

REGIONAL JUVENILE SALMONID

MONITORING PROGRAMME

ANNUAL REPORT 1991

Ref HQ FC 92/1

FISHERIES DEPARTMENT
NATIONAL RIVERS AUTHORITY
WELSH REGION
ST. MELLONS

JUNE 1992

ENVIRONMENT AGENCY



088279

Introduction

Once again, a programme of juvenile salmonid stock monitoring was undertaken during 1991, the seventh year in succession that such a study has been carried out. The data collected is used to form baseline information on the status of juvenile stocks at both a catchment and regional level. The data can also be used to monitor any changes to other environmental factors both natural and man-made.

As a consequence of the large number of catchments in the Welsh Region (over 50) covering 20,000 km of rivers and streams of which approximately a third are available to migratory salmonids, and given limited resources, not all catchments can be sampled in one year. Therefore, whilst several 'major' catchments are sampled on an annual basis the 'minor' catchments are sampled under a rolling programme.

Three electro-fishing sampling techniques are employed during the period July to September, these being; a catch-depletion population estimate on an enclosed area of water; a minimum one-catch density on an un-netted site; 5 minute riffle site fishing on an un-netted site. The first two techniques are referred to as quantitative and semi-quantitative sampling, respectively. The method used at each site depends upon the resources available, the level of accuracy required and the nature of the site. For example 5 minute sampling is undertaken in main rivers where the use of enclosing nets is impractical.

Review of Results

The 1991 survey consisted of 106 quantitative sites, 383 semi-quantitative sites and 108 5 minute riffle sites. The total of 597 sites represents an uncrease of over 100, mainly semi-quantitative sites on 1990.

The results for each catchment sampled can be found in Appendices 3 to 5. For each catchment there is a textual description of the area and also a list of Key Points for the years survey. The data obtained is displayed on colour-coded maps and a comparison with previous years made in a bar chart.

Overall catchment results are listed in tables 1 and 2 and a comparison with previous years made in Figures 1-8. The latter figures can be interpreted as follows: if a river lies to the above left of the diagonal line then a decrease in mean densities has been recorded in comparison to the mean for previous years, conversely a river below the line has had an increase recorded. Increased distance from the line indicates a larger variation, thus those rivers lying close to the line are unlikely to have undergone significant change. Caution must be used when analysing the results as the precise significance, especially given the many variables involved, is unknown.

Figures 1,3,5 and 7 show that generally 0+ densities of both salmon and trout have remained stable as indicated by the low level of variation from the diagonal. A large increase in 0+ salmon densities appears to have taken place on the Seiont although only a small number of sites were fished. >0+ salmon densities again appear to be stable in most catchments although the apparent decrease on the Teifi may give cause for concern. >0+ trout densities show that at both quantitative and semi-quantitative sites in most catchments a decrease

in densities has occurred. Whilst this may be attributed to the three consecutive dry summers and consequent shrinkage of nursery streams and hence increase in density dependent factors, it merits further investigation.

Great care must be taken when interpreting the maps and graphs, for example several sites in the Wye catchment were chosen specifically for trout sampling and some were even inaccessible to migratory fish, hence, the absence of salmon fry should not necessarily be regarded as an indicator of poor spawning success or low stock levels in the catchment as a whole.

To conclude, populations of juvenile salmon have remained generally stable despite the three droughts in successive years. 0+ trout populations are stable indicating spawning success in Autumn 1990, however, >0+ trout populations appear to have declined in most catchments.

It is recognised that many environmental and sampling variables affect the results of this survey. It is envisaged that further more detailed analysis will be undertaken on the seven years data collected thus far including catchment or area reports examining not only river variation but also variations at frequently sampled sites. Attempts will be made to reduce sampling error and hence variation by undertaking an audit of methodology during the 1992 survey.

APPENDIX 1

Abundance categories (numbers 100 m²) for juvenile salmonids.

	<u>Quantitative</u>		<u>Semi-Quantitative</u>	
	Fry (0+)	Parr (>0+)	Fry (0+)	Parr (>0+)
Excellent	>100	>25	>50	>20
Good	50.01-100	15.01-25	22.5-50	10.01-20
Moderate	25.01-50	5.01-15	10.01-22.5	2.26-10
Poor	0.01-25	0.01-5	0.01-10	0.01-2.25
Absent	0	0	0	0

Classification Matrix for Juvenile Salmonids

		<u>Fry (0)+</u>				
		Excellent	Good	Moderate	Poor	Absent
<u>Parr</u> (>0+)	Excellent	A	A	A	B	C
	Good	A	A	B	B	C
	Moderate	A	B	B	C	D
	Poor	B	B	C	D	D
	Absent	C	C	D	D	E

APPENDIX 2

Key for Non-Salmonid Species Recorded

B	-	Bullhead	L	-	Lamprey
Ba	-	Barbel	M	-	Minnow
Bl	-	Bleak	P	-	Pike
Br	-	Bream	Pe	-	Perch
C	-	Charr	Rt	-	Rainbow trout
Ca	-	Carp	Ro	-	Roach
Ch	-	Chub	Ru	-	Rudd
Cr	-	Crayfish	S	-	Stickleback
D	-	Dace	Sh	-	Shad
E	-	Eel	St	-	Stoneloach
Fl	-	Flatfish	T	-	Tench
Gu	-	Gudgeon			

TABLE 1 REGIONAL SUMMARY - QUANTITATIVE SITES

The table shown below summarises the results of the 1991 Regional Monitoring Programme.

RIVER SURVEYED	No. OF SITES	SALMON				TROUT			
		DENSITY No/m ²			CLASS	DENSITY No/m ²			CLASS
		0+	1+	>1+		0+	1+	>1+	
TAF	5	17.0	1.7	0.2	D	37.7	17.7	2.8	B
TAVE	4	2.3	2.7	0	D	13.1	7.7	2.0	C
TEIFI	9.6	82.6	22.2	0	A	39.7	11.1	2.6	B
TYWI	9	29.2	2.3	0.1	C	35.3	8.3	3.2	B
TAFF	3	100.1	0	0	C	35.3	7.6	3.2	C
USK	13	24.2	14.8	1.1	B	12.5	9.0	1.3	C
WYE	15	58.3	5.3	0	B	9.9	3.6	1.1	D
CLWYD	4	20.5	1.0	0	D	80.5	8.8	2.2	A
CONWY	23	54.9	5.9	0	B	37.1	5.8	2.8	B
DEE	6	33.6	7.6	0	B	14.6	5.9	0.8	C
DYFI	5	20.8	6.8	0	C	70.1	9.9	0.5	A
OGWEN	2	15.4	12.8	0	C	82.7	8.7	0	B
MAWDDACH	5	30	14.9	0.2	B	24.9	12.8	1.7	C
SEIONT	3	232.3	36.8	0	A	37.8	6.2	0.2	B

TABLE 2 REGIONAL SUMMARY - SEMI-QUANTITATIVE SITES

The table shown below summarises the results of the 1991 Regional Monitoring Programme.

RIVER SURVEYED	No. OF SITES	SALMON				TROUT			
		DENSITY No/m ²			CLASS	DENSITY No/m ²			CLASS
		0+	1+	>1+		0+	1+	>1+	
AERON	13	8.7	2.2	0	D	23.6	4.6	1.0	B
ARTH	5	0	1.0	0	D	12.8	2.5	1.7	B
CLARACH	7	0.2	0	0	D	31.0	9.4	1.1	A
GWAUN	7	7.8	12.9	0	D	17.4	7.8	1.1	B
GWEND.FAWR	16	0	0.1	0	D	16.2	3.7	1.7	B
LOUGHOR	22	0.4	0.5	0	D	15.1	10.4	1.5	B
NEVERN	12	5.8	3.1	0.2	C	20.6	8.8	1.8	B
OGMORE	11	0	0	0	E	17.2	23.3	2.7	B
TEIFI	19	17.2	4.2	0	C	24.1	9.7	1.1	A
TYWI	17	4.5	1.1	0	D	16.9	4.6	0.5	B
WYRE	8	0.5	0.5	0	D	40.1	14.4	1.8	A
RHYMNEY	5	0	0	0	E	11.6	5.7	5.6	B
TAFF	17	4.4	0	0	D	8.0	8.0	3.8	B
USK	35.0	4.4	4.1	0	C	10.3	4.0	3.5	B
WYE	73	11.5	1.0	0	C	4.3	2.2	1.7	C
CLWYD	14	4.8	0.7	0.2	D	23.4	6.1	3.3	B
CONWY	9	10.5	2.8	0	B	20.6	6.1	1.4	B
DEE	26	21.3	3.6	0	B	12.8	12.1	0.5	B
DWYRYD	15	14.2	6.4	0.2	B	4.5	13.0	3.5	B
DYFI	16	4.8	2.6	0.1	C	18.8	7.2	0.8	B
MAWDDACH	17	3.0	4.2	0	C	4.4	6.5	1.0	C
OGWEN	11	14.1	5.0	0.3	C	5.8	1.4	0.9	C
SEIONT	8	16.9	5.5	0.2	C	5.6	1.1	0.3	D

FIGURE 1

MEAN 0+ SALMON DENSITIES IN QUANTITATIVE SITES IN 1991 AND PREVIOUS YEARS

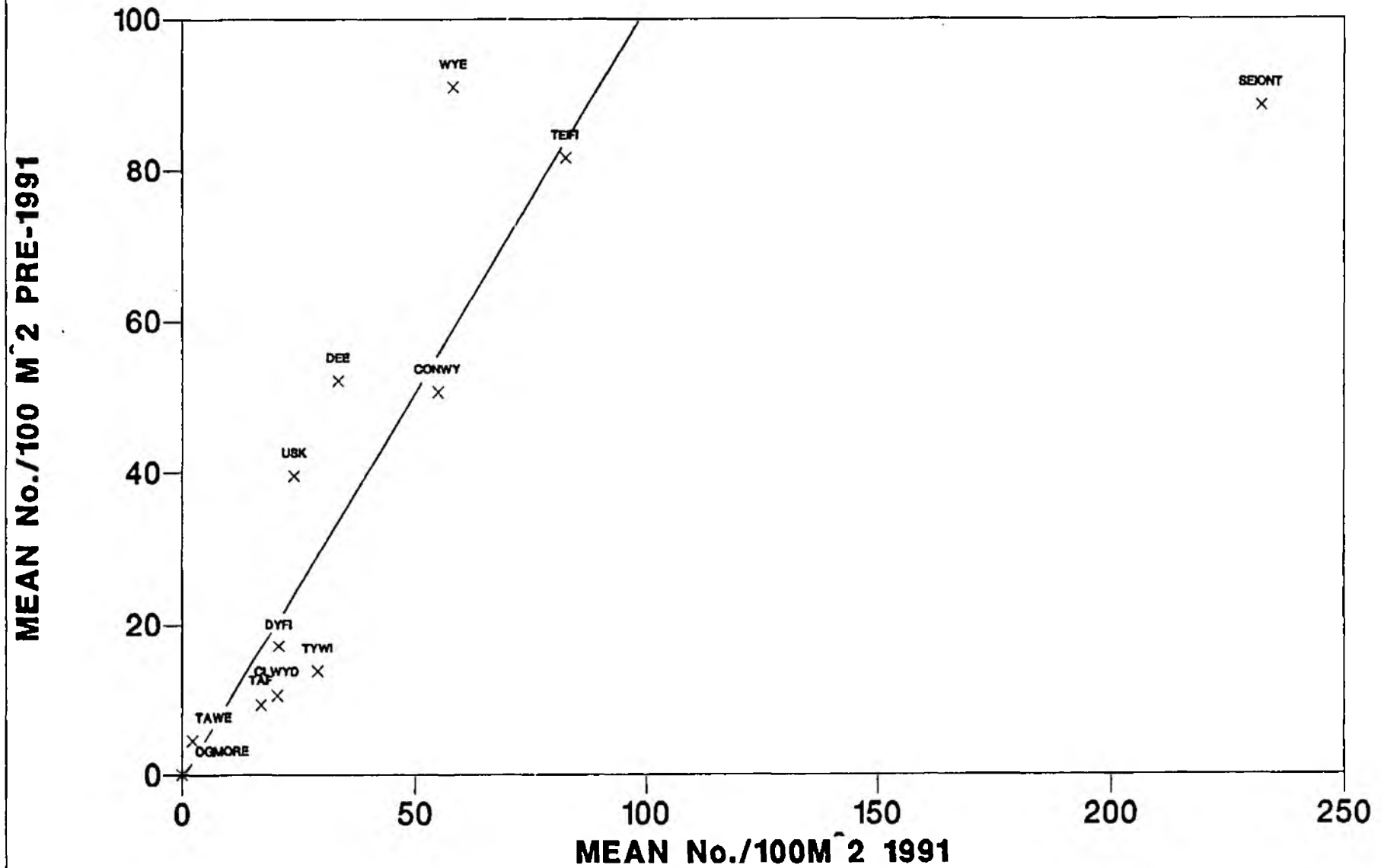


FIGURE 2

MEAN >0+ SALMON DENSITIES IN QUANTITATIVE SITES IN 1991 AND PREVIOUS YEARS

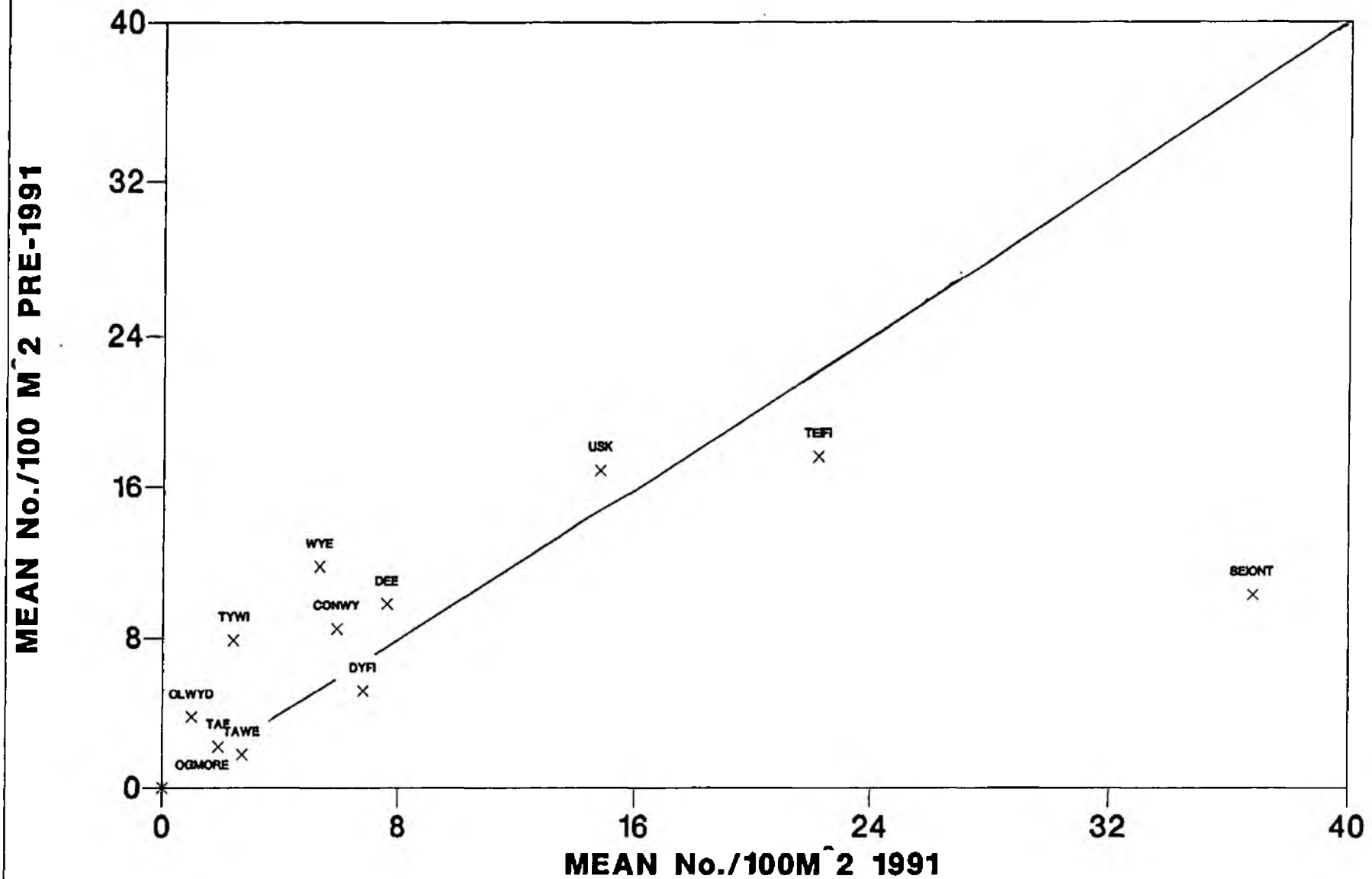


FIGURE 3

MEAN 0+ SALMON DENSITIES IN SEMI-QUANTITATIVE SITES IN 1991 AND PREVIOUS YEARS.

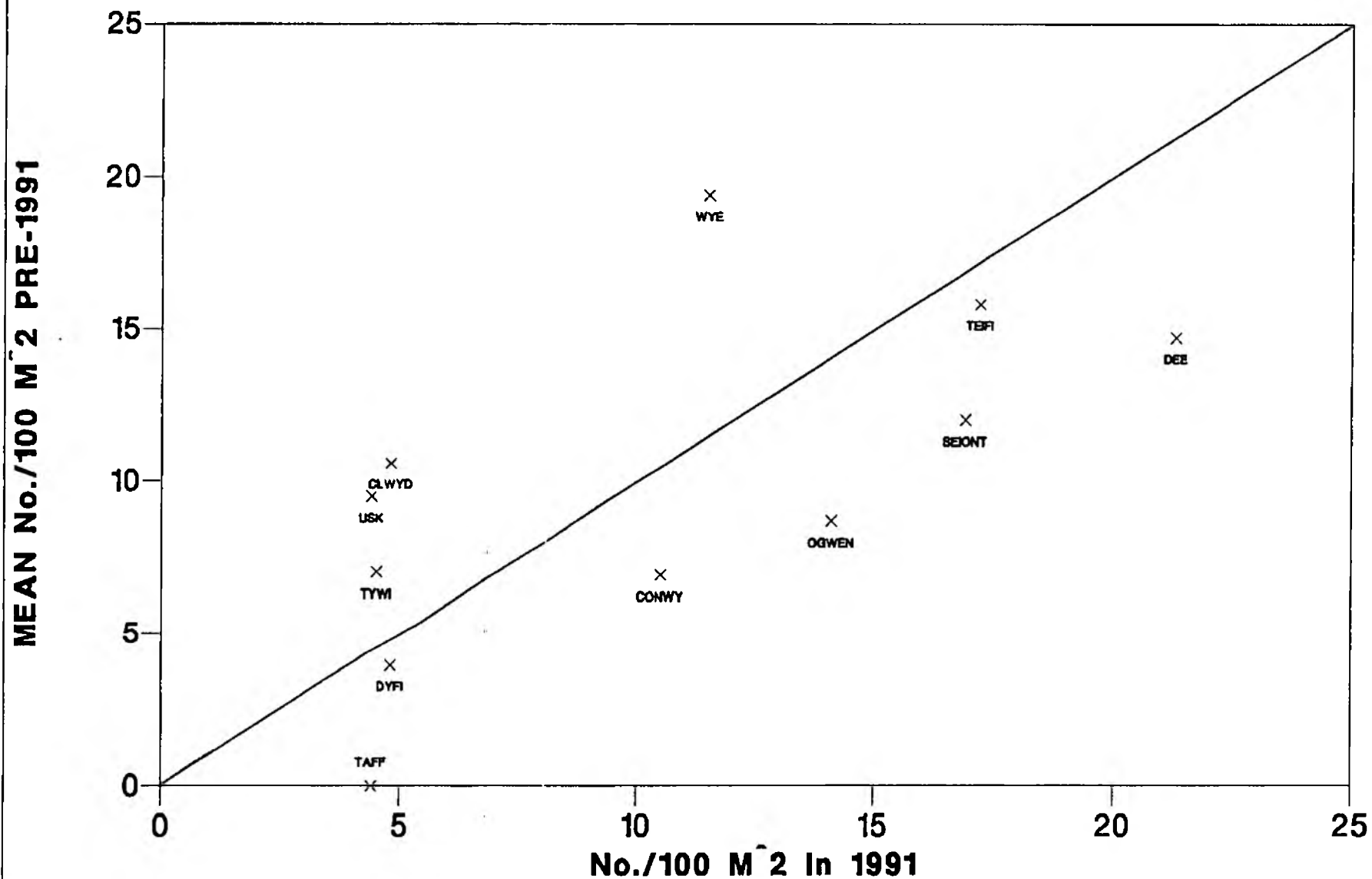


FIGURE 4

MEAN >0+ SALMON DENSITIES IN SEMI-QUANTITATIVE SITES IN 1991 AND PREVIOUS YEARS.

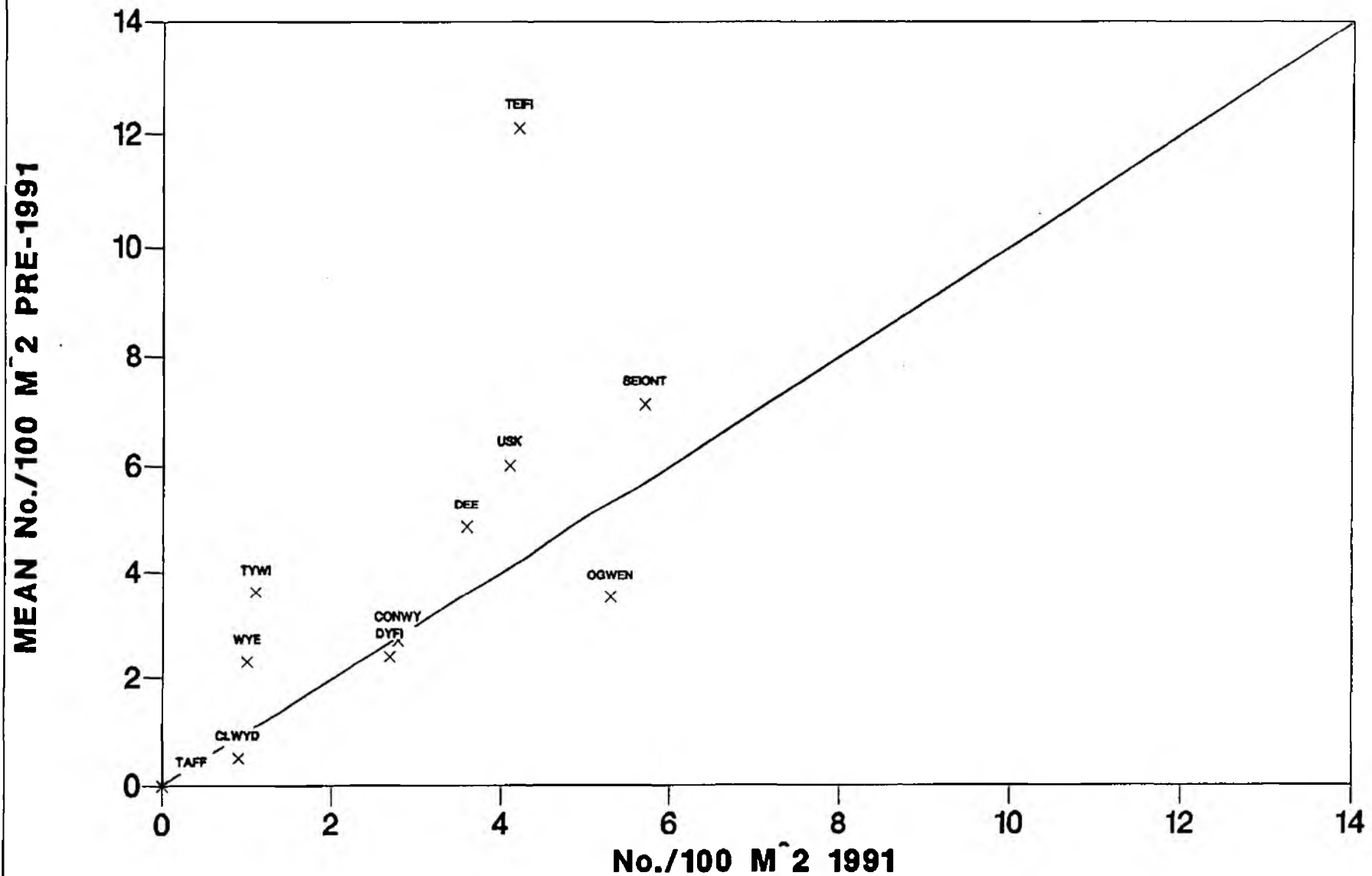


FIGURE 5

MEAN 0+ TROUT DENSITIES IN QUANTITATIVE SITES IN 1991 AND PREVIOUS YEARS.

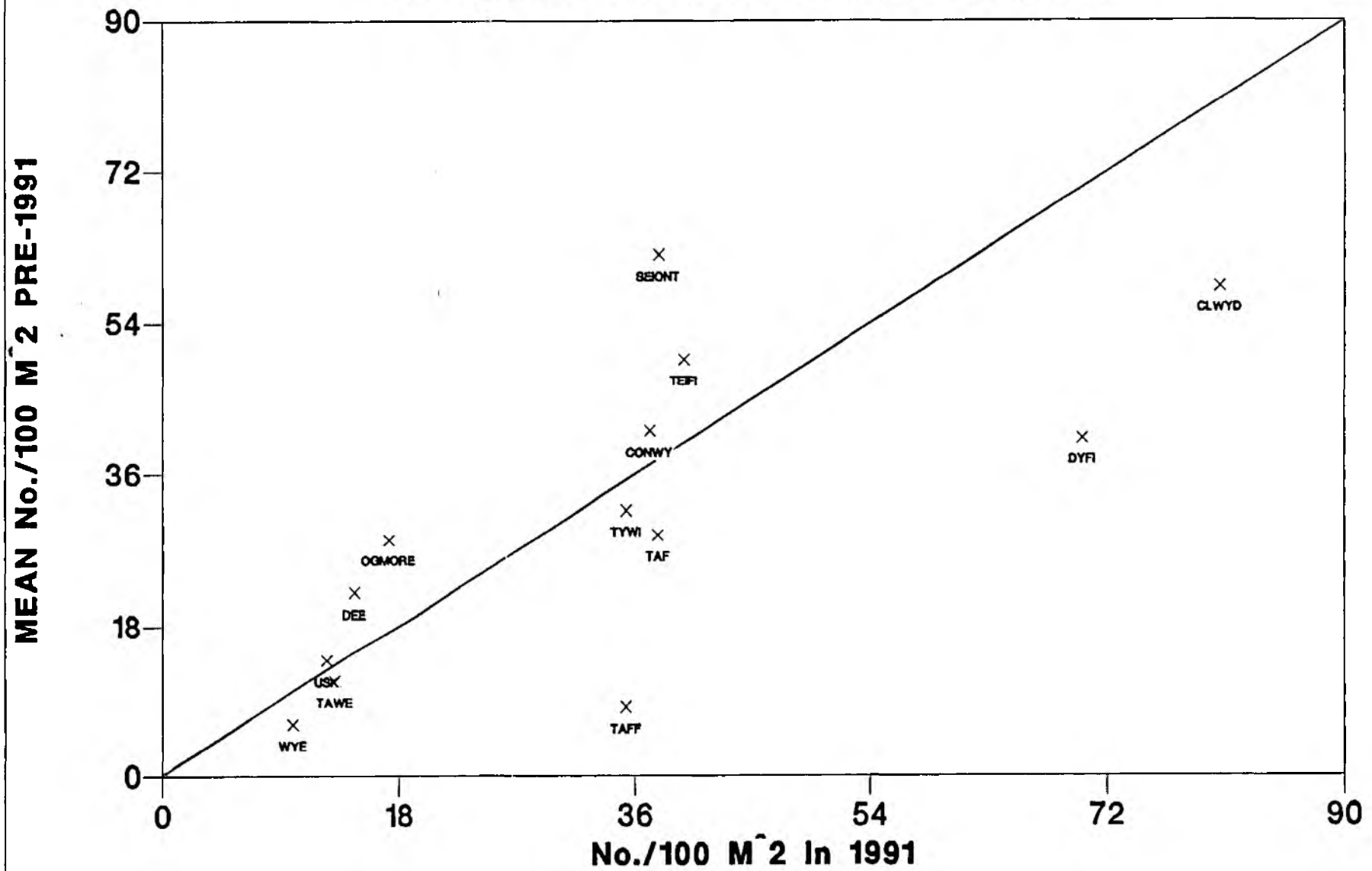


FIGURE 6

MEAN >0+ TROUT DENSITIES IN QUANTITATIVE SITES IN 1991 AND PREVIOUS YEARS

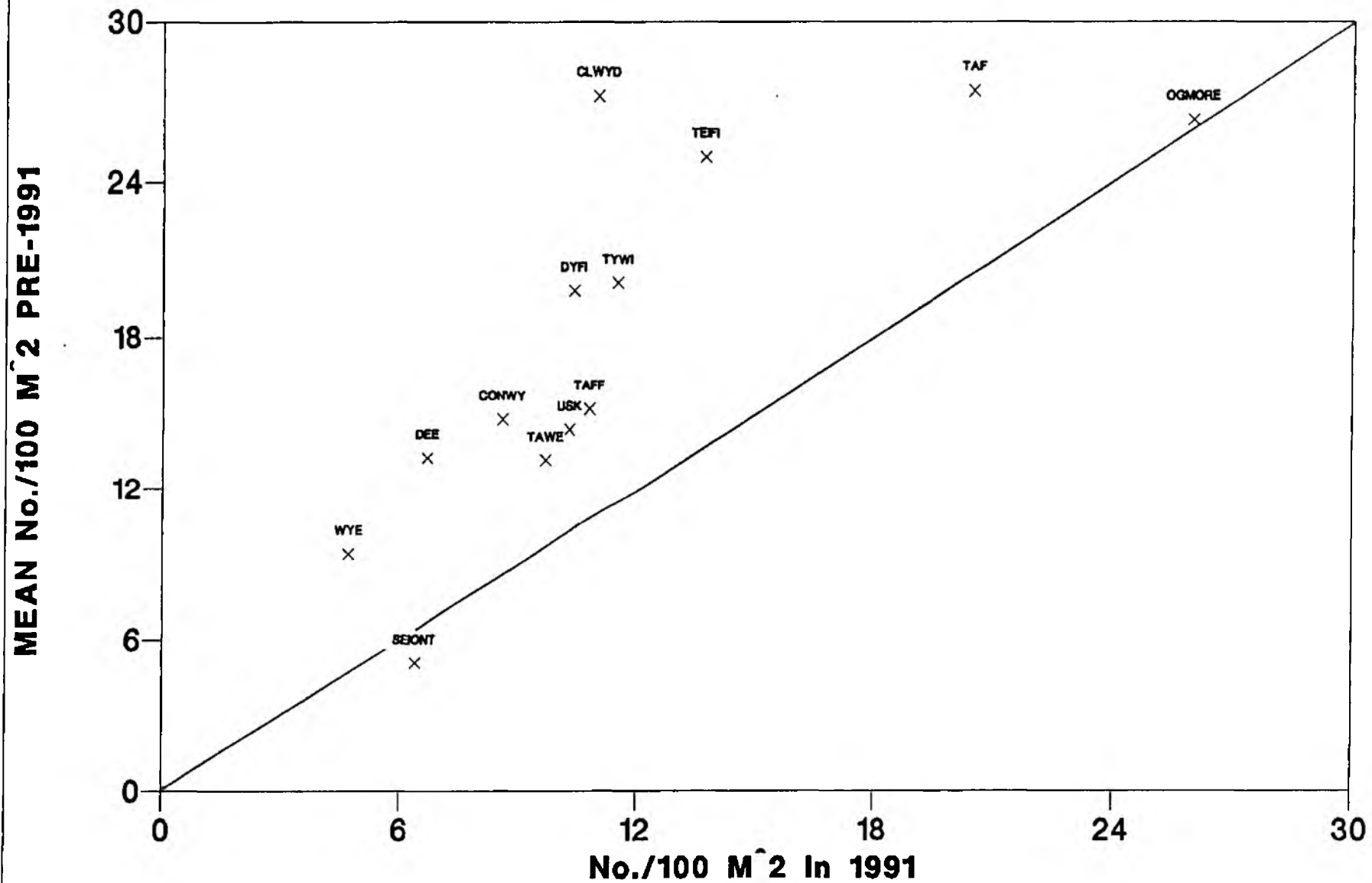


FIGURE 7

MEAN 0+ TROUT DENSITIES IN SEMI-QUANTITATIVE SITES IN 1991 AND PREVIOUS YEARS.

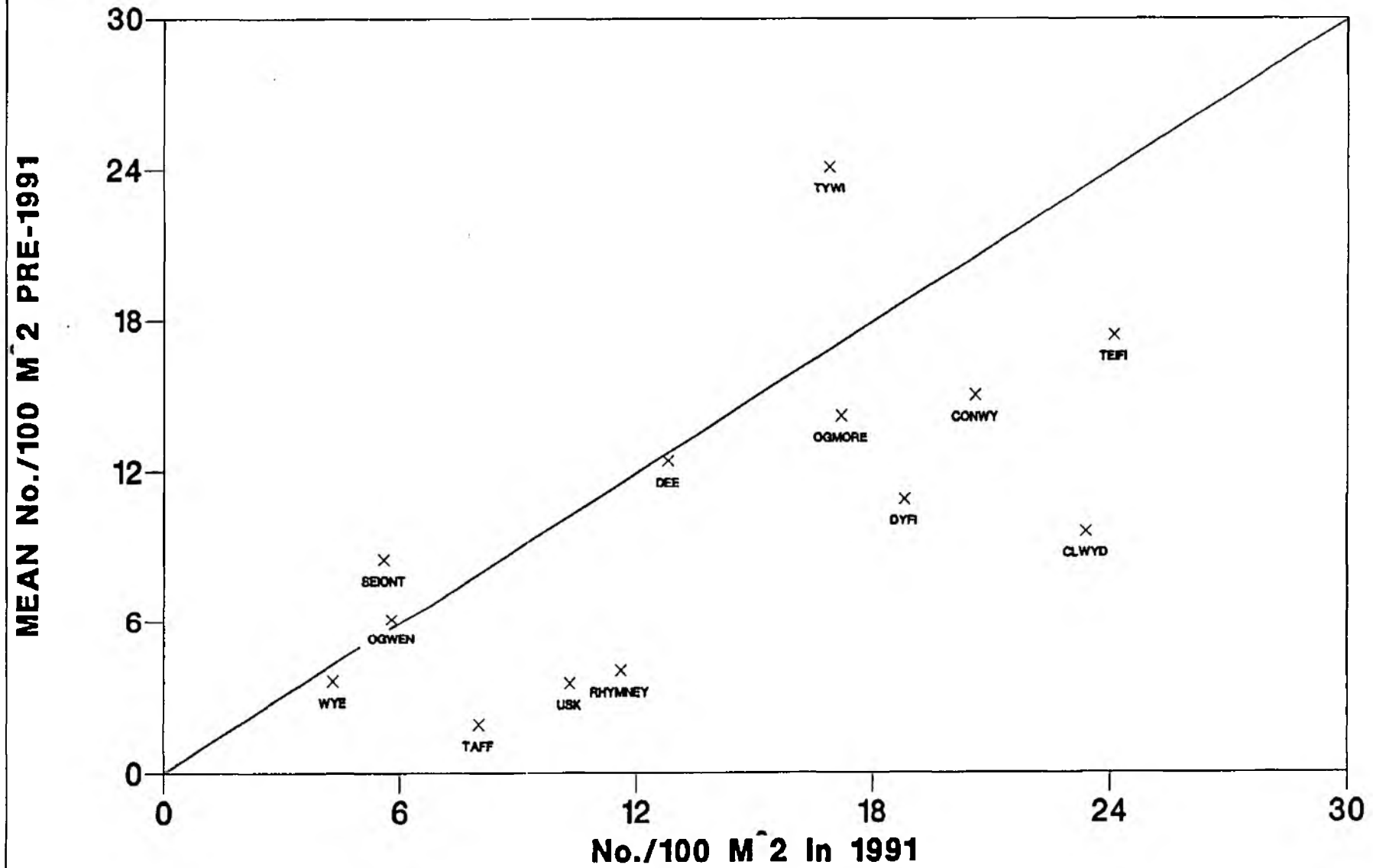
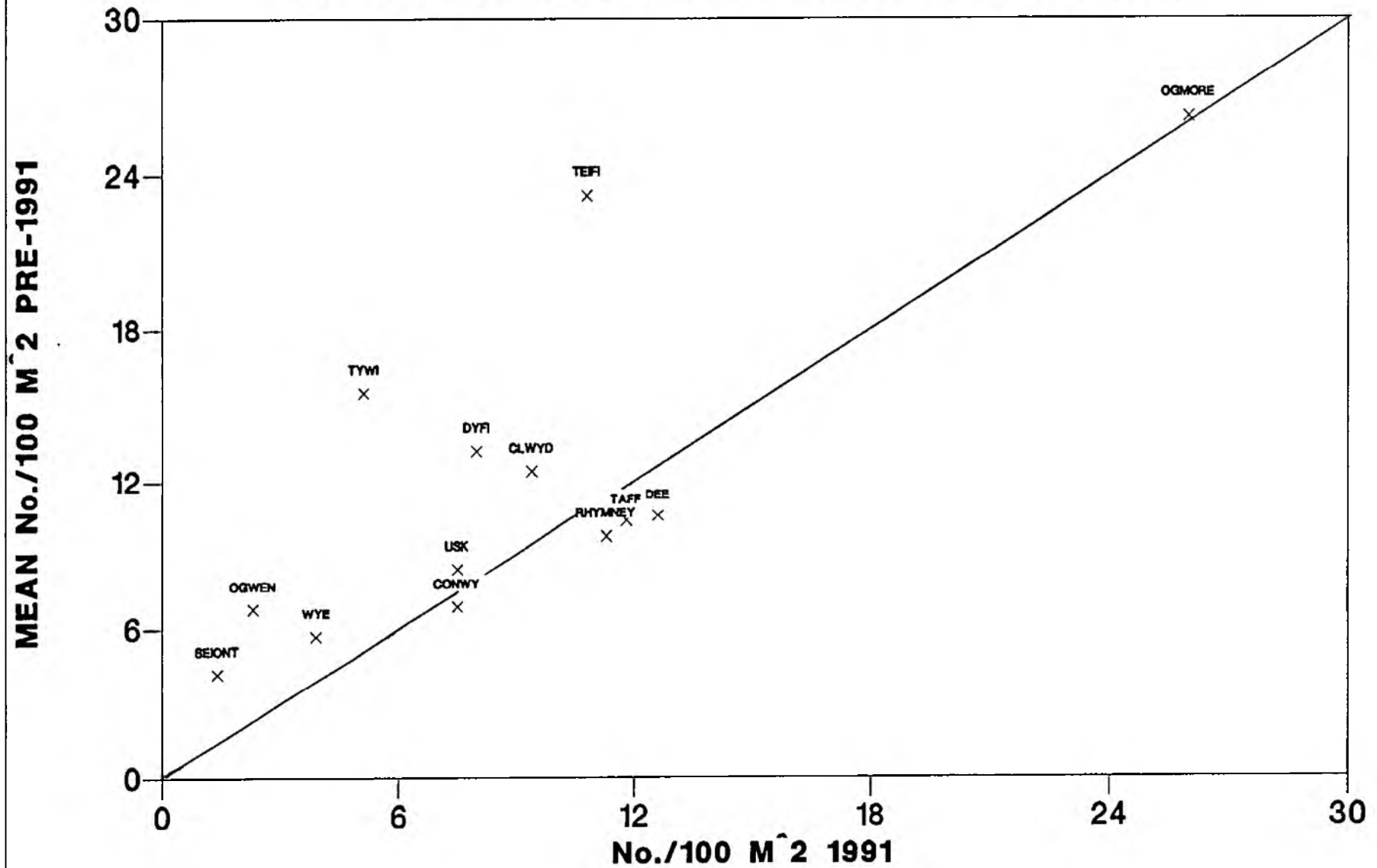


FIGURE 8

MEAN >0+ TROUT DENSITIES IN SEMI-QUANTITATIVE SITES IN 1991 AND PREVIOUS YEARS.



APPENDIX 3

NORTHERN DIVISION

CATCHMENT SUMMARIES.

RIVER CLWYD SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Intensive arable and dairy farming in the main river valleys, grading into hill sheep pasture. Extensive forestry on the upper Clwyd and Clywedog.

Water Quality - All 1A except Ruthin STW to the Wheeler confluence -1B

Fishery Status - Average Catch: Rods: 156 Salmon 1204 Sea Trout
(1984 - 1990) Nets: 229 Salmon 772 Sea Trout

2. Sampling Programme.

- 1985 - Extensive baseline survey of 11 quantitative and 30 semi-quantitative sites.
- 1986 - 17 quantitative sites selected for annual monitoring (key sites) - 9 semi-quantitative sites surveyed in relation to Bont Uchel Weir study.
- 1987 - 17 quantitative sites.
- 1988 - 17 quantitative sites.
- 1989 - 16 semi-quantitative sites (1 heavily weeded and excluded). 5 semi-quantitative sites on Elwy.
- 1990 - 12 semi-quantitative sites, 5 quantitative sites and 9x5 min fry sites.
- 1991 - 14 semi-quantitative sites, 4 quantitative sites. 20x5 min fry sites.

3. Assessment of Status.

Number (Z) of sites in each category in 1991.

	A	B	C	D	E
Salmon	0 (0)	1 (5)	2 (11)	10 (56)	5 (28)
Trout	3 (17)	8 (44)	2 (11)	5 (28)	0 (0)

4. Key Points.

- 4.1 Salmon fry numbers on the Aled (mean 10/100m²) were very similar to those found in 1990 although numbers on two other tributaries (12 + 14) were substantially improved. Numbers of fry at all sites were within the range found in previous years, but were below the highest densities found in 1989 (eg Aled mean 0+, 49/100m², 3 quantitative sites).
- 4.2 The low 1+ trout densities generally reflected the low fry abundance of the previous year. In 1991, numbers of fry at almost all sites were increased on 1990 and within the range found in previous years. An exception was Ystrad 13 where numbers remained substantially lower. Redd counts indicated that a partial barrier may be restricting access to the upper reaches although this does not explain the very high densities found in previous years.
- 4.3 Numbers of trout, in particular fry densities on the upper Clywedog continue to remain lower than those found previously. The upper catchment is heavily afforested and water quality should be investigated.

4.4 5 minute fry sampling demonstrated relatively good salmon densities throughout the Clywedog and Elwy, but with poor densities on the Clwyd. Trout numbers were only good on the middle reaches of the Clwyd.

FISHERIES MONITORING PROGRAMME

CLWYD CATCHMENT SUMMARY

QUANTITATIVE SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
4	DEUNANT	4.2	SH 957671	6.7	0.4	0	D	56.3	0.4	0	B	E, Bh
5	DEUNANT	3.3	SH 958643	0	1.7	0	D	191.5	33.7	8.6	A	E
9	CLWYD	6.3	SJ 122548	17.3	0	0	D	50.0	0.5	0	C	
14	CLYWEDOG	6.7	SJ 108602	58.0	1.7	0	B	24.0	0.4	0	D	E, Bh
MEAN				20.5	1.0	0	D	80.5	8.8	2.2	A	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

CLWYD

CATCHMENT SUMMARY

SEMI-QUANTITATIVE

SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	ALED	8.0	SH 955705	16.7	0.8	0	C	13.1	0	0	D	Bh, L
2	ALED	6.9	SH 956674	3.2	1.3	0	D	15.8	0	0	D	Bh, E
3	ALED	6.5	SH 938644	9.4	0.3	0	D	9.1	0.3	0	D	Bh, E
6	ELWY	6.3	SH 878673	3.2	0	0	D	16.2	0	0	D	Bh, SL, E, M
7	ELWY	4.1	SH 878617	4.9	2.6	1.0	D	10.7	2.6	1.0	B	Bh, L, E
7A	ELWY	4.4	SH 874605	0.5	2.6	1.0	D	6.4	0	11.8	B	Bh, E
10	CLWYD	4.2	SJ 096509	0	0	0	E	22.6	1.2	0	B	Bh, E
11	CLWYD	3.9	SJ 040490	0.5	0	0	D	9.2	3.1	0.5	C	Bh, E
12	YSTRAD	4.9	SJ 068657	18.6	0.4	0	C	49.3	1.3	0.4	B	Bh, E
13	YSTRAD	4.5	SJ 008625	0	0	0	E	15.0	3.4	0.4	B	Bh, E
15	CLYWEDOG	2.3	SJ 083568	1.0	1.0	0	D	89.9	46.4	5.8	A	E
16#	CLYWEDOG	3.7	SJ 057580	0	0	0	E	0.5	12.5	13.5	B	
17#	CLYWEDOG	2.7	SJ 044581	0	0	0	E	0.7	13.3	12.6	B	
19	WHEELER	6.3	SJ 098700	0	0	0	E	68.9	1.9	0.6	A	Bh, E
MEAN				4.8	0.7	0.2	D	23.4	6.1	3.3	B	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

CLWYD

CATCHMENT SUMMARY

5 MINUTE FRY SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	O.S. MAP REFERENCE	SALMON		TROUT		OTHER SPECIES
			0+	>1+	0+	>1+	
9A	CLWYD	SJ 128554	3	0	35	0	
9C	CLWYD	SJ 105633	1	0	11	0	
9D	CLWYD	SJ 091659	13	0	2	0	
9E	CLWYD	SJ 119609	0	0	0	0	
9F	CLWYD	SJ 124571	4	0	8	0	
21	ELWY	SH 928702	50	0	0	0	
21A	ELWY	SH 894698	25	0	12	0	
28	ELWY	SJ 034710	29	0	0	0	
30	ELWY	SH 953720	51	0	0	0	
44	CLYWEDOG	SJ 095634	50	0	0	0	
44A	CLYWEDOG	SJ 096615	52	0	0	0	
MEAN			25	0	6	0	

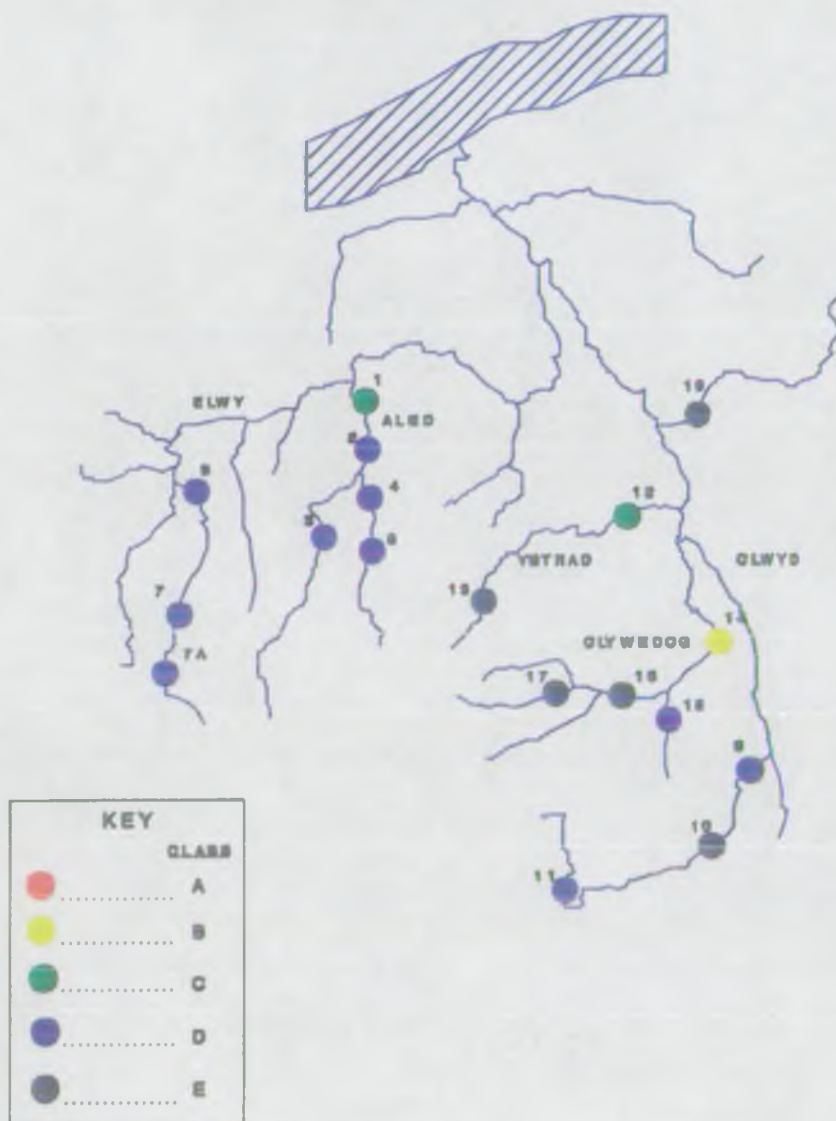
PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

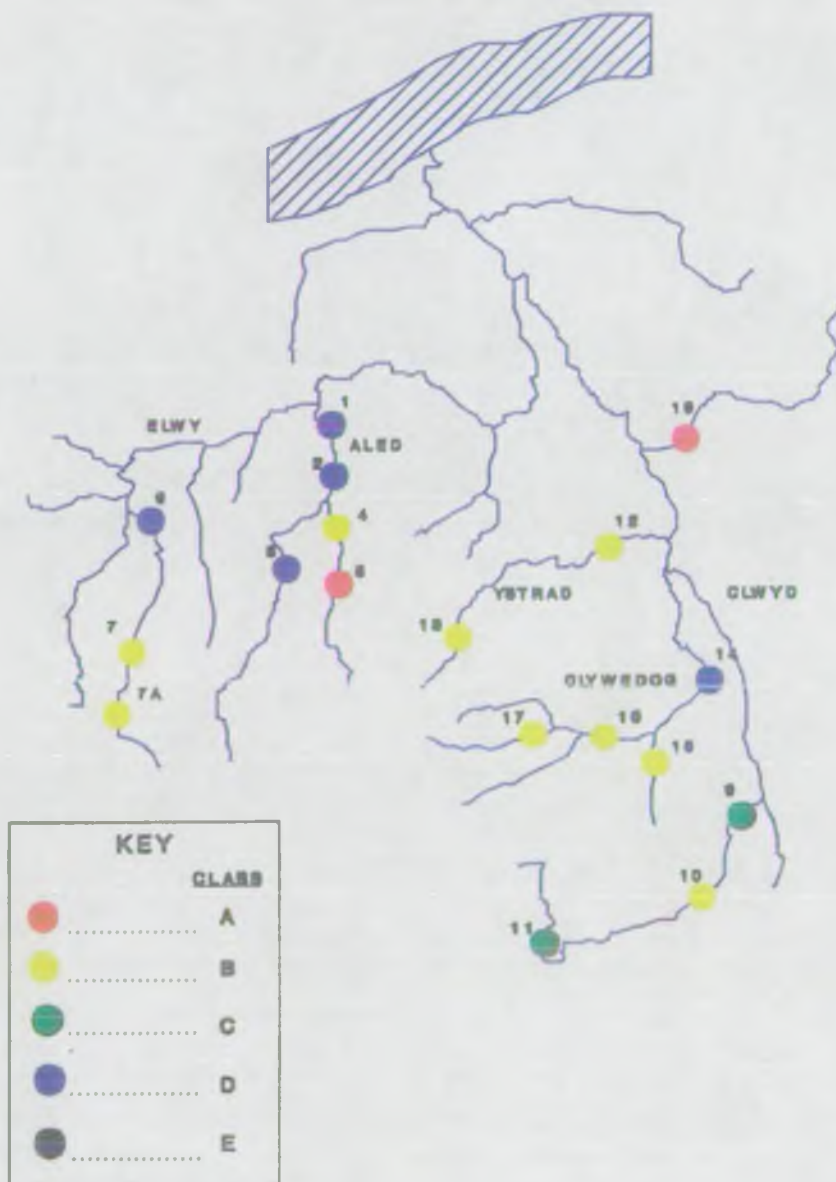
RIVER CLWYD

SALMON DENSITIES

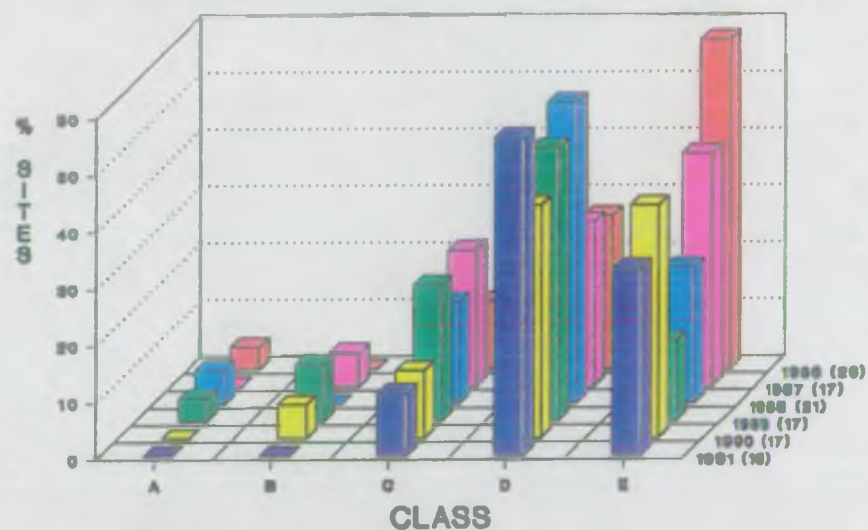
1991 SURVEY



RIVER CLWYD TROUT DENSITIES 1991 SURVEY

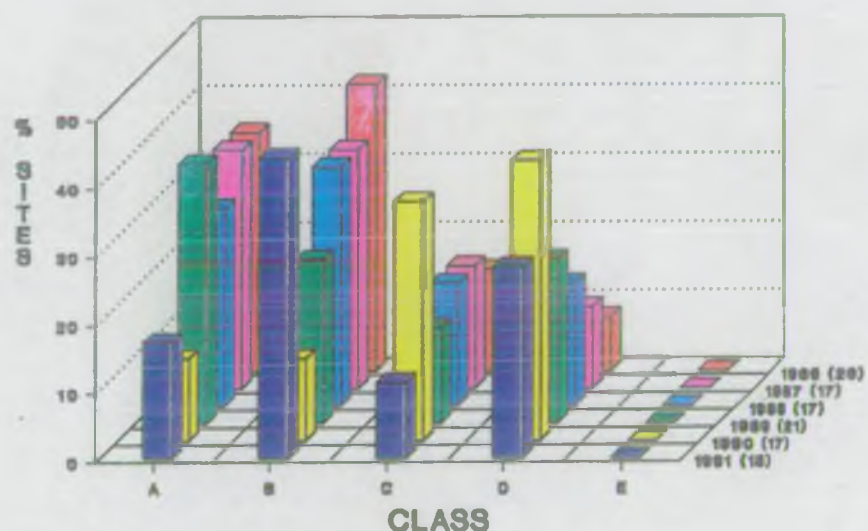


RIVER CLWYD - SALMON % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER CLWYD - TROUT % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER CONWY SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Predominantly grazing and arable farming, the most productive areas being in the eastern catchment. Coniferous forests are to be found in the upper Lledr, Llugwy and Machno valleys.

Water Quality - Main river class 1B; Lledr, Llugwy and Machno class 2; upper estuary class 1, lower estuary class 2.

Fishery Status - Average Catch: Rods: 441 Salmon 407 Sea Trout
(1984 - 1990) Nets: 163 Salmon 96 Sea Trout

2. Sampling Programme

1988 - 23 quantitative and 9 semi-quantitative sites.
1989 - 23 quantitative and 9 semi-quantitative sites.
1990 - 23 quantitative and 9 semi-quantitative sites.
1991 - 23 quantitative and 9 semi-quantitative sites.

3. Assessment of Status.

Number (%) of sites in each category in 1991.

	A	B	C	D	E
Salmon	5 (15.6)	9 (28.1)	4 (12.5)	8 (25)	6 (16.8)
Trout	4 (12.5)	9 (28.1)	8 (25)	10(13.3)	1 (0.03)

4. Key Points.

- 4.1 0+ trout densities were generally within the range of densities seen in previous years (in comparison with 6 to 9 years to data for most sites). 0+ trout densities on the Nant y Goron recovered after the very low densities found in 1990. >0+ densities were low at virtually all sites, with the Nant y Goron and Roe especially low.
- 4.2 0+ salmon densities were generally within the range of densities seen in previous years as were >0+ densities. Salmon fry were found for the first time in the Gyffin and Nant y Garreg Ddu.
- 4.3 Salmon and sea trout were stocked in the main A. Conwy and in tributaries above and below the Conwy Falls during 199 and previous years.
- 4.4 In 1992 MAFF will be acoustic tagging and tracking salmon and sea trout smolts on the Conwy Estuary.

FISHERIES MONITORING PROGRAMME

CONVY

CATCHMENT SUMMARY

QUANTITATIVE

SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	NANT Y GORON	2.3	SH 803609	47.8	7.0	0	B	13.9	0	0	D	E, St
2	NANT Y GORON	3.3	SH 806608	67.9	4.2	0	B	10.9	0	0	D	E
3	NANT Y GORON	2.1	SH 806609	101.9	13.3	0	A	85.7	5.7	0	B	E, St
4	NANT Y GORON	3.1	SH 813607	32.9	0	0	D	31.6	0.7	0	C	E
5	NANT Y GORON	1.9	SH 814606	53.7	5.3	0	B	90.5	3.2	0	B	E
6	NANT Y GORON	1.9	SH 817602	0	0	0	E	141.1	7.4	0	A	E
7	NANT Y GORON	2.6	SH 817595	0	0	0	E	46.2	3.1	2.3	B	E
8	NANT Y GORON	1.8	SH 818595	0	0	0	E	18.9	12.2	4.4	B	E
9	ROE	4.1	SH 771697	41.5	2.9	0	C	25.4	8.8	0	B	E
10	ROE	4.1	SH 768699	45.4	6.3	0	B	52.2	0	0	C	E
11	ROE	4.5	SH 767702	84.4	12.9	0	B	85.8	1.3	0	B	E
12	ROE	4.8	SH 767703	170.4	7.5	0	A	46.3	0	0	D	E
13	ROE	5.2	SH 768708	102.3	12.7	0	A	106.9	2.7	0	B	E
14	LLED R	7.0	SH 792539	24.6	12.6	0	C	12.3	1.4	0	D	E
15	LLED R	5.7	SH 744524	130.9	13.3	0	A	4.9	4.6	0.7	C	E, M
16	LLED R	5.4	SH 725521	237.5	4.6	0	B	8.8	0.5	0	D	E, M
17	LLED R	8.2	SH 710517	6.6	0.5	0	D	1.7	0.3	0	D	M
18	LLED R	4.9	SH 699516	22.0	16.7	0	B	17.6	9.0	0.4	C	M
19	LLED R	5.7	SH 697513	86.7	15.4	0	A	8.4	2.8	0	D	E, M
20	GWYBRNANT	1.9	SH 781535	5.3	1.1	0	D	40.0	35.7	3.2	A	E
21	NANT Y FOEL #	1.7	SH 872519	0	0	0	E	0	1.2	21.2	C	
22	NANT Y FOEL #	1.4	SH 869528	0	0	0	E	2.9	21.4	25.7	B	
23	NANT Y FOEL #	2.7	SH 870528	0	0	0	E	2.2	11.9	6.7	B	
MEAN				54.9	5.9	0	B	37.1	5.8	2.8	B	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

CONWY

CATCHMENT SUMMARY

SEMI-QUANTITATIVE

SITE

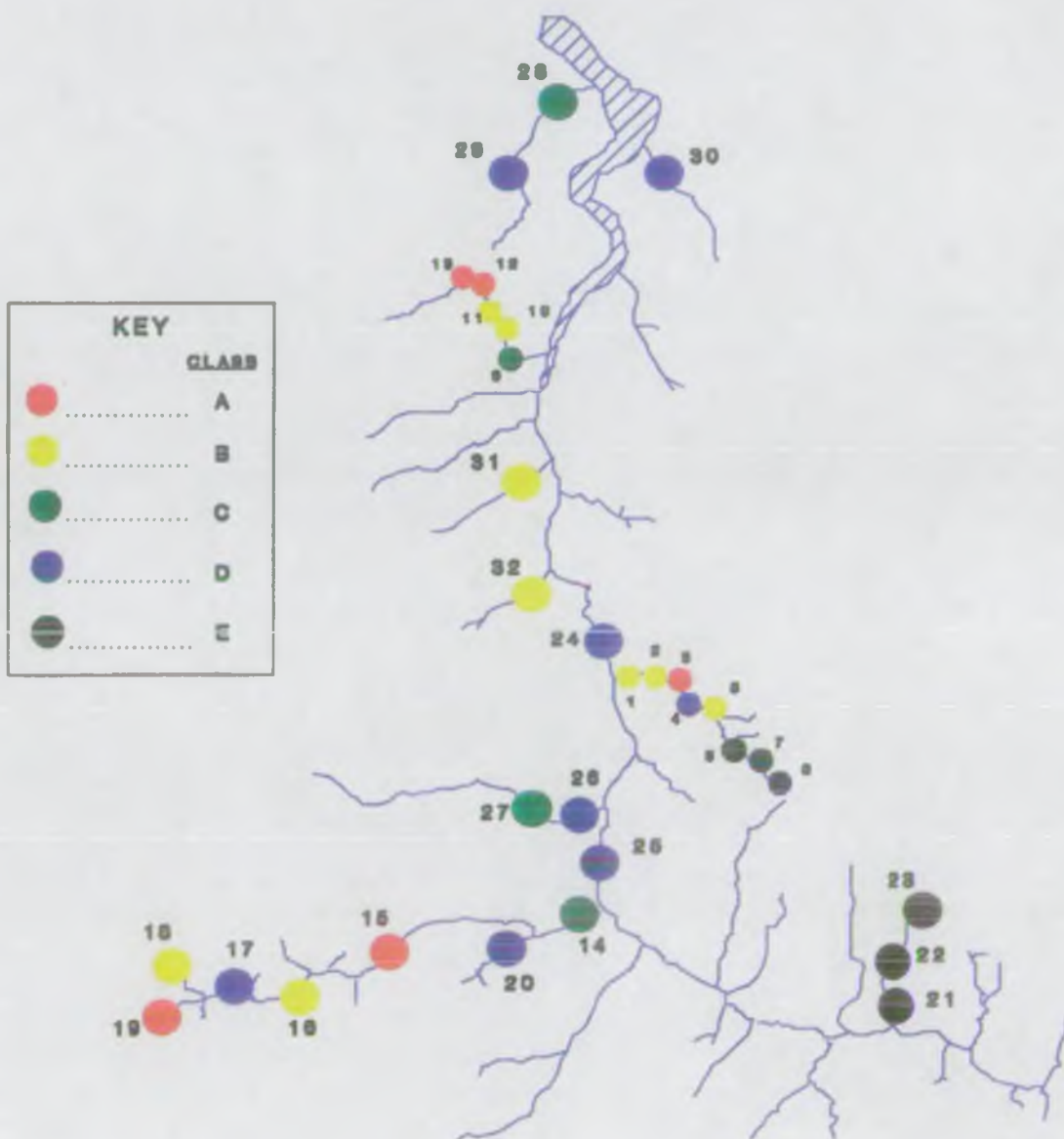
NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
24	CONWY	33.5	SH 799614	9.3	0.2	0	D	0.9	0.2	0	D	E,St,S,Fl
25	CONWY	13.1	SH 798549	6.6	1.2	0	D	0.6	0	0	D	E,St
26	LLUGWY	10.8	SH 795569	1.3	1.3	0	D	0	0	0	E	E
27	LLUGWY	17.8	SH 787567	1.1	4.9	0	C	11.1	0.8	0	C	E
28	GYFFIN	2.9	SH 801754	33.1	0	0	C	40.7	16.6	4.8	A	E,S
29	GYFFIN	2.7	SH 770757	5.9	0	0	D	8.2	0	0	D	E,S
30	N.Y.G.DDU	2.0	SH 775663	8.0	0	0	D	111.0	28.0	5.0	A	E,Fl
31	DU	3.3	SH 775663	13.9	9.1	0	B	9.7	7.9	1.8	C	
32	CRAFNANT	4.9	SH 782634	15.1	8.6	0	B	3.7	1.2	1.2	C	E,M
MEAN				10.5	2.8	0	B	20.6	6.1	1.4	B	

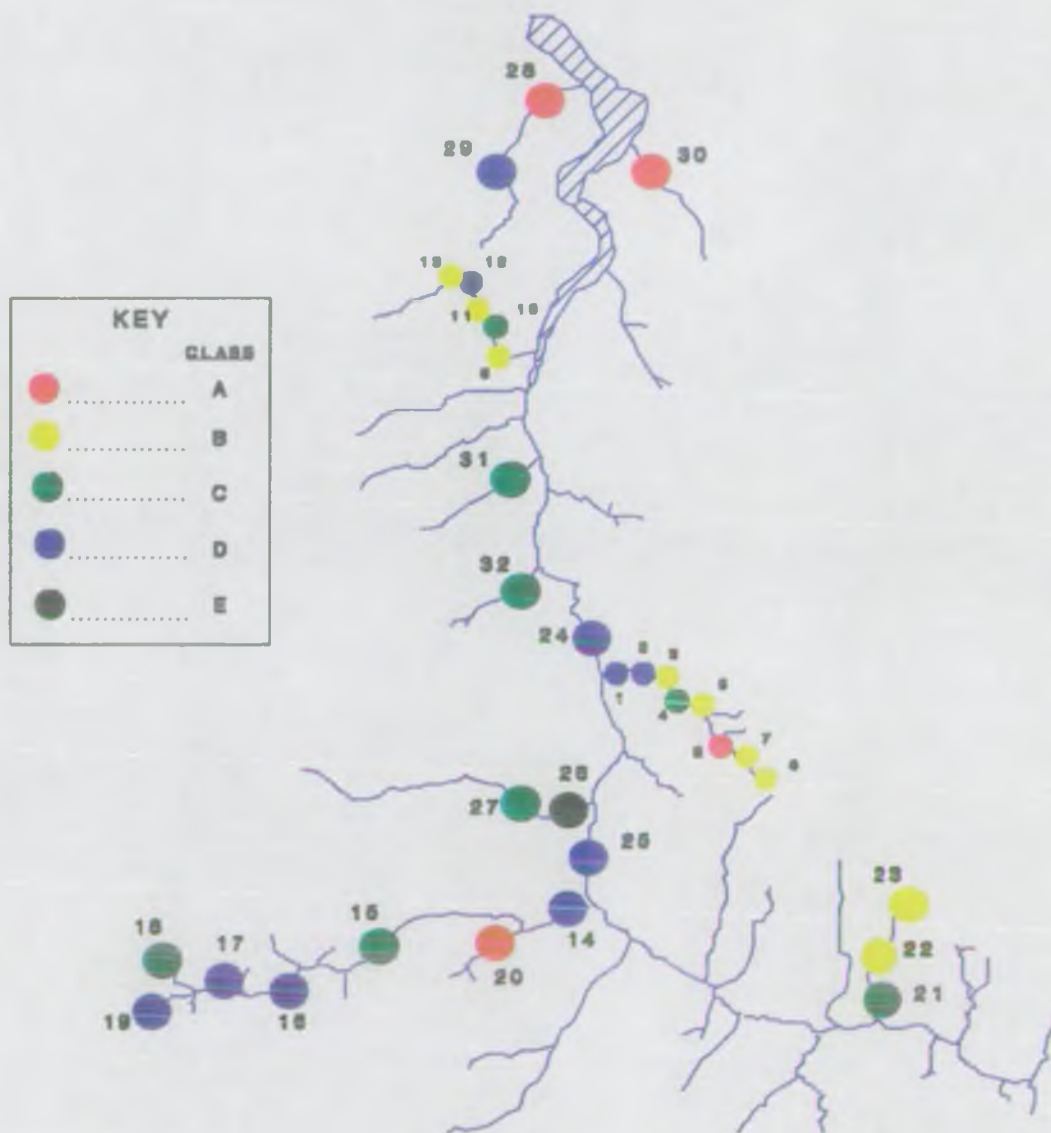
PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

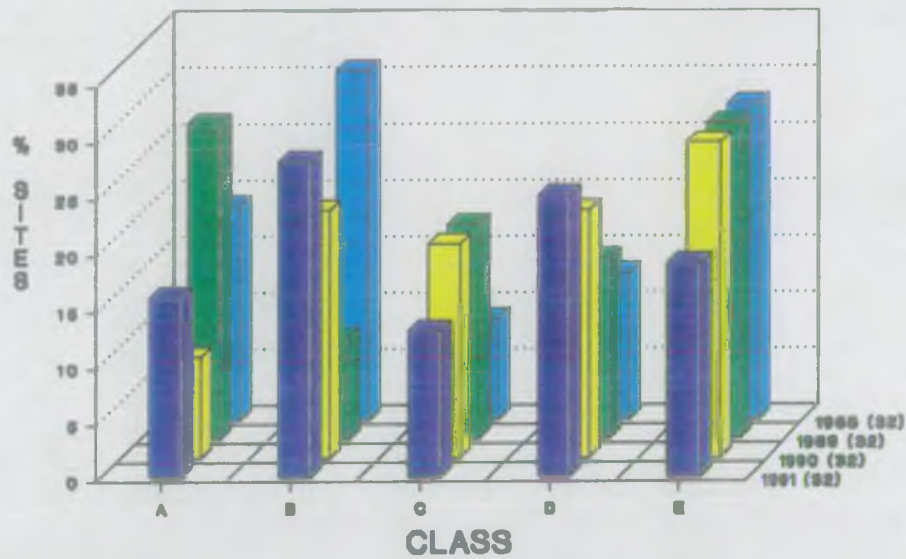
RIVER CONWY SALMON DENSITIES 1991 SURVEY



RIVER CONWY TROUT DENSITIES 1991 SURVEY

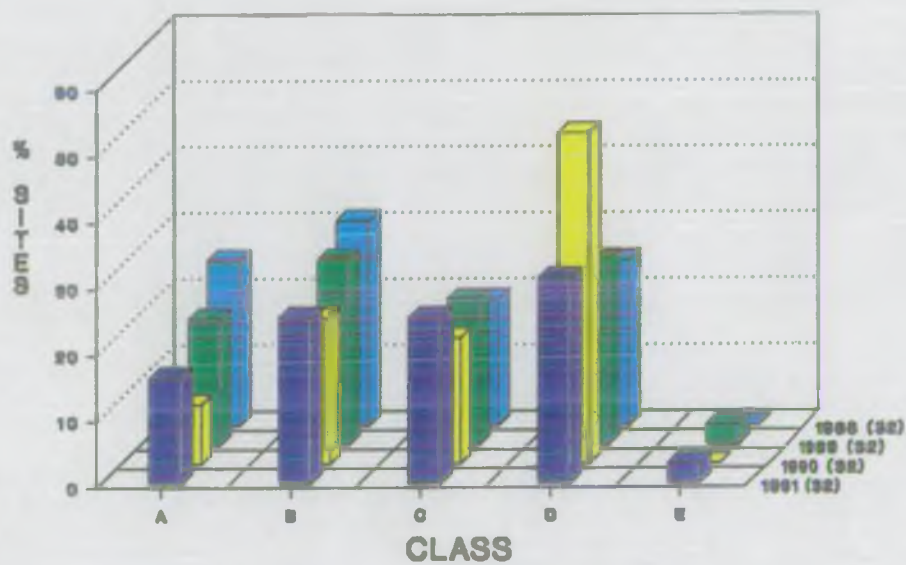


RIVER CONWY - SALMON % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER CONWY - TROUT % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER DEE SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Hill sheep pasture, localised forestry.

Water Quality - 1A at all sites.

Fishery Status - Average Catch: Rods: 550 Salmon 117 Sea Trout
(1984 - 1990) Nets: 756 Salmon 127 Sea Trout

2. Sampling Programme.

- 1989 - 9 quantitative sites (5 from 1988, 4 from 1987). 26 semi-quantitative sites including 5 Hirnant sites surveyed to establish population levels in relation to potential barrier removal and 15 upper Dee sites sampled to investigate low 1985 densities. Baseline survey still incomplete, data required from main river and A.Tryweryn.
- 1990 - 12 semi-quantitative sites, 6 quantitative, 4x5 min fry sites. Further sampling on main river, Alwen and Tryweryn prevented by high river levels.
- 1991 - 26 semi-quantitative sites (increased sampling on Meloch, Mynach and Ceiriog for DSAP), 6 quantitative sites, 27 x 5 min fry sites.

3. Assessment of Status.

Number (%) of sites in each category in 1991.

	A	B	C	D	E
Salmon	1 (3)	15 (47)	8 (25)	6 (19)	2 (6)
Trout	3 (10)	2 (6)	8 (25)	18 (56)	1 (3)

4. Key Points.

- 4.1 No changes in mean salmon and trout classification was observed for those sites fished in 1990 and 1991. Numbers of fry and parr were generally within the range found over the last 3 years. An exception to this was Ceiriog 57 which declined from class A to C for Salmon for reasons unknown.
- 4.2 The 3 intensively sampled subcatchments (Mynach, Meloch, Ceiriog) showed no overall change on salmon numbers found in 1986.
- 4.3 Mean Alwen salmon fry densities of 7/100m² were surprisingly low for a major spawning tributary (25% total Dee salmon redds 1981-85). These figures compare with 27/100m² for the Mynach and 39/100m² for the Meloch.
- 4.4 Numbers of salmon on the main river Dee between Bala and Llangollen were surprisingly low (mean 8/5 mins) with only one site exceeding the moderate classification found on the Wye (11-25). Fry numbers on the Ceiriog were substantially higher (29/5 mins) although fewer sites were fished.
- 4.5 Numbers of trout of all age groups were significantly lower ($p < 0.05$ - $p < 0.001$) at sites fished on the Meloch and Mynach in 1991 than in 1986. On the Meloch for example, 0+ trout stocks declined from 21 to

4.5/100m² at identical sites. Numbers of older trout were also significantly lower ($p < 0.05$) at eight sites on the Ceiriog.

FISHERIES MONITORING PROGRAMME

DEE CATCHMENT SUMMARY

QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
11	NANT FFRAVER	2.5	SJ 043433	32.6	5.6	0	B	8.4	1.9	0	D	E, Bh, SL
17	CEIDIOG	3.6	SJ 026352	0	0.6	0	D	3.3	10.6	2.8	C	
33	MELOCH	3.4	SH 964384	41.9	14.7	0	B	14.3	2.8	0.6	D	
34	ABBAY BROOK	3.7	SJ 205457	49.5	11.1	0	B	39.7	11.4	1.2	B	SL, E
40	MYNACH	4.8	SH 909415	62.5	7.5	0	B	4.9	5.6	0	C	
57	CEIRIOG	6.7	SJ 196357	15.3	6.2	0	C	16.8	2.8	0.3	D	
MEAN				33.6	7.6	0	B	14.6	5.9	0.8	C	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

DEE		CATCHMENT SUMMARY						SEMI-QUANTITATIVE				SITE
NUMBER OF FISH PER 100M 2												
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
3	DEE	3.4	SJ 043438	41.9	15.3	0	B	14.3	2.8	0.6	D	E, Bh, SL
8	ALWEN	14.7	SJ 029464	13.0	1.1	0	C	2.2	0.1	0	D	E, Bh
9	ALWEN	13.2	SH 997487	6.5	0.5	0	D	1.4	0	0	D	E, Bh
10	ALWEN	9.4	SH 988508	4.0	1.2	0	D	0.2	0.7	0	D	
10A	ALWEN	11.5	SH 988508	4.8	1.2	0	D	1.9	0.2	0	D	
13**	MERDDWR	3.4	SJ 000426	0.5	2.0	0	D	11.8	1.0	0	C	
15	CEIDIOG	5.4	SJ 031356	10.0	3.9	0	C	0.7	1.4	1.8	C	E, Bh
32#	HIRNANT	4.2	SH 957323	0	0	0	E	0	2.1	2.7	D	
35***	HIRNANT	7.4	SH 949362	10.3	0.9	0	C	0	0	0	E	
40A	MYNACH	5.7	SH 909410	23.8	4.4	0	B	1.7	0.4	0	D	SL
42	MYNACH	4.2	SH 911418	44.6	8.2	0	B	1.5	2.2	0	D	E
44	MYNACH	5.0	SH 906392	34.7	0.8	0	B	1.5	2.2	0	D	E, SL
44A	MYNACH	6.1	SH 907397	23.5	1.4	0	B	1.4	1.1	0.4	D	
45	MELOCH	4.0	SJ 963388	61.2	2.7	0	A	7.5	1.1	0	D	
46	MELOCH	3.3	SH 963386	33.9	6.1	0	B	5.5	3.0	0.6	C	
47	MELOCH	5.0	SH 952368	22.6	4.8	0	B	0.4	3.9	0	C	
54	MORWYNION	2.1	SJ 145475	12.1	0	0	D	84.0	8.4	1.9	A	E, Bh, SL
56	MORWYNION	3.6	SJ 112434	42.2	4.1	0	B	16.5	2.6	0	B	E, Bh
58#	TEIRW	4.0	SJ 196358	0	0	0	E	33.5	11.5	1.0	A	
59	CEIRIOG	6.0	SJ 188343	18.3	3.3	0	B	7.7	0	0	D	E, Bh, SL
60	CEIRIOG	5.0	SJ 158328	39.1	1.3	0	B	10.2	0	0	D	E, Bh, SL
61	CEIRIOG	2.1	SJ 157328	16.2	1.0	0	C	107.6	5.7	1.0	A	SL, L, Bh
62	CEIRIOG	6.3	SJ 138342	7.1	2.5	0	C	10.3	0.6	0.3	C	
64	CEIRIOG	2.9	SJ 136346	6.3	7.7	0	C	4.2	2.8	2.8	C	E, Bh, SL
67	CEIRIOG	9.5	SJ 220373	15.8	9.5	0	B	2.4	1.1	0.3	D	E, Bh
68	CEIRIOG	7.4	SJ 245385	18.6	2.4	0	B	3.0	0.7	0	D	E, Bh
MEAN				21.3	3.6	0	B	12.8	12.1	0.5	B	

FISHERIES MONITORING PROGRAMME

DEE

CATCHMENT SUMMARY

5 MINUTE FRY SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	O.S. MAP REFERENCE	SALMON		TROUT		OTHER SPECIES
			0+	>1+	0+	>1+	
67	CEIRIOG	SJ 310382	42	0	0	0	
68	CEIRIOG	SJ 279373	31	0	2	0	
69	CEIRIOG	SJ 260379	40	1	3	0	
70	CEIRIOG	SJ 308379	3	10	4	6	
71	DEE	SH 983366	6	0	0	0	
72	DEE	SJ 009373	7	0	0	0	
73	DEE	SJ 016368	15	0	0	0	
74	DEE	SJ 027378	16	0	0	0	
75	DEE	SJ 028384	15	0	0	0	
76	DEE	SJ 043403	15	0	0	0	
77	DEE	SJ 054423	32	0	0	0	
78	DEE	SJ 069432	16	0	0	0	
79	DEE	SJ 114437	9	0	0	0	
79A	DEE	SJ 114437	9	0	0	0	
80	DEE	SJ 117437	8	0	0	0	
81	DEE	SJ 152439	4	0	2	0	
81A	DEE	SJ 152439	4	0	0	0	
82	DEE	SJ 157433	0	0	0	0	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

DEE

CATCHMENT SUMMARY

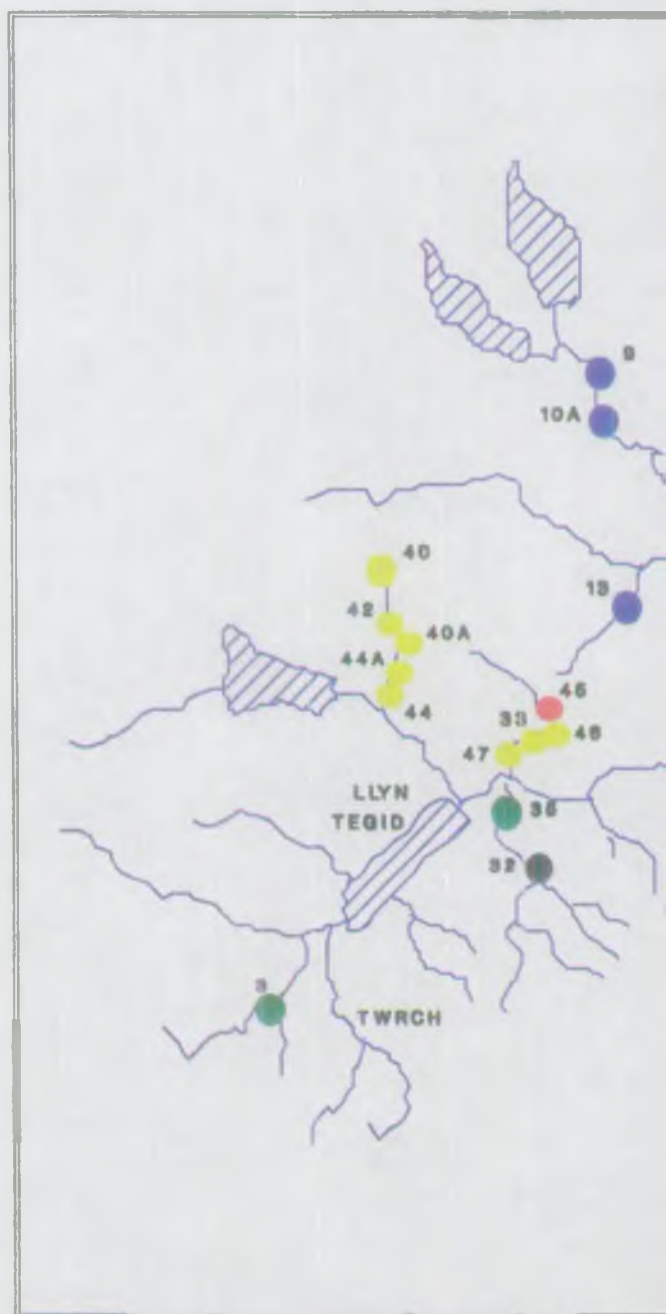
5 MINUTE FRY SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	O.S. MAP REFERENCE	SALMON		TROUT		OTHER SPECIES
			0+	>1+	0+	>1+	
82A	DEE	SJ 157433	0	0	1	0	
83	DEE	SJ 176444	3	0	3	0	
84	DEE	SJ 232422	3	0	2	0	
84A	DEE	SJ 232422	16	0	0	0	
85	DEE	SJ 268417	2	0	0	0	
85A	DEE	SJ 268417	0	0	2	0	
86	DEE	SJ 296416	0	0	0	0	
87	DEE	SJ 292421	5	0	0	0	
87A	DEE	SJ 292421	5	0	2	0	
MEAN			11	0	1	0	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE



RIVER DEE (UPPER)

SALMON DENSITIES

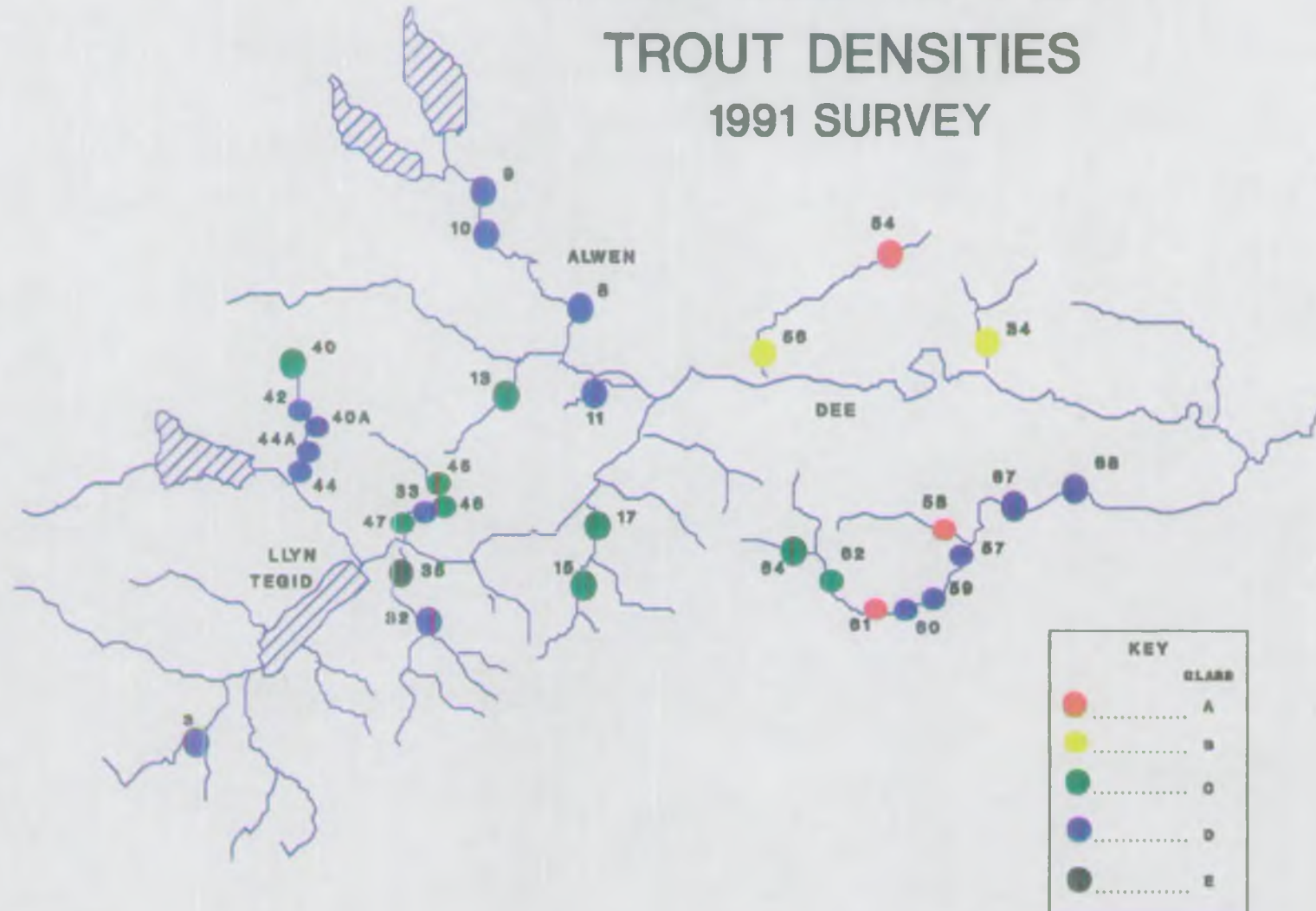
1991 SURVEY

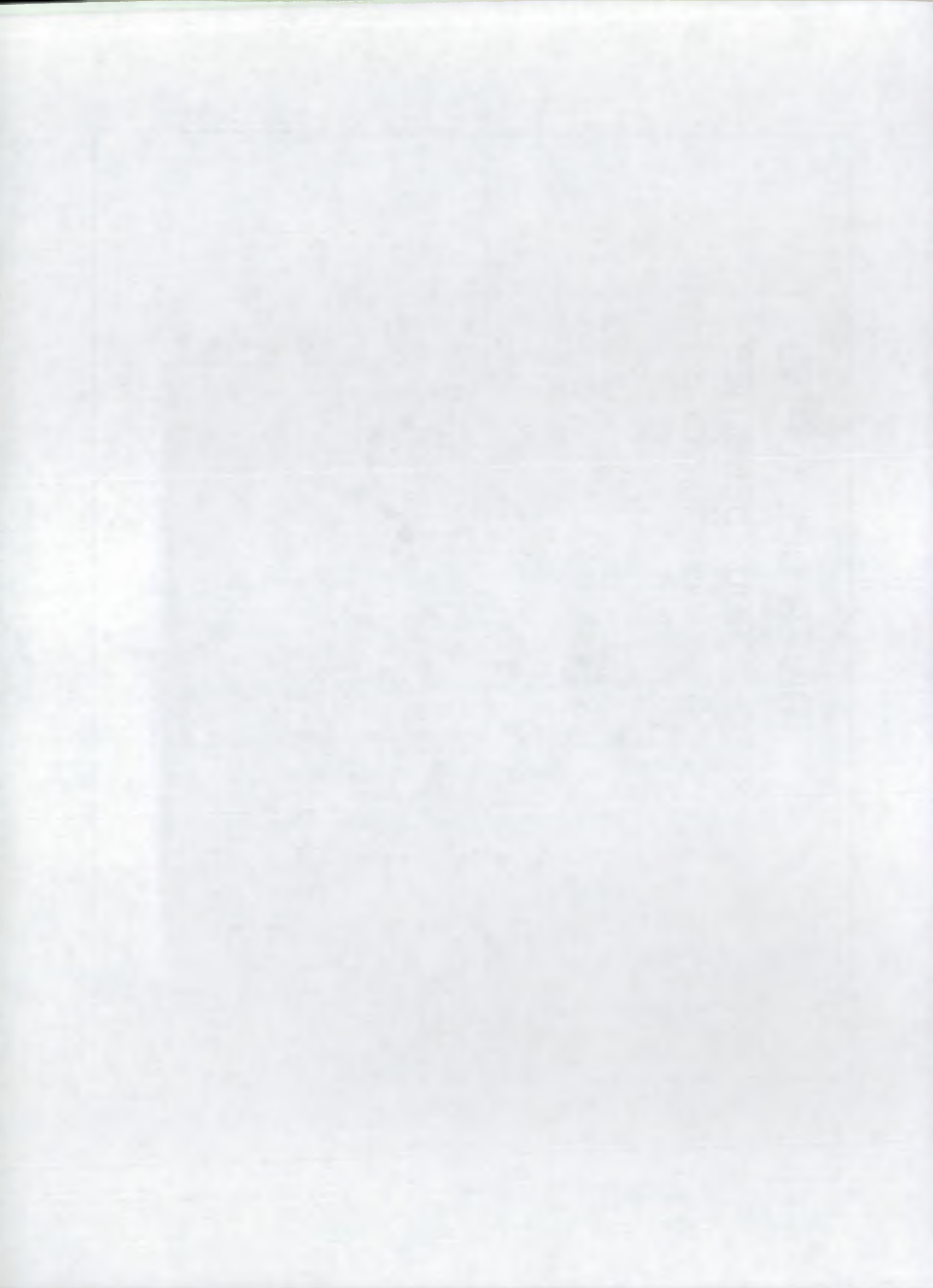


RIVER DEE (UPPER)

TROUT DENSITIES

1991 SURVEY





RIVER DEE - SALMON % OF SITES IN EACH CATEGORY.

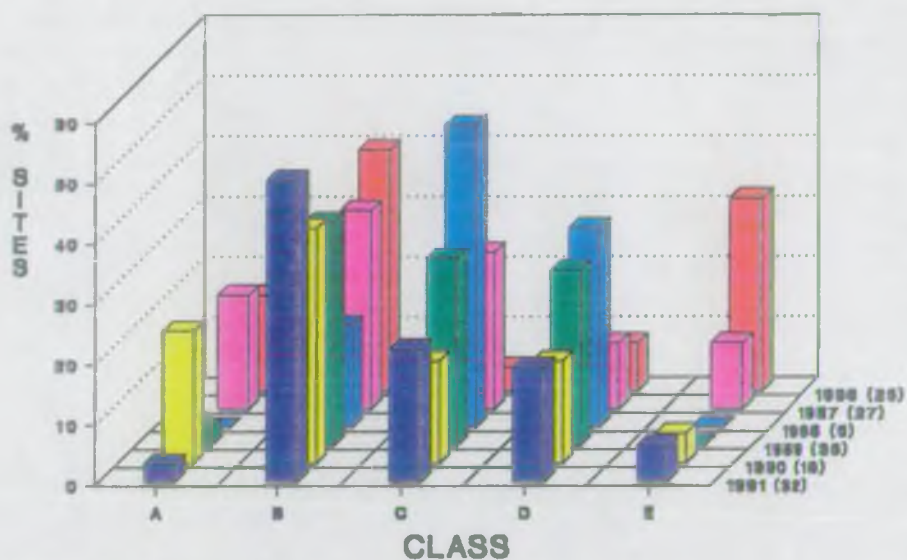
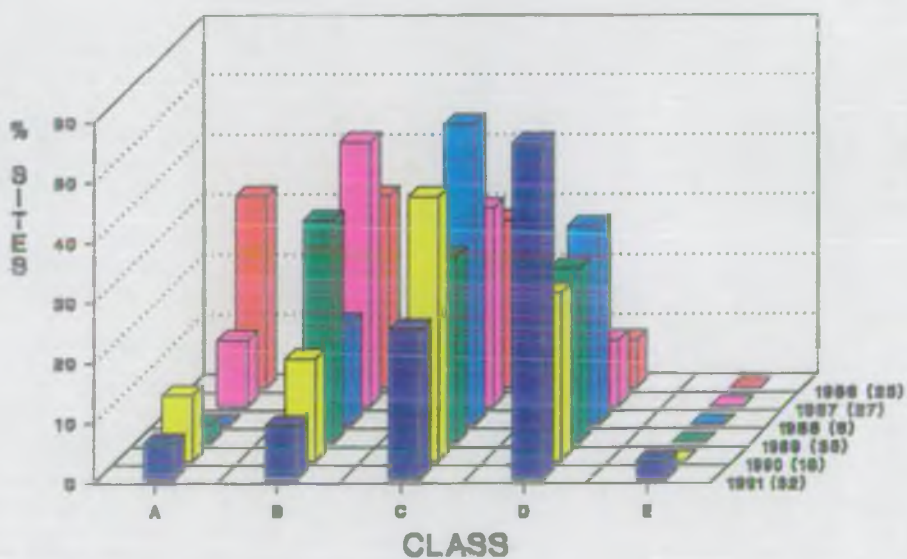


FIGURE IN () INDICATES NO. OF SITES.

RIVER DEE - TROUT % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER DWYRYD SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Hill sheep pasture with moorland in the upper catchment. Extensive slate quarrying.

Water Quality - All 1A, evidence of acidification in soem headwater streams.

Fishery Status - Average Catch: most of the catchment is inaccessible to migratory fish.

2. Sampling Programme.

1987 - Baseline survey of 22 semi-quantitative sites.

1991 - Rolling programme survey of 15 semi-quantitative and 5 x 5 min fry sites. Sampling emphasis was on the Cynfal to investigate alleged acidification problems.

3. Assessment of Status.

Number (%) of sites in each category in 1991.

	A	B	C	D	E
Salmon	0 (0)	1 (7)	0 (0)	1 (7)	13 (86)
Trout	2 (13)	8 (53)	1 (7)	3 (20)	1 (7)

4. Key Points.

- 4.1 Most Salmon sites were monitored by 5 minute fry sampling and demonstrated moderate to good densities on the main river lower reaches of the Teigl and Cynfal.
- 4.2 Trout densities at seven sites fished in 1987 were not significantly different from those found in 1991, although parr numbers were higher. Of the 9 sites fished on the Cynfal, densities were mainly good except for one afforested tributary (site 4G). With this exception, there was no evidence of acidification although Habscore should be applied in order to determine predicted densities.

FISHERIES MONITORING PROGRAMME

DWYRYD

CATCHMENT SUMMARY

SEMI-QUANTITATIVE SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	DWYRYD	23.0	SH 664406	8.2	0	0	D	3.8	0	0	D	
4#	CYNFAL	2.5	SH 715409	0	0	0	E	2.0	13.0	4.0	B	
4A#	CYNFAL TRIB	1.3	SH 711408	0	0	0	E	4.4	16.3	8.9	B	
4B#	CYNFAL TRIB	**	SH 712409	0	0	0	E	0	0	0	E	
4C#	CYNFAL TRIB	1.4	SH 719411	0	0	0	E	19.3	30.9	3.9	A	
4D#	CYNFAL	5.9	SH 723412	0	0	0	E	1.2	4.3	0.4	C	
4E#	CYNFAL	5.6	SH 726412	0	0	0	E	2.2	9.6	3.1	B	
4F#	CYNFAL	4.8	SH 733413	0	0	0	E	2.1	8.9	9.4	B	
4G#	CYNFAL	1.5	SH 733412	0	0	0	E	1.7	1.7	0	D	
6#	CYNFAL	5.4	SH 746418	0	0	0	E	4.3	4.7	7.3	B	
17#	DUBACH	3.0	SH 699452	0	0	0	E	3.2	28.6	7.1	B	
18	TEIGL	7.6	SH 691423	20.1	12.8	0.4	B	0	1.8	0	D	
19#	TEIGL	2.5	SH 730443	0	0	0	E	9.3	20.0	0.7	B	
20#	TEIGL TRIB	1.5	SH 730443	0	0	0	E	12.1	40.9	6.1	A	
22#	GAMALLT	4.0	SH 718433	0	0	0	E	2.5	13.5	1.0	B	
MEAN				14.2	6.4	0.2	B	4.5	13.0	3.5	B	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

** PREVIOUSLY DEWATERED

FISHERIES MONITORING PROGRAMME

DWYRYD

CATCHMENT SUMMARY

5 MINUTE FRY SITES

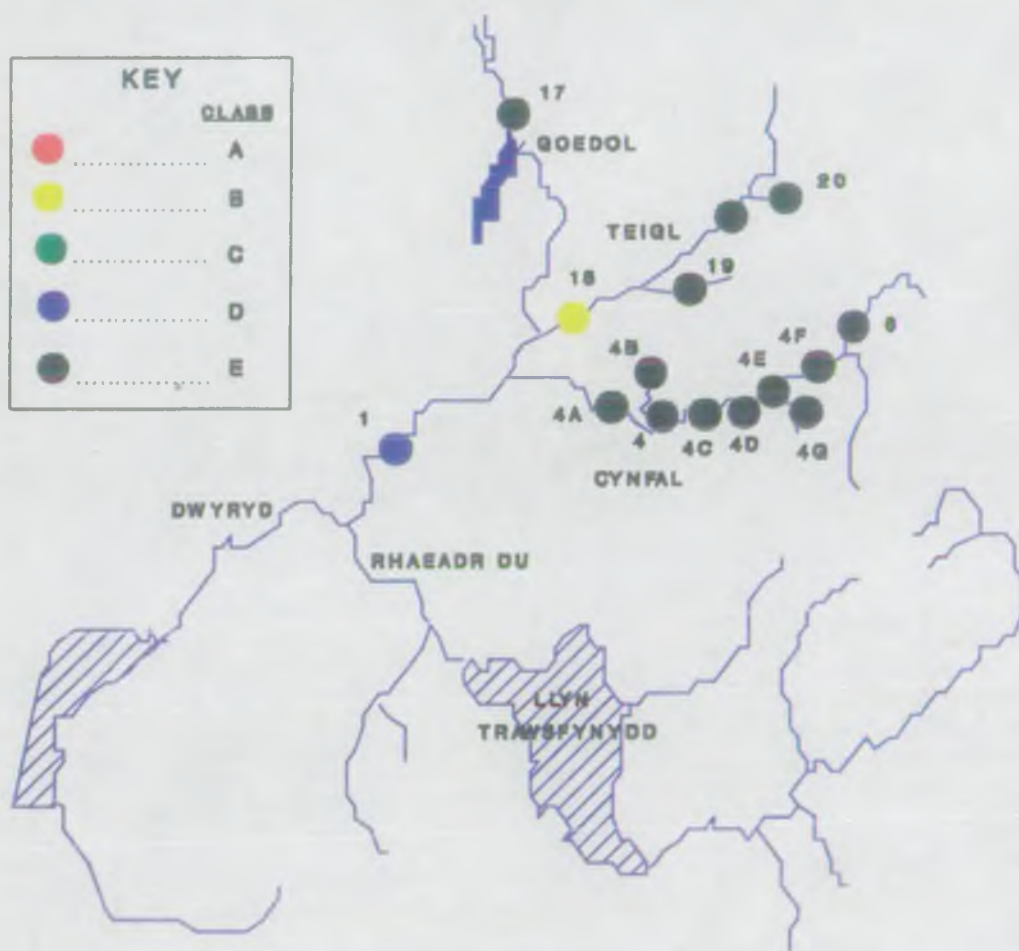
NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	O.S. MAP REFERENCE	SALMON		TROUT		OTHER SPECIES
			0+	>1+	0+	>1+	
1B	DWYRYD	SH 670415	27	4	0	0	
1C	DWYRYD	SH 671415	26	1	0	0	
1A	DWYRYD	SH 668412	24	0	5	0	
1D	DWYRYD	SH 689416	29	4	6	0	
1E	DWYRYD	SH 685418	24	1	2	0	
MEAN			26	2	2.6	0	

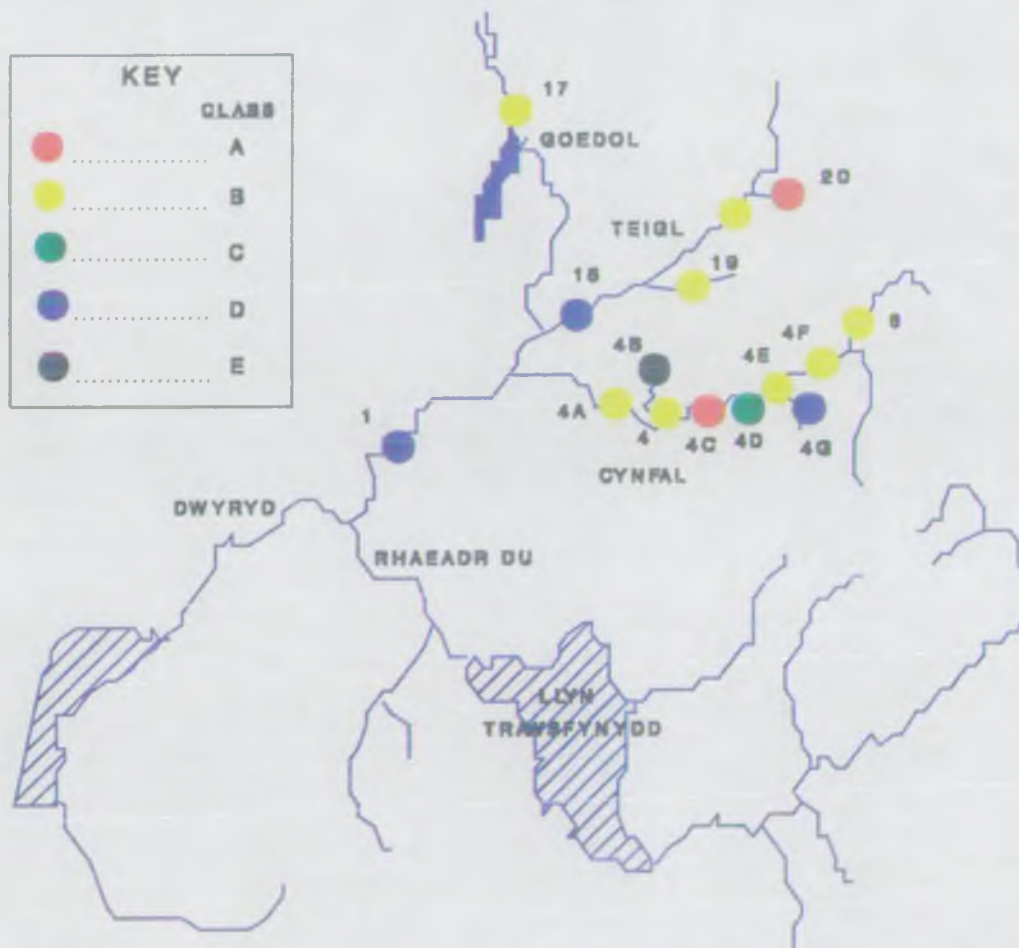
PROBABLY INACCESSIBLE TO MIGRATORY FISH

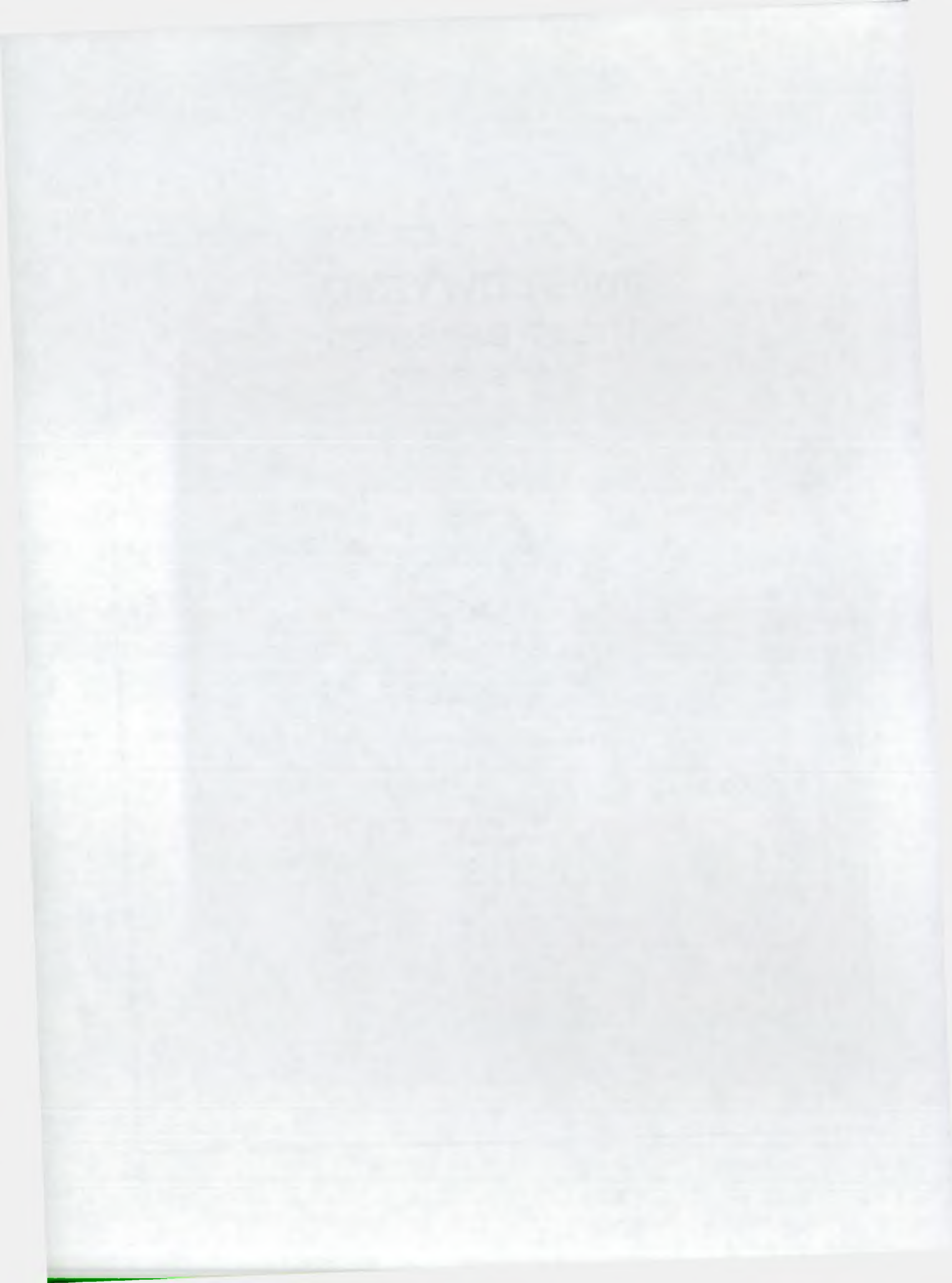
* MINIMUM ESTIMATE

RIVER DWYRYD SALMON DENSITIES 1991 SURVEY

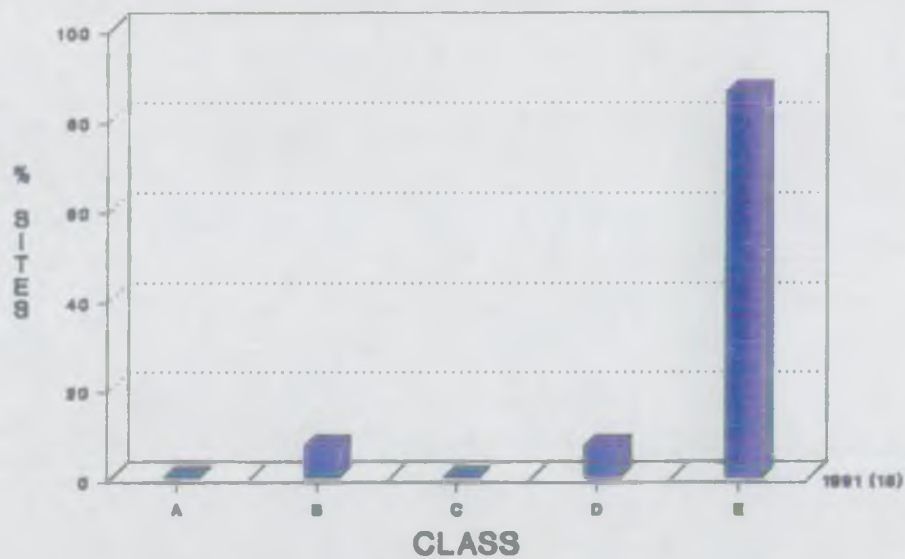


RIVER DWYRYD TROUT DENSITIES 1991 SURVEY



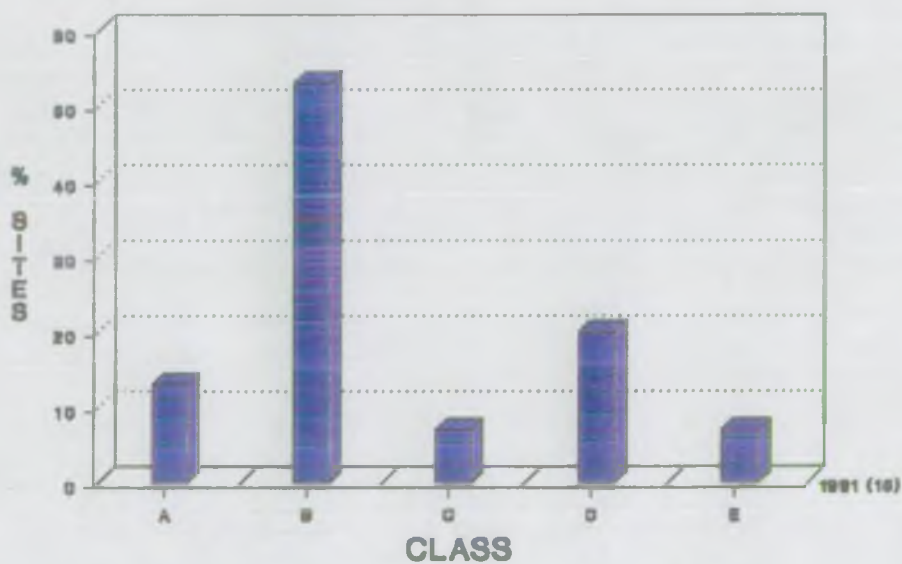


RIVER DWYRYD - SALMON % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER DWYRYD - TROUT % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.



RIVER DYFI SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Hill sheep pasture with expanding forestry.
Water Quality - All 1A except Dulas North, 1B.
Fishery Status - Average Catch: Rods: 358 Salmon 1563 Sea Trout
(1984 - 1990) Nets: 75 Salmon 1292 Sea Trout

2. Sampling Programme.

- 1986 - Extensive baseline survey of 13 quantitative and 56 semi-quantitative sites.
- 1987 - 18 sites selected for annual sampling. High water conditions towards the end of the survey restricted the programme to 15 sites.
- 1988 - 16 quantitative sites sampled.
- 1989 - 9 quantitative sites and 8 semi-quantitative sites sampled.
- 1990 - 12 semi-quantitative, 6 quantitative, 7x5 minute fry sites.
- 1991 - 16 semi-quantitative sites and 5 quantitative sites.

3. Assessment of Status.

Number (%) of sites in each category in 1991.

	A	B	C	D	E
Salmon	1 (5)	4 (19)	2 (9)	5 (24)	9 (43)
Trout	4 (19)	8 (38)	6 (29)	3 (14)	0 (0)

4. Key Points.

- 4.1 Numbers of salmon at most sites were similar to 1990, although site 2 which had been affected by forestry works had no fry. Highest densities (54/100m²) were found at a new main river site at Dinas Mawddy. 5 minute fry data from the main river has not been reported owing to an error in methodology.
- 4.2 Very high trout densities were found on the lower Crewi and also at two upstream sites above a partial barrier. Mean classification of 11 sites fished in consecutive years increased from C to B, largely as a result of increases in fry numbers at several sites. However, site 14 on the Cerist which has never been lower than B dropped from A in 1990 to C in 1991. Parr densities remained at the lower 1990 levels.

FISHERIES MONITORING PROGRAMME

DYFI

CATCHMENT SUMMARY

QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
5	CREWI	4.3	SH 768008	51.9	0.5	0	B	230.8	21.0	0	A	
10	CLEIFION	4.1	SH 913128	8.1	4.0	0	D	3.9	14.2	1.5	B	E
12	DYFI	6.1	SH 904203	3.9	5.9	0	C	18.4	0.3	0	D	E
13	CYWARCH	4.1	SH 856178	8.1	3.1	0	D	78.9	1.0	0	B	
14	CERIST	3.7	SH 824164	31.9	20.5	0	B	18.4	13.0	1.1	C	
MEAN				20.8	6.8	0	C	70.1	9.9	0.5	A	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

DYFI CATCHMENT SUMMARY

SEMI-QUANTITATIVE SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	LLYFNANT	4.4	SH 740975	0	0	0	E	4.8	7.7	0.5	C	
2	DULAS S.	3.9	SH 765983	0	6.0	0	D	20.1	9.4	4.3	B	
3	DULAS S.	6.4	SH 796983	0.7	2.1	0	D	17.0	4.2	0	B	E
4	DULAS S.#	3.7	SH 776946	0	0	0	E	0	13.0	0	C	
5A	CREWI	4.3	SH 779007	0	0	0	E	67.0	4.2	0.9	A	
5B	CREWI	4.5	SH 793002	0	0	0	E	30.2	14.2	0.9	A	
6	GWYDOL	5.2	SH 799027	0	0	0	E	6.2	1.2	0.4	D	
7	IAIN	6.3	SH 911018	0	0	0	E	32.6	0.9	0	B	SL, Bh, E
8	CLEGIR	3.5	SH 904058	1.8	2.4	0	C	1.8	1.8	0.6	C	
9	CLEGIR	2.5	SH 893076	0	11.2	0	B	48.8	13.6	0	A	E
11	CLEIFION	3.1	SH 893107	0	6.0	0	D	12.8	16.5	0.8	B	E
15A	ANGELL	3.4	SH 822111	0	0	0	E	1.7	5.0	0.8	C	
16	CEIRIG	4.8	SH 812053	19.9	6.5	0.9	B	26.4	5.6	0.5	B	E
17	DULAS N.	5.8	SH 757059	0	0	0	E	6.2	3.7	2.2	C	
18	DULAS N.	3.1	SH 775108	0	0	0	E	19.4	12.9	0.7	B	
19	DYFI	5.9	SH 860149	54.2	7.3	0	A	6.4	1.7	0	D	E
MEAN				4.8	2.6	0.1	C	18.8	7.2	0.8	B	

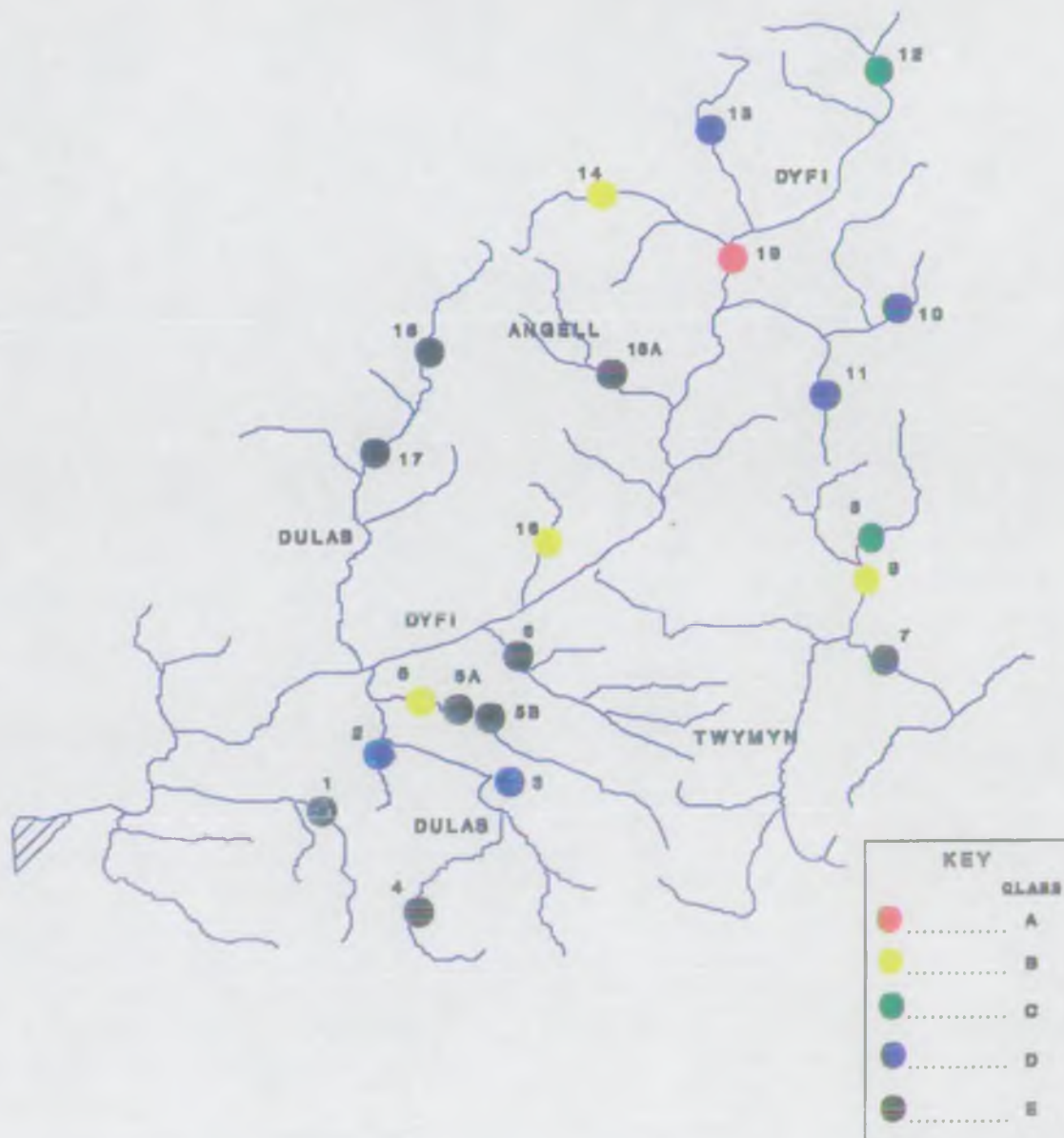
PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

RIVER DYFI

SALMON DENSITIES

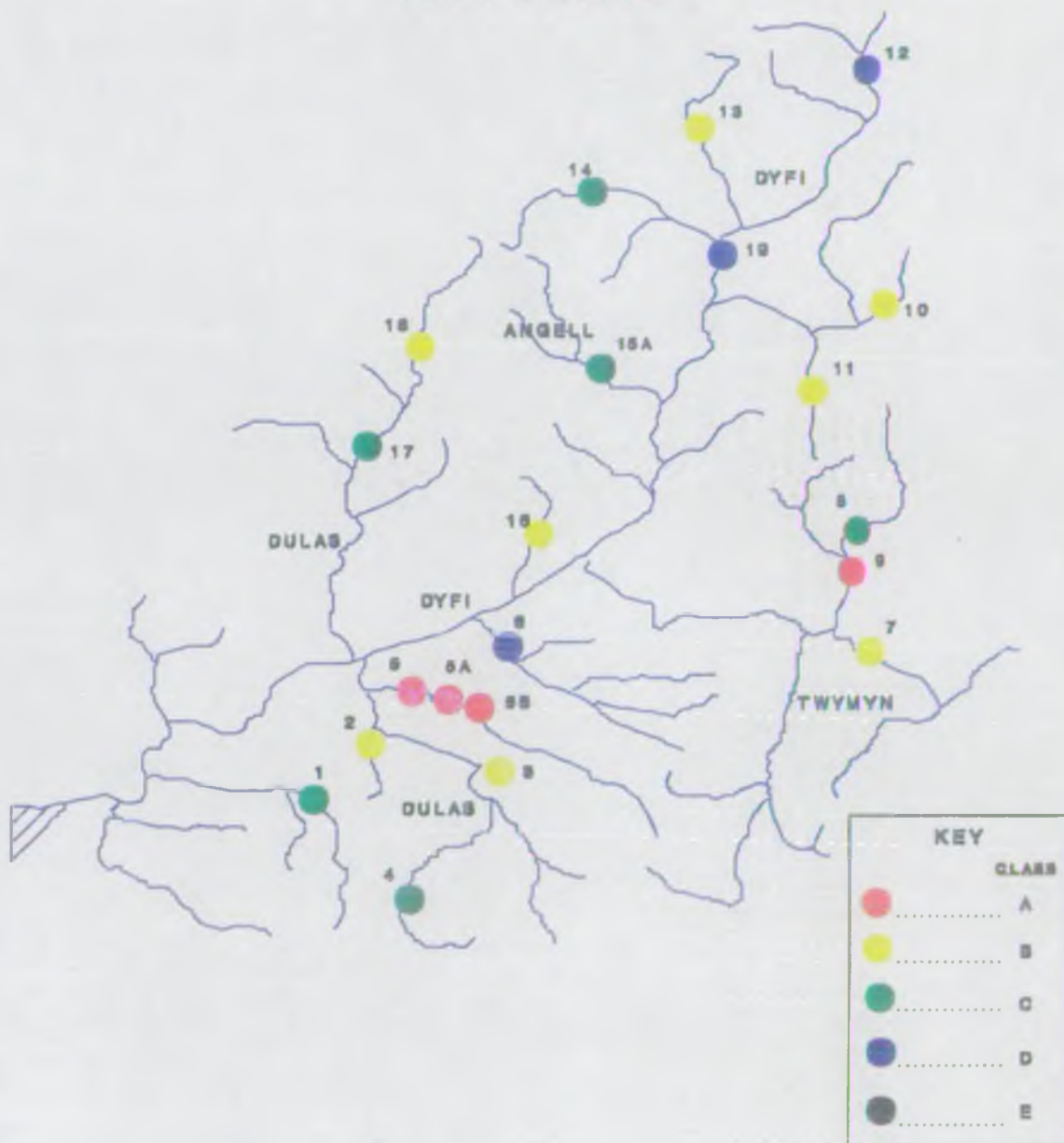
1991 SURVEY

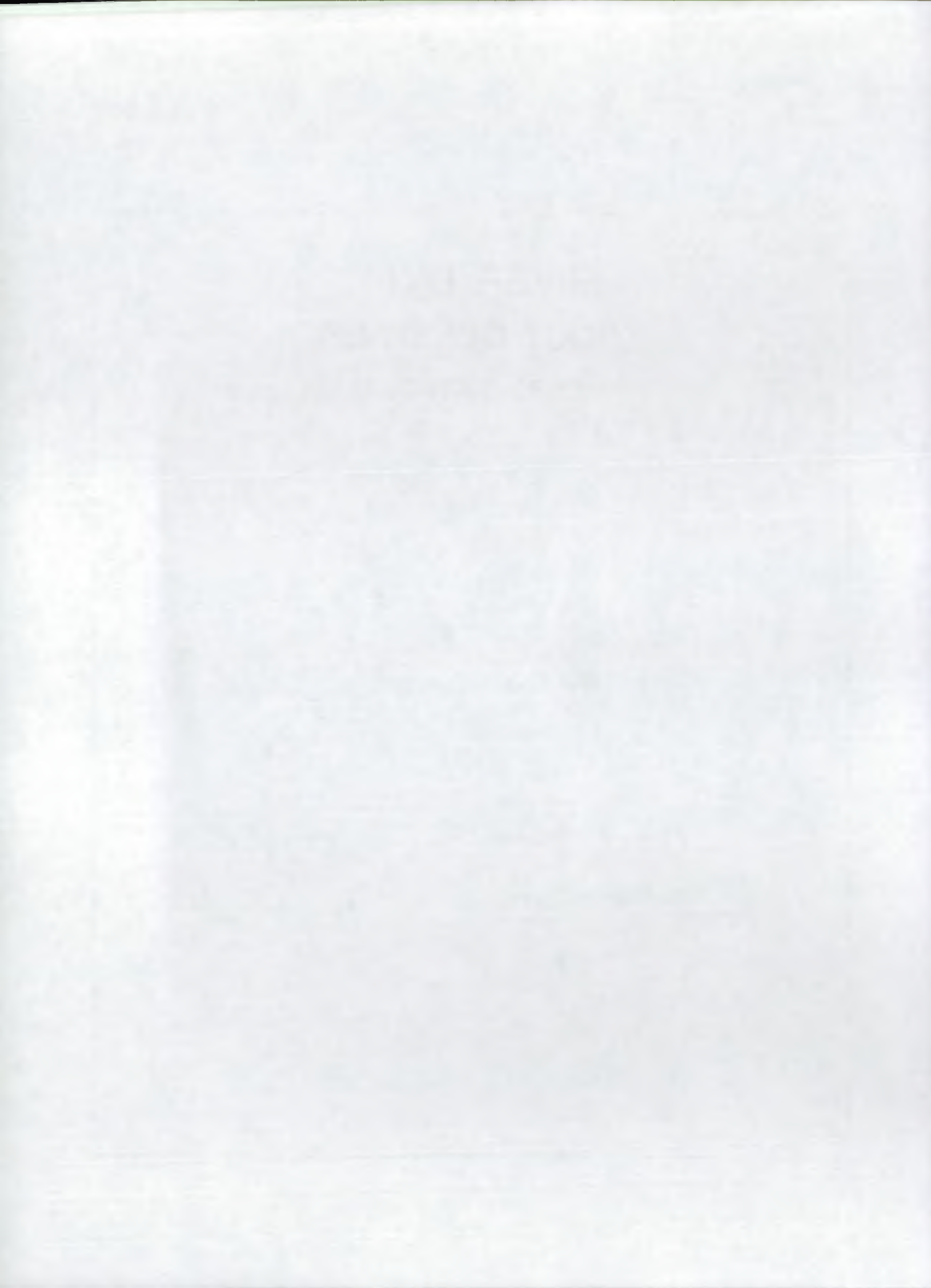


RIVER DYFI

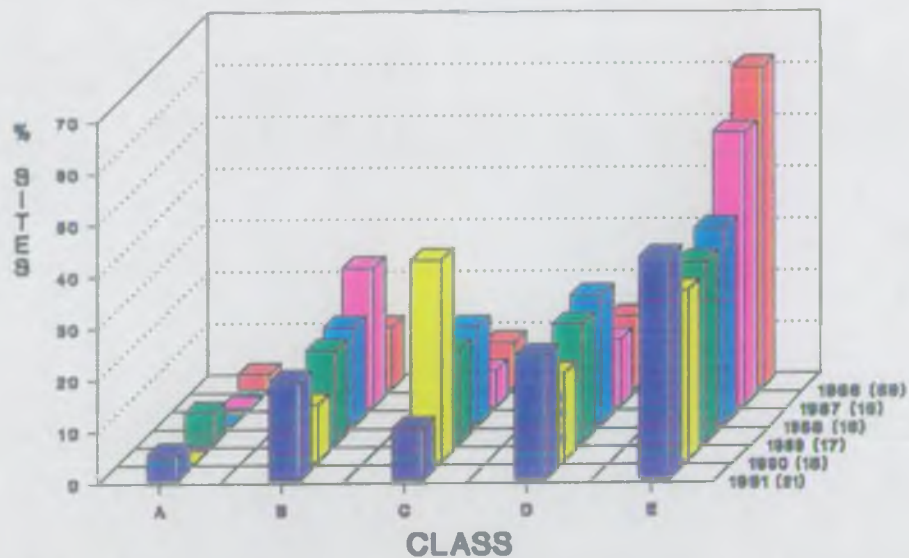
TROUT DENSITIES

1991 SURVEY



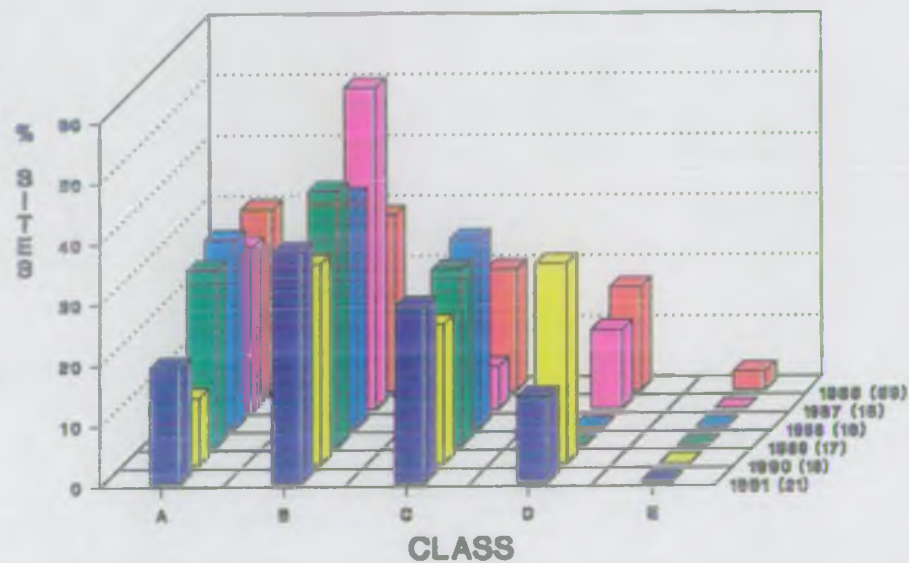


RIVER DYFI - SALMON % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTES NO. OF SITES.

RIVER DYFI - TROUT % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER OGWEN SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Upland sheep grazing for most of the catchment area, primary industrial use is Penrhyn slate quarry (approx 25ha). Light engineering works in Bethesda have been responsible for fish kills in the past.

Water Quality - All main rivers and tributaries 1A.

Fishery Status - Average Catch: Rods: 123 Salmon 145 Sea Trout
(1984 - 1990) Nets: 178 Salmon 142 Sea Trout

2. Sampling Programme.

1989 - Baseline survey of 16 semi-quantitative sites.
1990 - Routine sampling of 9 semi-quantitative and 2 quantitative sites.
1991 - 11 semi-quantitative sites and 2 quantitative sites. 5x5 minfry sites.

3. Assessment of Status.

Number (7) of sites in each category in 1991.

	A	B	C	D	E
Salmon	2 (15)	4 (31)	1 (8)	5 (39)	1 (8)
Trout	1 (8)	2 (15)	1 (8)	9 (69)	0 (0)

4. Key Points.

- 4.1 Densities of salmon at 7 sites were very similar to those found in 1990 with no major changes observed on previous years data. Highest fry densities were found immediately downstream of the sewage works reflecting the good to excellent densities in the mid catchment. Fry densities in the upper Ogwen (Nant Ffrancon) were lower than any found in previous years although sites were not necessarily the same. 5 minute fry sampling in the lower reaches above the tidal limit (downstream of site 23) demonstrated surprisingly high densities of salmon.
- 4.2 Trout densities at those sites fished in previous years were similar, with no major changes observed.

FISHERIES MONITORING PROGRAMME

OGWEN		CATCHMENT SUMMARY						QUANTITATIVE				SITE
NUMBER OF FISH PER 100M 2												
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
7	OGWEN	14.6	SH 625659	30.8	25.8	0	A	5.7	1.4	0	D	E
17	LLAN	2.0	SH 608690	0	0	0	E	159.6	16.0	0	A	E
MEAN				15.4	12.8	0	C	82.7	8.7	0	B	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

OGWEN

CATCHMENT SUMMARY

SEMI-QUANTITATIVE

SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
3	OGWEN	10.3	SH 642616	0.8	1.1	0	D	5.0	0.3	0	D	E
4	OGWEN	11.7	SH 638627	2.7	0.4	0	D	2.7	0	0	D	E
6	BERTHEN	2.4	SH 632641	6.3	11.8	0	B	0.9	0	0	D	
8	CASEG	7.5	SH 626663	11.6	9.6	0.3	B	4.4	2.6	0.3	C	E
12	OGWEN	15.5	SH 618668	17.0	3.4	0	B	3.7	0.2	0	D	E
13	OGWEN	17.7	SH 613673	11.1	0.5	0	C	1.2	0	0	D	E
14	FFRYDLAS	3.3	SH 628668	38.2	20.2	2.9	A	5.8	2.9	7.9	B	
16	OGWEN	11.5	SH 611677	47.6	4.5	0	B	3.4	0	0	D	E
19	OGWEN	17.1	SH 601700	3.8	0.9	0	D	1.4	0	0.7	D	E
20A	MILLSTREAM	3.5	SH 602699	7.6	1.3	0	D	33.7	7.6	0.6	B	E
23	OGWEN	13.1	SH 602707	7.9	0.8	0	D	1.4	0	0.3	D	
MEAN				14.1	5.0	0.3	C	5.8	1.4	0.9	C	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

OGWEN

CATCHMENT SUMMARY

5 MINUTE FRY SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	O.S. MAP REFERENCE	SALMON		TROUT		OTHER SPECIES
			0+	>1+	0+	>1+	
1A	OGWEN	SH 610686	22	3	0	0	
1B	OGWEN	SH 602708	16	2	6	0	
1C	OGWEN	SH 602712	47	0	9	0	
1D	OGWEN	SH 602716	43	0	1	0	
1E	OGWEN	SH 606715	24	1	7		
MEAN			30	1.4	4.6	0	

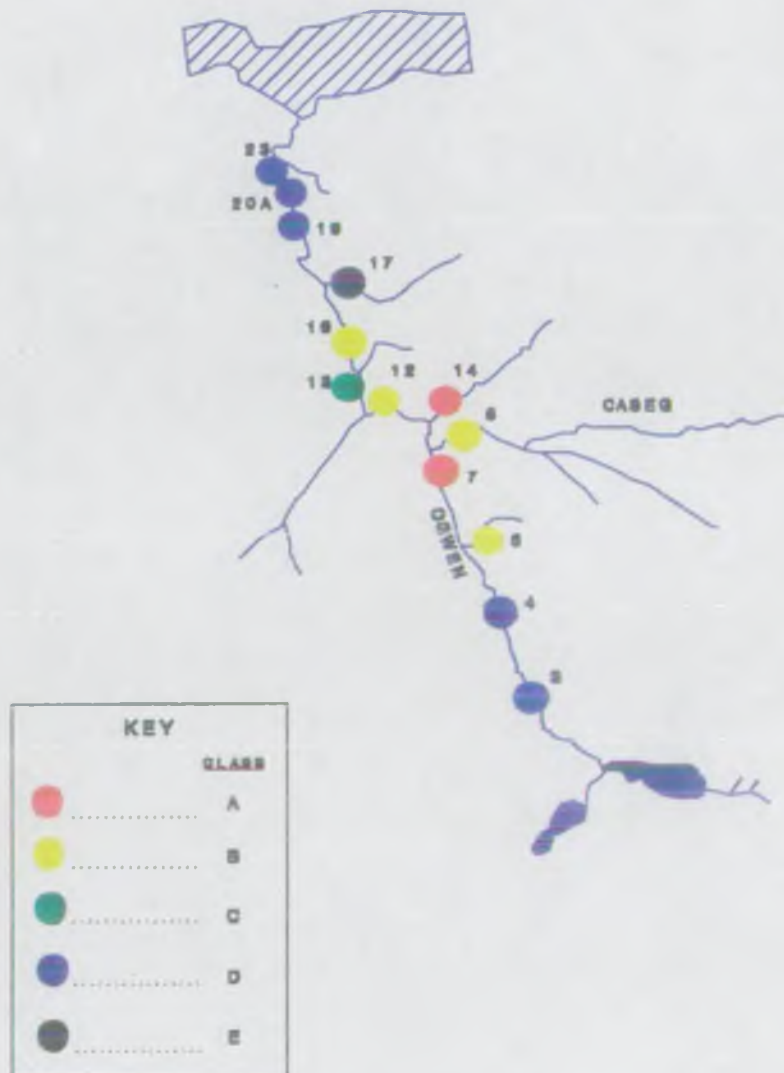
PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

RIVER OGWEN

SALMON DENSITIES

1991 SURVEY



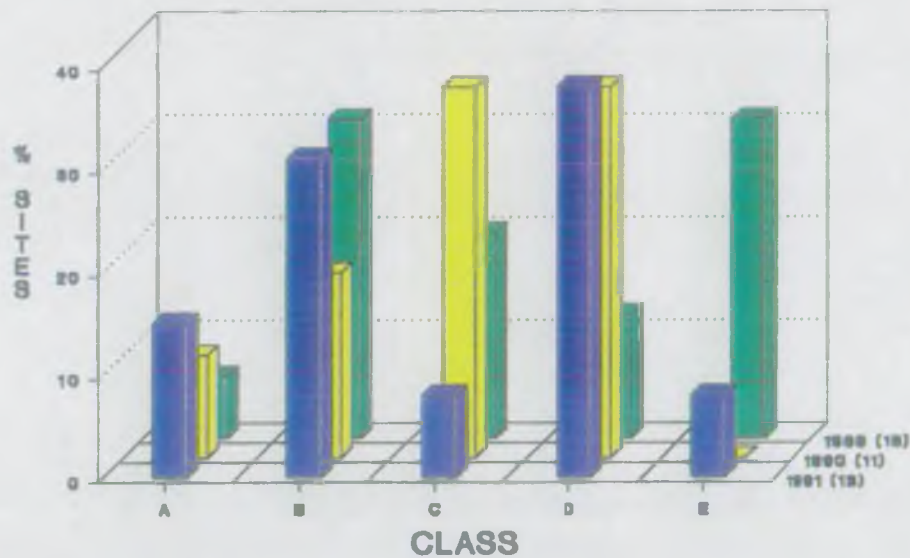
RIVER OGWEN

TROUT DENSITIES

1991 SURVEY

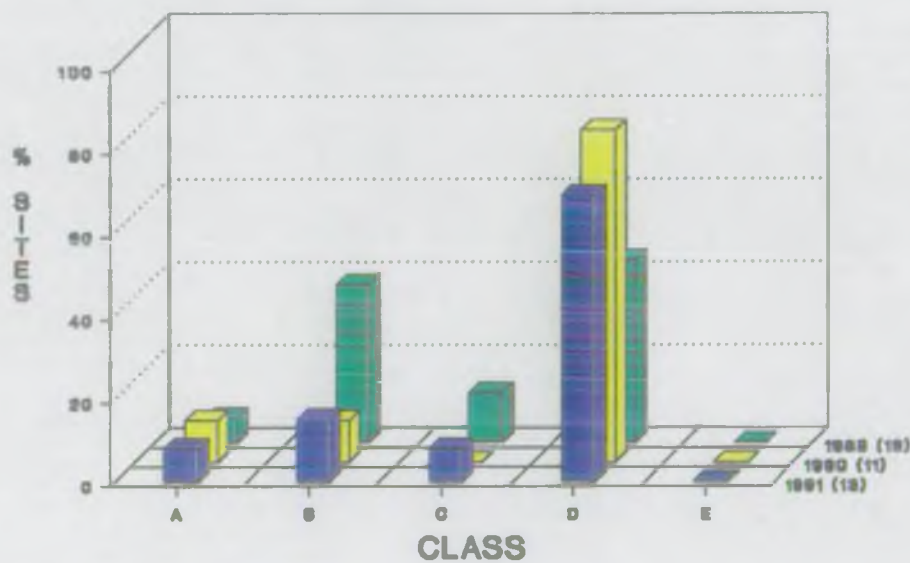


RIVER OGWEN - SALMON % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER OGWEN - TROUT % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.



RIVER MAWDDACH SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Predominantly upland pasture and moorland with extensive coniferous afforestation.

Water Quality - All A1
Metal pollution from ammunition dump on A.Gain, and from non-working gold mine on mid reaches of Mawddach.

Fishery Status - Average Catch: Rods: 251 Salmon 973 Sea Trout
(1984 - 1990) Nets: 14 Salmon 9 Sea Trout

2. Sampling Programme.

1990 - Extensive baseline survey of 46 semi-quantitative and 4 fry sites.

1991 - Routine sampling of 17 semi-quantitative and 5 quantitative sites.

3. Assessment of Status.

Number (Z) of sites in each category in 1991.

	A	B	C	D	E
Salmon	1 (5)	4 (18)	8 (36)	3 (14)	6 (27)
Trout	1 (5)	7 (32)	5 (22)	9 (41)	0 (0)

4. Key Points.

- 4.1 Comparison of inter year densities was confounded by changes in stocking regime, site selection and methodology.
- 4.2 In 1990 highest salmon densities were found on the Wnion (mean 0+, 20/100m² sites 30, 32 and 34). Mean fry densities were reduced to 3/100m² in 1991 although the high parr numbers indicated that recruitment and not water quality was the limiting factor. High fry densities at site 19 on the Eden resulted from previous stocking. In other stocked streams, the Clywedog sampling sites were downstream of the stocking area, although the moderate parr densities indicated that fish were surviving from the 1989 stocking. However, on the upper Mawddach, densities of stocked fish from all previous stockings were very low indicating potential water quality problems.
- 4.3 Trout fry and parr densities were generally similar in both years. However, the low numbers in the upper Mawddach confirmed suspicions of water quality problems as all 3 sites (6,7,9) had dropped by one class.
At other stocked sites, sea trout fry numbers on the Clywedog were low but good to excellent on the Wen.

FISHERIES MONITORING PROGRAMME

MAWDDACH

CATCHMENT SUMMARY

QUANTITATIVE

SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
19	EDEN	5.7	SH 702323	52.6	12.5	0	B	9.8	3.0	0.4	D	E,M
22	ABER	1.9	SH 705322	42.0	14.7	0	B	61.4	12.5	1.3	B	E
25+	WEN	3.3	SH 759263	0	0	0	E	27.1	36.5	4.9	A	
31+	WNION	5.7	SH 829242	43.7	25.7	0.8	A	18.6	5.5	0	C	
33	WNION	10.2	SH 798215	11.5	21.8	0	B	7.7	6.7	1.7	C	E
MEAN				30.0	14.9	0.2	B	24.9	12.8	1.7	C	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

MAWDDACH

CATCHMENT SUMMARY

SEMI-QUANTITATIVE SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1#	GAIN	3.9	SH 755355	0	0	0	E	16.7	4.2	0.6	B	
6#+	MAWDDACH	7.6	SH 786294	0	0	0	E	0.3	0	0	D	
7#+	MAWDDACH	9.8	SH 767291	5.6	2.5	0	C	0	0.4	0.4	D	E
9#	MAWDDACH	7.3	SH 795288	0.3	0	0	D	1.6	5.4	0.6	C	
11	MAWDDACH	14.6	SH 734251	1.1	0	0	D	2.3	0	0	D	
12	MAWDDACH	16.8	SH 729234	1.6	2.7	0	C	0.7	0.7	0	D	E
17#+	BABI	4.5	SH 748222	0	0	0	E	1.0	34.6	2.0	B	
18	EDEN	3.4	SH 697329	9.8	5.9	0	C	0	1.3	0	D	M
27+	WEN	7.0	SH 746245	0	0	0	E	18.2	10.4	0.3	B	E
30	WNION	4.0	SH 839253	4.4	21.7	0	B	8.3	15.6	0.6	B	E
32+	WNION	5.4	SH 815228	2.3	6.2	0	C	6.9	1.2	0	D	E
34	WNION	15.0	SH 772202	3.3	8.9	0	C	2.4	1.6	0.4	D	
37	EIDDON	5.9	SH 804223	0	0	0	E	6.8	18.8	1.5	B	E, ST
39+	MELAU	5.3	SH 797217	13.0	0.4	0	C	5.5	7.6	0.4	C	E
40A	WNION	12.0	SH 755197	6.5	9.8	0	C	0.7	1.3	0.2	D	
44#+	CLYWEDOG	7.7	SH 761180	0	8.1	0	D	2.3	0.6	3.8	C	
45#+	CLYWEDOG	6.9	SH 767166	3.6	4.4	0	C	0.7	7.3	5.8	B	
MEAN				3.0	4.2	0	C	4.4	6.5	1.0	C	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

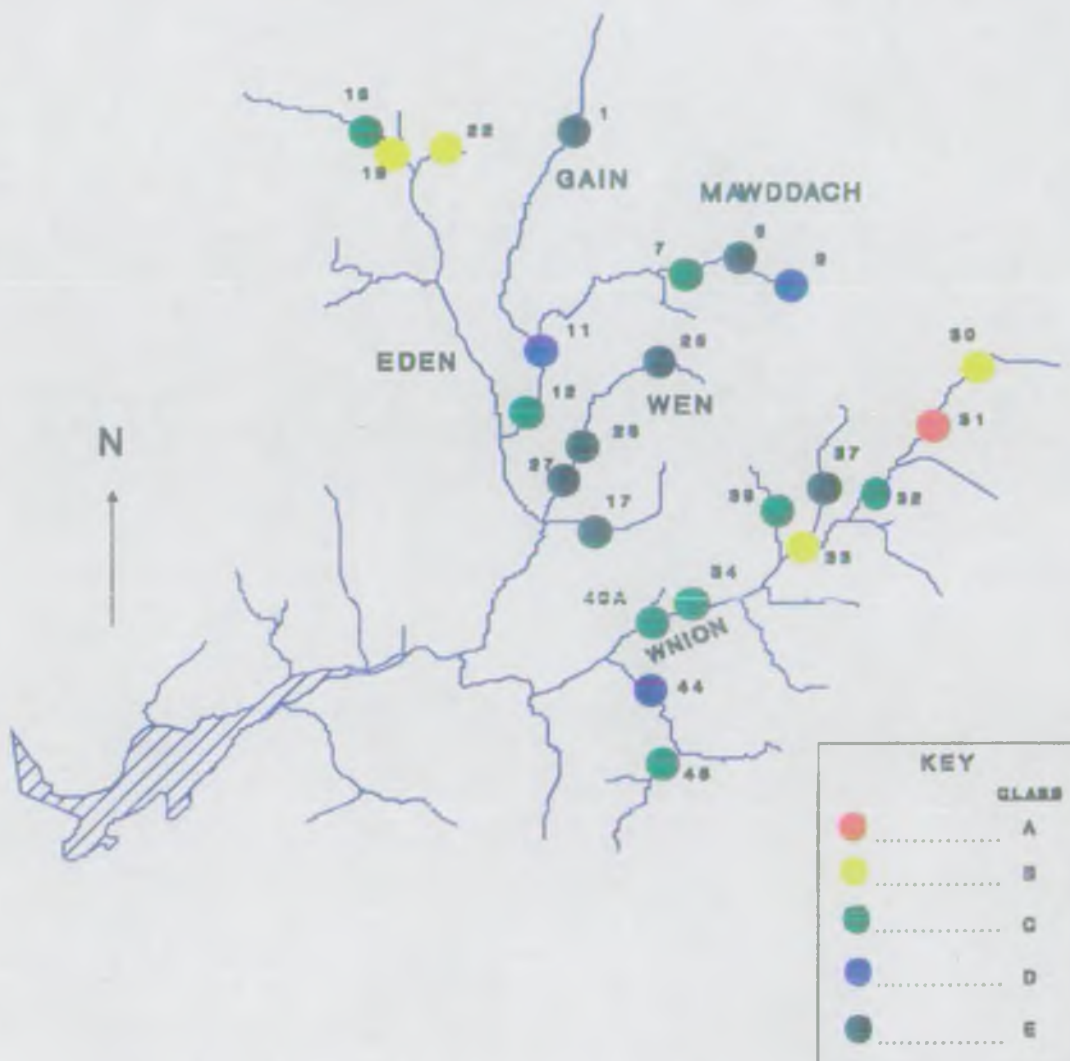
* MINIMUM ESTIMATE

+ STOCKED SITE

RIVER MAWDDACH

SALMON DENSITIES

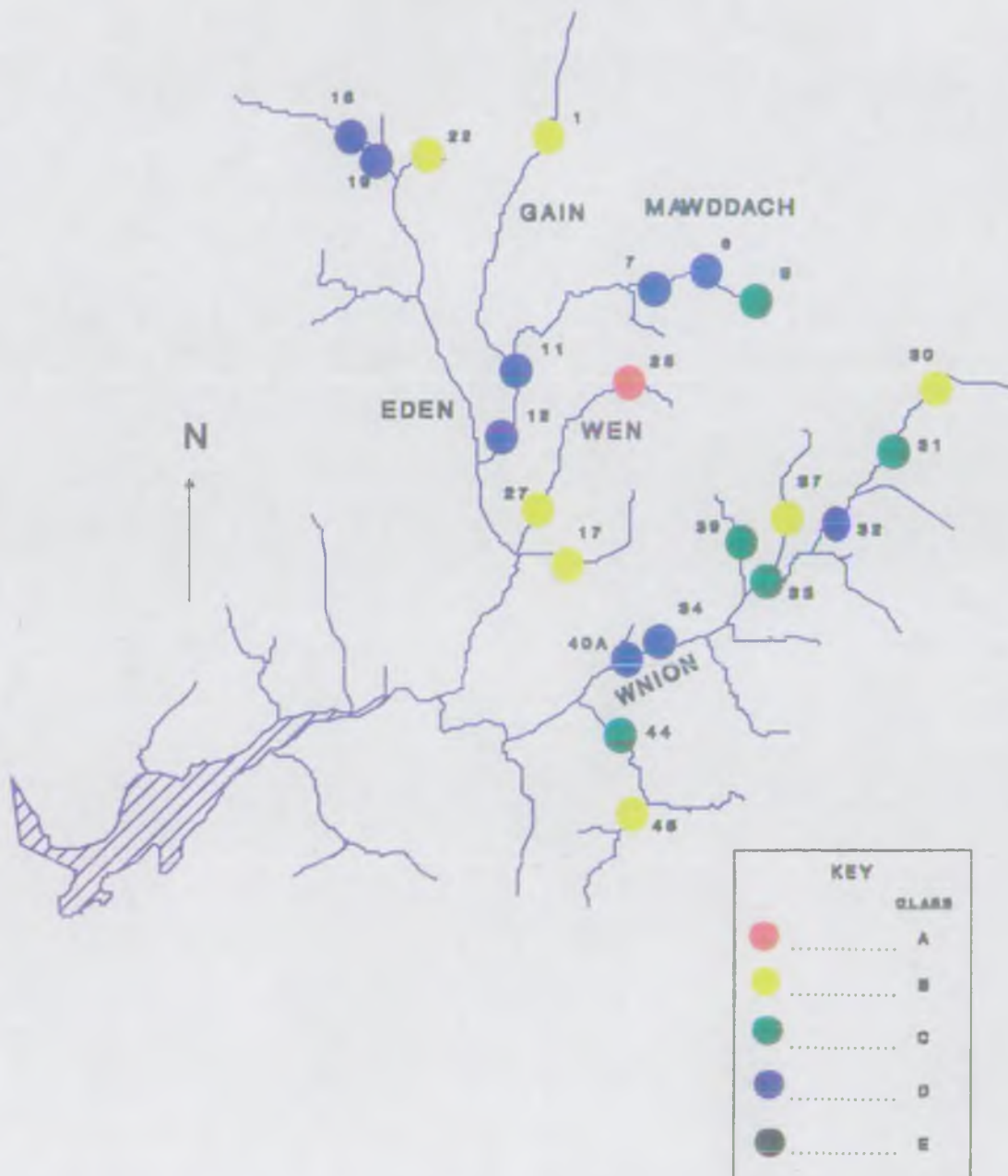
1991 SURVEY



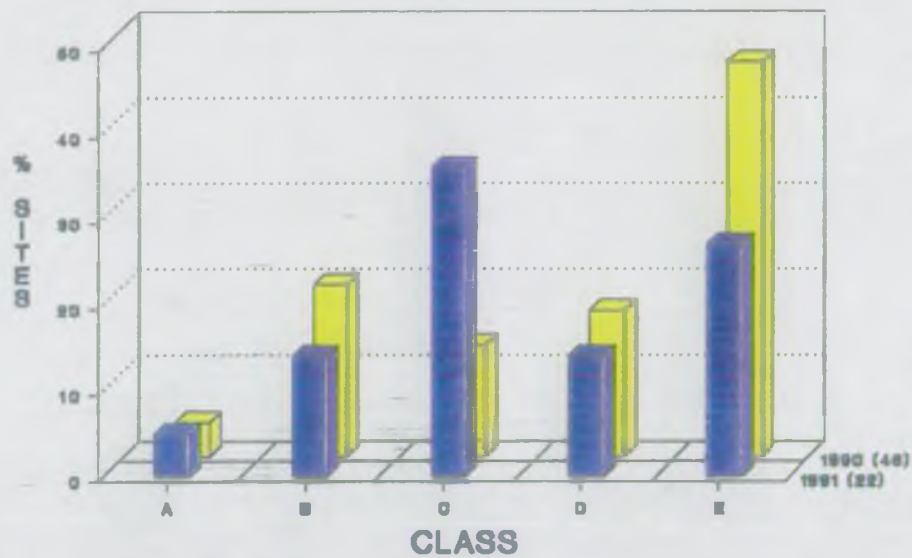
RIVER MAWDDACH

TROUT DENSITIES

1991 SURVEY

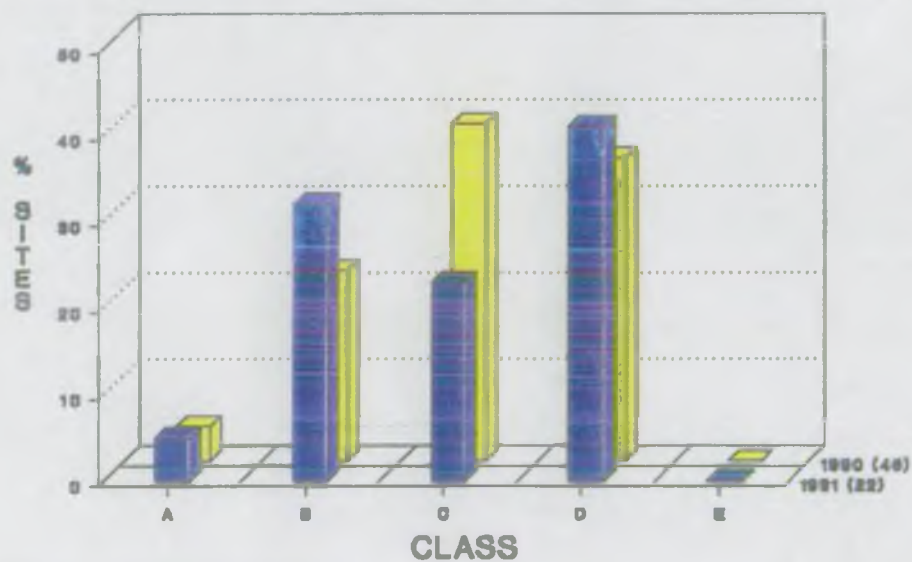


RIVER MAWDDACH - SALMON % OF SITES IN EACH CATEGORY.

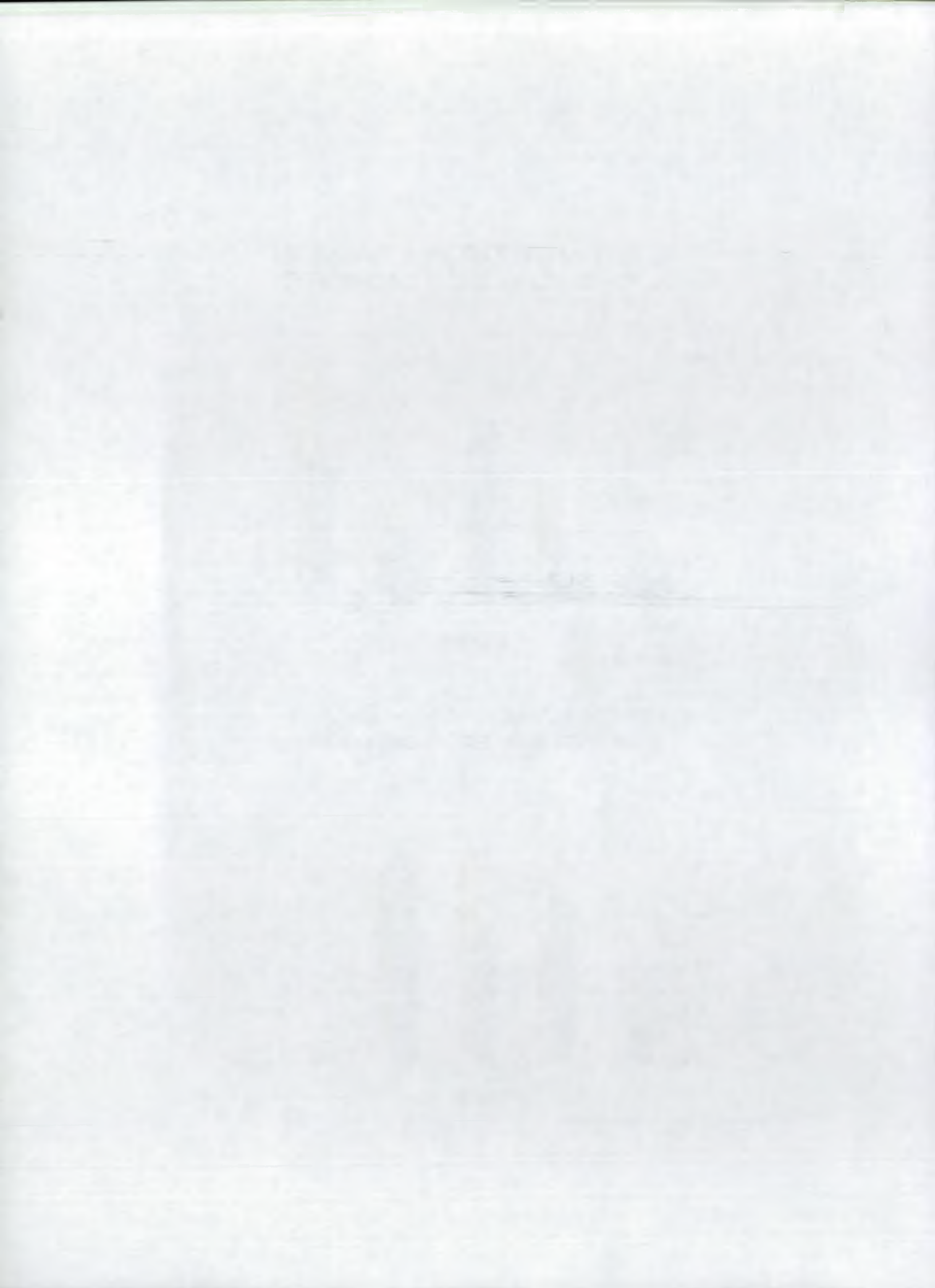


FIGURES IN () DENOTE NO. OF SITES.

RIVER MAWDDACH - TROUT % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.



RIVER SEIONT SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Rocky, mountainous terrain, sheep grazing and disused slate quarries in upper to mid catchment, improved grazing in lower reaches. CEGB pumped storage scheme requires Nant Peris flows to by-pass upper lake via a 2km tunnel.

Water Quality - Main river Seiont 1A, Claedffrwd 1B.

Fishery Status - Average Catch: Rods: 101 Salmon 289 Sea Trout
(1984 - 1990) Nets: 190 Salmon 180 Sea Trout

2. Sampling Programme.

1989 - baseline survey of 19 semi-quantitative sites.
1990 - 8 semi-quantitative and 3 quantitative sites.
1991 - routine sampling of 8 semi-quantitative and 3 quantitative sites.

3. Assessment of Status.

Number (%) of sites in each category in 1991.

	A	B	C	D	E
Salmon	4 (37)	3 (27)	2 (18)	1 (9)	1 (9)
Trout	0 (0)	3 (27)	2 (18)	6 (55)	0 (0)

4. Key Points.

- 4.1 Of the 5 sites finished in consecutive years, mean salmon classification was unchanged at moderate in spite of an increase in mean fry densities from 5 to 15/100m².
Fry and parr densities at quantitative sites were considerably higher than 1990, raising mean classification from B to A. Parr densities at 4 sites (5,7,9 and 11) were considerably higher than those recorded on other catchments on N. Wales.
- 4.2 Trout populations were generally similar between years although low fry densities on the Gafr reduced the classification from A to C.
- 4.3 Salmon numbers continued to improve in the middle reaches affected by pollution in 1989 with site 16 increasing from class C to B.

FISHERIES MONITORING PROGRAMME

SEIONT		CATCHMENT SUMMARY						QUANTITATIVE				SITE
NUMBER OF FISH PER 100M 2												
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
5	GAFR	3.9	SH 605584	39.0	45.2	0	A	12.5	13.0	0.6	C	E
7	HWCH	8.8	SH 584599	262.3	46.5	0	A	46.2	0.8	0	C	E
11	CALEDFFRWD	3.9	SH 560629	395.4	18.7	0	A	54.7	4.8	0	B	
MEAN				232.3	36.8	0	A	37.8	6.2	0.2	B	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

SEIONT

CATCHMENT SUMMARY

SEMI-QUANTITATIVE

SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
3	NANT PERIS	6.5	SH 610578	5.6	8.4	0.5	C	0.5	0	0	D	E
9	GOCH	2.7	SH 578600	31.0	24.2	0.8	A	12.9	1.5	0.8	B	E
13	SEIONT	30.0	SH 543638	8.5	1.5	0.2	D	1.9	0.2	0.7	D	E
15	SEIONT	17.6	SH 533643	15.0	1.7	0	C	2.0	0.2	0.6	D	E
16	SEIONT	6.3	SH 525642	27.2	0.8	0	B	0.4	1.5	0	D	E
17	GLYN	1.0	SH 524642	0	0	0	E	20.0	4.0	0	B	E
19	SEIONT	7.7	SH 513632	27.8	0.3	0	B	3.6	0	0	D	E
24	SEIONT	11.1	SH 499623	19.7	7.0	0	B	3.7	1.0	0	D	E
MEAN				16.9	5.5	0.2	C	5.6	1.1	0.3	D	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

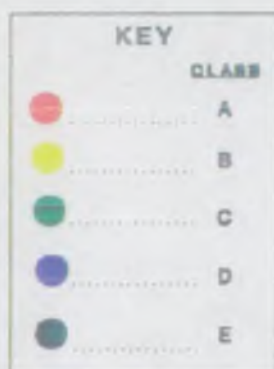
RIVER SEIONT SALMON DENSITIES 1991 SURVEY



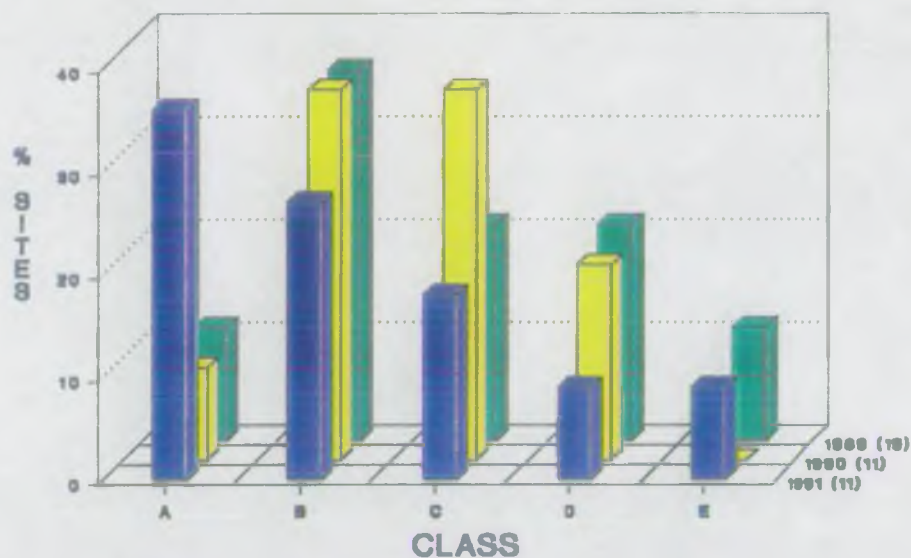
KEY	
	CLASS
●	A
●	B
●	C
●	D
●	E

RIVER SEIONT TROUT DENSITIES

1991 SURVEY

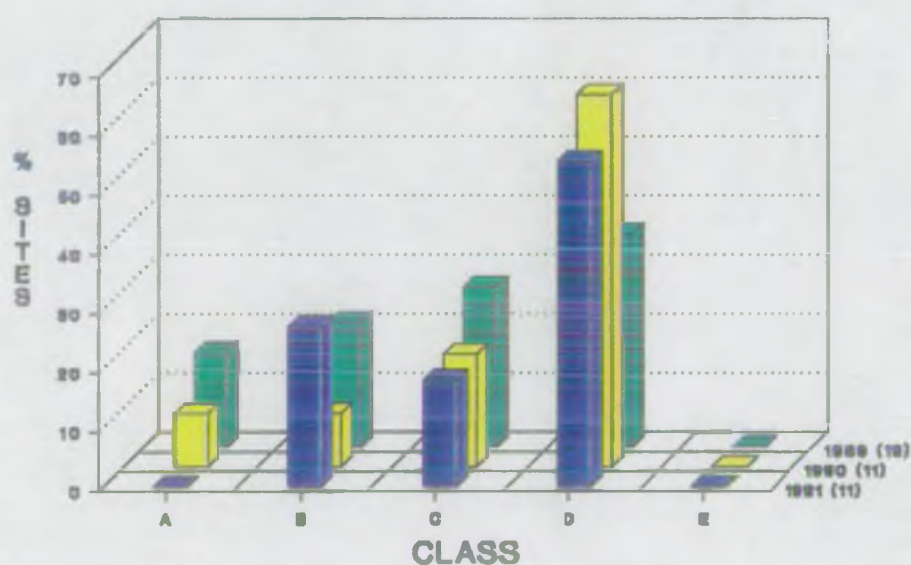


RIVER SEIONT - SALMON % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER SEIONT - TROUT % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

APPENDIX 4

SOUTH EASTERN DIVISION

CATCHMENT SUMMARIES.

RIVER WYE SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - A large catchment with land use ranging from hill sheep pastures and forestry to intensive lowland pastoral and arable farming. Little urban and industrial development.

Water Quality - With the exception of a small number of lowland sub-catchments affected by agricultural activities and small scale sewage works, water quality is excellent, class 1A or 1B.

Fishery Status - The most important salmon river south of the Scottish Border.

Average Catch:
1984-1990 3393 Salmon 44 Sea Trout

2. Sampling Programme.

1986 - 15 quantitative and 102 semi-quantitative sites.
1987 - 23 quantitative and 46 semi-quantitative sites.
1988 - 23 quantitative and 41 semi-quantitative sites.
1989 - 16 quantitative and 52 semi-quantitative sites, plus 8 5 minute samples.
1990 - 14 quantitative and 52 semi-quantitative sites, plus 13 5 minute samples.
1991 - 15 quantitative and 73 semi-quantitative sites, plus 13 5 minute samples.

3. Assessment of Status.

Number (Z) of sites in each category in 1991.

	A	B	C	D	E
Salmon	8 (9)	10 (11)	8 (9)	13 (15)	49 (56)*
Trout	2 (2)	12 (14)	20 (23)	43 (48)	11 (13)

* Includes 16 sites (18%) inaccessible to migratory fish.

4. Key Points.

- 4.1 Several additional sites were included in the semi-quantitative survey to compensate for a perceived bias towards salmon spawning areas in the monitoring programme. These new sites were generally in small side streams which might be expected to support juvenile host populations.
- 4.2 Mean salmon fry densities were somewhat lower than 1990 in both quantitative and semi quantitative surveys. In the semi-quantitative survey this can be partly attributed to the addition of new sites as described above which has the effect of reducing average densities of salmon. Comparison of common sites therefore shows a much smaller reduction but in general there remains an overall downwards trend.

- 4.3 Mean Salmon par densities showed a slight increase in the quantitative sites but a decrease in the semi-quantitative survey. Again the overall trend appears to be slightly downwards.
- 4.4 Only 20% of sites were in classes A and B in 1991 compared to 29% in 1990. Again this is largely explained by changes in the programme as comparison of common sites indicates identical proportions to be classes A and B in both years.
- 4.5 Salmon were initially absent from the Lugg catchment. Fry were found at two sites, on the lower Frome and at one 5 minute main river sampling sites. Spawning in the main river below Leominster appears to have been less successful than in 1990, when small numbers were found at all 5 sites.
- 4.6 Mean trout densities were not significantly different to previous years although proportionately more sites were in categories A and B compared to 1990. The majority of the additional side stream sites were found to support good trout populations, particularly fry.
- 4.7 Individual sites causing concern are the upper Irfon; which remains poor, together with the Nant Gwesyn, which has shown a decline compared to previous years; the Llynfi at Ponithel and the Cwyffiad both of which have declined over the past two years.

FISHERIES MONITORING PROGRAMME

CATCHMENT SUMMARY				QUANTITATIVE				SITE				
NUMBER OF FISH PER 100M 2												
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	DERNOL	3.1	SN 904752	35.0	33.4	0	A	26.3	13.8	0	B	B
3	LLANWRTHWL BK	3.4	SN 974637	35.7	4.9	0	C	71.5	10.3	0.7	B	B,L
4	ITHON	12.3	SO 105681	65.3	0	0	C	0	0	0	E	B,M,St
5	CLYWEDOG	6.5	SO 085651	74.6	10.2	0	B	1.5	0.7	0.4	D	B,L,M,St
7	SOUTH DULAS	7.5	SN 918468	86.4	2.7	0	B	1.5	2.1	0	D	B,E,L,M,St
8	GARTH DULAS	7.6	SN 947497	262.0	10.5	0	A	1.9	0	0	D	B,L,M,St
10	DUHONW	7.2	SO 063509	158.0	5.1	0	A	0.5*	2.5	1.7	D	B,E,L,M,St
11	EDW	10.1	SO 110487	143.5	11.7	0	A	3.6	2.3	1.3	D	B,Cr
13	LLYNFI	7.4	SO 163364	14.5	0.8	0	D	0	0	0	E	B,E,M,,Cr,St
14	LUGG	3.0	SO 237685	0	0	0	E	19.1	6.4	3.6	C	B
16	HINDWELL#	6.6	SO 280607	0	0	0	E	4.4	6.2	3.6	C	B
17	ARROW #	6.6	SO 334587	0	0	0	E	2.7	2.9	1.4	C	B,E,M,St
19	MONNOW #	4.4	SO 310317	0	0	0	E	3.5	2.5	2.5	D	B,Cr
20	HONDDU #	8.4	SO 289273	0	0	0	E	6.1	4.1	2.5	C	B,E
22	DORE #	4.4	SO 354371	0	0	0	E	5.8	0.5	0.9	B,Gr	
MEAN				58.3	5.3	0	B	9.9	3.6	1.1	D	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

WYE		CATCHMENT SUMMARY						SEMI-QUANTITATIVE				SITE
NUMBER OF FISH PER 100M 2												
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
24	WYE	6.1	SN 842826	17.7	0	0	D	0	0.3	0	D	
24A	WYE	11.2	SN 853820	7.6	0	0	D	1.1	0	0	D	M
25	WYE	12.5	SN 877804	12.5	0.3	0	C	0.8	0.3	0	D	M
26	WYE	12.0	SN 909797	20.1	1.3	0	C	0.4	0.2	0	D	E,M
27	WYE	17.1	SN 921738	38.1	5.1	0	B	2.5	0.4	0	D	E,M,St
27A	WYE	12.4	SN 965685	25.8	0.8	0	B	2.5	0.4	0	D	B,St
27B	WYE	20.6	SN 969677	83.6	3.0	0	A	2.4	0	0	D	B,M,St
25A	TROEDYRESGAIR	2.8	SN 885796	0	0.5	0	D	3.2	3.2	0.5	C	
25B	CLOCHFAEN	1.8	SN 904793	0	0	0	E	29.1	2.2	1.1	B	B
28	BIDNO	4.4	SN 873823	0	0	0	E	0.5	1.4	0	D	
29	BIDNO	3.8	SN 891810	0	0	0	E	1.6	4.3	0.5	C	
29A	PENYFOEL	1.1	SN 891810	0	2.0	0	D	20.4	2.0	0	C	
2	MARTEG	7.3	SN 957714	40.9	3.8	0	B	0.9	0.3	0	D	B,L,M,St
30	MARTEG	3.6	SO 003755	5.0	1.2	0	D	11.0	1.2	0.6	C	B,L,M
30A	MARCHENI FAWR	2.8	SN 943743	0	0	0	E	0	0	0.7	D	
30B	MARCHENI FAWR	3.5	SN 966724	0.6	1.7	0	D	13.0	4.0	1.7	B	B,L
31	HIRIN #	4.5	SN 888723	0	0	0	E	3.5	0.6	0	D	
65	ELAN	23.9	SN 956668	27.5	1.8	0	B	0.7	0.2	0	D	
32	ITHON	11.0	SO 098776	74.2	2.4	0	A	0	0	0	E	B,E,M,St
32A	CAMDDWR	3.2	SO 136745	0	0	0	E	1.0	2.6	0.5	C	B,M,St
32B	GWENLAS	1.9	SO 100795	0	0	0	E	10.7	2.1	0	C	B
33	ARAN	3.5	SO 156710	42.7	0	0	C	0.5	1.0	1.0	D	B,M,St
34	CLYWEDOG	4.5	SO 069710	2.8	2.3	0	C	1.7	1.1	0	D	B,M,St
34A	FFRWD-WEN	3.1	SO 069738	0	1.7	0	D	9.8	2.3	0.6	C	B,M,St
MEAN												

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

WYE		CATCHMENT SUMMARY						SEMI-QUANTITATIVE				SITE
NUMBER OF FISH PER 100M 2												
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
10A	DUHONW	3.9	SN 996472	0	0	0	E	13.8	2.3	5.2	B	B
35	DULAS	2.5	SO 033661	6.7	0	0	D	5.5	0	0	D	B,St
36	HIRNANT	3.4	SN 999569	43.0	0.9	0	B	0.9	5.3	0	C	B
37	IRFON	8.7	SN 853526	0	0	0	E	0.4	0.4	0	D	
39	IRFON	12.4	SN 872469	0.8	0.6	0	D	0.4	0.6	0	D	B,M
38	GWESYN	4.0	SN 855526	0	0	0	E	1.0	0.5	0	D	
41	CLEDAN	6.7	SN 880415	10.3	4.0	0	B	0	0	0	E	B,M,St
7A	SOUTH DULAS	5.8	SN 880415	79.7	16.2	0	A	0	0.5	0	D	B,M,St
43B	CAMMARCH	12.1	SN 919515	58.2	4.4	0	A	3.3	0.3	0	D	B,L,St
43C	CAMMARCH	7.0	SN 905537	16.1	7.5	0	B	5.8	0.4	0	D	B
44	CNYFFIAD	3.8	SN 907523	16.2	1.3	0	C	0	0	0	E	B,L,Rt
44A	GWYNFEL	2.8	SN 930538	0	0	0	E	0	12.0	3.4	C	B
9	CHWEFRU	5.5	SN 976552	9.5	5.2	0	C	7.7	2.6	0	C	B
9E	NANT-YR-ESGOB	2.1	SN 975550	0	0	0	E	56.6	4.7	2.4	A	B
46	EDW	6.5	SO 124532	42.5	1.0	0	B	1.5	0.5	1.0	D	B,M,St
46A	RHULEN BROOK	2.2	SO 137499	0	0	0	E	4.3	12.8	4.3	B	
46B	GLAS BROOK	3.0	SO 141519	0	0	0	E	9.2	4.6	6.6	B	B
47	LLYNFI	3.8	SO 133305	0	0	0	E	0	0.7	2.2	D	B,E,M,P
48	TRIFFWD	4.2	SO 126345	7.6	0	0	D	1.5	0	1.9	D	B,E,M
49	LUGG	6.4	SO 309651	0	0	0	E	19.5	1.3	2.8	B	B
49C	LUGG	5.7	SO 426655	0	0	0	E	0	0	1.0	D	B,M,Cr
14B	NANTCASCOD	2.5	SO 242664	0	0	0	E	7.5	16.1	9.6	B	B,L

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

WYE

CATCHMENT SUMMARY

SEMI-QUANTITATIVE

SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
16A	HINDWELL	7.2	SO 320629	0	0	0	E	0	0.4	1.1	D	B,L,M
50	MORTON BROOK	2.0	SO 308663	0	0	0	E	0	0	0	E	
51	LINGEN BROOK	1.4	SO 366687	0	0	0	E	0	0	0	E	
52	ARROW	4.1	SO 217507	0	0	0	E	0.8	2.3	10.0	B	B,E
53	ARROW	9.5	SO 392584	0	0	0	E	0.9	0.3	0.9	D	B,E,M,St
53A	ARROW	7.0	SO 374596	0	0	0	E	0.3	0	0	D	B,M,L,St
53C	GLASNANT BROOK	2.7	SO 190517	0	0	0	E	11.3	1.9	0.9	B	B,Cr
53D	GLADESTRY BROOK	4.0	SO 244547	0	0	0	E	1.5	2.1	3.2	C	B,E
53B	PINSLEY BROOK	4.1	SO 451605	0	0	0	E	1.9	1.4	3.8	C	B
64	FROME	8.0	SO 600421	0	0	0	E	0	0	0	E	D,M,P,St
64A	FROME	2.6	SO 657518	0	0	0	E	0	0	0	E	S
64B +	FROME	4.0	SO 669571	4.5	0	0	D	0	0	0	S	
64C	LODON	3.0	SO 624433	0	0	0	E	0	0	1.1	D	B,D,E,M,St
64D	LODON	2.6	SO 606544	0	0	0	E	0	0	0	E	B
64E	HACKLEY BROOK	1.9	SO 633534	0	0	0	E	5.6	0	0	D	B,S,St
55	MONNOW #	1.8	SO 295343	0	0	0	E	1.2	3.0	4.3	C	B,Cr
56	MONNOW #	8.8	SO 326274	0	0	0	E	1.3	0	3.6	C	B,E,St
57	HONDDU #	6.1	SO 277295	0	0	0	E	0	5.9	3.1	D	B
58	HONDDU #	9.5	SO 312211	0	0	0	E	0.2	2.9	2.5	C	B,E
21	HONDDU #	7.1	SO 335227	0	0	0	E	0	0.9	5.4	D	B,E,Gr,L,Rt,St
57A	NANT BWCH #	5.4	SO 245320	0	0	0	E	2.9	9.1	0.5	C	B
59	OLCHON #	4.4	SO 312297	0	0	0	E	1.5	5.3	5.3	B	B,E
60	DORE #	3.6	SO 341390	0	0	0	E	0.9	0.9	0	D	E
61	DORE #	5.9	SO 397285	0	0	0	E	0	0	0.6	D	E,M,Gr
60A	CHANSTONE BROOK #	2.2	SO 345357	0	0	0	E	28.2	2.9	4.7	A	B,E
62	TROTHY	6.4	SO 399146	0	0	0	E	0	0	3.2	D	B,L,St
63	TROTHY	9.8	SO 507116	0	0.5	0	D	0	0	0.3	D	B,E,D,Gr,Gu M,St,L
MEAN				11.5	1.0	0	C	4.3	2.2	1.7	C	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

FISHERIES MONITORING PROGRAMME

WYE CATCHMENT SUMMARY

5 MINUTE FRY SITES

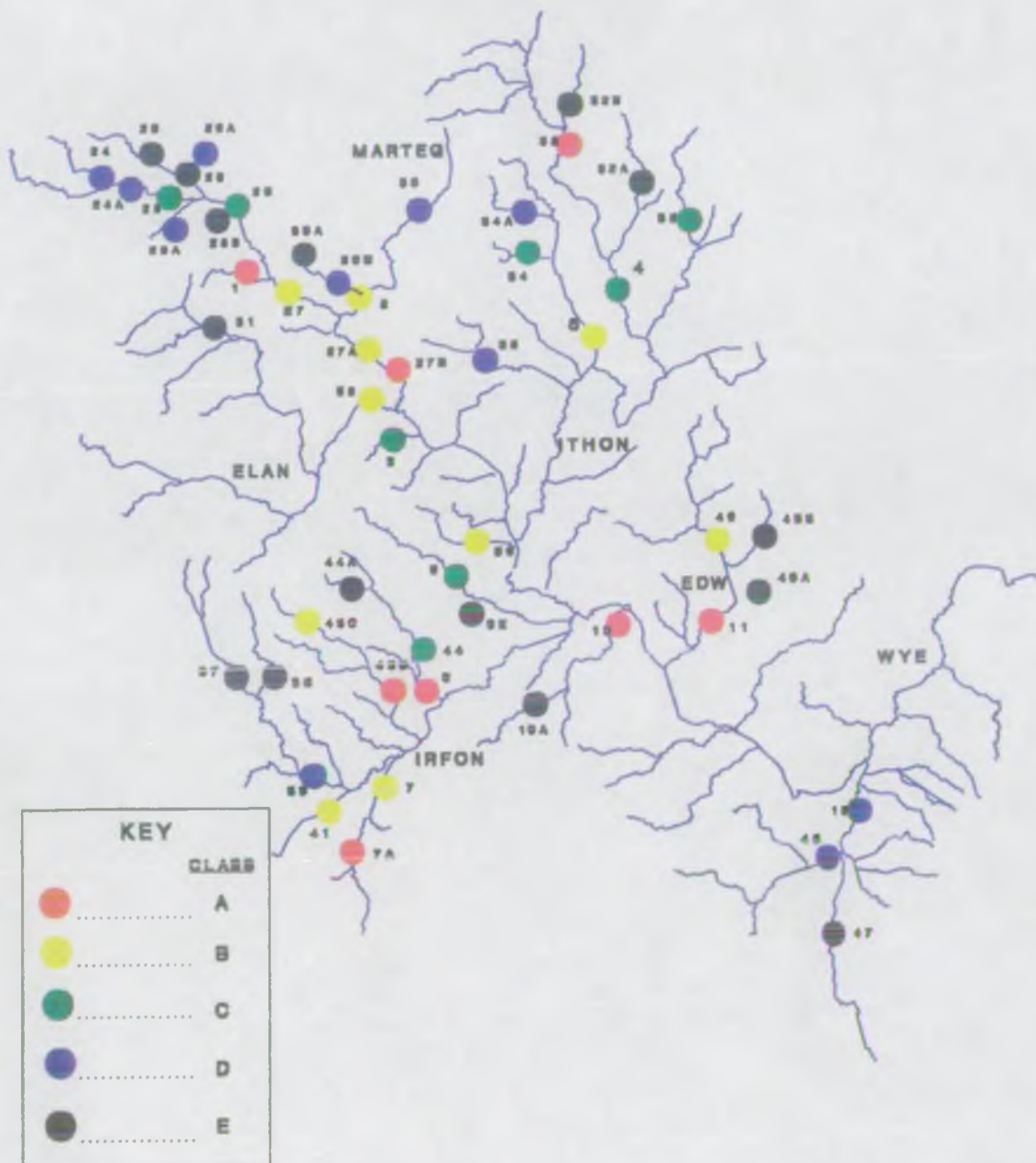
NUMBER OF FISH PER 100M²

SITE NO.	RIVER	O.S. MAP REFERENCE	SALMON		TROUT		OTHER SPECIES
			0+	>1+	0+	>1+	
	WYE	SN 991628	54	0	0	0	
	WYE	SO 014583	115	0	0	0	
	WYE	SO 148518	49	0	0	0	
	WYE	SO 074449	5	0	0	0	
	WYE	SO 170389	38	0	0	0	
	WYE	SO 228427	33	0	0	0	
	WYE	SO 278461	8	0	0	0	
	WYE	SO 318463	1	0	0	0	
	LUGG	SO 494599	0	0	0	0	
	LUGG	SO 501596	0	0	1	0	
	LUGG	SO 535512	8	0	0	0	
	LUGG	SO 529447	0	0	0	0	
	LUGG	SO 547407	0	0	0	0	
		MEAN	24	0	0	0	

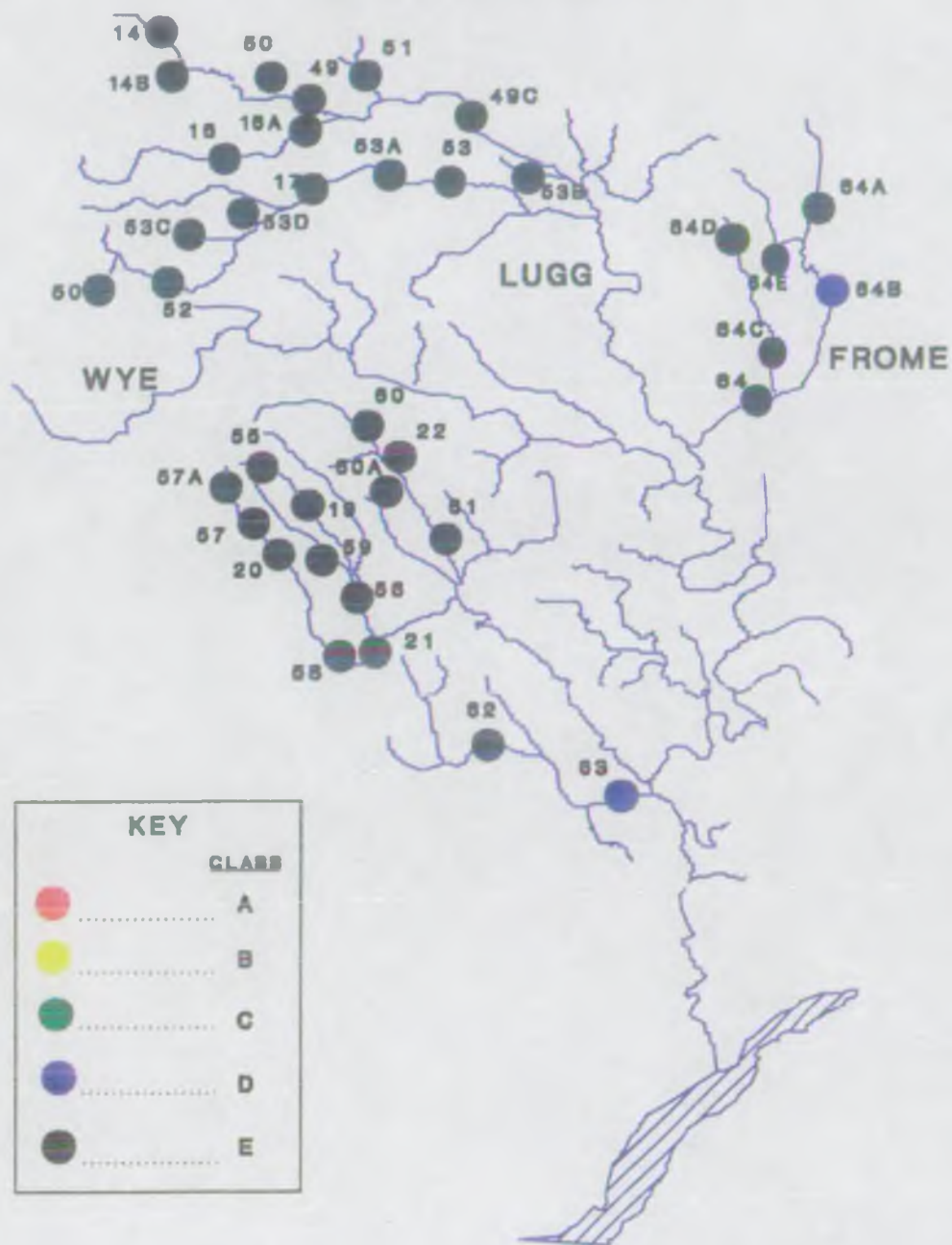
PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

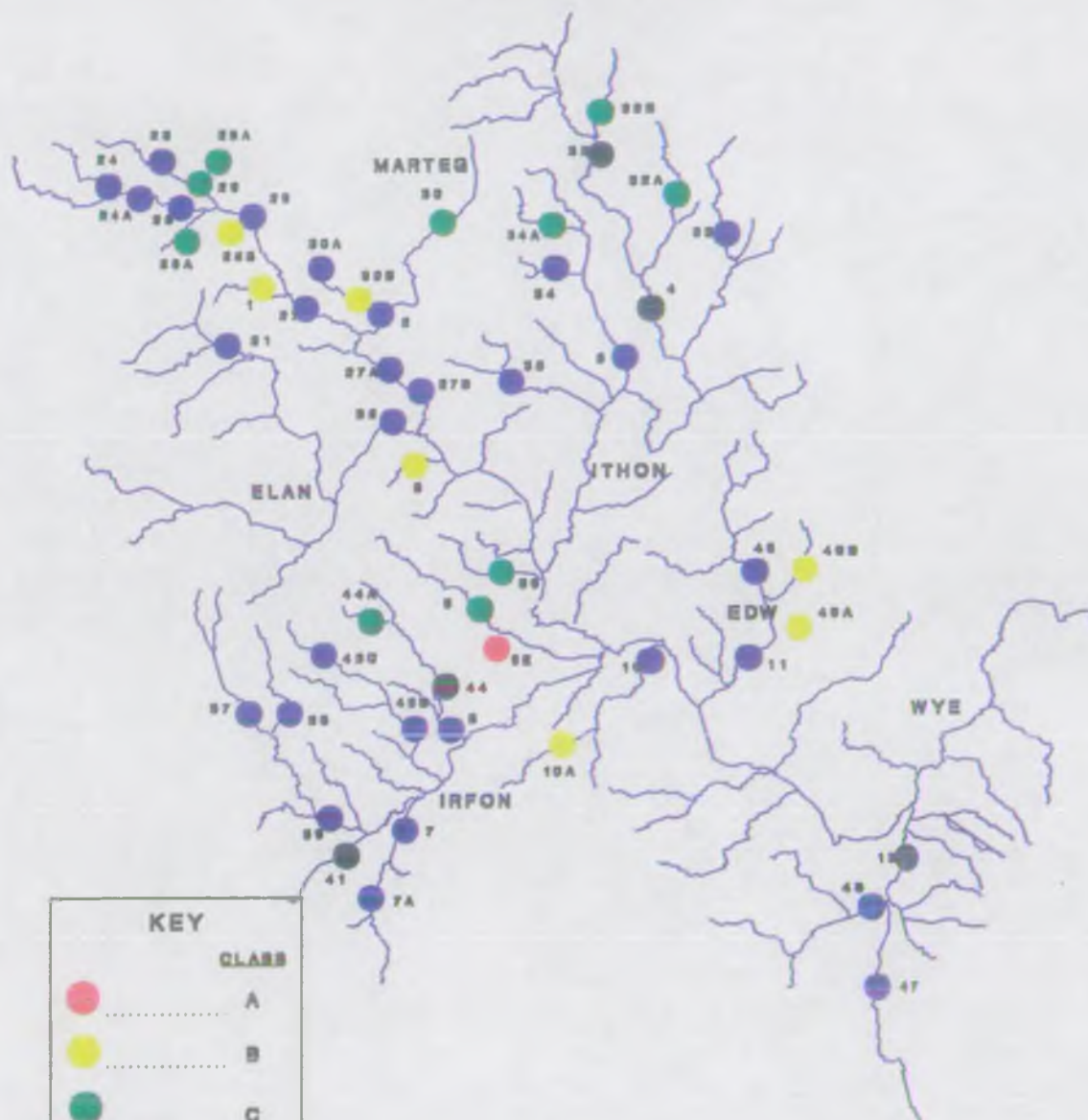
UPPER RIVER WYE SALMON DENSITIES 1991 SURVEY



LOWER RIVER WYE SALMON DENSITIES 1991 SURVEY

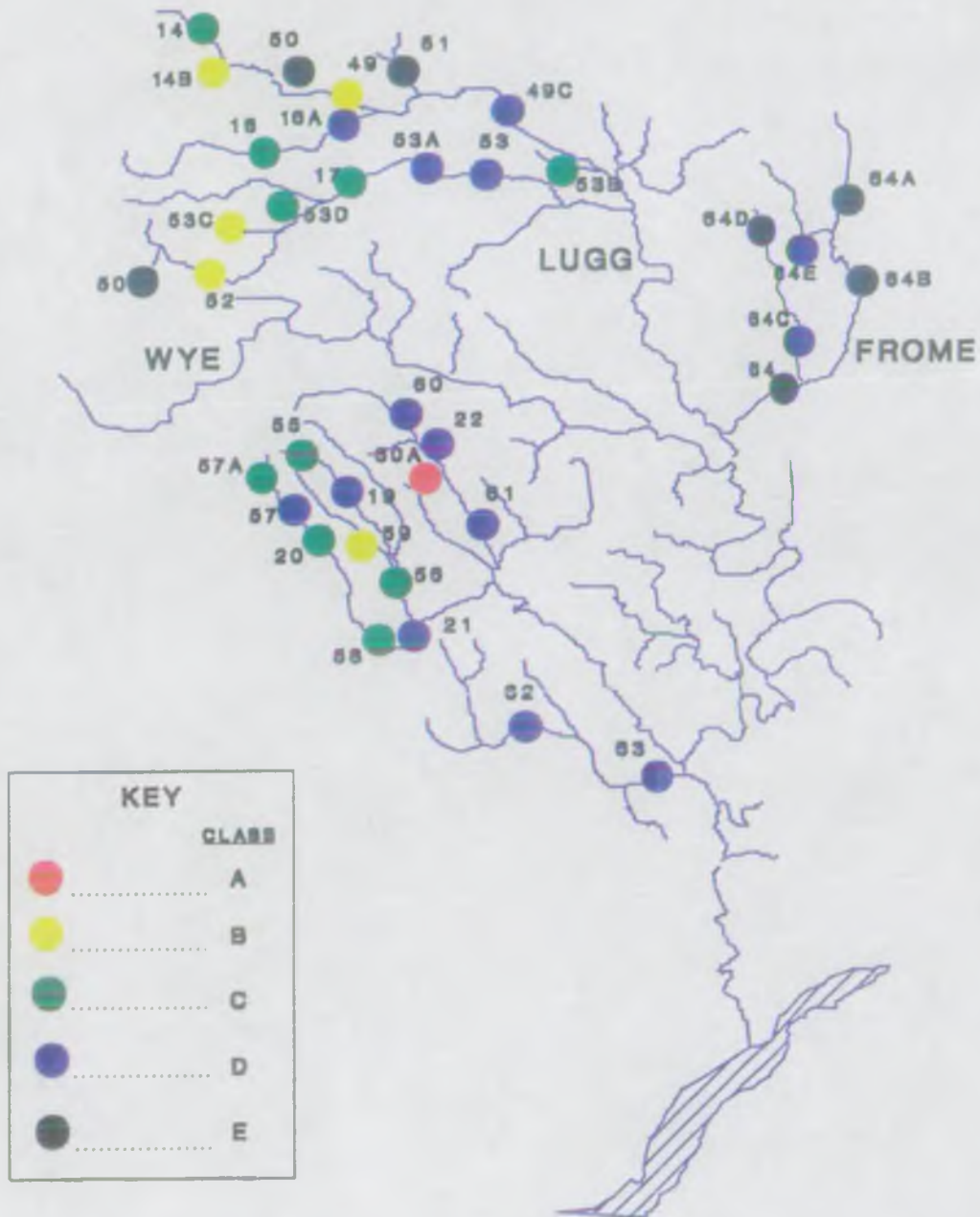


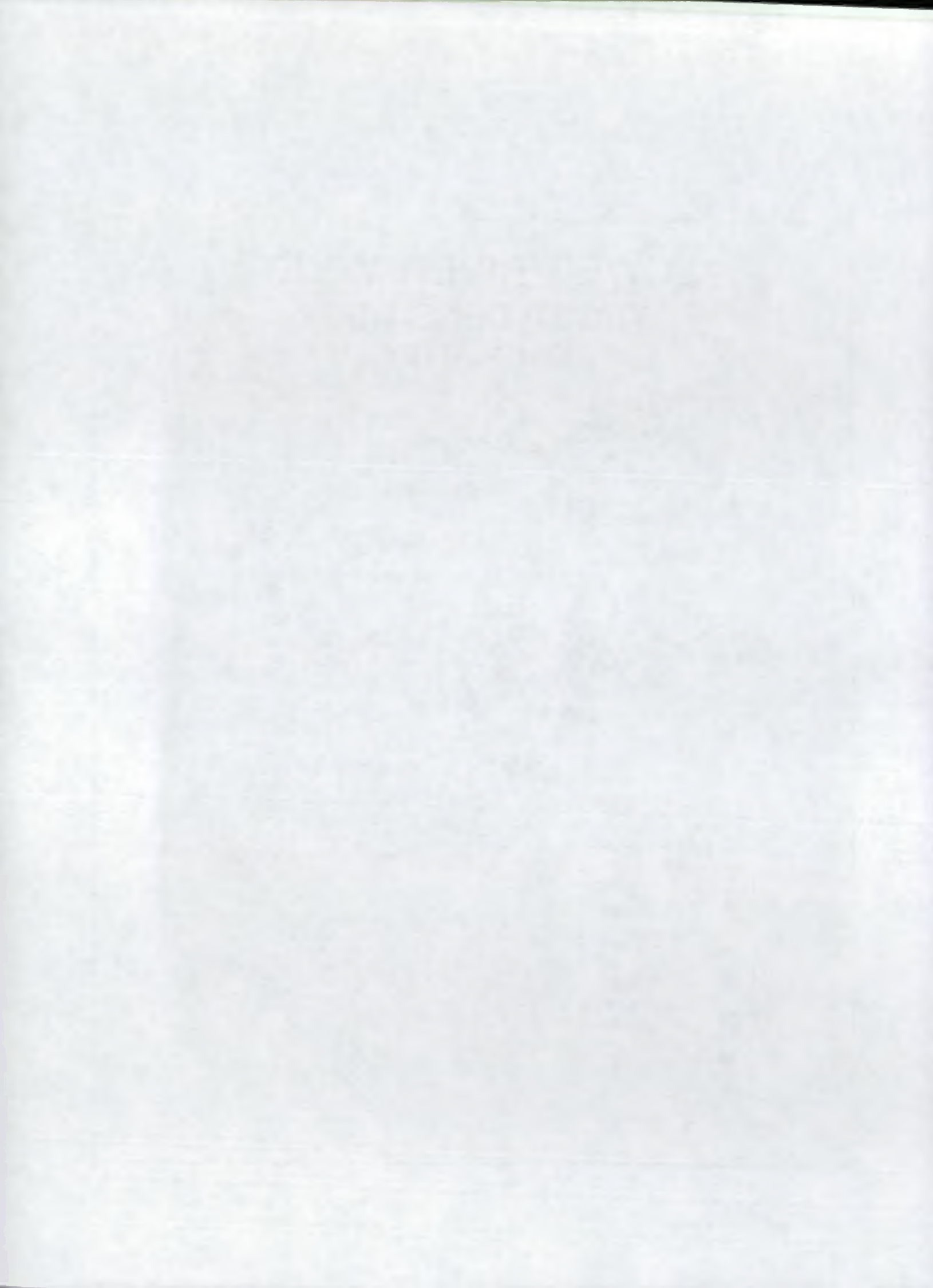
UPPER RIVER WYE TROUT DENSITIES 1991 SURVEY



KEY	
	CLASS
●	A
●	B
●	C
●	D
●	E

LOWER RIVER WYE TROUT DENSITIES 1991 SURVEY





RIVER USK SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Principally pastoral farming some arable. Several small market towns but little large development or industry except at Newport on the estuary.

Water Quality - Excellent water quality throughout the catchment; class 1A or 1B except for some tributaries in the lower catchment.

Fishery Status - The most important river trout fishery in Wales and also an important salmon fishery.

Average Catch: Rods 597 Salmon 57 Sea Trout
1984-1990 Nets 1543 Salmon 52 Sea Trout

2. Sampling Programme.

1986 - 40 semi-quantitative sites.
1987 - 13 quantitative and 23 semi-quantitative sites.
1988 - 13 quantitative and 19 semi-quantitative sites.
1989 - 12 quantitative and 27 semi-quantitative sites, plus 12 5 minute samples.
1990 - 14 quantitative and 20 semi quantitative sites, plus 8 5 minute samples.
1991 - 13 quantitative and 35 semi-quantitative sites, plus 7 5 minute samples.

3. Assessment of Status.

Number (%) of sites in each category in 1991.

	A	B	C	D	E
Salmon	5 (10)	6 (13)	9 (19)	17(35)	11(23)*
Trout	4 (8)	9 (19)	15(31)	18(38)	2 (4)

* 5 sites (10%) inaccessible to migratory fish.

4. Key Points.

- 4.1 Several other sites were included in the semi-quantitative programme to compensate for a perceived bias towards salmon spawning areas in the monitoring programme. These sites were generally on small side streams.
- 4.2 Mean class for salmon remained as B for quantitative sites but changed to C for semi-quantitative sites, a return from B in 1990 to the C of previous years. In both quantitative and semi-quantitative mean salmon fry densities were reduced from 1990 but mean par densities were increased.
- 4.3 There was a significant increase in mean trout fry densities in the semi-quantitative survey but this is entirely explained by the addition of new sites. Comparison comma sites only mean density for 1991 is very similar to previous years.

- 4.4 Overall trout populations have remained relatively constant over the past five years whereas there is a suggestion of a downwards trend in salmon numbers which may or may not be statistically significant.
- 4.5 Causing concern is the Crai where salmon and trout fry have declined in comparison over the past 2 years and individual sites such as the Gwryne Fawr and both Honddu sites. Tributaries of the lower catchment; Rhiangoll, Clydach, Berthin Brook, Olway Brook and Sor Brook remain poor.

FISHERIES MONITORING PROGRAMME

USK

CATCHMENT SUMMARY

QUANTITATIVE

SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	USK	5.7	SN 855282	6.9	3.3	0	D	68.0	16.3	0.4	A	B,L
2	HYDFER	5.9	SN 861276	28.9	1.9*	0	C	9.7	1.9*	0	D	B
3	CRAI	7.4	SN 895274	4.1	14.6	0	C	5.3	4.0	1.0	D	B,E
4	SENNI	6.5	SN 930268	12.1	13.4	0	C	2.8	2.8	1.5	D	B,E
5	CILIENI	4.5	SN 909324	70.3	52.6	0	A	7.5	30.0	2.2	B	
6	BRAN	6.0	SN 965322	20.3	7.7	0	C	13.3	12.1	0.8	C	B
7	YSGIR	7.0	SO 004306	36.4	39.1	0	A	1.6	4.6	0	D	B,E
8	TARRELL	5.8	SO 011269	0	5.1	0	D	0	2.4	1.0	D	B
9	HONDDU	6.4	SO 013378	10.8	1.7	0	D	6.7	5.1	2.2	C	B,E,St
10	MENASCIN	3.7	SO 076257	100.9	35.0	0	A	30.5	12.9	2.6	B	B,E,M
11	RHIANGOLL	5.7	SO 178232	0.4	0	0	D	8.9	7.2	1.8	C	B,E
12	GRWYNE FAWR	6.8	SO 284226	2.2	7.3	1.1	C	3.2	11.5	2.5	C	
13	GRWYNE FECHAN	6.2	SO 245199	21.9	10.1	0	C	5.6	5.6	1.3	C	B,E
MEAN				24.2	14.8	1.1	B	12.5	9.0	1.3	C	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

USK		CATCHMENT SUMMARY						SEMI-QUANTITATIVE				SITE

NUMBER OF FISH PER 100M 2												

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	

14	USK	9.2	SN 883287	1.8	0.2	0	D	0.5	0	0.7	D	B
15	HYDFER	5.9	SN 845258	0	3.2	0	D	3.5	9.2	1.4	B	
16	CRAI	5.7	SN 881235	0	4.6	0	D	0.4	2.7	0.4	C	B
16A	RHYDDNANT	4.1	SN 879236	0	8.2	0	D	0.9	16.3	6.4	B	B,E
17	SENNI	6.1	SN 925234	2.2	3.4	0	C	1.9	5.2	1.5	C	B,E,St
17A	SENNI	4.9	SN 925245	11.9	1.9	0	C	1.5	2.2	2.6	C	B,E,M
17B	SENNI	5.5	SN 925207	0	0.8	0	D	6.3	8.0	1.7	C	B,E
17C	NANT CWM-DU	3.5	SN 928221	3.5	3.5	0	B	1.2	4.7	0.6	C	B,E
17D	PANT-Y-FFORDD	1.3	SN 925239	0	0	0	E	36.8	0	0	C	E
17E	TREWERYN	4.0	SN 912253	0	0	0	E	30.5	7.7	1.8	B	B,M
17F	TREWERYN	4.0	SN 916265	7.4	2.6	0	B	38.1	7.4	2.2	B	B,E,M
18	CILIENTI	4.5	SN 913357	17.1	10.5	0	B	10.5	10.5	0	B	
19	BRAN	7.3	SN 943343	24.4	17.8	0	A	5.8	3.9	0.4	C	
19A	NANT ERCHAN	2.4	SN 944345	12.7	14.9	0	B	111.5	10.6	0	B	
20	YSGIR FAWR	7.3	SN 995365	13.7	10.1	0	B	7.9	0.7	0	D	B
21	YSGIR FECHAN	5.7	SN 989357	12.0	13.3	0	B	7.7	3.0	0	C	B,E
21A	YSGIR FECHAN	4.6	SN 967375	22.6	17.9	0	A	24.0	9.0	0.9	A	B
22A	TARRELL	3.9	SN 985241	0	2.2	0	D	1.7	5.1	1.1	C	B
22B	GWDI #	2.0	SO 026264	0	0	0	E	0	0.9	0	D	
23	HONDDU	6.2	SO 034324	0	0.2	0	D	3.7	2.1	1.2	C	
23A	NANT FAWR	1.4	SO 025371	1.4	0	0	D	42.9	8.6	1.4	A	
24	CRAWNON #	4.8	SO 145200	0	0	0	E	0.5	0	0.5	D	
24A	CRAWNON #	4.4	SO 120181	0	0	0	E	11.9	14.2	17.9	A	B
14	CAERFANELL	11.3	SO 118229	20.9	0.9	0	C	2.7	1.1	0.9	D	B,E,M,St

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

USK

CATCHMENT SUMMARY

SEMI-QUANTITATIVE

SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
26	RHIANGOLL #	3.4	SO 184263	0	0	0	E	0.9	5.6	9.3	B	B
26A	RHIANGOLL	4.2	SO 185212	1.6	1.6	0	D	0	3.2	4.3	D	B,E
27	GRWYNE	9.7	SO 239172	1.4	0.2	0	D	6.4	0.2	0.3	D	B,E,St
29	GAVENNY #	4.4	SO 302139	0	0	0	E	0	0	0	E	B,E
30	BERTHIN BROOK	5.0	SO 365019	1.5	1.5	0	D	0	0	3.5	D	B,E,M,St
30A	BERTHIN BROOK	6.0	SO 352018	0.3	0	0	D	0.3	0	0	D	B,E
37	OLWAY BROOK	2.6	SO 407023	0	0	0	E	0	0	0	E	B,E,M,S,St
39	OLWAY BROOK	5.1	SO 392985	0.4	5.1	0	D	0	0.4	0	D	B,E,Fl,St
37A	LLANGWM BROOK	3.5	SO 425001	0	0	0	E	3.4	1.1	0.6	D	B,E,St
37B	LLANISHEN BROOK	4.0	SO 436043	0	0	0	E	0	0	0.5	D	B,E,Ch,M,St
31	SOR BROOK	4.5	SO 338957	0	0	0	E	4.5	0	0	D	B,E
MEAN				4.4	4.1	0	C	10.3	4.0	3.5	B	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

USK

CATCHMENT SUMMARY

5 MINUTE FRY SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	O.S. MAP REFERENCE	SALMON		TROUT		OTHER SPECIES
			0+	>1+	0+	>1+	
40	USK	SN 920288	16	0	0	0	
41	USK	SN 984290	2	0	0	0	
42	USK	SO 042287	59	0	0	0	
43	USK	SO 123234	28	0	0	0	
44	USK	SO 193199	5	0	0	0	
45	USK	SO 229170	14	0	0	0	
46	USK	SO 342090	0	0	0	0	
MEAN			18	0	0	0	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

RIVER USK

SALMON DENSITIES

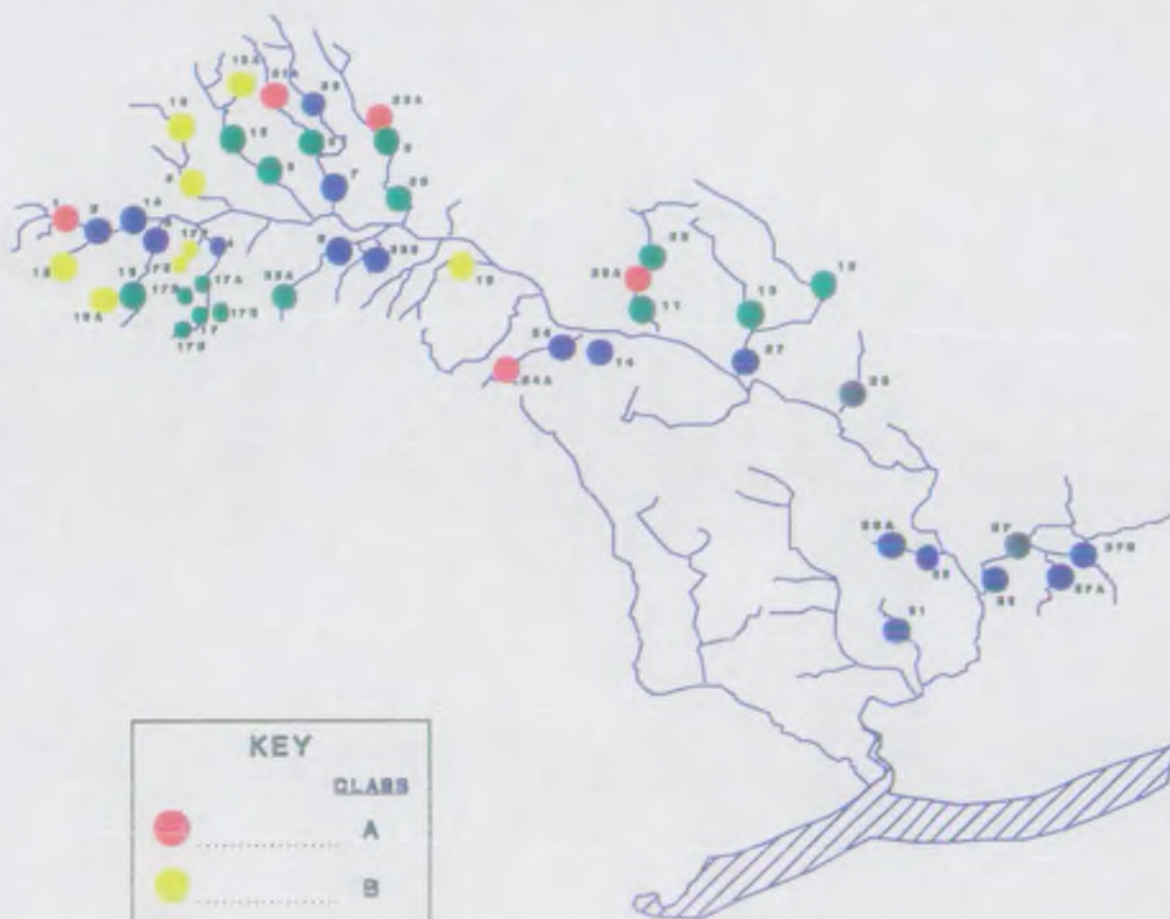
1991 SURVEY



RIVER USK

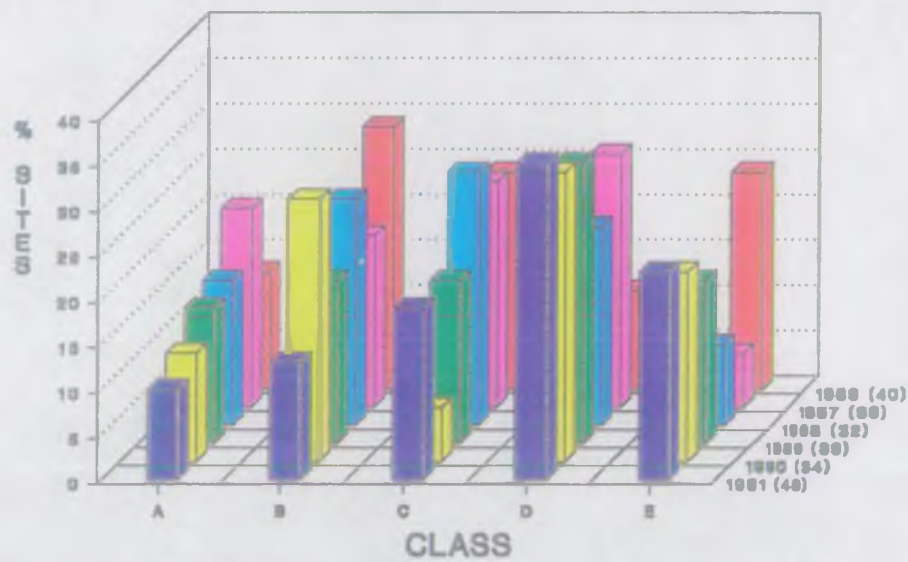
TROUT DENSITIES

1991 SURVEY



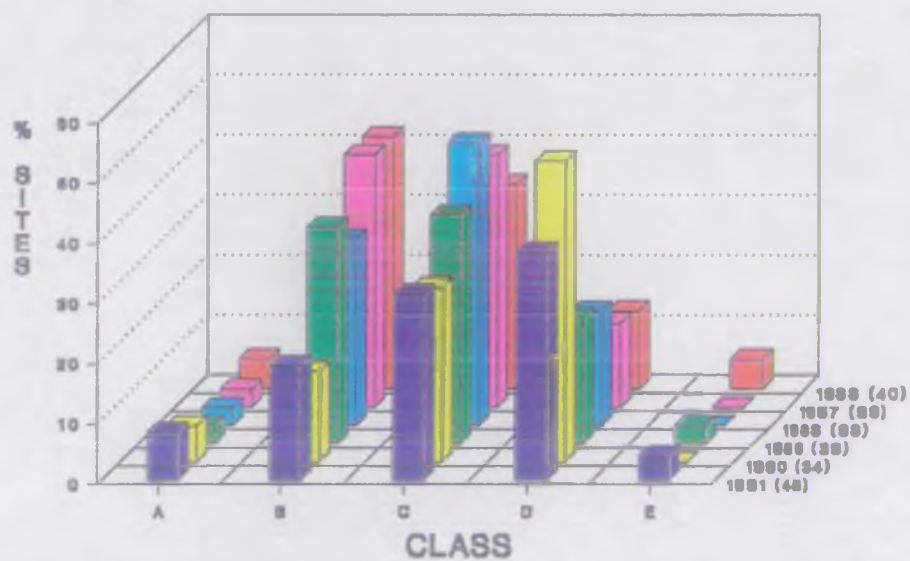
KEY	
	CLASS
●	A
●	B
●	C
●	D
●	E

RIVER USK - SALMON % OF SITES IN EACH CATEGORY



FIGURES IN () DENOTE NO. OF SITES

RIVER USK - TROUT % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER RHYMNEY SUMMARY.

1. Catchment and Fishery Characteristics.

- Land Use - Primarily urban and industrial with sheep farming in the upper and middle reaches and mixed pastoral/arable farming in the lower reaches. The City of Cardiff lies on the estuary.
- Water Quality - Water quality is in the NWC Class 1 in some tributaries and throughout the main river, but some tributaries are prone to pollution from industry.
- Fishery Status - Parts of the river support a moderate trout fishery, supported to some extent by stocking. A mixed fishery exists in the lower river and migratory salmonids are now found.

2. Sampling Programme.

- 1986 - Base-line survey, 10 quantitative and 56 semi-quantitative sites.
1987 - 2 quantitative and 9 semi-quantitative sites.
1990 - 1 quantitative and 13 semi-quantitative sites.
1991 - 5 semi-quantitative sites.

3. Assessment of Status.

Number (Z) of sites in each category in 1991.

	A	B	C	D	E
Salmon	0 (0)	0 (0)	0 (0)	0 (0)	5 (100)
Trout	2 (40)	2 (40)	0 (0)	1 (20)	0 (0)

NOTE: This survey restricted to 5 small tributaries so results not directly comparable to whole survey as undertaken in 1987 and 1990.

4. Key Points.

- 4.1 This survey was undertaken specifically to repeat the sampling of five small tributaries monitored in 1990 and which showed a decline in comparison with the previous survey in 1987.
- 4.2 4 of the five sites showed significant improvement; the exception being Nant Gwaunybara which although having fry which were absent in 1990, lost all older trout. It is likely that 1990 was a poor recruitment year in the small tributaries due to low-flow conditions.

FISHERIES MONITORING PROGRAMME

RHYMNEY

CATCHMENT SUMMARY

SEMI-QUANTITATIVE SITES

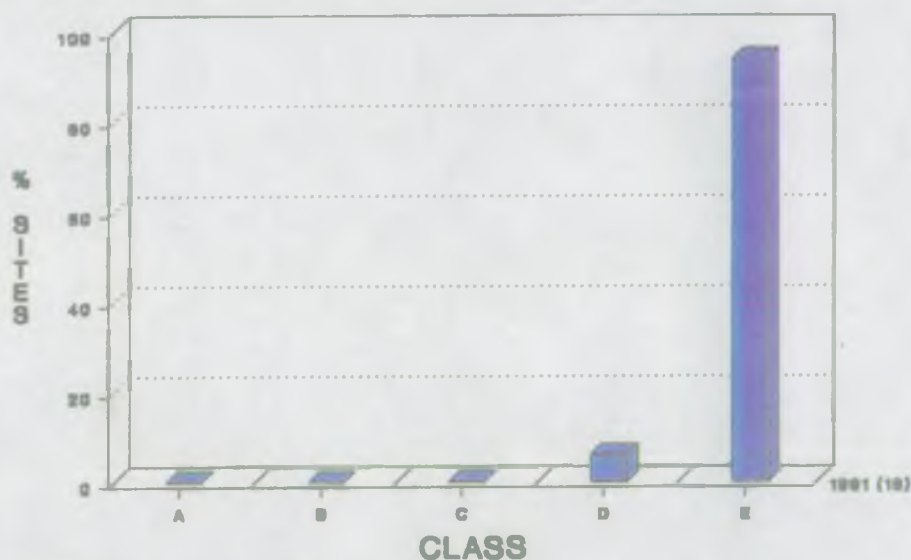
NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
7	TWYN-YR-HARRIS	1.7	ST 142934	0	0	0	E	13.6	13.6	9.0	A	
8	NANT-Y-TWYN	1.2	ST 152933	0	0	0	E	29.2	2.3	9.0	A	
9	NANT GWANYBANA	1.4	ST 182878	0	0	0	E	4.3	0	0	D	
10	NANT DRAETHEN	1.9	ST 221873	0	0	0	E	7.9	9.0	1.1	B	B,E
11	NANT FAWR	3.2	ST 225844	0	0	0	E	2.9	3.5	8.7	B	B,E,M,St
MEAN				0	0	0	E	11.6	5.7	5.6	B	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

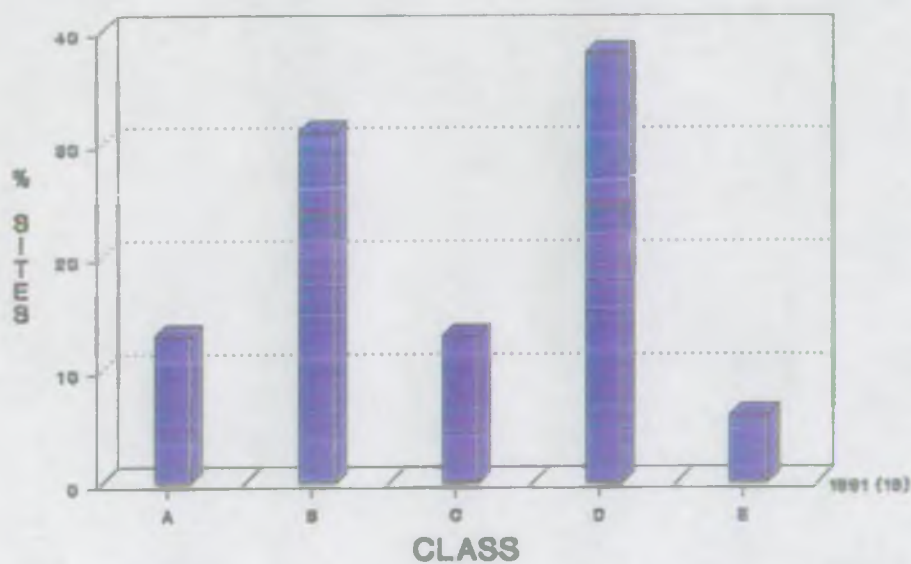
* MINIMUM ESTIMATE

RIVER GWENDRAETH FAWR - SALMON % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER GWENDRAETH FAWR - TROUT % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER LOUGHOR SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Mixed dairying and livestock rearing. Localised coal mined areas.

Water Quality - Generally class 1B.

Fishery Status - Average Catch:
(1984 - 1990) Rods: 13 Salmon; 229 Sea Trout.

2. Sampling Programme.

1986 - 1 quantitative and 8 semi-quantitative sites.
1991 - 22 semi-quantitative sites.

3. Assessment of Status.

Number (%) of sites in each category in 1991.

	A	B	C	D	E
Salmon	0 (0)	0 (0)	1 (4)	7 (32)	14 (64)
Trout	5 (23)	10 (45)	5 (23)	2 (9)	0 (0)

4. Key Points.

- 4.1 Salmon were only recorded in low numbers at 36% of sites which were mainly in the upper reaches and the River Marlais.
- 4.2 Trout were recorded from all sites with the trout fry abundant in 3 tributaries (Morlais, Marlas and Camffrwd).
- 4.3 Trout parr were also well distributed throughout the catchment being only absent on the River Lash (24) which had been affected by a river channel diversion.
- 4.4. Trout reaches were generally low in the Gwili and middle reaches of the truman and the further surveys needed in the tributaries will be considered as part of a British Coal Opencast project.

FISHERIES MONITORING PROGRAMME

LOUGHOR

CATCHMENT SUMMARY

SEMI-QUANTITATIVE SITE

NUMBER OF FISH PER 100M²

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	CAMFFRWD	1.5	SN 600050	0	0	0	E	17.5	17.5	4.4	A	E
6	AMAN	7.5	SN 692134	0.7	0	0	D	7.5	11.8	1.4	B	B,E
9	MARLAS	4.0	SN 614179	0	0	0	E	53.1	20.6	0.6	A	E,L,M
10	MORLAIS	4.8	SN 557027	0.5	1	0	D	15.1	16.2	0	B	B,E
11	MORLAIS	6.3	SN 546052	0	0	0	E	1.6	11.4	0	B	B,E
12	MORLAIS	4.0	SN 537073	1.1	1.6	0	D	32.2	32.2	1.7	A	B,E
13	GWILI	6.8	SN 577045	0	0	0	E	1.5	1.5	0.6	D	B,E,M,St
14	GWILI	5.0	SN 569058	0	0	0	E	8.4	4.5	1.5	C	B,E,St
15	CWM DULAIS	2.8	SN 601038	0	0	0	E	15.7	10.7	0.7	B	E
16	CWM DULAIS	2.6	SN 623044	0	0	0	E	2.9	15.3	0	B	B,E,St
17	CAMFFRWD	1.5	SN 596058	0	0	0	E	39.6	30.0	3.0	A	E,S,St
19	CATHAN	4.3	SN 628098	0	0	0	E	0.9	9.4	5.6	B	E
20	AMAN	3.3	SN 667135	0	0	0	E	2.8	7.5	0.9	C	B,E
21	AMAN		SN 692133	0	0	0	E	0.8	4.0	0.8	C	B,E,St
22	AMAN	3.4	SN 728139	0	0.9	0	D	12.9	9.0	0.9	B	B,E,M
23	LOUGHOR	5.5	SN 637142	4.7	6.5	0	C	5.4	10.5	1.8	B	B,E,St
23A	MARLAS	4.1	SN 623134	1.8	0.6	0	D	12.9	7.4	1.8	B	B,E
23B	LOUGHOR	10.9	SN 622128	0.2	0.2	0	D	3.4	2.1	0.2	C	B,E,St
24	LASH	2.7	SN 615142	0	0	0	E	19.7	0	0	D	B,E
25	LASH	4.2	SN 606147	0	0	0	E	10.3	1.2	0	C	B,E,St
26	LASH	2.7	SN 601147	0	0	0	E	1.8	11.0	5.5	B	B,E
27	MARLAS	2.9	SN 622170	0	0	0	E	67.2	6.0	3.4	A	B,E,L,M
MEAN				0.4	0.5	0	D	15.1	10.4	1.5	B	

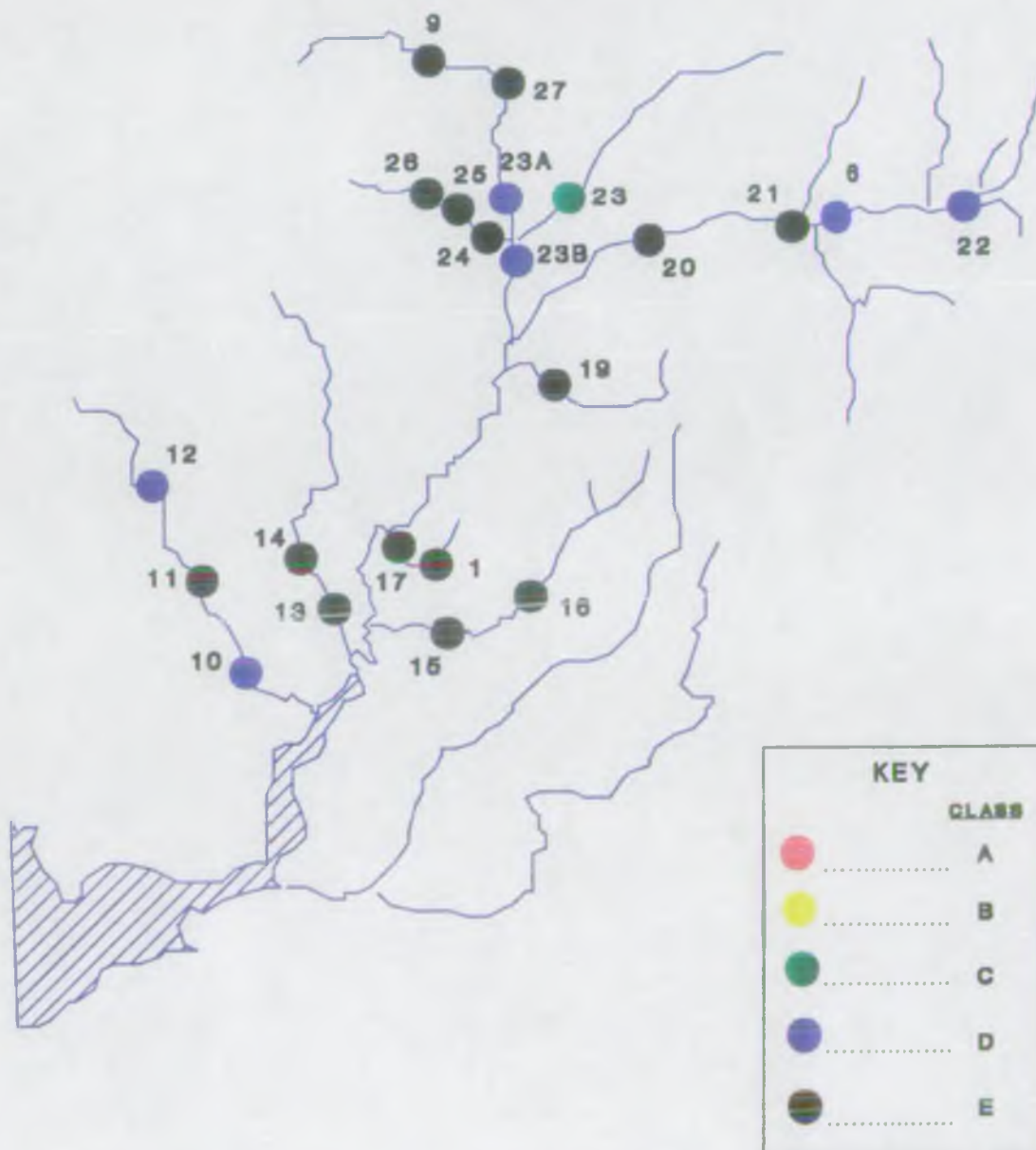
PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

RIVER LOUGHOR

SALMON DENSITIES

1991 SURVEY

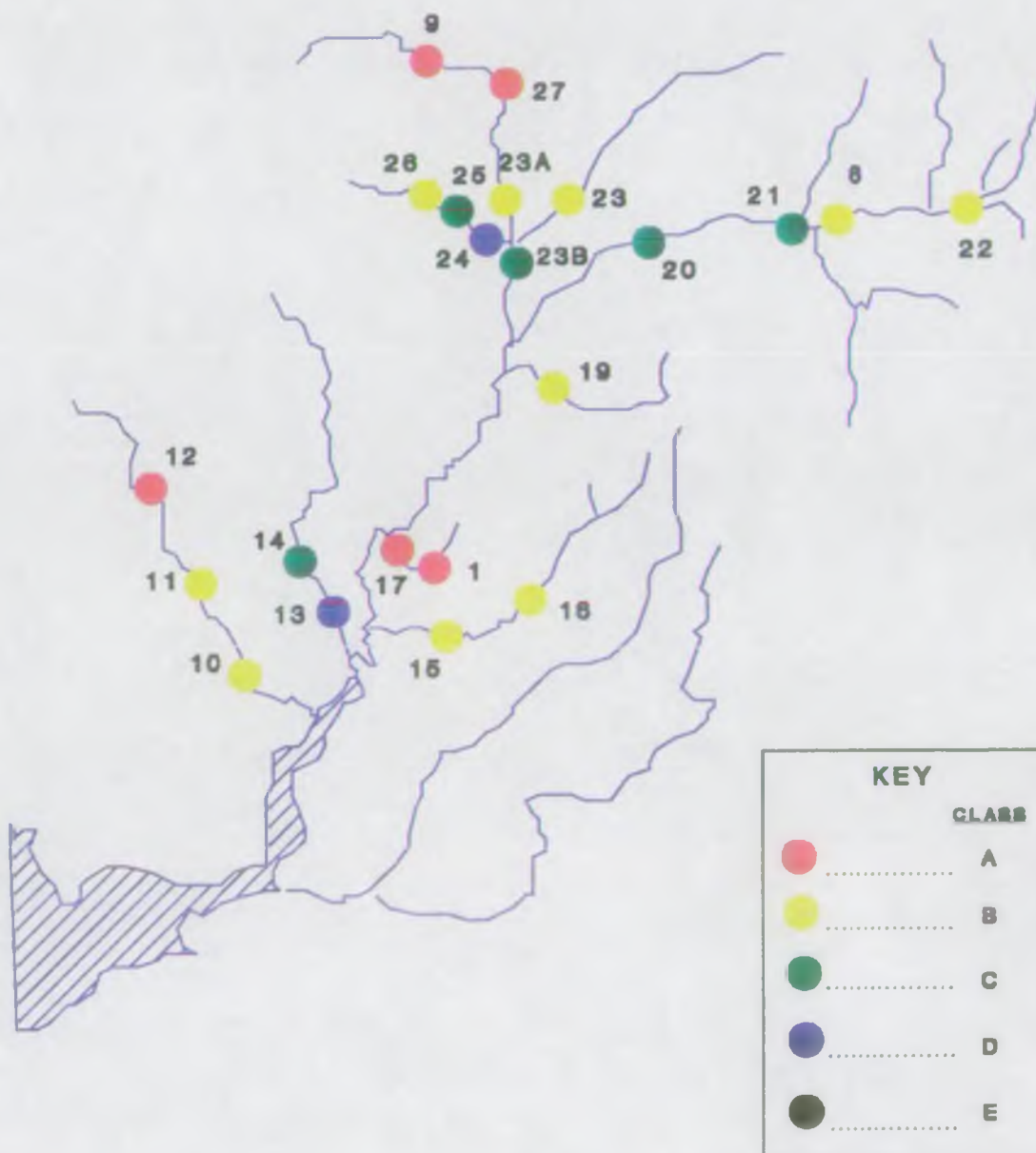




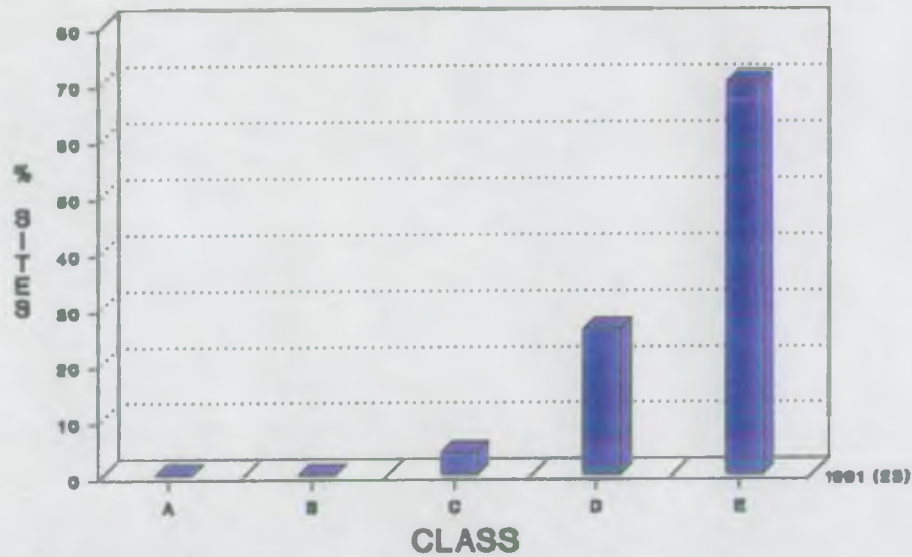
RIVER LOUGHOR

TROUT DENSITIES

1991 SURVEY

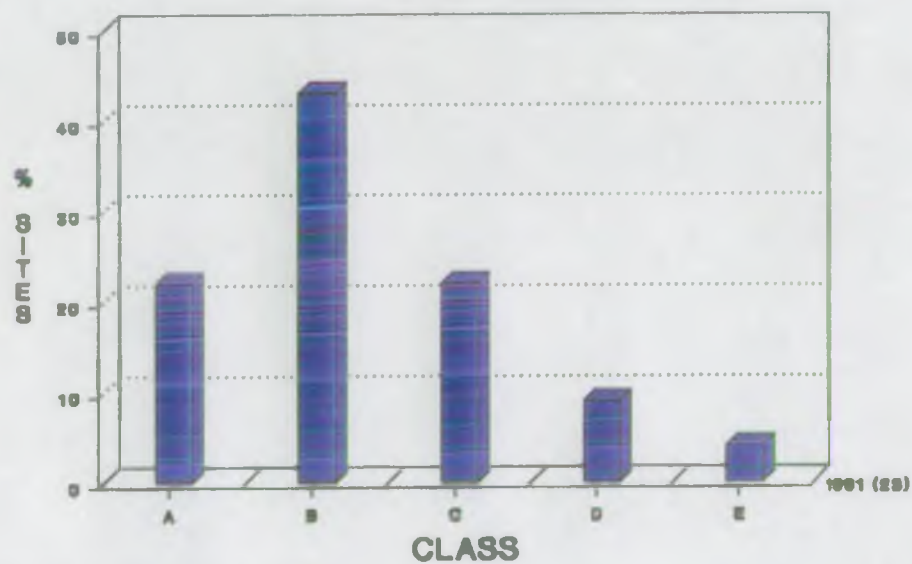


RIVER LOUGHOR - SALMON % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER LOUGHOR - TROUT % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER NEVERN SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Predominantly dairying.
Water Quality - Class B throughout main river.
Fishery Status - Average Catch:
(1984 - 1990) Rods: 25 Salmon; 412 Sea Trout.

2. Sampling Programme.

1986 - 2 quantitative and 4 semi-quantitative sites.
1991 - 12 semi-quantitative sites.

3. Assessment of Status.

Number (%) of sites in each category in 1991.

	A	B	C	D	E
Salmon	0 (0)	3 (25)	3 (25)	3 (25)	3 (25)
Trout	3 (25)	5 (41)	2 (17)	2 (17)	0 (0)

4. Key Points.

- 4.1 Salmon occurred throughout main river sites and were generally more abundant in lower reaches of some tributaries. Absence of salmon from the Duad was probably due to the inaccessibility of sites. Salmon densities were generally low; mean class C.
- 4.2 Trout were recorded from all sites and fry were abundant in the Gamallt (7 and 8) and Barmon (4). Parr were well distributed throughout, being only absent from a tributary site (9).
- 4.3 Salmonid stocks appeared to be stable when compared with those sites sampled in 1986. There was also however concern for stocks at Brynberian (2) where the classification had decreased from CA to DC. Further investigations required to identify deterioration which could be due to over abstraction or agriculture. Increased siltation and suspected farm pollution was also cause of concern in the Duad (10).

FISHERIES MONITORING PROGRAMME

NEVERN

CATCHMENT SUMMARY

SEMI-QUANTITATIVE SITE

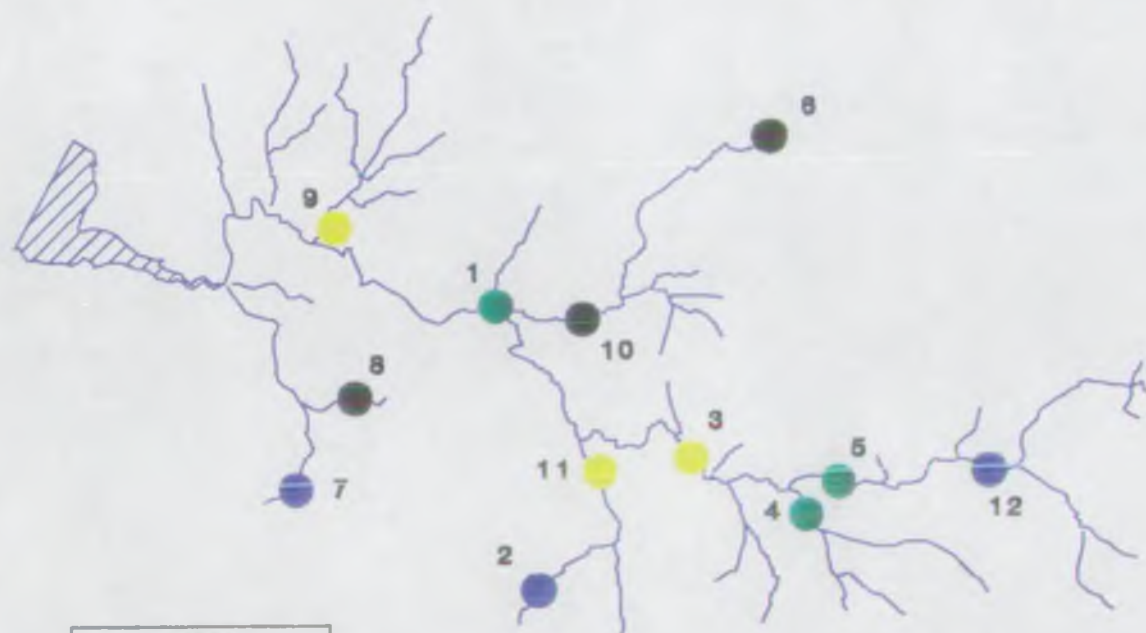
NUMBER OF FISH PER 100M 2






SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	NEVERN	8.5	SN 104388	3.2	3.2	0	C	3.8	2.1	0	D	E,L,St
2	BRYNBERIAN	3.2	SN 105352	0.6	1.8	0	D	3.7	5.0	1.9	C	E
3	NEVERN	8.1	SN 127370	29.0	8.7	0.2	B	27.5	8.3	0.5	B	E,L,M
4	BANNON	4.0	SN 140364	3.0	7.5	0	C	57.5	18.5	4.5	A	
5	NEVERN	4.9	SN 146367	0.8	4.2	0	C	31.0	5.0	2.1	B	E
6	DUAD	1.7	SN 143413	0	0	0	E	14.1	1.2	0	C	E
7	GAMMALLT	3.1	SN 078372	0	0.6	0	D	31.0	15.3	6.0	A	E,L
8	GAMMALLT TRIB	2.1	SN 085379	0	0	0	E	40.5	24.3	0	A	E
9	TRIB WR NEVERN	2.8	SN 083400	17.6	2.9	0	B	2.1	0	0	D	E,L,St
10	DUAD #	3.8	SN 116388	0	0	0	E	7.3	12.9	3.2	B	E,L,St
11	BRYNBERIAN	7.4	SN 116363	15.0	5.4	0	B	18.3	5.9	0.8	B	E
12	NEVERN	4.4	SN 165368	0	2.3	0	D	10.9	7.2	2.2	B	E
MEAN				5.8	3.1	0.2	C	20.6	8.8	1.8	B	

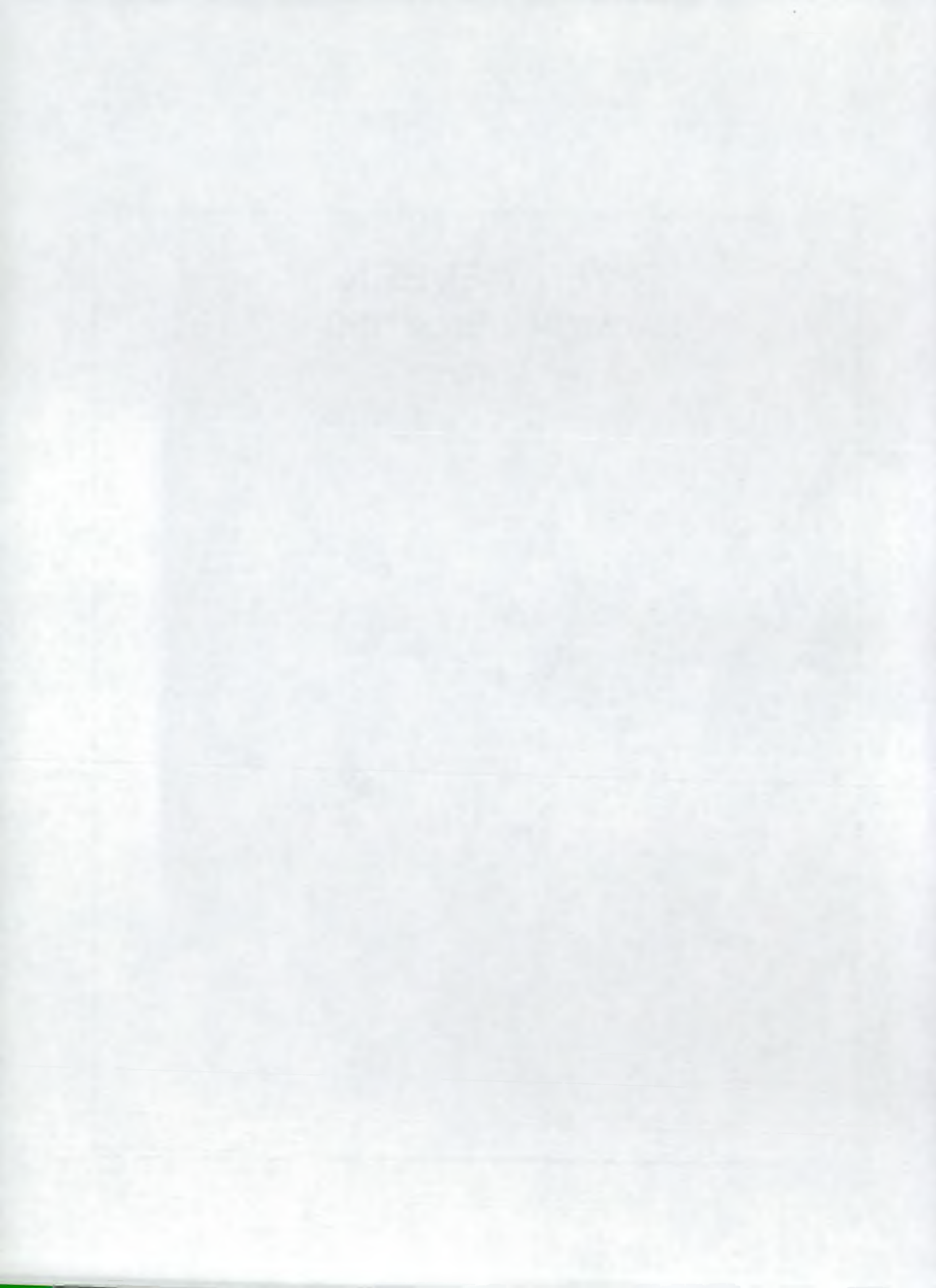
PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

RIVER NEVERN SALMON DENSITIES 1991 SURVEY

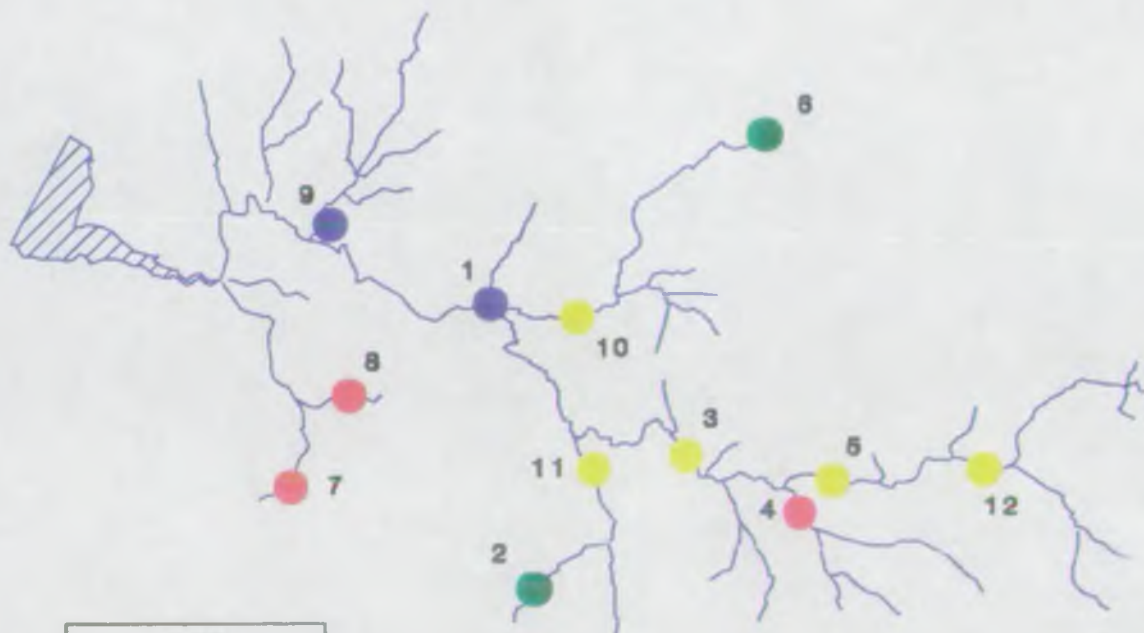


KEY	
	CLASS
	A
	B
	C
	D
	E



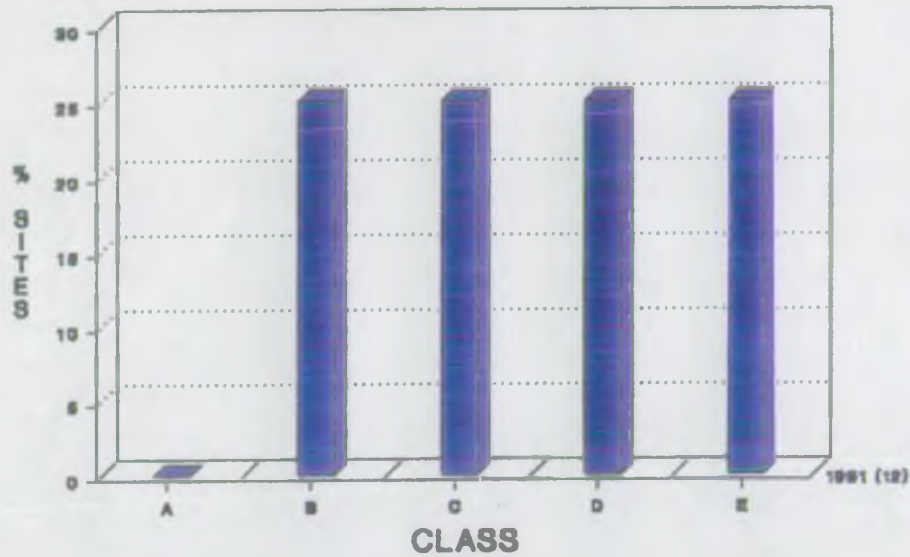
RIVER NEVERN TROUT DENSITIES

1991 SURVEY



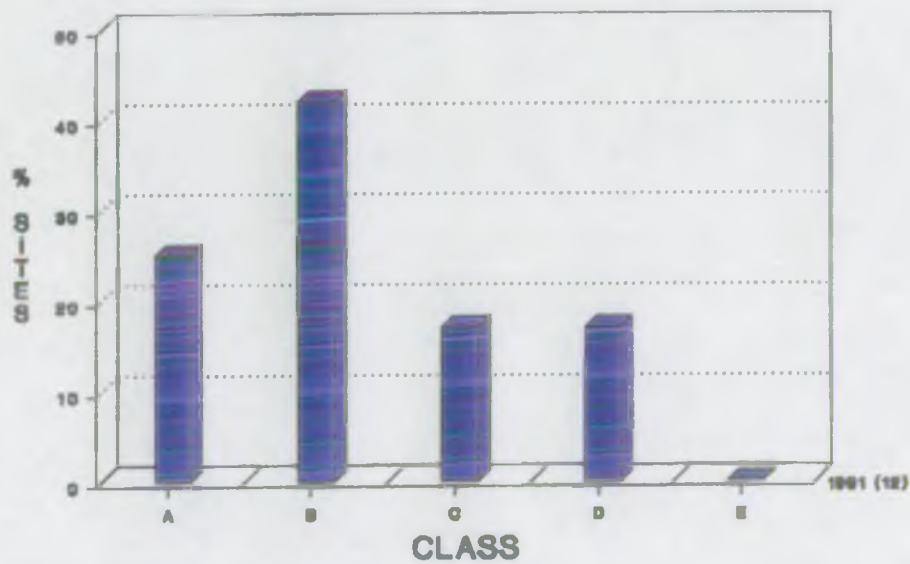
KEY	
	CLASS
	A
	B
	C
	D
	E

RIVER NEVERN - SALMON **% OF SITES IN EACH CATEGORY.**



FIGURES IN () DENOTE NO. OF SITES.

RIVER NEVERN - TROUT **% OF SITES IN EACH CATEGORY.**



FIGURES IN () DENOTE NO. OF SITES.

RIVER OGMORE SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Coalmining valley with forestry giving way to industrialised and urbanised middle reaches.

Water Quality - Generally class 1A and 1B. Improvements to treatment works have reduced pollution incidents at some tributary sites (Llynfi).

Fishery Status - Average Catch:
(1984 - 1990) Rods: 19 Salmon; 418 Sea Trout.

2. Sampling Programme.

1985 - 5 quantitative sites.
1986 - 3 quantitative and 4 semi-quantitative sites..
1987 - 8 quantitative and 14 semi-quantitative sites.
1988 - 9 quantitative sites.
1989 - 7 quantitative and 14 semi-quantitative sites.
1990 - 9 quantitative and 3 semi-quantitative sites.
1991 - 11 quantitative sites.

3. Assessment of Status.

Number (%) of sites in each category in 1991.

	A	B	C	D	E
Salmon	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Trout	2 (17)	6 (50)	3 (25)	1 (8)	0 (0)

4. Key Points.

- 4.1 Salmon were not recorded which was consistent with previous years.
- 4.2 Trout were present at all sites; parr were particularly abundant in the Ciwc (6) and Cwmden (10) where densities exceeded 50 parr per 100m².
- 4.3 Trout stocks appear to be stable when compared with previous years, although densities in the Eweny Fach and Gladys were cause for concern.
- 4.4 The Garw Land Reclamation Scheme commenced in the upper reaches of the catchment during 1991 and trout were removed from 200m of the Garw where the river bed is to be reprofiled. Impacts on stocks downstream of the scheme will be assessed during 1992.
- 4.5 Further restocking with 25k sea trout (Smolts and parr) and 7k salmon parr continued during 1991 as part of the Llynfi and Ogmre restoration. Broodstock were also collected during the Autumn to provide for future restockings.

FISHERIES MONITORING PROGRAMME

OGMORE

CATCHMENT SUMMARY

QUANTITATIVE

SITE

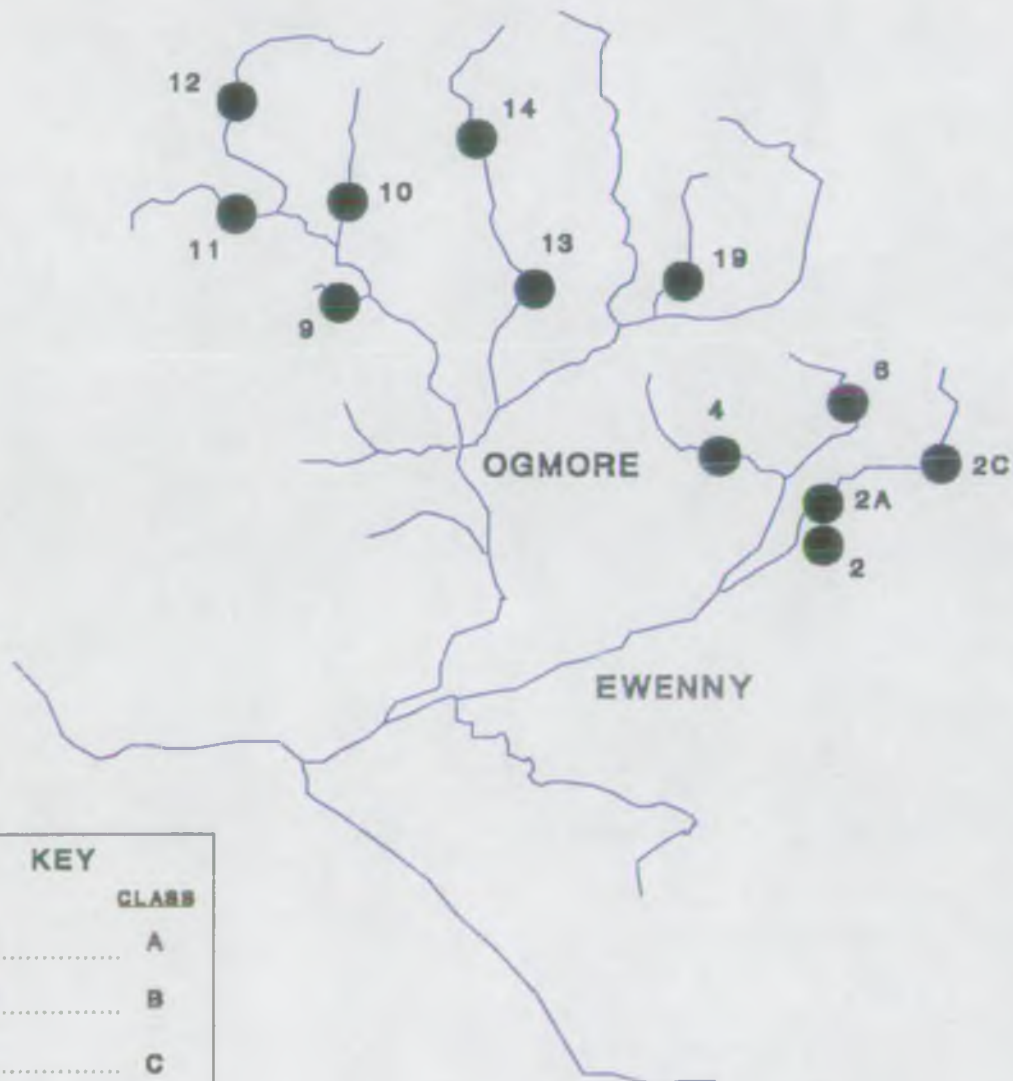
NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
2A	EWENNY FACH	2.0	SS 982827	0	0	0	E	1.0	6.0	1.0	C	B,E
2C	EWENNY FACH	1.0	SS 008828	0	0	0	E	16.1	10.0	0	C	B,E
2	EWENNY FACH	1.7	SS 972813	0	0	0	E	3.6	0	0	D	B,E
4	CRYMLYN	2.3	SS 958834	0	0	0	E	9.0	21.0	5.3	B	B,E
6	CIWC	1.8	SS 984835	0	0	0	E	18.6	49.9	7.0	B	B,E
9	GLADYS	3.4	SS 871879	0	0	0	E	12.0	5.7	1.1	C	B,E,M
10	CWMDU	1.7	SS 874894	0	0	0	E	30.5	64.8	6.0	A	B
11	SYCHBANT	2.3	SS 859899	0	0	0	E	19.4	21.1	0.9	B	B,M
12	LLYNFI	3.3	SS 853930	0	0	0	E	7.3	36.6	1.2	B	B,E,St
13	GARW	4.0	SS 914876	0	0	0	E	17.7	21.2	5.1	B	B,E
14	GARW FECHAN	1.5	SS 903898	0	0	0	E	42.9	30.2	4.0	A	B
19	LECHYD	3.5	SS 944874	0	0	0	E	28.8	13.2	1.1	B	E
MEAN				0	0	0	E	17.2	23.3	2.7	B	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

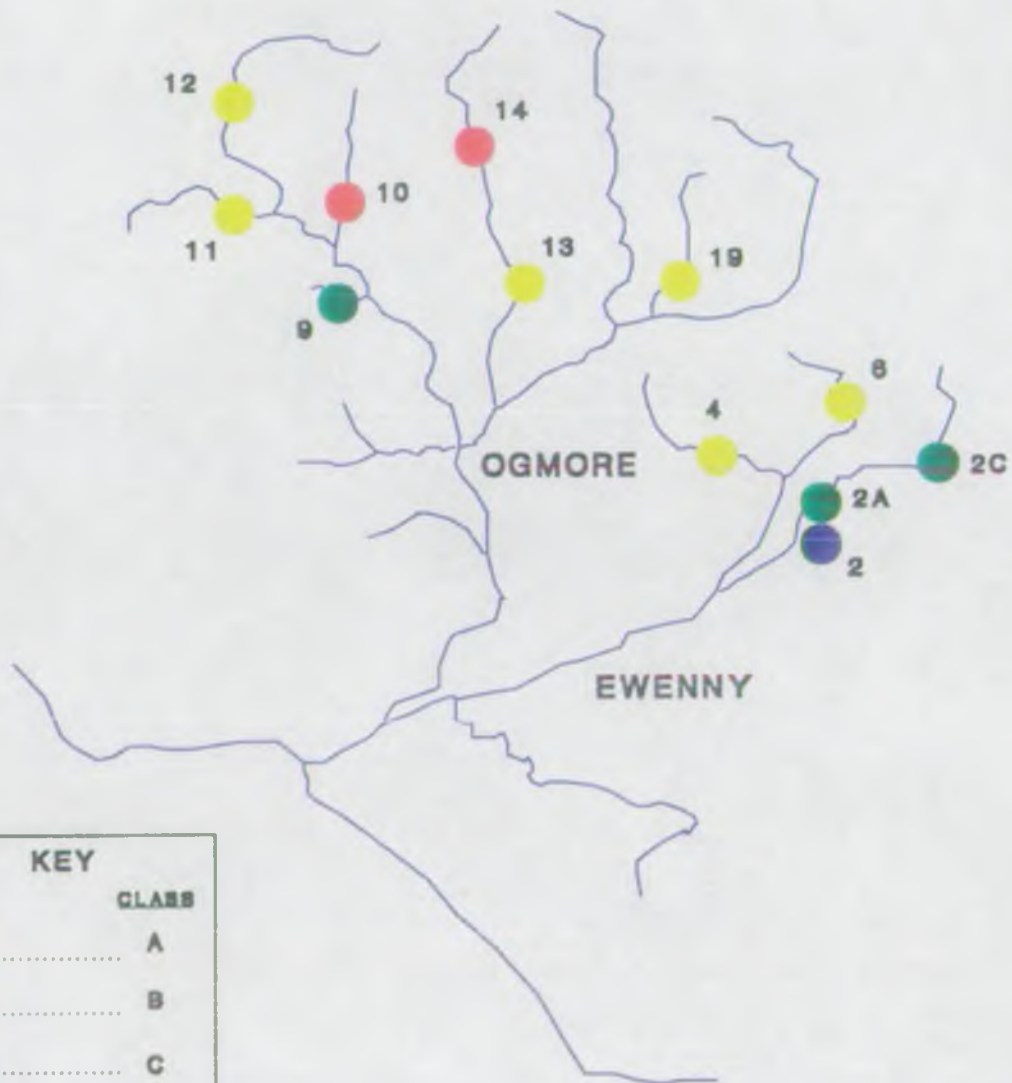
* MINIMUM ESTIMATE

RIVER OGMORE SALMON DENSITIES 1991 SURVEY



KEY	
	CLASS
●	A
●	B
●	C
●	D
●	E

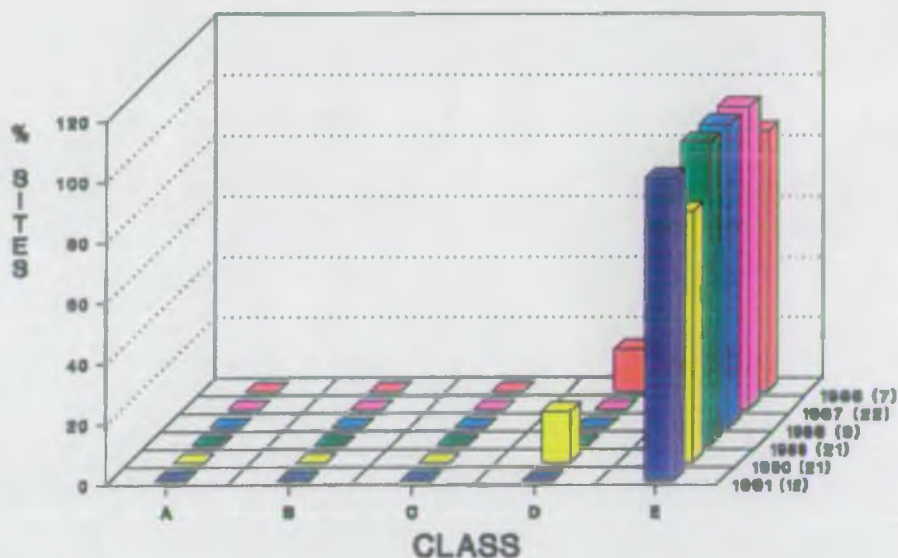
RIVER OGMORE TROUT DENSITIES 1991 SURVEY



KEY	
	CLASS
●	A
●	B
●	C
●	D
●	E

RIVER OGMORE - SALMON

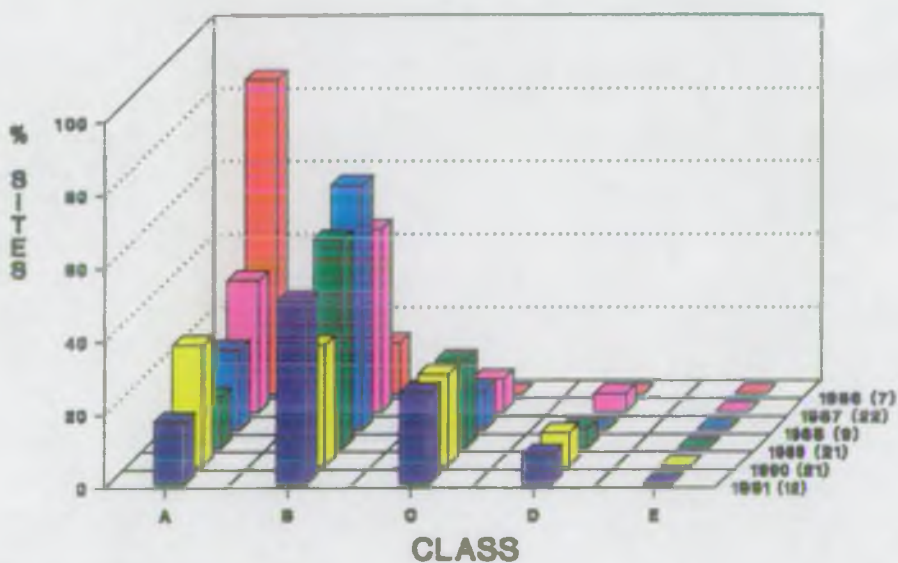
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER OGMORE - TROUT

% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER TAF SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Livestock rearing in the upper reaches combined with mixed dairying in the middle and lower reaches.

Water Quality - Generally class 1A and 1B throughout localised agricultural pollution.

Fishery Status - Average Catch:
(1984 - 1990) Rods: 80 Salmon; 302 Sea Trout.
Nets: 7 Salmon; 97 Sea Trout.

2. Sampling Programme.

1986 - 2 quantitative and 9 semi-quantitative sites.
1987 - 10 quantitative and 30 semi-quantitative sites.
1988 - 3 quantitative sites due to high flows.
1989 - 8 quantitative and 18 semi-quantitative sites.
1990 - 7 quantitative and 1 semi quantitative and 15 riffled sites.
1991 - 5 quantitative and 8 riffle sites.

3. Assessment of Status.

Number (Z) of sites in each category in 1991.

	A	B	C	D	E
Salmon	0 (0)	1 (20)	1 (20)	3 (60)	0 (0)
Trout	2 (40)	2 (40)	1 (20)	0 (0)	0 (0)

4. Key Points.

- 4.1 Salmon fry were recorded in low densities from tributary sites, but were well represented in the main river and riffle sites.
- 4.2 Few salmon parr were recorded.
- 4.3 Trout were recorded throughout and, consistent with previous years, trout fry were abundant in the Sien (11) - a tributary which is generally regarded as inaccessible to migratory fish.
- 4.4 From the small data available, stocks appear to be stable when compared with previous years.

FISHERIES MONITORING PROGRAMME

TAF		CATCHMENT SUMMARY						QUANTITATIVE				SITE
NUMBER OF FISH PER 100M 2												
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
6	DEWR FAWR	5.4	SN 291209	4.9	0	0	D	1.3	17.9	2.0	B	B,E,M,St
11	SIEN	2.0	SN 254258	0	1.0	0	D	102.6	28.8	4.8	A	B,E,L
28	MARLAIS	3.8	SN 141141	6.4	1.8	0.9	C	21.1	10.1	2.7	B	B,E
32	TRIB	2.2	SN 164233	20.1	2.1	0	D	39.4	23.0	1.0	A	B,E,St
38	TAF	3.8	SN 221312	53.7	3.7	0	B	23.9	8.8	3.4	C	B,E
MEAN				17.0	1.7	0.2	D	37.7	17.7	2.8	B	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

TAF

CATCHMENT SUMMARY

5 MINUTE FRY SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	O.S. MAP REFERENCE	SALMON		TROUT		OTHER SPECIES
			0+	>1+	0+	>1+	
7	TAF	SN 171059	26.0	0	27.0	0	
8	TAF	SN 178065	24.0	0	23.0	0	
9	TAF	SN 183070	85.0	0	12.0	0	
10	TAF	SN 193087	36.0	0	4.0	0	
11	TAF	SN 008095	12.0	0	5.0	0	
12	TAF	SN 001310	11.0	0	0	0	
13	TAF	SN 007318	35.0	0	24.0	0	
14	TAF	SN 002305	3.0	0	8.0	0	
MEAN			29.0	0	12.9	0	

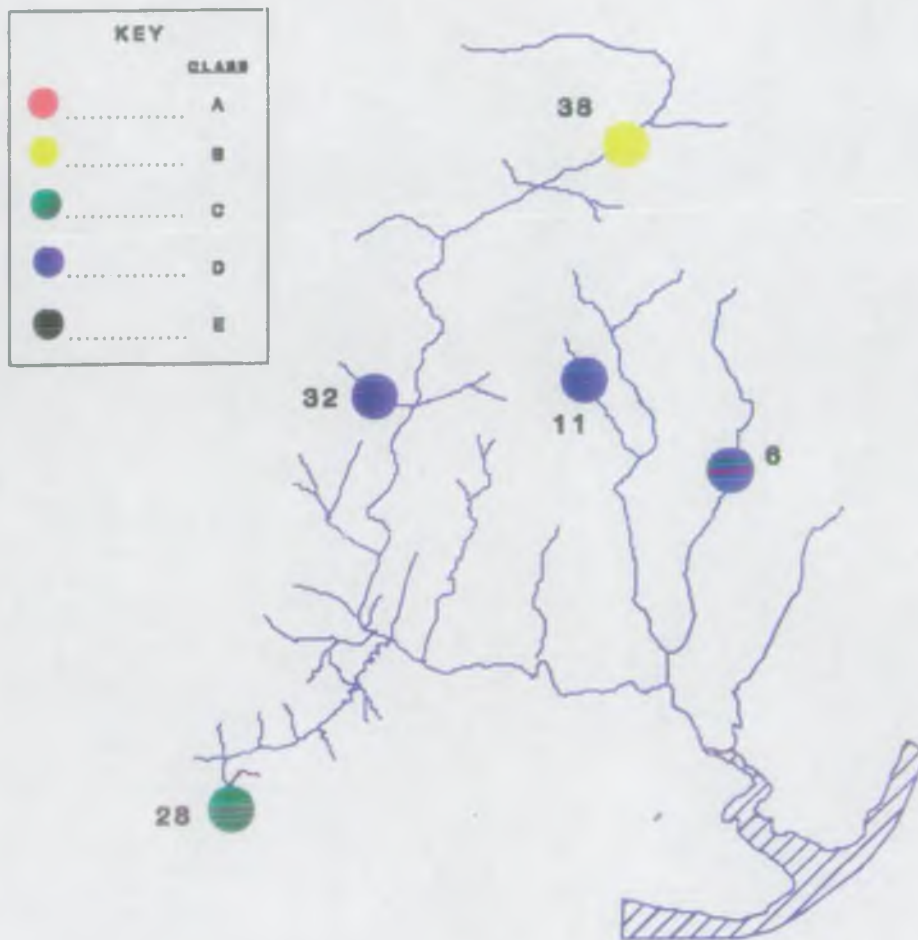
PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

RIVER TAF

SALMON DENSITIES

1991 SURVEY

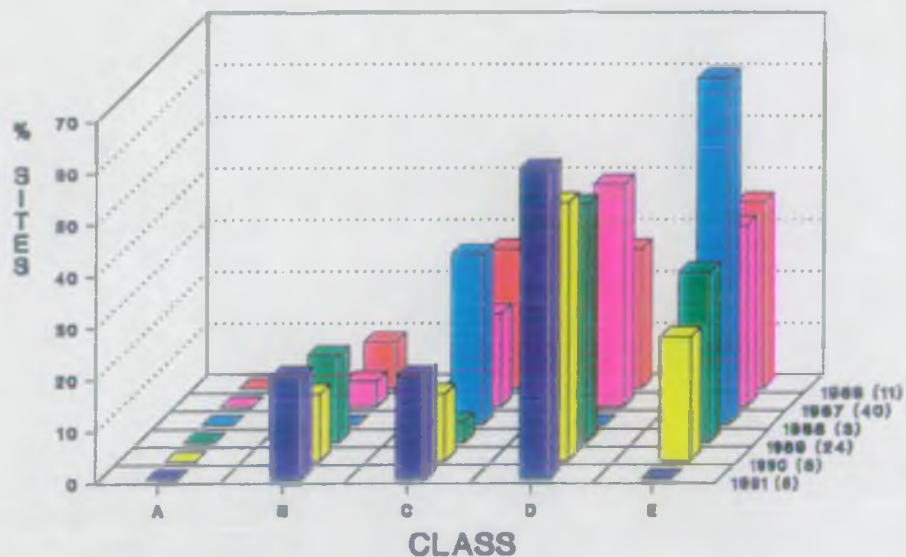


RIVER TAF TROUT DENSITIES 1991 SURVEY

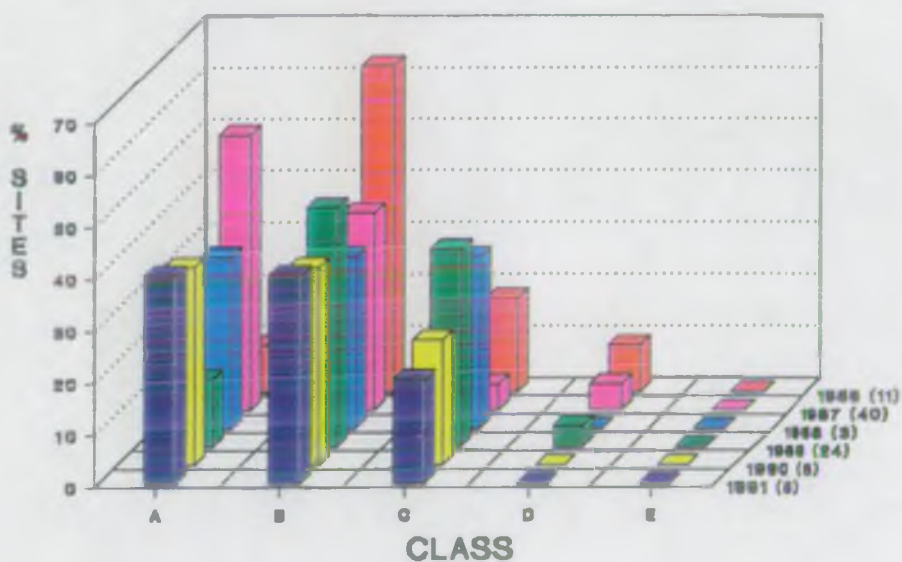
KEY	
	CLASS
●	A
●	B
●	C
●	D
●	E

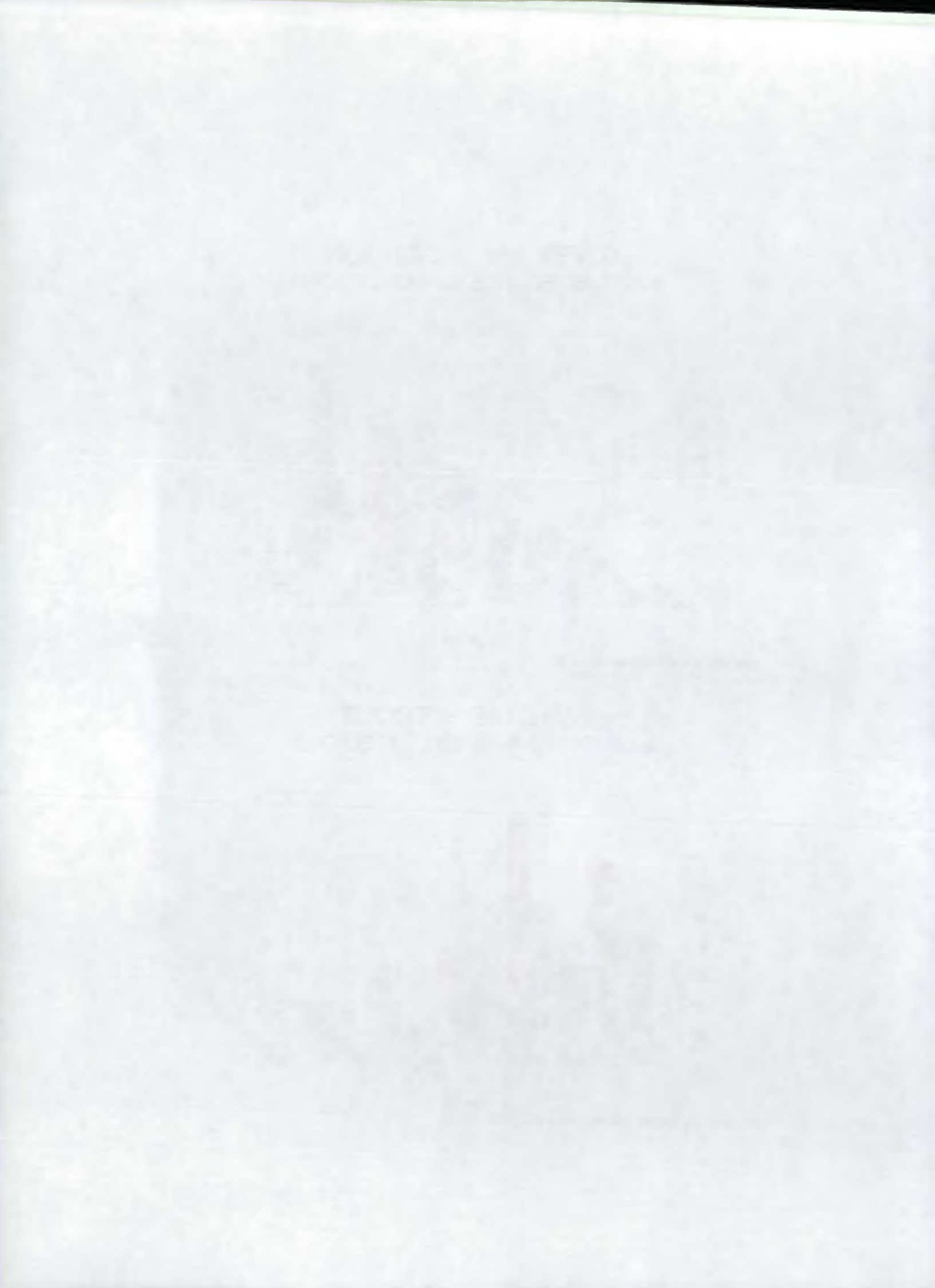


RIVER TAF - SALMON % OF SITES IN EACH CATEGORY.



RIVER TAF - TROUT % OF SITES IN EACH CATEGORY.





RIVER TAWE SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Upper reaches predominantly rough pasture along the coal mined valley. Lower reaches urban and industrial.

Water Quality - Generally 1B, with old mine discharges reducing water quality in the Upper Clydach to class 3 and some sewage discharges exerting a local impact.

Fishery Status Average Catch:
(1984 - 1990) Rods: 70 Salmon; 473 Sea Trout.

2. Sampling Programme.

1985 - 4 quantitative sites.
1986 - 3 quantitative sites.
1987 - 7 quantitative sites.
1988 - 5 quantitative sites.
1989 - 3 quantitative sites.
1990 - 3 quantitative sites.
1991 - 4 quantitative sites.

3. Assessment of Status.

Number (Z) of sites in each category in 1991.

	A	B	C	D	E
Salmon	0 (0)	0 (0)	1 (25)	1 (25)	2 (50)
Trout	0 (0)	2 (50)	1 (25)	1 (25)	0 (0)

4. Key Points.

- 4.1 Salmon were present from 2 sites on the main river (6 and 7) where they had previously been recorded in low densities.
- 4.2 Trout occurred at all sites, although lower densities of parr and fry reduced site classification in the Lower Clydach (1) and Tawe (6) respectively.
- 4.3 Work continued on the Tawe Barrage during 1991 and completion of the scheme, which includes a fish pass, is scheduled for July 1992.

FISHERIES MONITORING PROGRAMME

TAVE		CATCHMENT SUMMARY				QUANTITATIVE				SITE			
NUMBER OF FISH PER 100M 2													
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES	
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS		
1	LOWER CLYDACH	5.3	SN 689012	2.7	3.0	0	D	5.6	2.6	0.7	D	B,E,M,St	
5	TAVE		SN 827127	6.5	7.6	0	C	32.0	4.6	1.8	B	B,E	
6	TAVE	6.6	SN 843156	0	0	0	E	6.9	8.3	2.1	C	B,E	
7	TAVE	5.4	SN 849183	0	0	0	E	7.8	15.2	3.2	B	E	
MEAN				2.3	2.7	0	D	13.1	7.7	2.0	C		

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

RIVER TAWE SALMON DENSITIES 1991 SURVEY

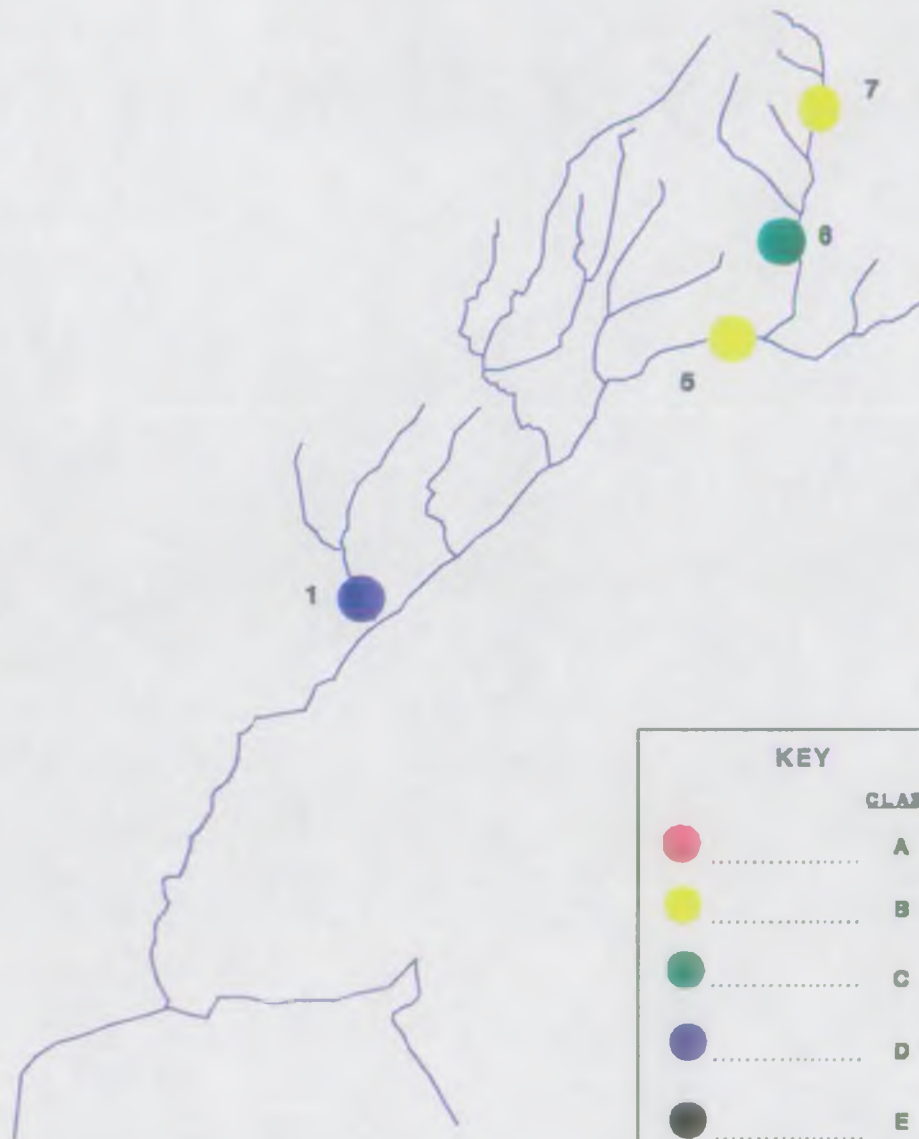


KEY	
	CLASS
●	A
●	B
●	C
●	D
●	E

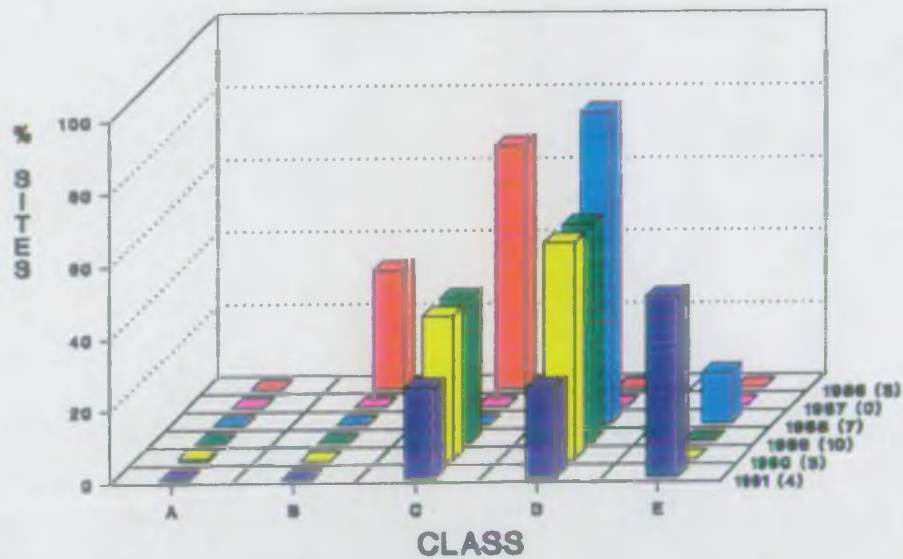
RIVER Tawe

TROUT DENSITIES

1991 SURVEY

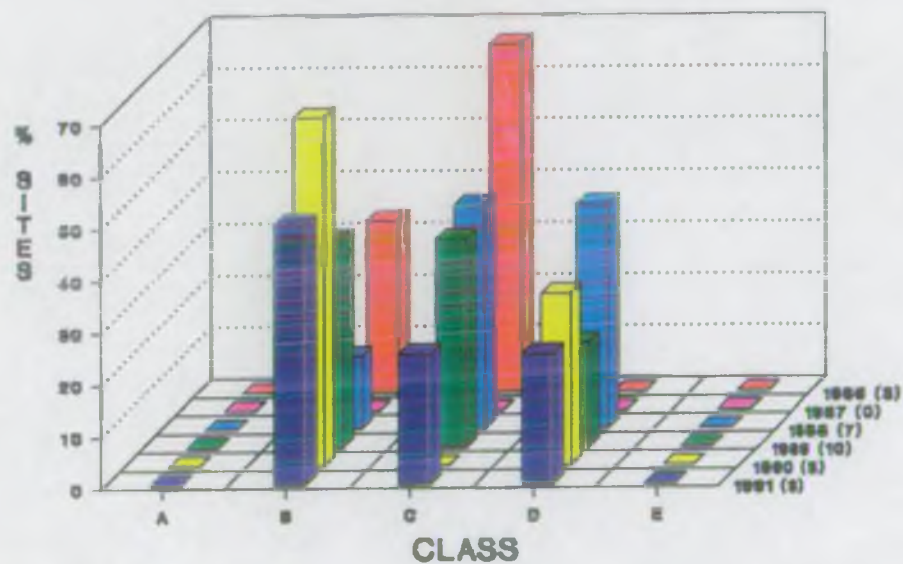


RIVER TAWE - SALMON % OF SITES IN EACH CATEGORY.

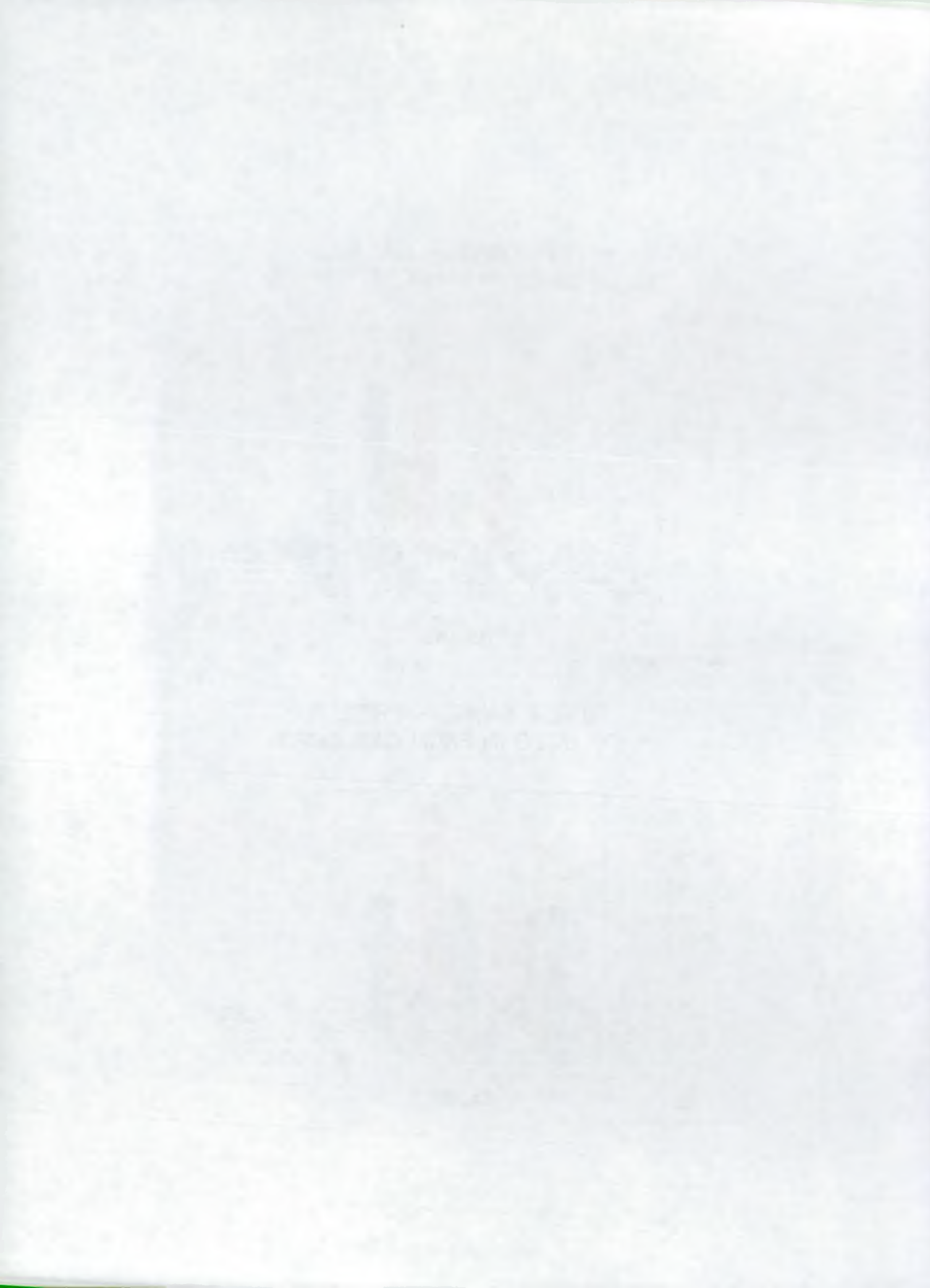


FIGURES IN () DENOTE NO. OF SITES.

RIVER TAWE - TROUT % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.



RIVER TEIFI SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Mixed dairying and livestock rearing in the upper reaches with dairying predominantly in the lowlands.

Water Quality -

Fishery Status - Average Catch: Rods: 811 Salmon; 2,615 Sea Trout
(1984 - 1990) Nets: 285 Salmon; 682 Sea Trout

2. Sampling Programme.

1986 - 2 quantitative and 10 semi-quantitative sites.
1987 - 7 quantitative and 34 semi-quantitative sites.
1988 - 10 quantitative sites.
1989 - 10 quantitative sites.
1990 - 10 quantitative and 2 semi-quantitative and 15 riffle sites.
1991 - 9 quantitative and 19 semi-quantitative and 14 riffle sites.

3. Assessment of Status.

Number (%) of sites in each category in 1991.

	A	B	C	D	E
Salmon	7 (25)	8 (29)	4 (14)	3 (11)	6 (21)
Trout	6 (21)	11 (40)	7 (25)	4 (14)	0 (0)

4. Key Points.

- 4.1 Salmon were recorded from 79% of sites with fry abundant in the Ceri (8), Grannell (21) and Brennig (30), where densities exceeded 100 fry per 100m² at these quantitative sites. There was an overall increase in fry densities at these sites compared with the 1990 survey. Fry were also abundant at semi-quantitative sites, Cerdin (15A) and Camddwr (33) and the majority of main river fry sites. (mean: 69 per 5min).
- 4.2 Salmon parr were generally more abundant at the quantitative sites in 1991 and this was reflected in an overall increase in classification from B to A.
- 4.3 Trout were recorded throughout the catchment. Fry were abundant in the Grannell (21) and Hust (18) and mean densities of quantitative sites similar to the previous year. Low numbers of trout fry were recorded in the main fry sites which is again consistent with 1990.
- 4.4 Low salmonid populations at some sites was most probably due to poor habitat (Berwyn 31, Camddwr Fach 33B) whereas water quality was most likely the cause of low populations in the Camddwr (33A) which needs further investigation.
- 4.5 Trout occurred in lower densities in the upper catchment above Tregaron. However this is not thought to be caused by poor water quality due to the abundance of salmon in the main river and some of the upland tributaries.

FISHERIES MONITORING PROGRAMME

TEIFI

CATCHMENT SUMMARY

QUANTITATIVE

SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
5	CYCH	4.4	SN 292346	86.5	46.9	0	A	85.8	43.0	1.5	A	E,L,S
8	CERI	5.4	SN 302424	103.6	59.7	0	A	19.0	12.9	0.3	C	E,L,S,St
10	BANC	3.2	SN 355418	0	0	0	E	27.3	9.3	14.1	B	E,L
17	CLEDRYN	4.1	SN 502455	91.5	11.9	0	B	68.6	5.9	0	B	B,E,L
21	GRANNELL *	4.1	SN 516509	115	3.9	0	B	115.0	2.1	1.5	B	B,E,M,L,St
28	BREFI	6.7	SN 681546	59.9	1.8	0	B	9.9	1.8	0.6	D	B,E,M,St
30	BRENIG	6.4	SN 674590	243.0	14.9	0	A	8.2	8.4	0	C	B,E,M,St
32	GROES	4.5	SN 702606	4.0	16.0	0	B	23.5	5.2	2.5	B	B,E,L
39	EGNANT	2.4	SN 769656	39.5	45.0	0	A	0	11.3	3.3	B	
MEAN				82.6	22.2	0	A	39.7	11.1	2.6	B	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

TEIFI CATCHMENT SUMMARY				SEMI-QUANTITATIVE								SITE
NUMBER OF FISH PER 100M 2												
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	DYFAN	2.9	SN 216428	0	0	0	E	8.3	5.5	0.6	C	E,L,M,St
2	ARBERTH	3.2	SN 219437	5.0	3.1	0	D	49.0	11.2	0.6	B	E,L,M,St,Fl
5B	MAMOG	2.9	SN 295362	0	0	0	E	24.5	7.7	0.7	A	E,L
9	CERI	4.9	SN 318445	0.4	0	0	D	28.7	19.4	2.4	A	E,L,S,RT
9B	DULAIS	3.4	SN 315467	0	0	0	E	31.0	35.0	4.0	A	E,S
10A	BANC	2.4	SN 368429	0	0	0	E	56.7	10.0	0	B	E,L
15	TALOG	3.7	SN 463378	29.0	12.0	0	A	15.7	12.4	0.5	B	E,L
15A	CERDIN	3.6	SN 415421	62.0	23.2	0	A	19.5	16.4	4.3	B	E,L
18	HUST	3.3	SN 508424	3.8	14.4	0	B	89.0	9.3	0	A	E,L,B,M,St
19	DUAR	5.0	SN 524444	25.2	1.6	0	B	16.8	6.8	0.8	C	B,E,M,St
22B	CREUDDYN	2.6	SN 567493	0	0	0	E	30.3	7.5	1.6	B	E,M,St
25	CLYWEDOG	5.4	SN 623511	22.0	4.4	0	B	14.0	5.2	1.9	B	E,M,St
27	BREFI	4.3	SN 646549	22.5	4.2	0	B	26.7	23.5	2.3	A	E
31	BERWYN	6.9	SN 694598	14.0	1.4	0	C	14.0	1.2	0	C	E
33	CAMDDWR	3.4	SN 671656	87.0	2.3	0	A	3.5	5.2	0	C	B,E,L,M,St
33A	CAMDDWR	3.4	SN 659669	22.0	1.8	0	C	7.5	1.8	0	D	E,St
33B	CAMDDWR FACH	2.2	SN 715647	0	2.2	0	D	0	2.2	0	D	
34	FFLUR	3.3	SN 715647	1.8	10.0	0	C	16.3	1.8	0	C	
37	TEIFI	7.2	SN 730666	31.8	0	0	C	6.9	1.3	1.3	D	E,L,M,St
MEAN				17.2	4.2	0	C	24.1	9.7	1.1	A	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

TEIFI

CATCHMENT SUMMARY

5 MINUTE FRY SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	O.S. MAP REFERENCE	SALMON		TROUT		OTHER SPECIES
			0+	>1+	0+	>1+	
1	TEIFI	SN 218436	33	0	6	0	
2	TEIFI	SN 256422	48	0	7	0	
3	TEIFI	SN 314405	41	0	2	0	
4	TEIFI	SN 367405	71	0	0	0	
5	TEIFI	SN 419406	81	0	0	0	
6	TEIFI	SN 456402	109	0	2	0	
7	TEIFI	SN 472412	51	0	2	0	
8	TEIFI	SN 521444	111	0	2	0	
9	TEIFI	SN 583475	72	0	7	0	
10	TEIFI	SN 615498	86	0	7	0	
12	TEIFI	SN 642546	51	0	1	0	
13	TEIFI	SN 646565	59	0	7	0	
14	TEIFI	SN 675585	52	0	7	0	
15	TEIFI	SN 703665	75	0	7	0	
MEAN			67.1	0	4.1	0	

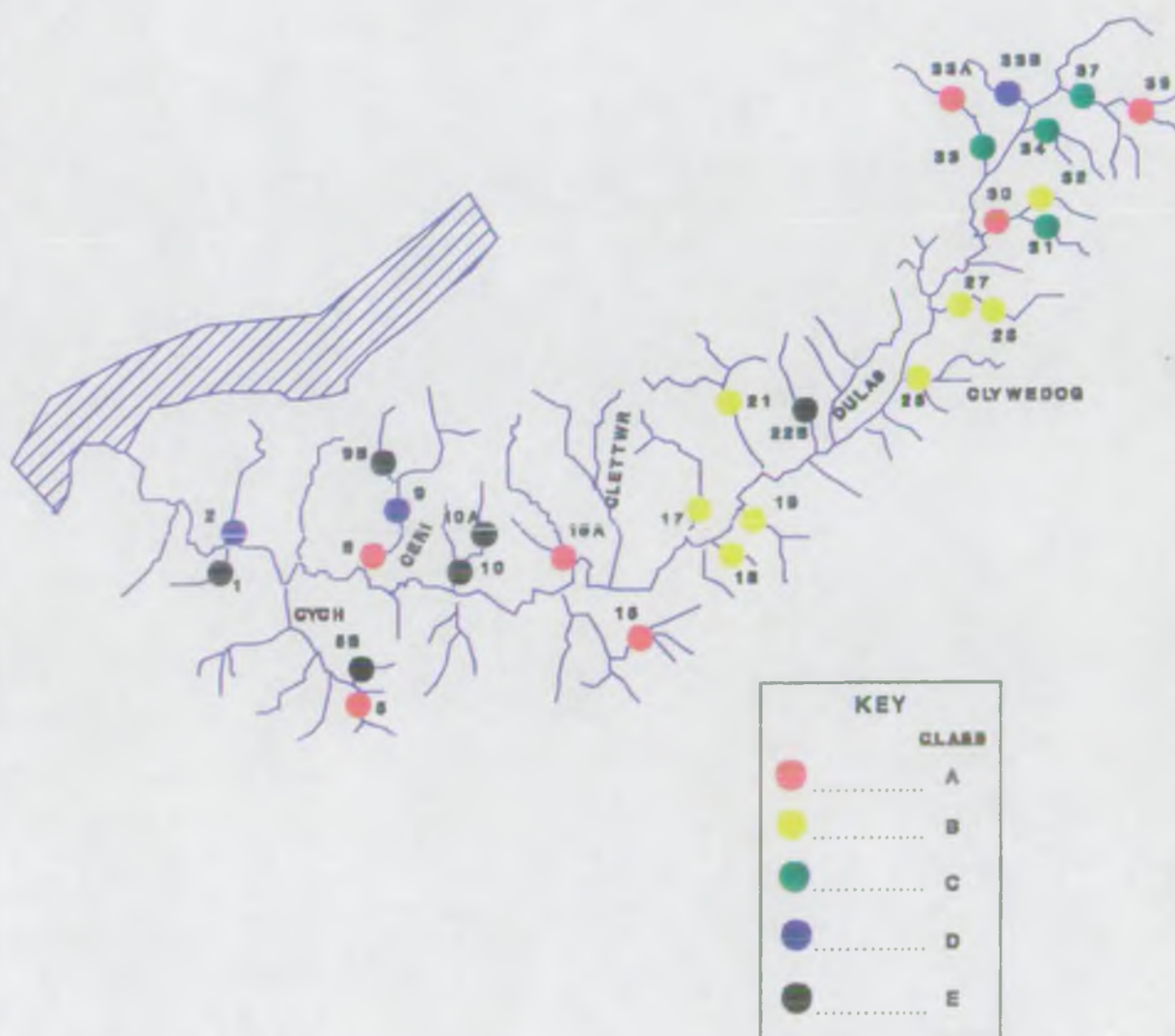
PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

RIVER TEIFI

SALMON DENSITIES

1991 SURVEY



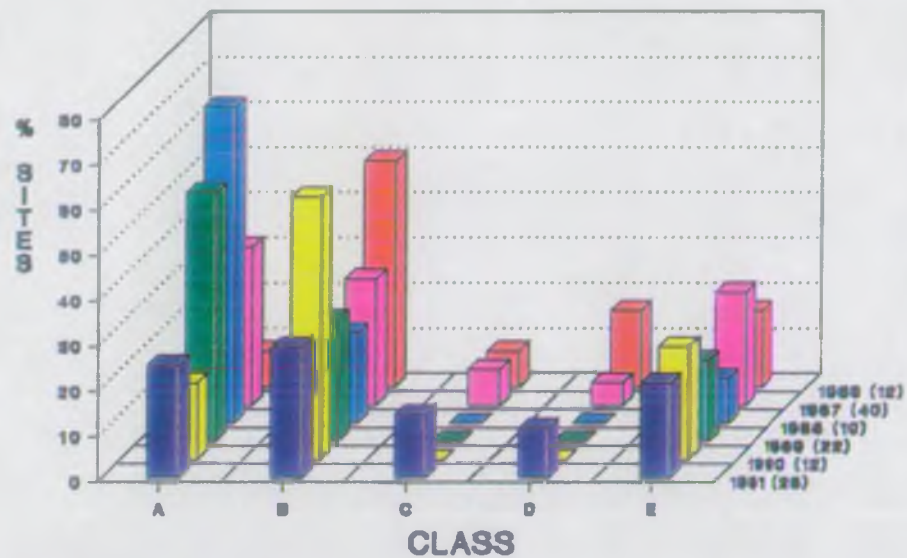
RIVER TEIFI

TROUT DENSITIES

1991 SURVEY

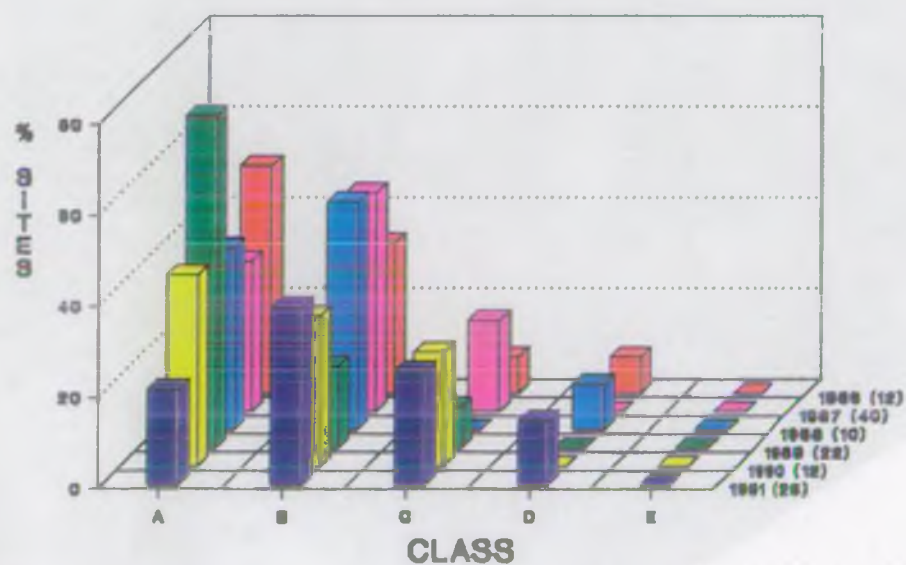


RIVER TEIFI - SALMON % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER TEIFI - TROUT % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER TYWI SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Predominantly dairy cattle with livestock rearing in the upper catchment. Coniferous forestry and water supply in the upland areas.

Water Quality -

Fishery Status - Average Catch: Rods: 761 Salmon 5,400 Sea Trout
(1894 - 1990) Nets: 197 Salmon 1,728 Sea Trout

2. Sampling Programme.

1985 - 16 quantitative sites.
1986 - 40 quantitative sites (only semi-quantitative data for 0+ fish).
1987 - 8 quantitative and 29 semi-quantitative sites.
1988 - 9 quantitative and 22 semi-quantitative sites.
1989 - 8 quantitative and 25 semi-quantitative sites.
1990 - 9 quantitative, 10 semi-quantitative and 17 riffle sites.
1991 - 9 quantitative, 17 semi-quantitative and 14 riffle sites.

3. Assessment of Status.

Number (%) of sites in each category in 1991.

	A	B	C	D	E
Salmon	0 (0)	4 (15)	4 (15)	12 (47)	6 (23)
Trout	3 (12)	12 (46)	7 (27)	4 (15)	0 (0)

4. Key Points.

- 4.1 Salmon were recorded from 77% of the catchment. The Duals (23), a gravel based tributary which dries up during low flows, supported the highest density of salmon fry (101 per 100m²). Densities of fry in the main river and tributaries, however, were generally low and consistent with previous surveys. Fry were recorded further up the main river and were recorded at Rhandirmyn (where they were previously absent) reflecting the success of the liming early in the year.
- 4.2 Salmon parr were poorly distributed and present in low numbers throughout. The mean parr density at quantitative sites was very low (2.4 per 100m²) and similar to that reported in 1985 (mean 1.4 per 100m²) when concern was first expressed in low parr densities.
- 4.3 Trout were recorded from all sites. Fry were abundant at only 2 sites (Cennen and Annell) but were relatively more numerous in the main river sites.
- 4.4 Trout parr were well distributed, being absent from only one site (Cothi) which had been affected by Flood Defence.
- 4.5 The classification of several sites had deteriorated since previous surveys and were cause for concern. Habitat degradation was considered to be responsible for poor stocks in the Cothi (20A); Bran (34) and Gothern (7); water quality problems at sites Blotweth (11) and Myddfai (23) and cows flows (Marlais 16). The reason for low densities in the Dulas (26B and 26C) has yet to be determined.

- 4.6 In view of the localised problems and alleged agricultural problems throughout the catchment, a more intensive survey of fry and macroinvertebrates sites is proposed for 1992.

FISHERIES MONITORING PROGRAMME

TYWI CATCHMENT SUMMARY				QUANTITATIVE SITE								
NUMBER OF FISH PER 100M 2												
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
5	GWILI	3.1	SN 441287	27.0	0.6	0	C	36.1	13.8	7.0	B	B,E,L,M,St
11	BLOTWETH	4.9	SN 528345	0	2.0	0.5	D	10.5	11.9	9.8	B	
18	MELINDWR	4.3	SN 588378	1.9	0	0	D	20.1	9.5	1.9	C	B,E,L
22	DULAS	3.2	SN 565239	101.2	0.6	0	B	43.6	11.9	0.6	B	B,E,L,M,S,St
25	CENNEN	4.8	SN 655188	5.7	3.9	0	D	118.4	6.2	1.5	A	B,E
28	SAWDDE	11.0	SN 757242	14.0	1.3	0	D	3.6	1.1	1.0	D	B,E
34	BRAN	9.5	SN 806406	36.7	1.3	0	C	29.8	3.2	0.6	C	B,E
37	GWENLAS	4.6	SN 759390	36.4	4.5	0	C	36.5	10.6	5.4	B	B,E,L
38	GWENFFRWD	5.2	SN 763452	40.1	6.8	0	B	19.3	6.9	0.8	B	B,E,L
MEAN				29.2	2.3	0.1	C	35.3	8.3	3.2	B	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

TYWI

CATCHMENT SUMMARY

SEMI-QUANTITATIVE

SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
3	ALLTWALLIS	3.0	SN 425303	23.0	1.3	0	B	23.0	2.6	0	B	B,E,L
6	BELE	6.4	SN 371315	4.4	2.2	0	D	10.0	5.9	0	B	E
7	GOCHEN	3.0	SN 361290	5.9	2.0	0	D	4.6	3.3	0.7	C	E
13	FFIN	1.6	SN 555338	15.2	10.1	0	B	2.5	10.1	0	B	B,E
14	GORLECH *	4.9	SN 586337	10.7	0.5	0	C	4.6	0.5	0	D	B,E,St
15	ANNELL	2.3	SN 666385	0	0	0	E	58.7	7.6	4.3	A	B,E
16	MARLAIS	2.7	SN 591398	0	0	0	E	25.5	5.8	0.7	B	B,E
20A	COTHI	14.5	SN 653392	1.5	0	0	D	0.3	0	0	D	B,E,M,St
21	SANNAN	2.3	SN 559242	0	0	0	E	19.6	8.7	1.1	B	E
26B	DULAIS	3.3	SN 642267	5	0.5	0	D	8.7	2.7	0.5	C	B,E,L,M,St
26C	DULAIS	6.9	SN	2.5	0	0	D	18.3	1.4	0.4	C	B,E,L,M,St
27B	MEILWCH	7.8	SN 727245	3.1	1.0	0	D	1.8	1.0	0	D	B,E
35D	GWYDDERIG	3.1	SN 849316	5.1	1.3	0	D	12.0	4.4	0	B	B,E
35E	GWYDDERIG	5.9	SN 794354	0	0	0	E	11.1	0.7	0	C	B,E
35H	DRESGLEN	1.9	SN 835330	0	0	0	E	44.0	15.2	0	A	B
36	DUNANT	3.9	SN 755388	0	0.5	0	D	28.0	7.0	0	B	B,E,L,St
40	NANT Y FFIN	2.4	SN 786470	0	0	0	E	13.7	1.7	0	C	
MEAN				4.5	1.1	0	D	16.9	4.6	0.5	B	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

TYWI

CATCHMENT SUMMARY

5 MINUTE FRY SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	O.S. MAP REFERENCE	SALMON		TROUT		OTHER SPECIES
			0+	>1+	0+	>1+	
1	TYWI	SN 774459	0	0	10	0	
2	TYWI	SN 777436	1	0	15	0	
3	TYWI	SN 763362	3	0	18	0	
4	TYWI	SN 755335	24	0	13	0	
5	TYWI	SN 736319	4	0	23	0	
6	TYWI	SN 466214	0	0	7	0	
7	TYWI	SN 433207	19	0	33	0	
9	TYWI	SN 717310	26	0	23	0	
11	TYWI	SN 676255	2	0	17	0	
12	TYWI	SN 644230	11	0	24	0	
13	TYWI	SN 507201	13	0	1	0	
14	TYWI	SN 592215	4	0	24	0	
15	TYWI	SN 581215	13	0	13	0	
16	TYWI	SN 507217	15	0	15	0	
MEAN			9.6	0	16.9	0	

PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

RIVER WYRE SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Mixed dairying and livestock rearing.
Water Quality - Class 1A and 1B throughout main river.
Fishery Status - Average Catch:
(1984 - 1990) Rods: 8 Salmon; 42 Sea Trout.

2. Sampling Programme.

1986 - 3 semi-quantitative sites.
1991 - 8 semi-quantitative sites.

3. Assessment of Status.

Number (%) of sites in each category in 1991.

	A	B	C	D	E
Salmon	0 (0)	0 (0)	0 (0)	3 (38)	5 (62)
Trout	4 (50)	3 (38)	1 (12)	0 (0)	0 (0)

4. Key Points.

- 4.1 Salmon were only recorded in low densities in the main river.
- 4.2 Trout were present throughout and fry were particularly abundant in the upper reaches of the main river. Trout densities were excellent in the main river, with the exception of site 2 (Felin Cwm) where agricultural pollution had been reported.
- 4.3 There was concern for the low trout densities in the Wyre Fach (1) since this site had dropped from class A in previous years to class C in 1991. It is probable that a pollution incident upstream had affected this tributary.

FISHERIES MONITORING PROGRAMME

WYRE

CATCHMENT SUMMARY

SEMI-QUANTITATIVE SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	WYRE FACH	1.7	SN 548692	0	0	0	E	13.9	1.1	1.1	C	E
1A	WYRE FACH	3.2	SN 564687	0	0	0	E	38.0	3.1	1.2	B	E, S
2	FELIN CWM	3.2	SN 584704	0	0.6	0	D	26.9	0	1.3	B	E
3	NANT CARROG	2.2	SN 563721	0	0	0	E	23.6	7.3	2.7	B	E
3A	WYRE	4.8	SN 534695	3.7	0.4	0	D	14.2	32.6	1.6	A	E, L
4	WYRE FAWR	3.1	SN 608707	0	0	0	E	33.0	28.0	2.7	A	L
5	WYRE	3.4	SN 638714	0	0	0	E	94.0	20.9	1.3	A	E, L
6	WYRE	3.4	SN 598707	0	4.0	0	D	77.0	22.0	2.3	A	E, L
MEAN				0.5	0.6	0	D	40.1	14.4	1.8	A	

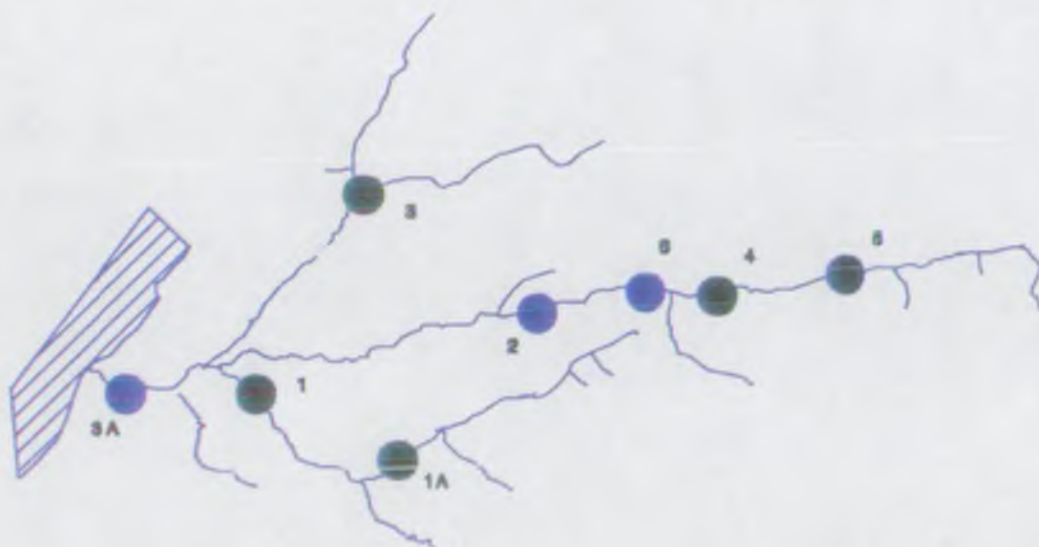
PROBABLY INACCESSIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

RIVER WYRE

SALMON DENSITIES






1991 SURVEY



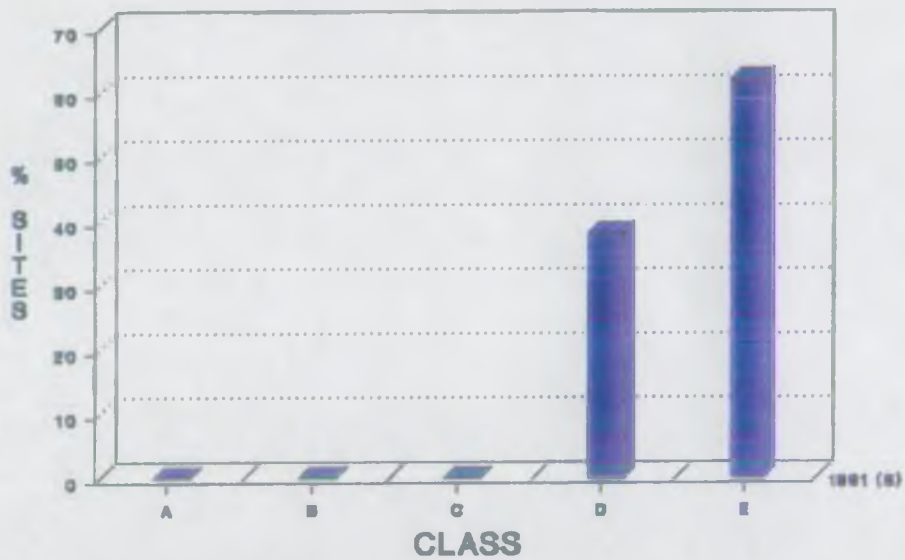
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	CLASS
●	A
●	B
●	C
●	D
●	E

RIVER WYRE TROUT DENSITIES 1991 SURVEY



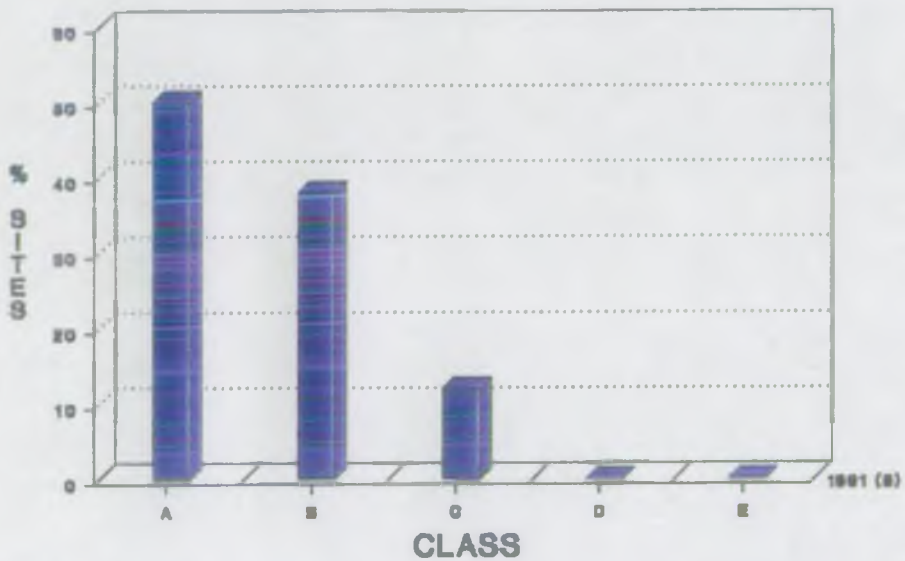
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	CLASS
 A
 B
 C
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RIVER WYRE - SALMON % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER WYRE - TROUT % OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.