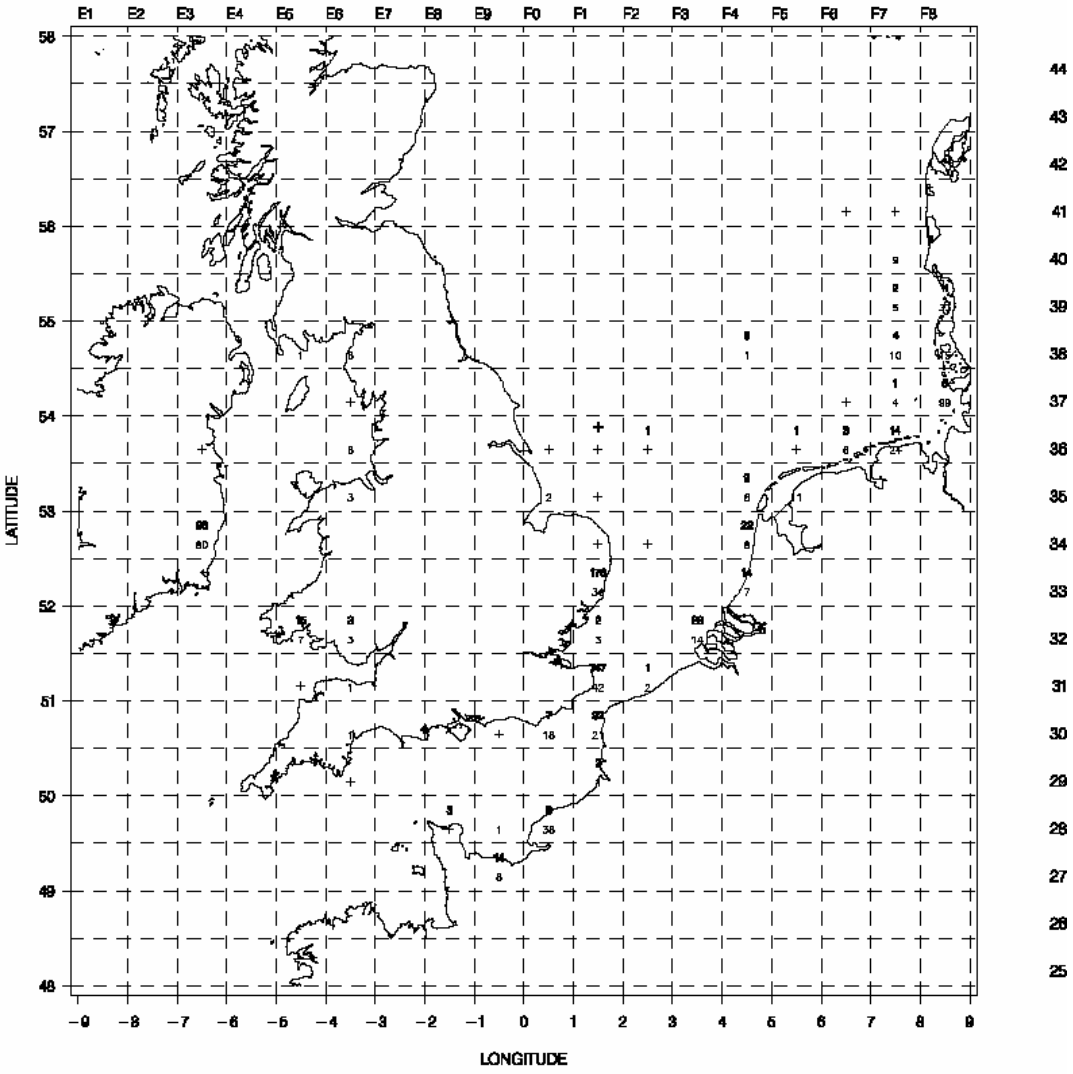


Figure 2.3.10 International Beam Trawl Surveys 1990 – 2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Solenette

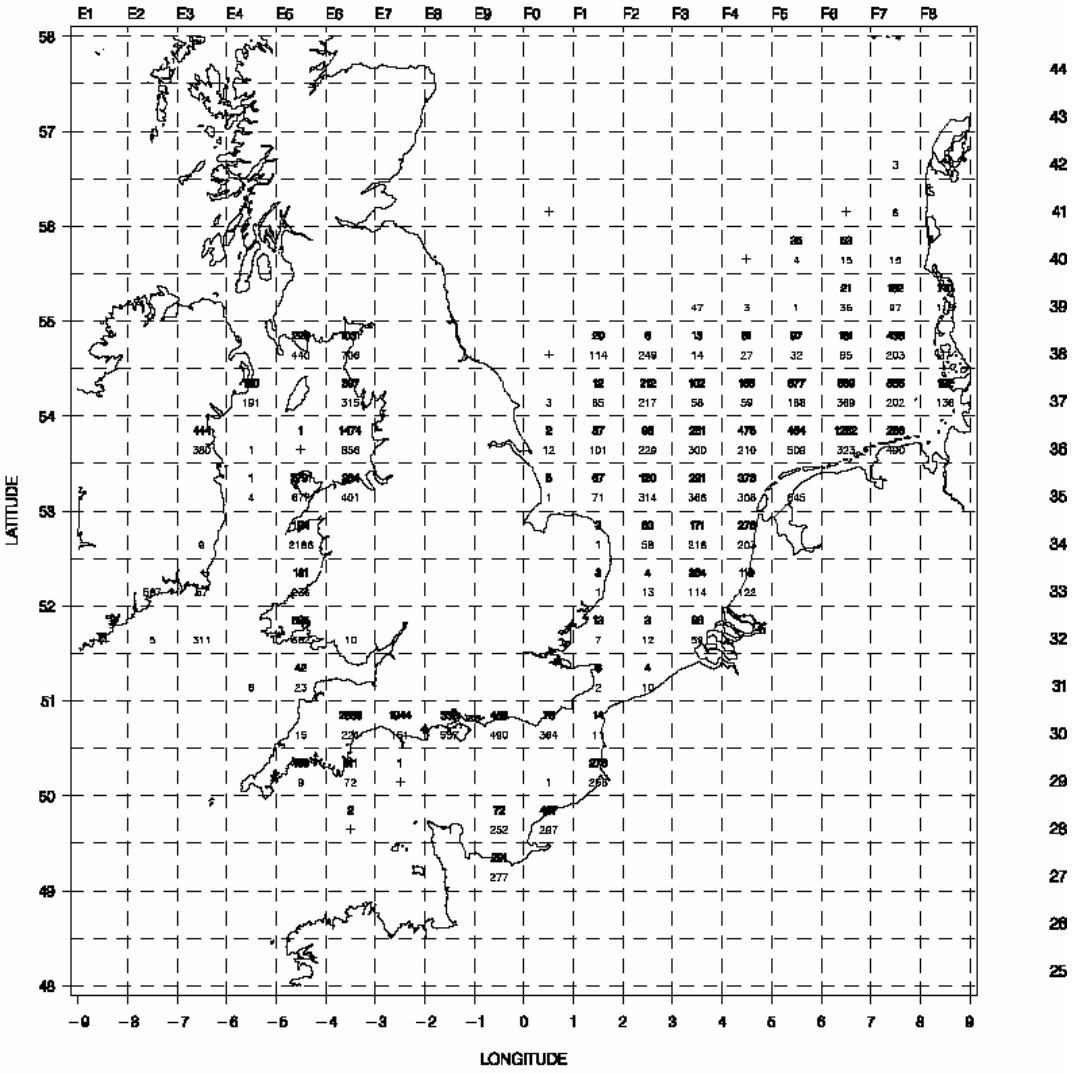


Figure 2.3.11 International Beam Trawl Surveys 1990−2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Thickback sole

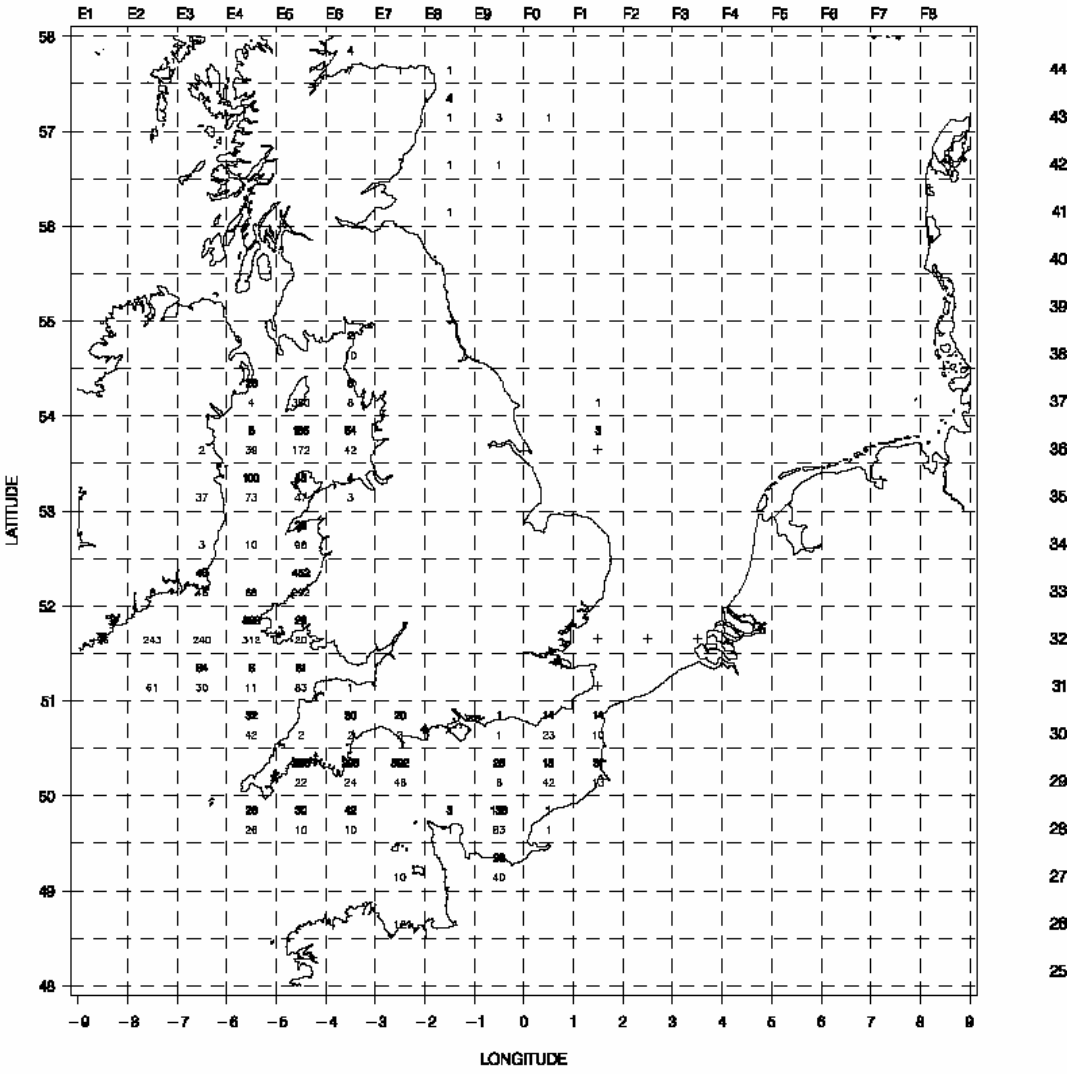


Figure 2.3.12 International Beam Trawl Surveys 1990 – 2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Pogge (Armoured bullhead)

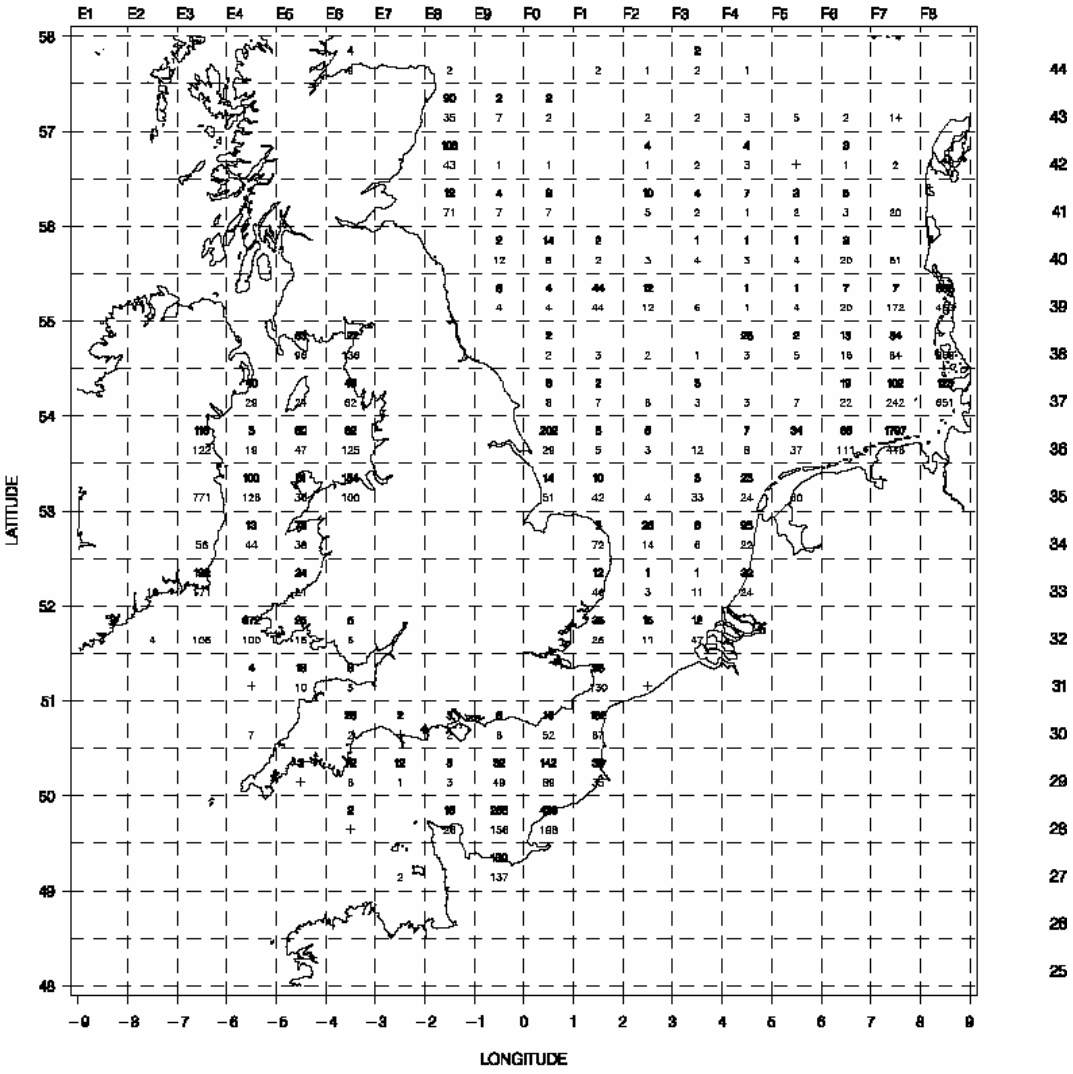


Figure 2.3.13 International Beam Trawl Surveys 1990 – 2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)

Tub gurnard

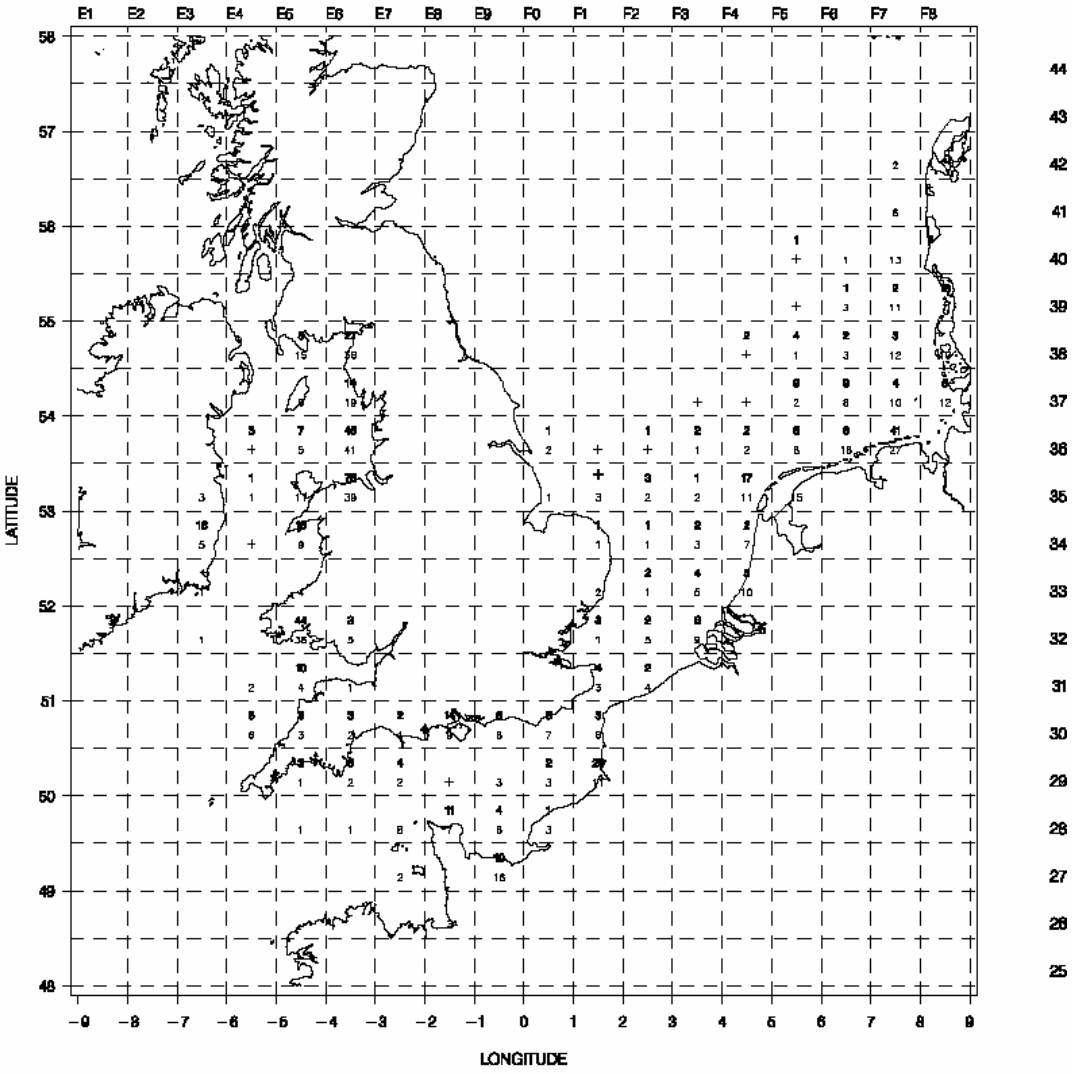


Figure 2.3.14 International Beam Trawl Surveys 1990 – 2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Grey gurnard

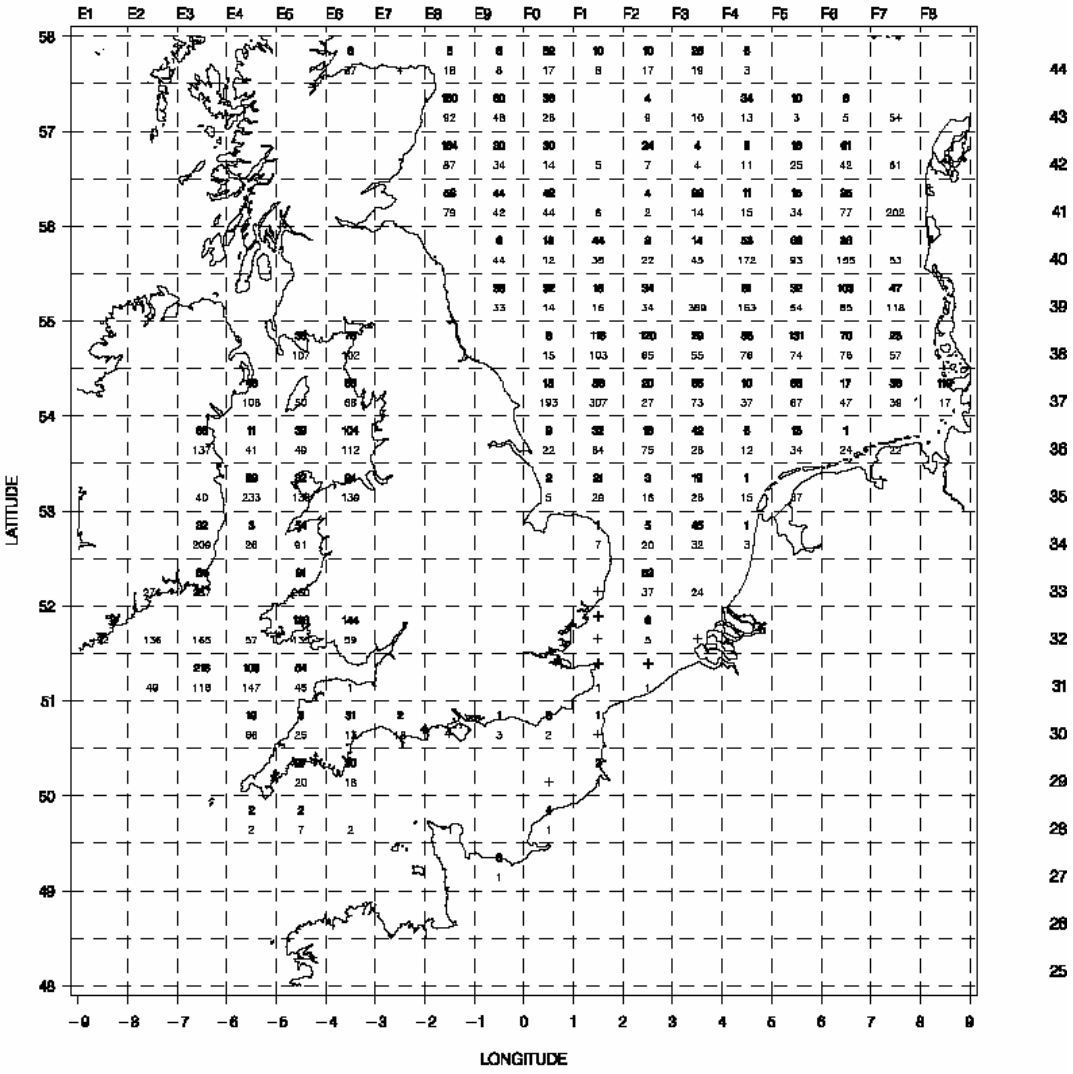


Figure 2.3.15 International Beam Trawl Surveys 1990 – 2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Lesser weever

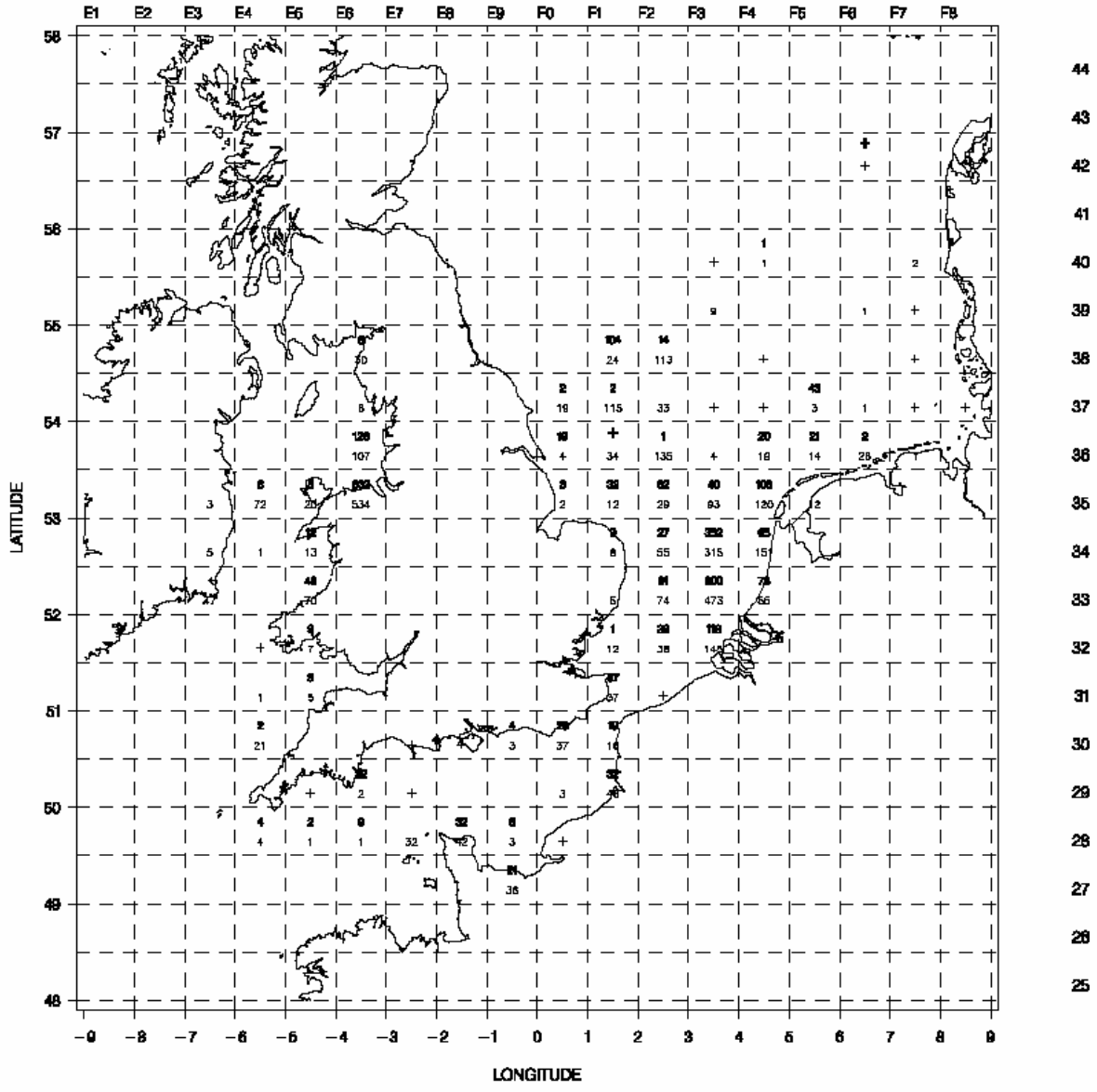


Figure 2.3.16 International Beam Trawl Surveys 1990 – 2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Common dragonet

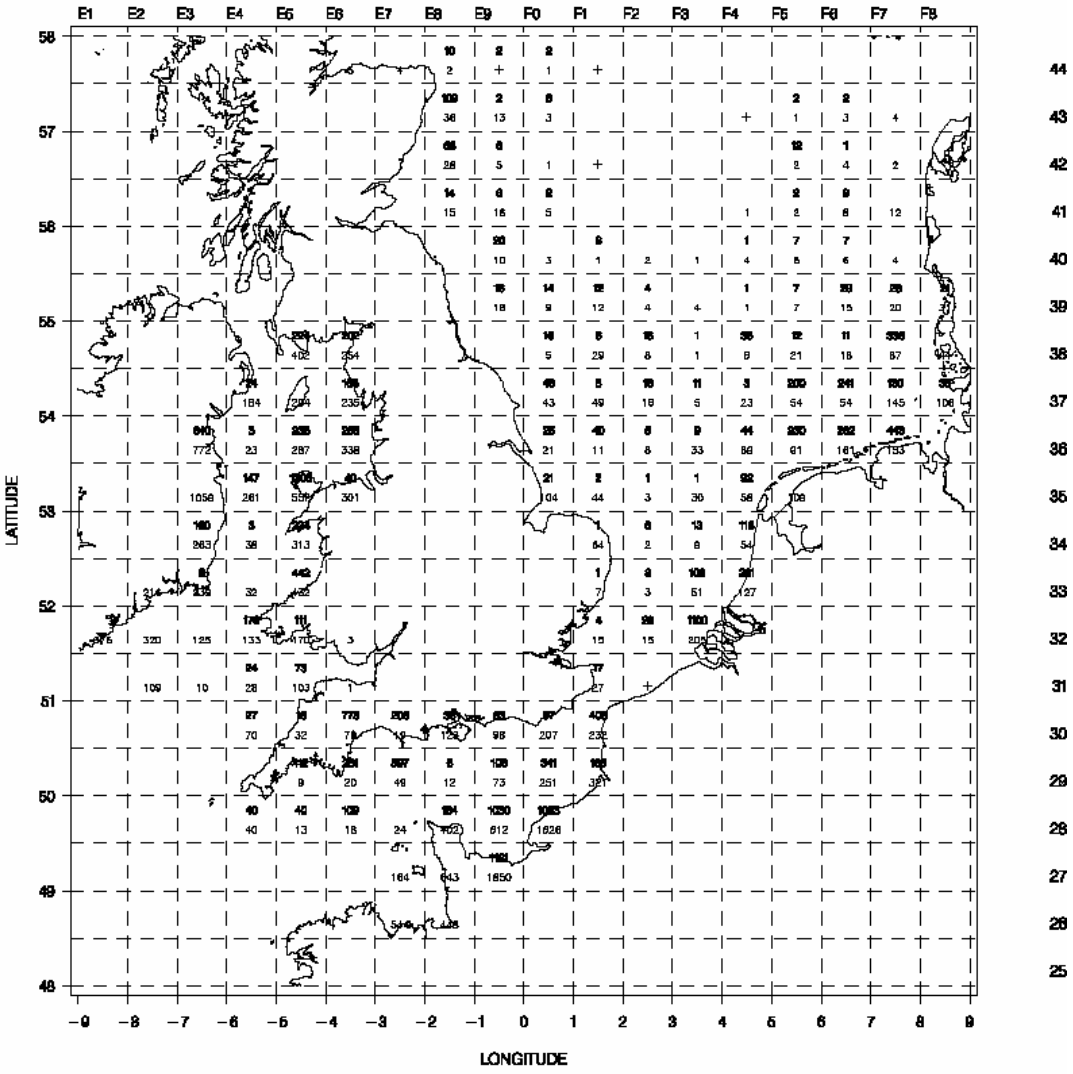


Figure 2.3.17 International Beam Trawl Surveys 1990 – 2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Lesser spotted dogfish

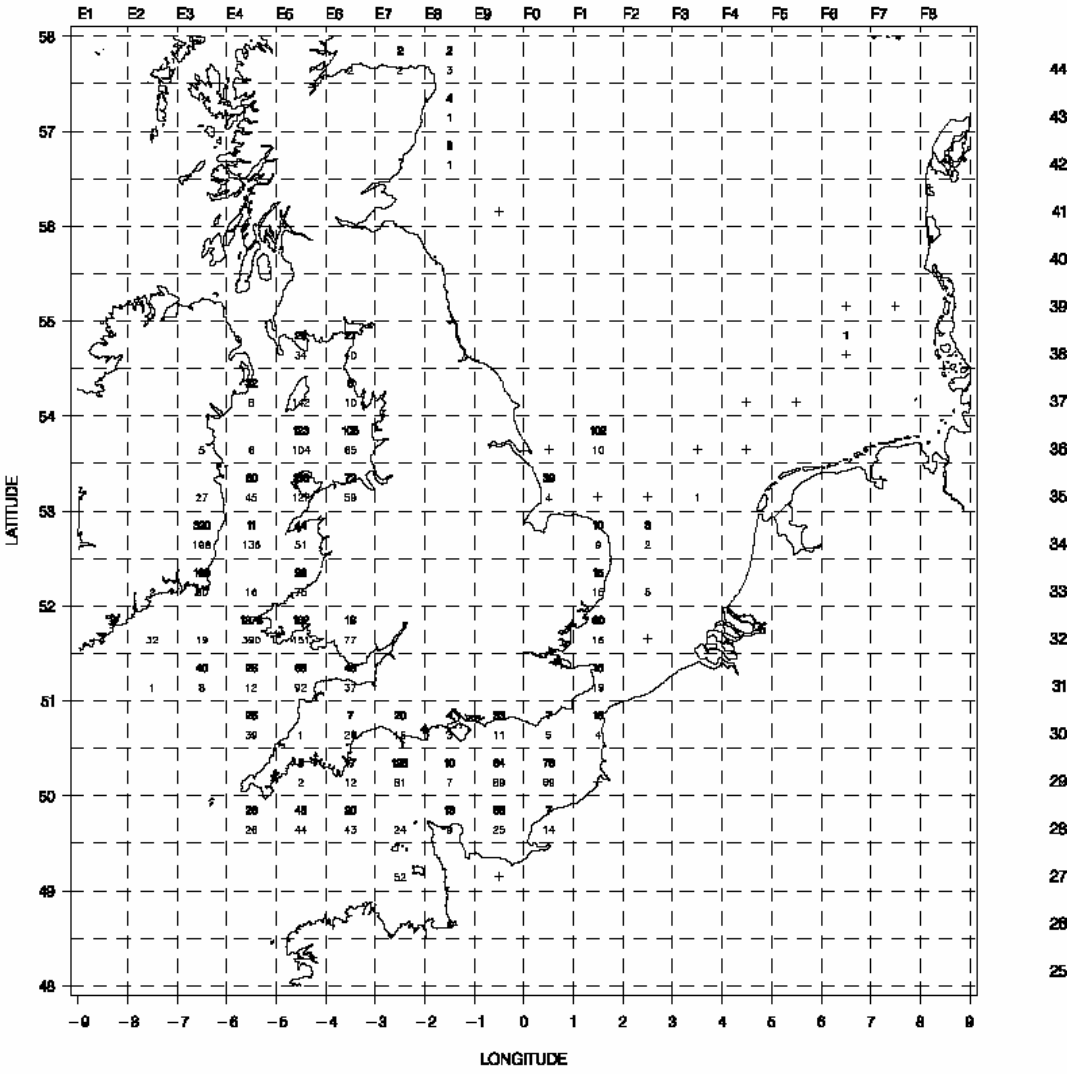


Figure 2.3.18 International Beam Trawl Surveys 1990 – 2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Rays

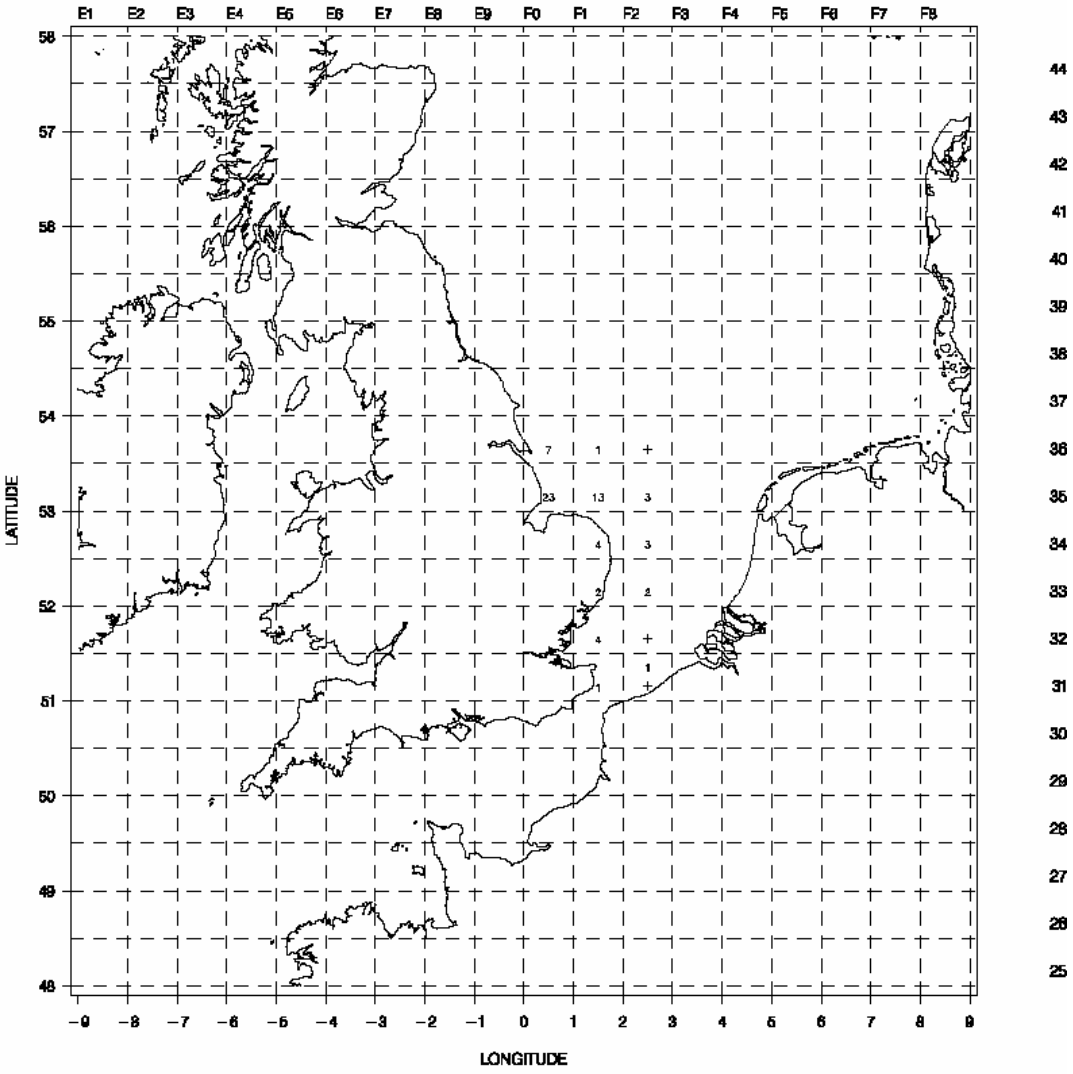


Figure 2.3.19 International Beam Trawl Surveys 1990 – 2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Cod

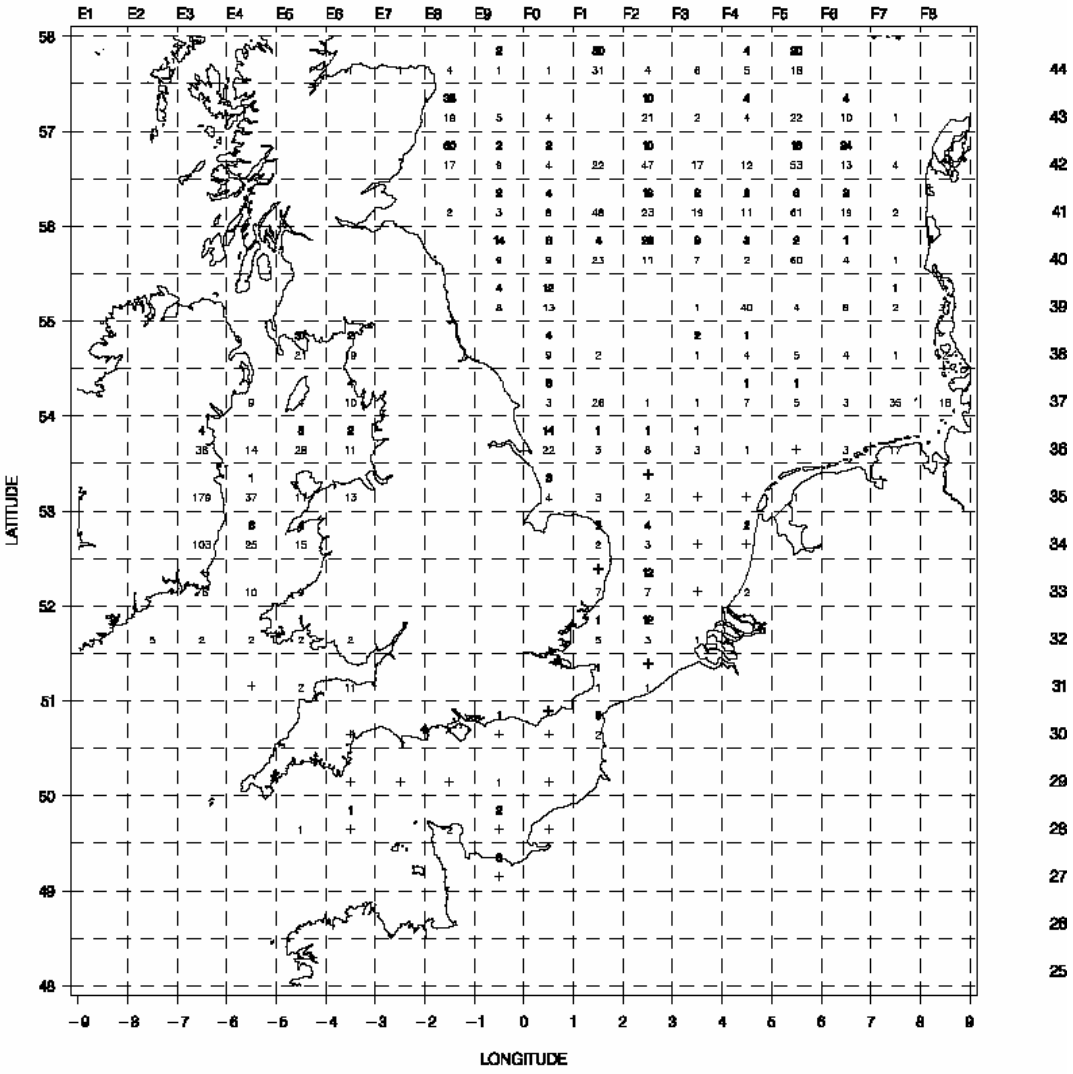


Figure 2.3.20 International Beam Trawl Surveys 1990–2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Poor cod

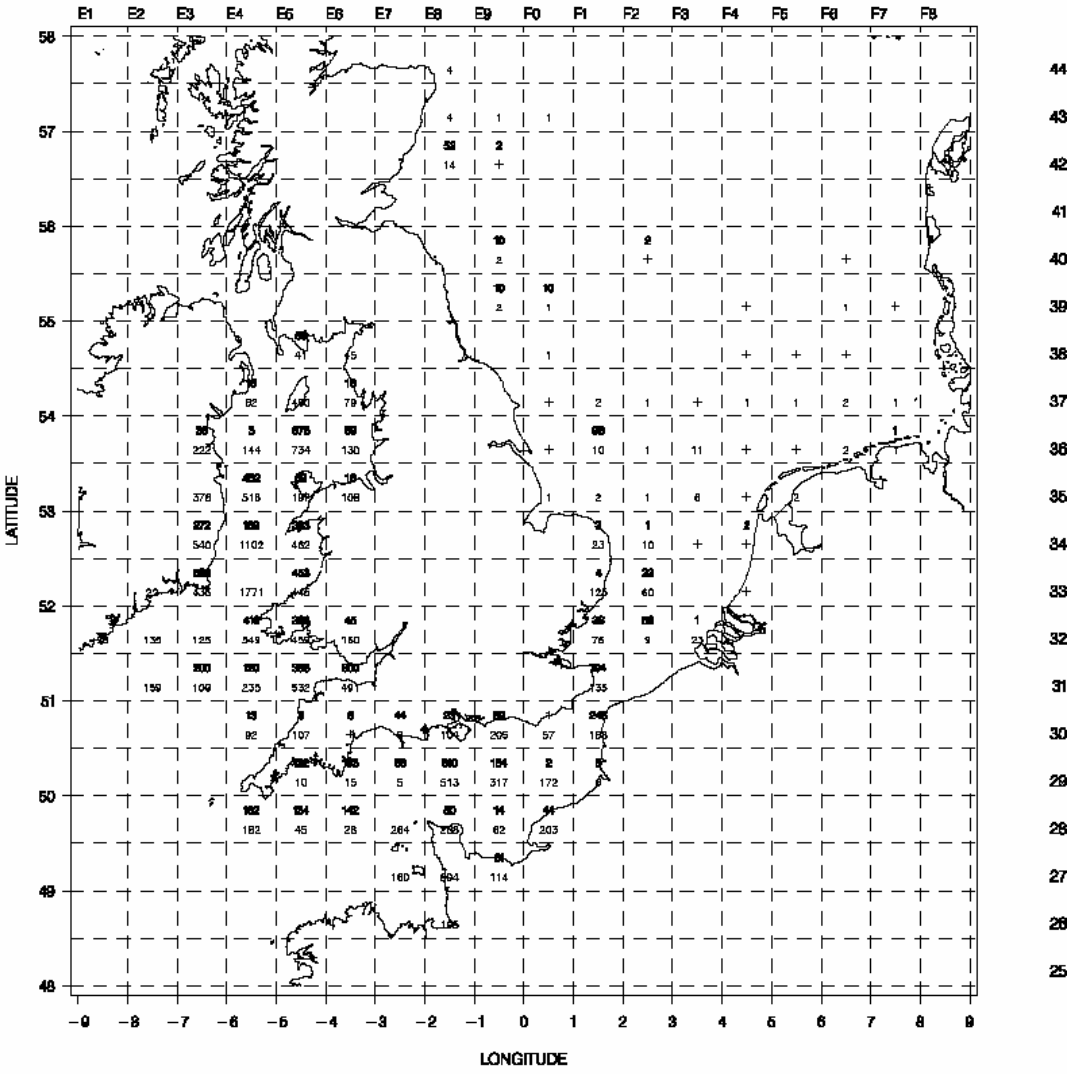


Figure 2.3.22 International Beam Trawl Surveys 1990 – 2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+' = < 0.5)
Pout whiting (Bib)

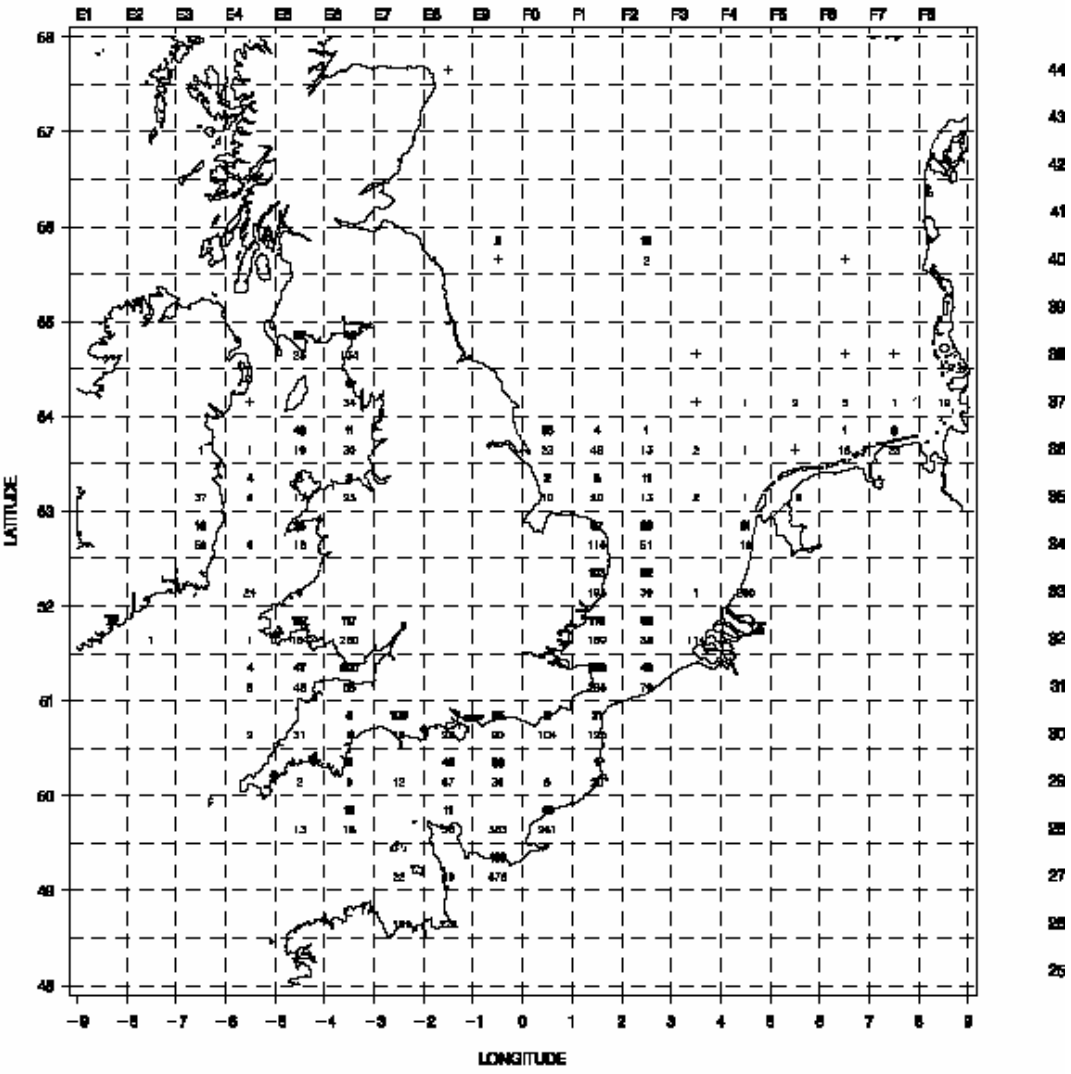


Figure 2.3.21 International Beam Trawl Surveys 1990 – 2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Haddock

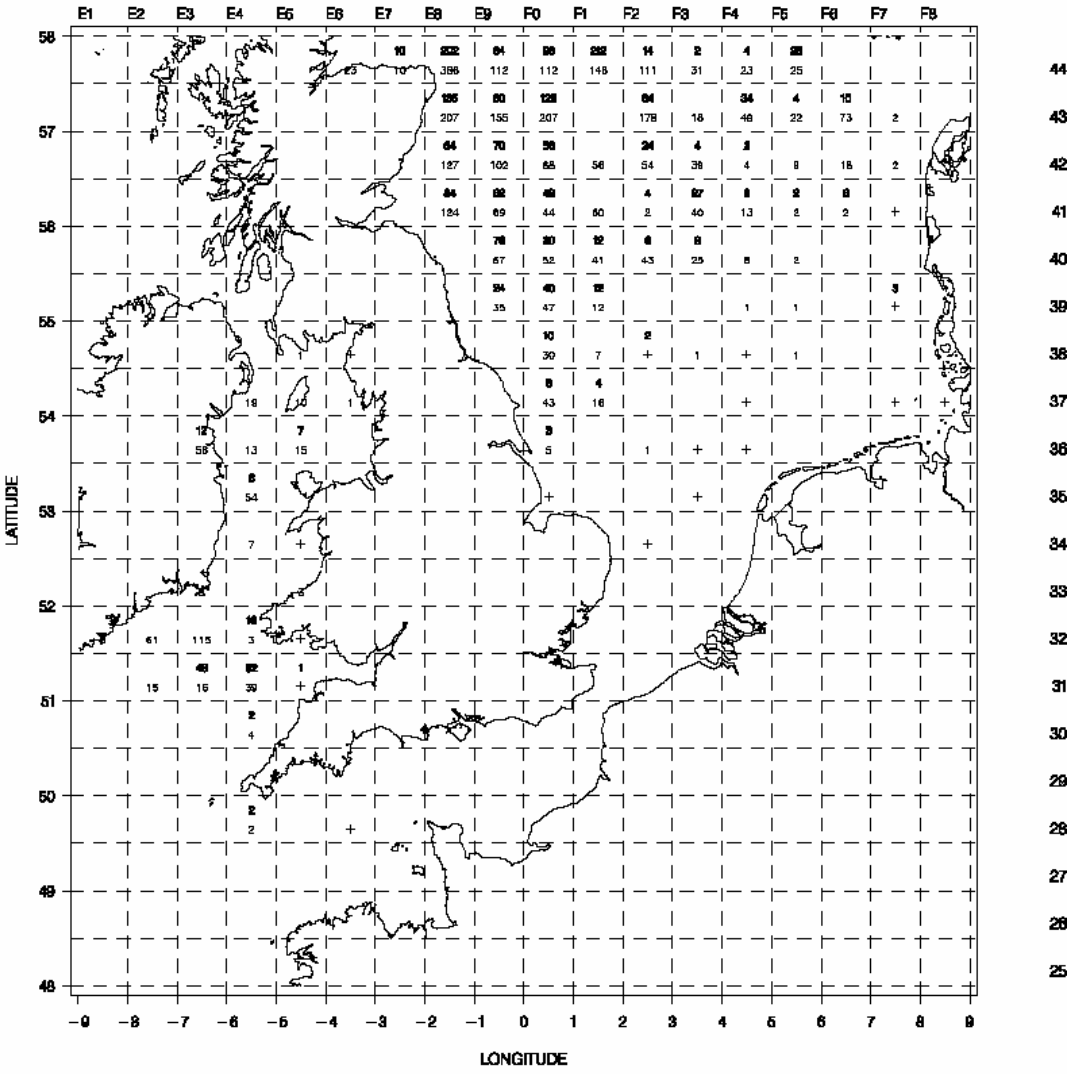


Figure 2.3.22 International Beam Trawl Surveys 1990–2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Pout whiting (Bib)

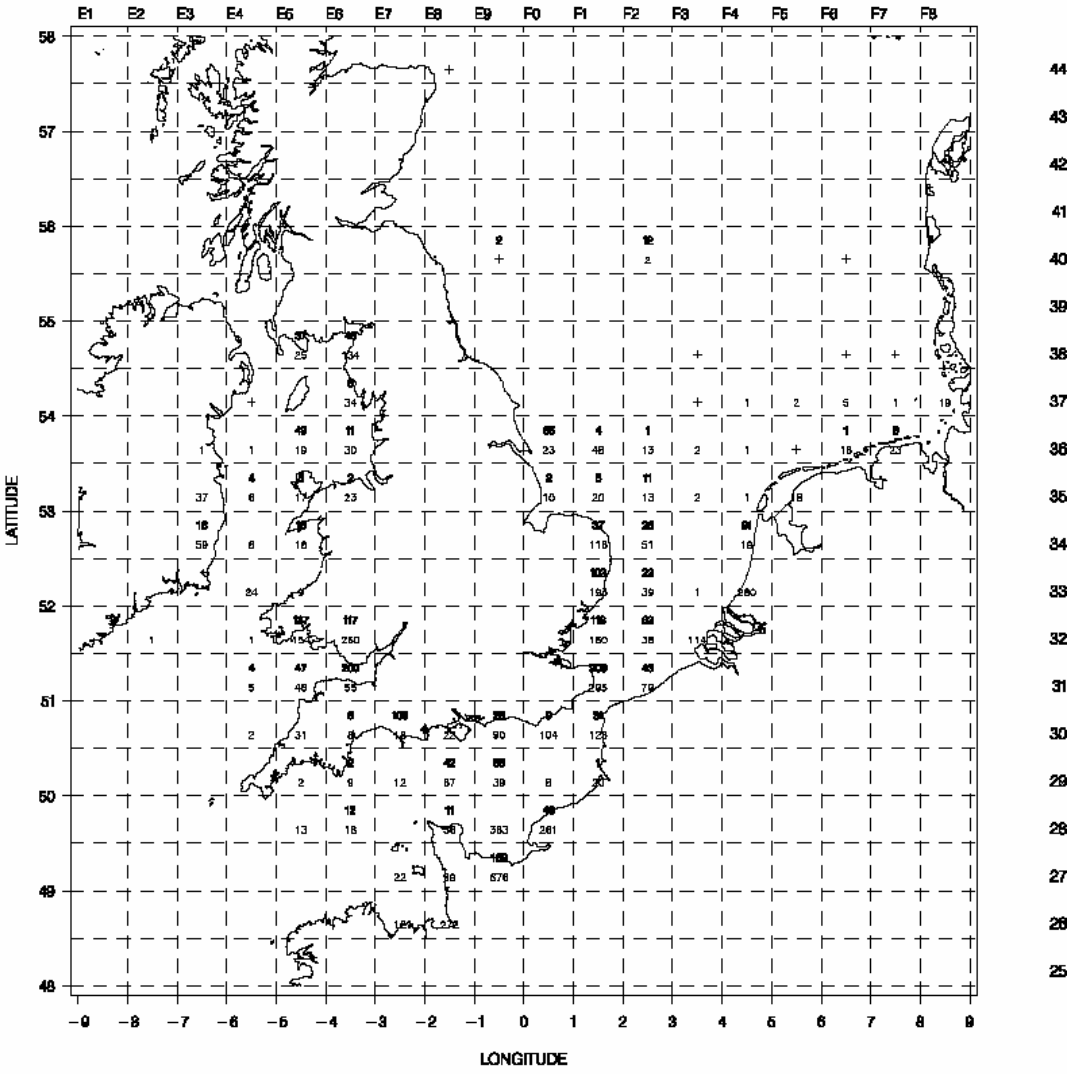


Figure 2.3.23 International Beam Trawl Surveys 1990–2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Whiting

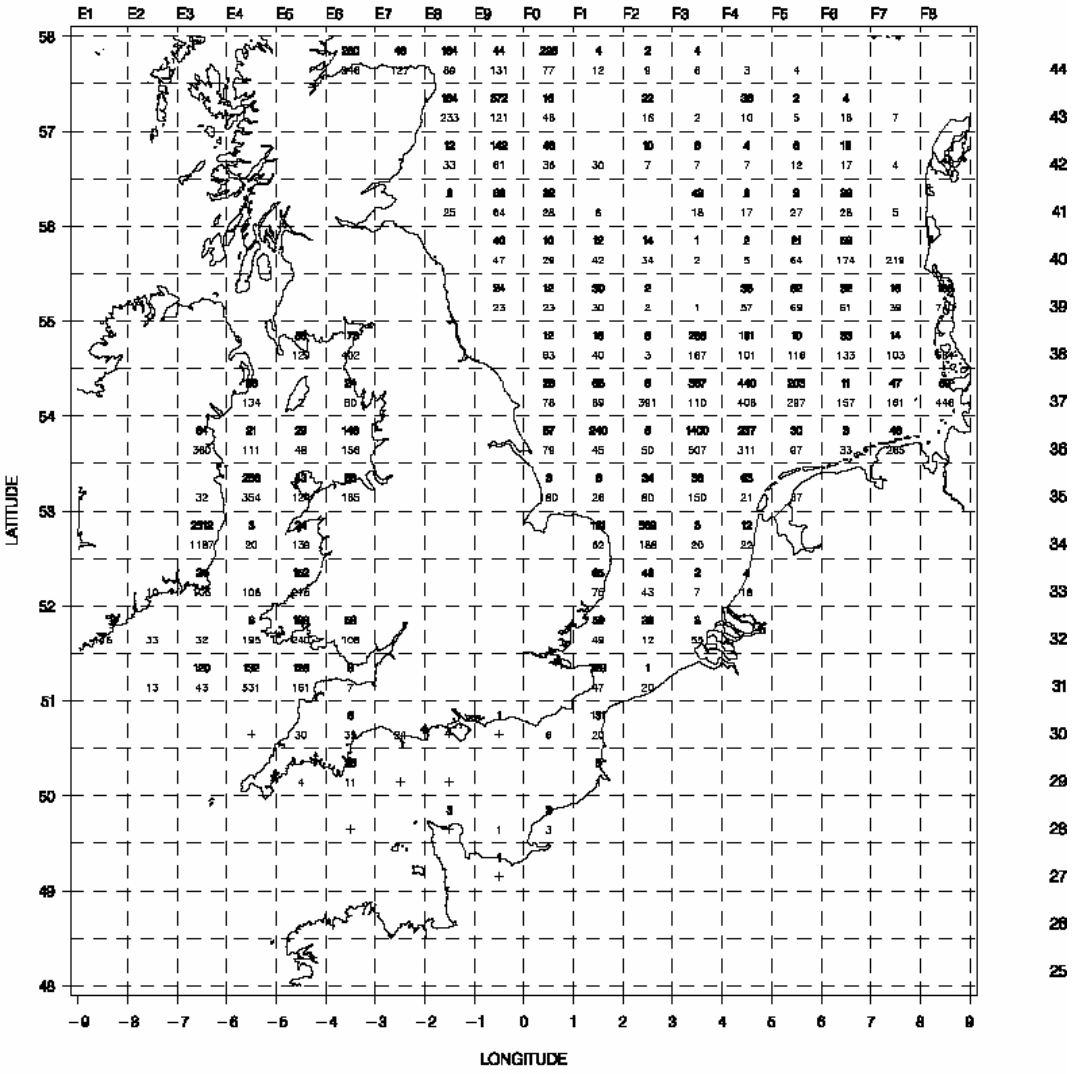


Figure 2.3.24 International Beam Trawl Surveys 1990–2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Angler fish (Monk fish)

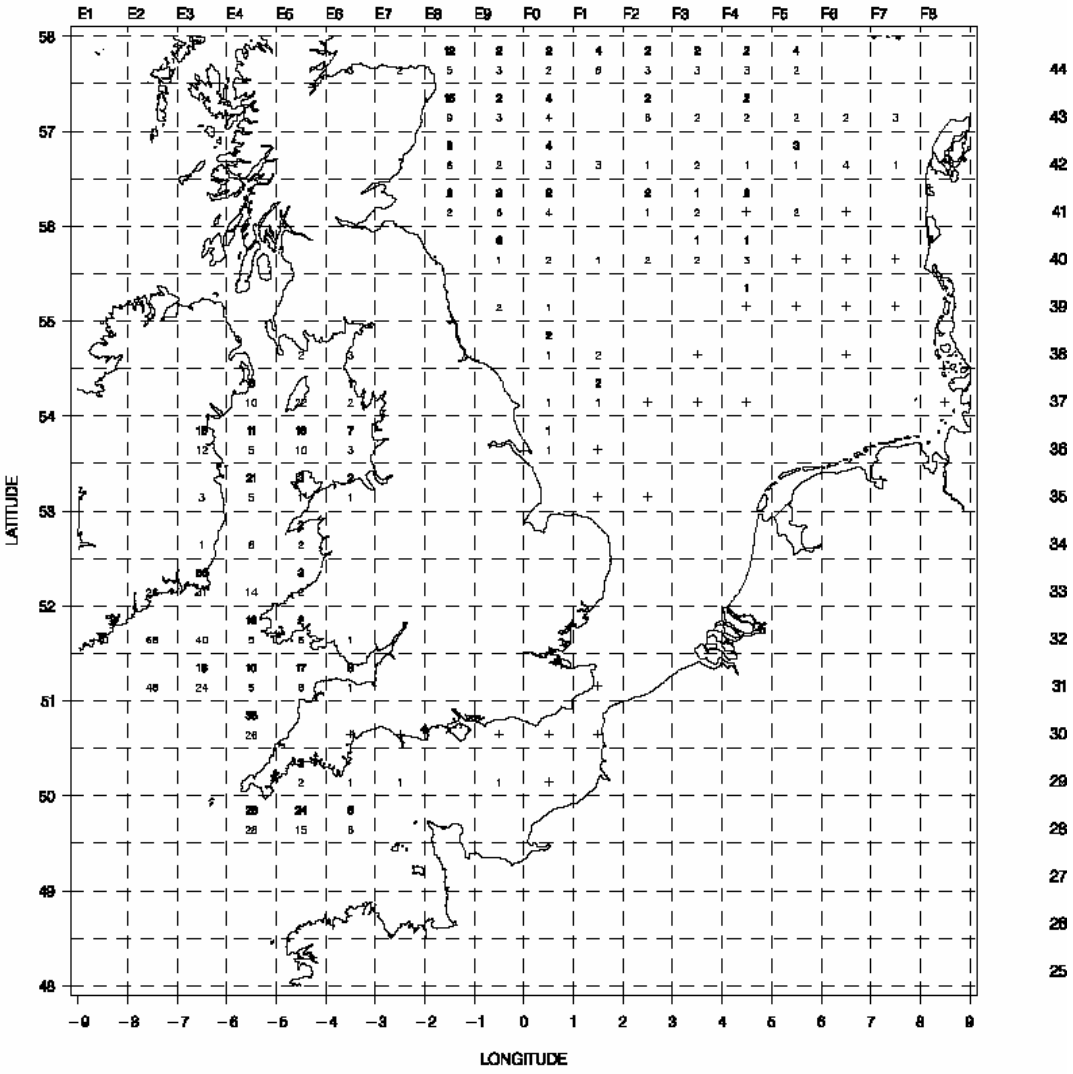


Figure 2.3.25 International Beam Trawl Surveys 1990–2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
John dory

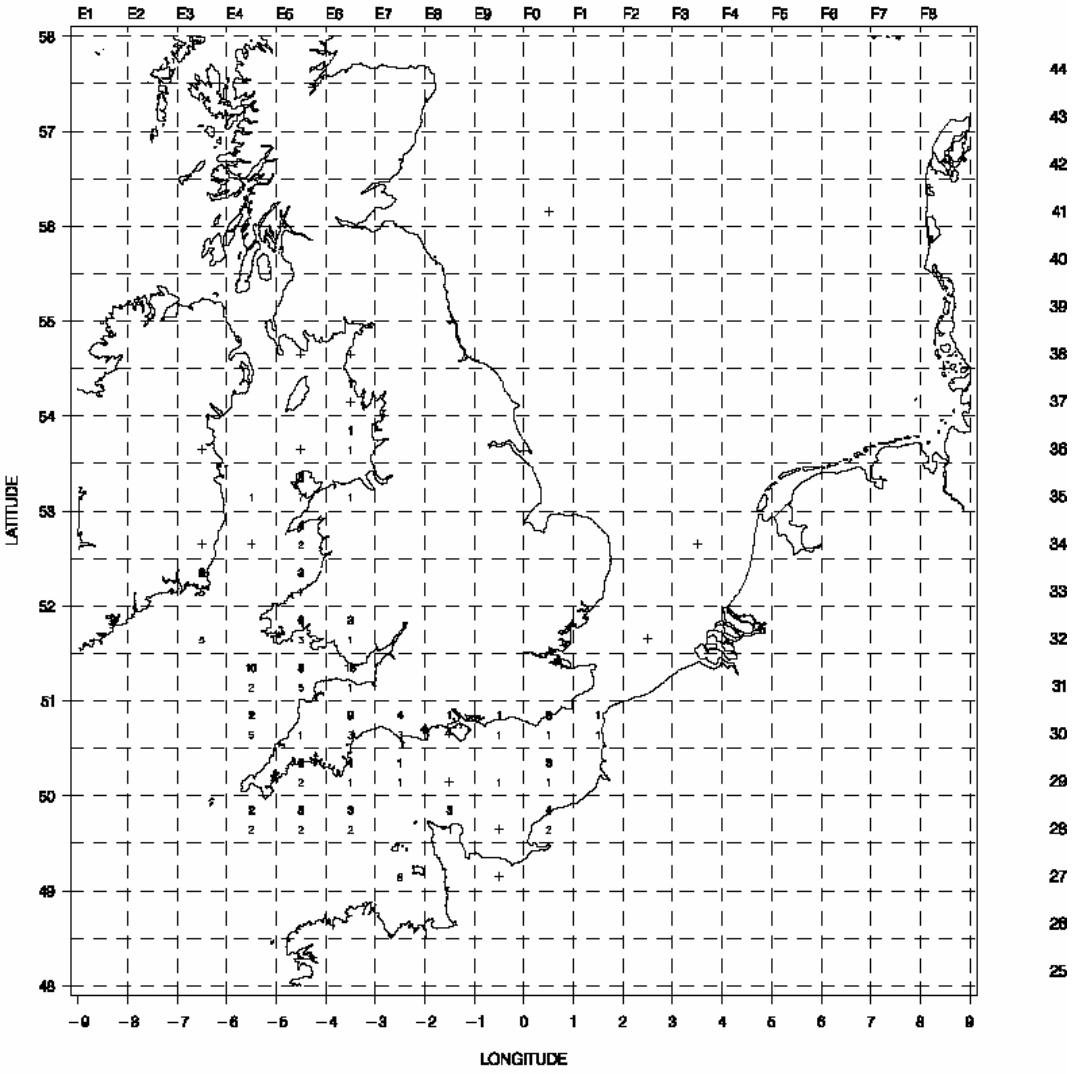
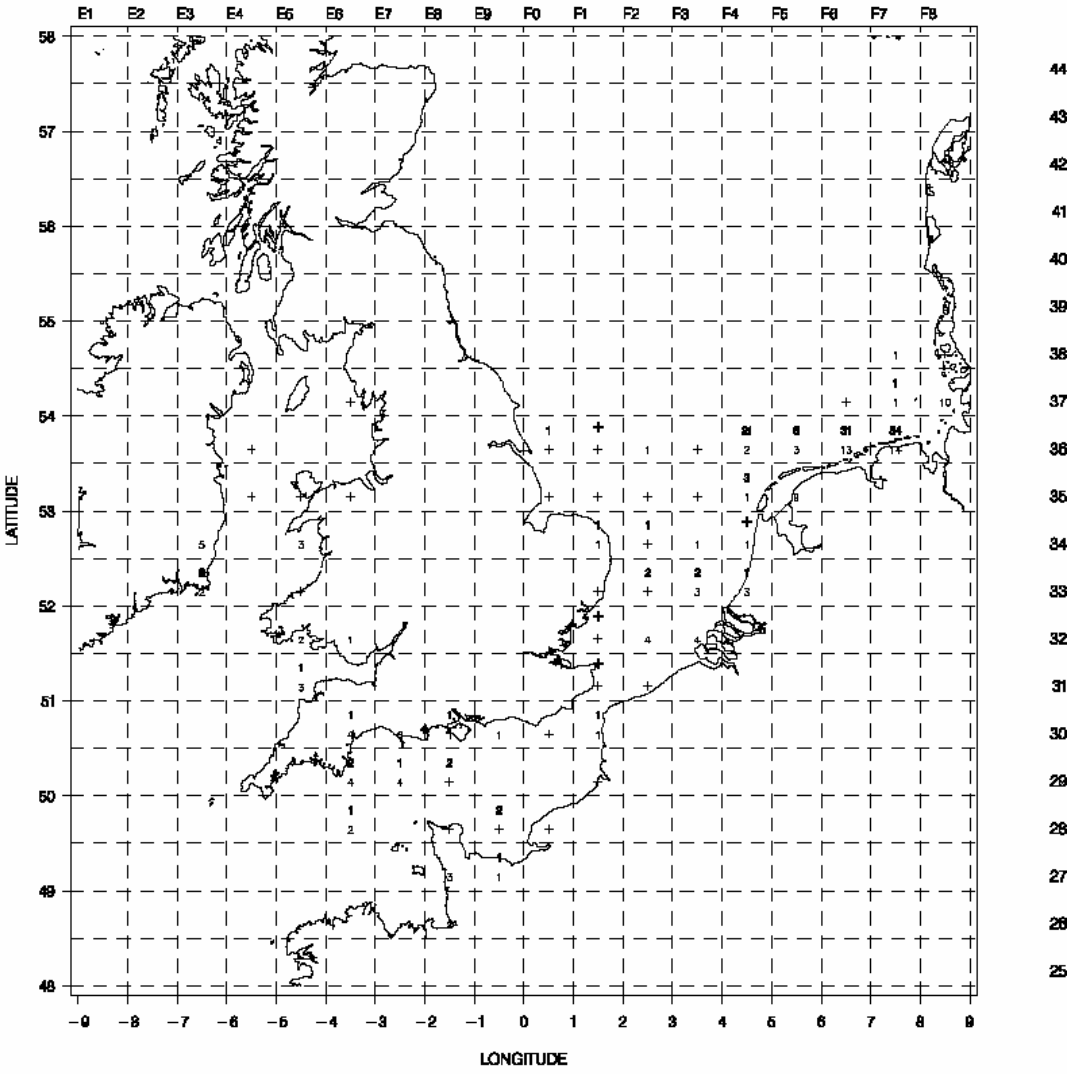


Figure 2.3.26 International Beam Trawl Surveys 1990–2002
Catches in number / 8m beam / hour / rectangle
2002 data in bold, above the survey mean ('+'= < 0.5)
Red mullet



2.4 Abundance of epi-benthic taxa

In the 2002 report eleven epi-benthic taxa were selected for reporting in the WGBEAM report. Table 2.4 shows the abundance of ten of these taxa in the BTS.

Table 2.4 Abundance of Epi-benthic taxa (per hour fishing) in BTS

Species	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Aphrodita aculeata	512	261	404	184	670	694	158	386	273	383	257
Asterias rubens	6076	4055	2650	3669	8765	34176	6572	10308	5192	1690	4845
Astropecten irregularis	2518	2127	2036	1927	5132	3028	2538	4288	4302	3390	5846
Buccinum undatum	167	73	221	60	324	1171	357	397	301	198	192
Cancer pagurus	2	6	2	4	54	96	66	35	129	370	63
Corystes cassivelaunus	305	117	410	190	1863	668	120	266	212	204	160
Echinocardium sp.	2152	2409	1274	1069	1934	6405	180	7909	565	425	985
Liocarcinus sp.	3248	2945	3989	4738	2729	6431	2420	6927	2048	1427	3844
Nephrops norvegicus	136	60	34	2	35	205	56	182	1080	282	92
Pagurus sp.	376	328	492	169	431	393	347	739	322	209	282

3 RECOMMENDATIONS

The **Working Group on Beam Trawl Surveys** [WGBEAM] (Chair: G.J. Piet, Netherlands) will meet in IJmuiden (Netherlands) from 1-4 December 2003 to:

a) prepare a progress report summarising the results of the 2003 beam trawl surveys;

b) calculate population abundance indices by age-group for sole and plaice in the North Sea, Division V11a and Divisions VIId-g;

c) further co-ordinate offshore and coastal beam trawl surveys in the North Sea and Divisions VIIa and VIId-g;

d) Describe and evaluate the current methods for calculating population abundance indices and consider possibilities of delivering improved indices;

e) continue the work on developing relative catchabilities of the different gears used in the surveys;

f) continue work of developing and standardising an international database of beam trawl survey data and co-ordinate such activities with those of the IBTSWG in particular on the compliance to DATRAS, the bottom trawl database to be developed at ICES;

g) continue the work on collating information on the epibenthic invertebrate by-catch during beam trawl surveys into a common database and discuss which summary results should be reported;

h) develop protocols and criteria to ensure standardization of all sampling tools and survey gears

WGBEAM will report by 31 March 2004 for the attention of the Living Resources and Resource Management Committees, and ACFM.

4 REFERENCES

ICES. 1991 Report of the Study Group on Beam Trawl Surveys in 1990. ICES C.M. 1991/G:81, 57.

ICES. 2002 Report of the International Bottom Trawl Survey Working Group. ICES C.M.2002/D:03