

REGIONAL JUVENILE SALMONID

MONITORING PROGRAMME

ANNUAL REPORT 1992

REGIONAL FRCN DEPARTMENT  
WELSH REGION  
ST. MELLONS

JUNE 1993

ENVIRONMENT AGENCY



088276

## Introduction

The programme of juvenile salmonid stock monitoring was continued in 1992, the eighth 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 and can be used to monitor any changes to 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 and given limited resources, not all catchments can be sampled in one year. Therefore, whilst several large 'key' catchments are sampled on an annual basis the smaller catchments are sampled on a rolling programme.

Three electrofishing sampling techniques were employed during the period July to September, these being;

- 1) a catch depletion population estimate on an area of water enclosed by nets - quantitative sampling,
- 2) a one-catch density on an un-netted site - semi-quantitative site,
- 3) a five minute sample on an un-netted riffle - 5 minute riffle sample.

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 riffle sampling is usually undertaken in main rivers where the use of enclosing nets is impractical.

For the first time HABSCORE results have been included in the report. Habscore is a procedure for predicting fish densities from habitat features measured at each site. Comparing the observed fish densities with those predicted from habscore can sometimes highlight problem areas within catchments.

## Review of Results

The 1992 survey consisted of 108 quantitative sites, 268 semi-quantitative sites and 296 5 minute riffle sites. The programme was slightly curtailed due to high river levels during August and September which prevented the programme being fully completed. However, the total of 672 sites represents an increase of 75 compared to 1991. This increase was in 5 minute fry sites as a large number of sites were sampled on the rivers Dee and Ogmere as part of special investigations and are included in this report.

The results for each catchment can be found in Appendices 3, 4 and 5. For each catchment there is a textual description of the area and also a list of Key Points from the survey results. The data obtained is displayed on colour-coded maps and a comparison with previous years made in a bar chart. Any impassable barriers affecting upstream sampling sites are marked on the maps. Where 5 minute riffle sampling was carried out a graph of the results is included with previous years data for comparison when available.

Overall Regional 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 1992 in comparison to the mean for previous years. Conversely a river below the line has had an increase recorded. Increasing distance from the line indicates a larger change, 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 often 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. Salmon density appears to have decreased in the Wye although several sites were chosen specifically for trout sampling which may have biased the results and, as would be expected 0+ trout densities in the Wye show a slight increase.

Salmon parr (>0+) densities again appear to be stable in most catchments although there does appear to be a decline in densities at some of the semi-quantitatively sampled rivers (figure 6). Trout parr (>0+) densities show that a decrease in most catchments has occurred, particularly in the Ogmere and Ystwyth. Densities also showed a decline in 1991 which was attributed to a series of dry summers.

Figure 9 shows the mean density of 0+ and >0+ salmon at 41 key quantitative sites sampled annually since 1986. The mean density of both age classes of salmon has been below the 5 year mean for the past 3 years. Figure 10 is the same plot for 0+ and >0+ trout at the same sites. The mean density of >0+ trout shows a steady decline since 1986 with a slight recovery in 1992. 0+ trout mean density has risen from the low of 1990 in both 1991 and 1992, being greater than the 5 year mean in the latter year. We may well see a further increase in >0+ trout density in 1993 as a consequence of the high numbers of fry in 1992.

From the summary of Habscore results (Appendix 6) it is apparent that the majority of sites are satisfactory, as observed fish densities are close to those predicted from the habitat measurements. Where differences do occur they are consistent at the site and can usually be accounted for by a simple explanation. For example Habscore predicts class A for salmon on the Ithon, a river Wye tributary, whilst the observed class is C or D. It appears that regular gravel removal takes place immediately upstream of this site which accounts for the depression of the salmon stocks. Habscore will now form an integral part of the programme and will be discussed in further detail in preceding years.

To conclude, populations of juvenile salmon have remained generally stable whilst trout population are beginning to recover following a period of decline. It is important that a number of key sites are sampled annually in order that direct comparisons can be made between the mean densities recorded during each year.

A number of problem areas on catchments have been identified, many of which require further more detailed investigation to define the causes and appropriate ameliorative action. For example a detailed survey of parts of the Upper Wye is scheduled for 1993 to investigate the apparent decline in juvenile salmonids in parts of the catchment.

The tables below summarise the results of the 1992 regional Monitoring Programme.

**TABLE 1. REGIONAL SUMMARY - QUANTITATIVE SITES**

RIVER SURVEYED	No. OF SITES	SALMON				TROUT			
		MEAN DENSITY/100m <sup>2</sup>			CLASS	MEAN DENSITY/100m <sup>2</sup>			CLASS
		0+	1+	>1+		0+	1+	>1+	
CEFNI	5	0	0	0	E	42.4	5.9	1.8	B
CONWY	23	46.8	7.4	0.1	B	47.4	5.6	1.9	B
CLWYD	4	28.4	9.8	1.0	B	59.3	16.1	3.8	A
DEE	17	30.5	4.9	0	C	29.5	5.7	2.3	B
DYFI	4	0.2	8.1	0	C	74.1	7.6	1.5	B
MAWDDACH	4	38.8	22.4	0	B	33.9	17.1	4.7	B
OGWEN	2	15.6	15.0	0	C	44.8	9.0	1.0	B
SEIONT	1	99.2	20.1	2.2	A	39.9	0	1.1	C
WYE	15	62.1	4.4	0	B	16.1	2.9	2.3	D
OGMORE	12	0.2	0.1	0	D	34.7	18.1		B
TEIFI	10	70.6	24.0	0.1	A	54.5	15.1	3.9	A
TYWI	11	13.4	12.8	0.1	C	70.6	35.8	4.7	A

**TABLE 2. REGIONAL SUMMARY - SEMI-QUANTITATIVE SITES**

RIVER SURVEYED	No. OF SITES	SALMON				TROUT			
		MEAN DENSITY/100m <sup>2</sup>			CLASS	MEAN DENSITY/100m <sup>2</sup>			CLASS
		0+	1+	>1+		0+	1+	>1+	
CEFNI	4	0	0	0	E	7.4	2.5	0.4	C
CONWY	2	7.4	0.5	0	D	1.0	0	0	D
CLWYD	14	9.5	1.3	0	D	18.8	5.4	2.5	B
DEE	10	19.7	4.7	0.1	B	14.3	2.4	1.4	B
DYFI	14	7.5	1.5	0	D	13.5	8.0	2.4	B
GWYRFAI	15	6.2	2.3	0.2	C	33.8	1.1	0.2	B
LERI	6	0.8	0.3	0	D	15.7	10.9	3.4	B
MAWDDACH	15	1.3	2.7	0	C	3.2	6.6	1.7	C
OGWEN	9	10.2	2.4	0	C	5.4	3.0	1.9	C
USK	12	2.2	2.9	0	D	3.0	3.1	3.2	C
WYE	85	9.8	1.3	0	D	7.1	2.5	1.6	C
AFAN	15	0	0	0	E	26.8	6.0	3.3	B
E.CLEDDAU	10	0.7	3.5	0	C	10.8	14.5	3.4	B
GWENDRAETH FCH	10	0	0.1	0	D	11.5	1.8	0.8	B
OGMORE	29	1.8	0.2		D	9.3	5.3		C
RHEIDOL	5	0	5.0	0	D	20.0	18.0	3.4	A
TYWI	18	10.5	3.2	0	B	20.9	8.0	1.0	B
YSTWYTH	5	0	1.4	0	D	23.1	13.6	0.9	A

Figure 1. MEAN 0+ SALMON DENSITY IN QUANTITATIVE SITES IN 1992 AND PREVIOUS YEARS

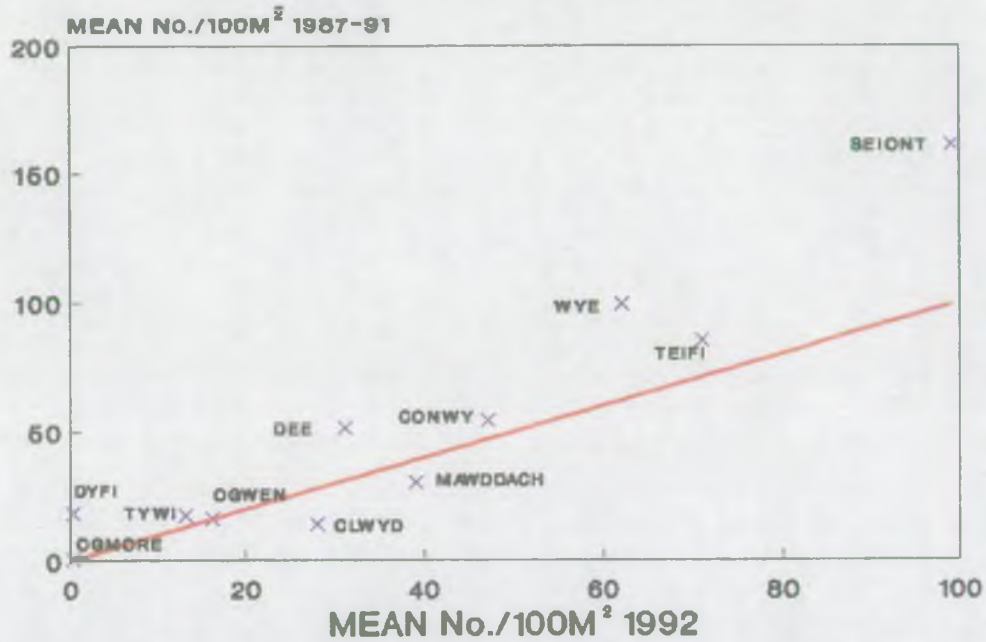


Figure 2. MEAN >0+ SALMON DENSITY IN QUANTITATIVE SITES IN 1992 AND PREVIOUS YEARS

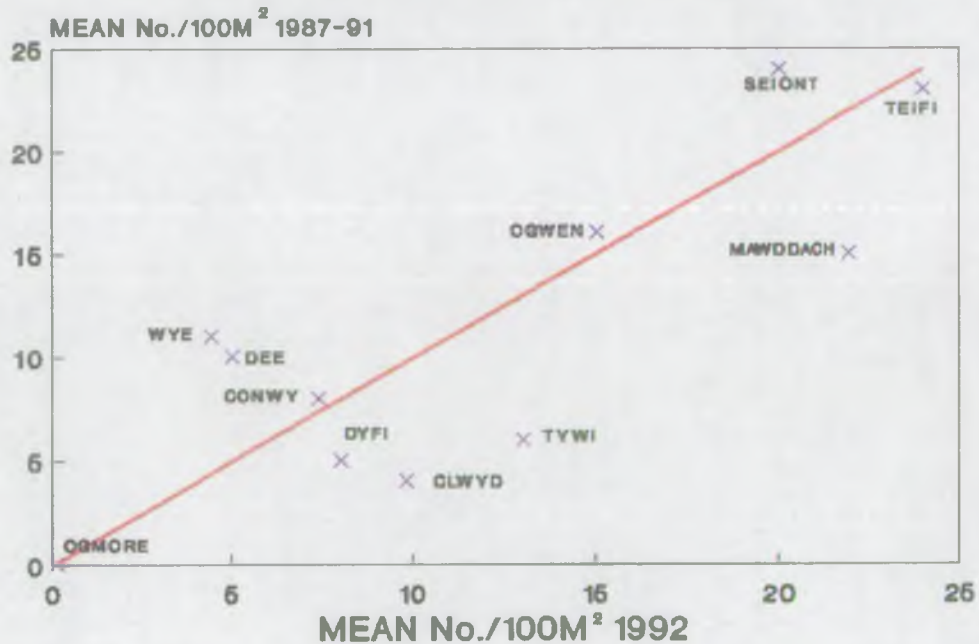






Figure 3. MEAN 0+ TROUT DENSITY IN QUANTITATIVE SITES IN 1992 AND PREVIOUS YEARS

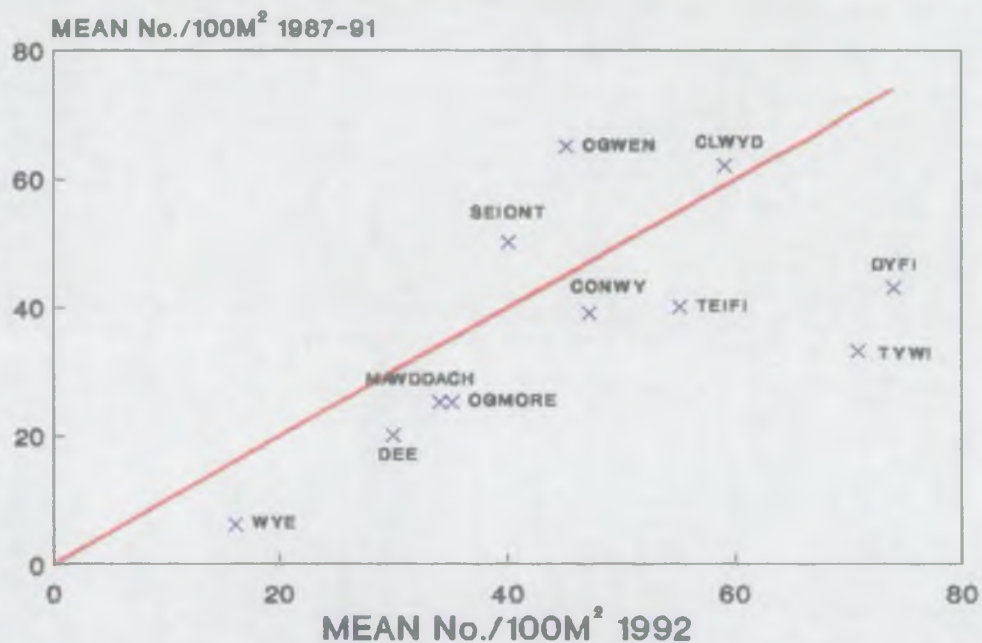


Figure 4. MEAN >0+ TROUT DENSITY IN QUANTITATIVE SITES IN 1992 AND PREVIOUS YEARS

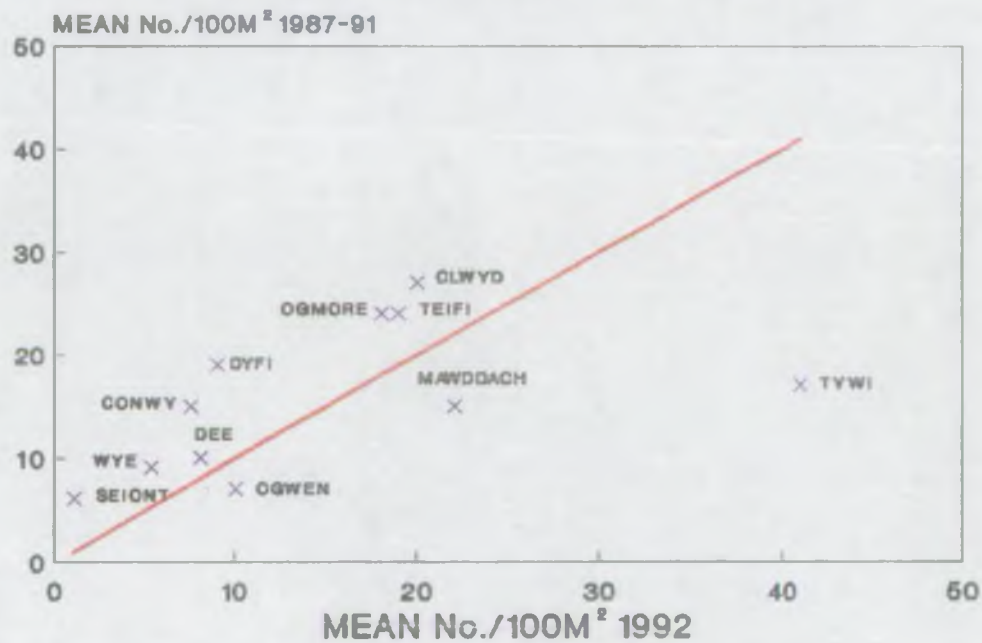






Figure 5. MEAN 0+ SALMON DENSITIES IN SEMI-QUANT SITES IN 1992 AND PREVIOUS YEARS

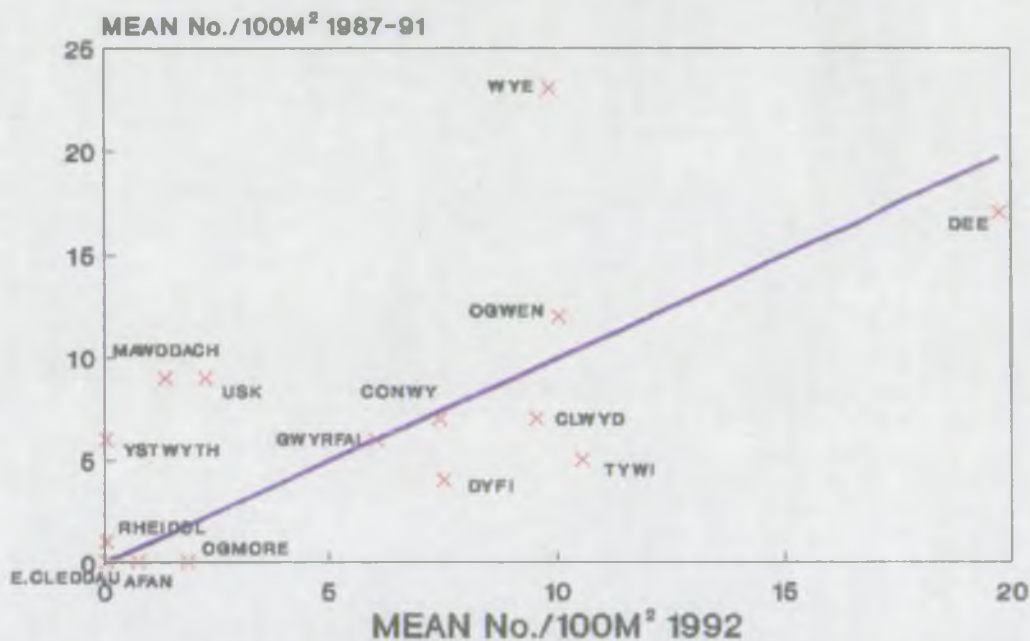


Figure 6. MEAN >0+ SALMON DENSITIES IN SEMI-QUANT SITES IN 1992 AND PREVIOUS YEARS

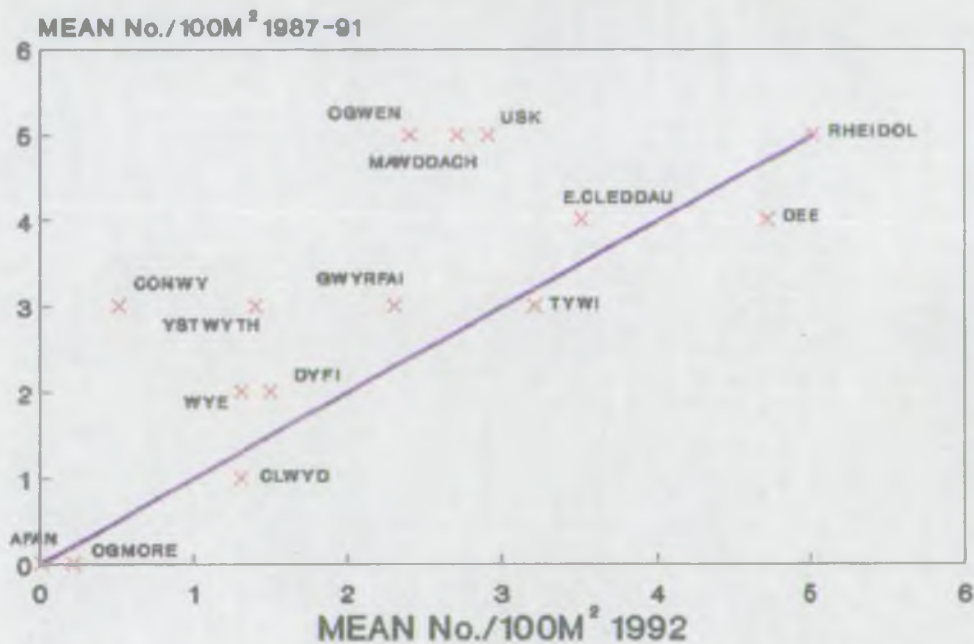






Figure 7. MEAN 0+ TROUT DENSITIES IN SEMI-QUANT SITES IN 1992 AND PREVIOUS YEARS

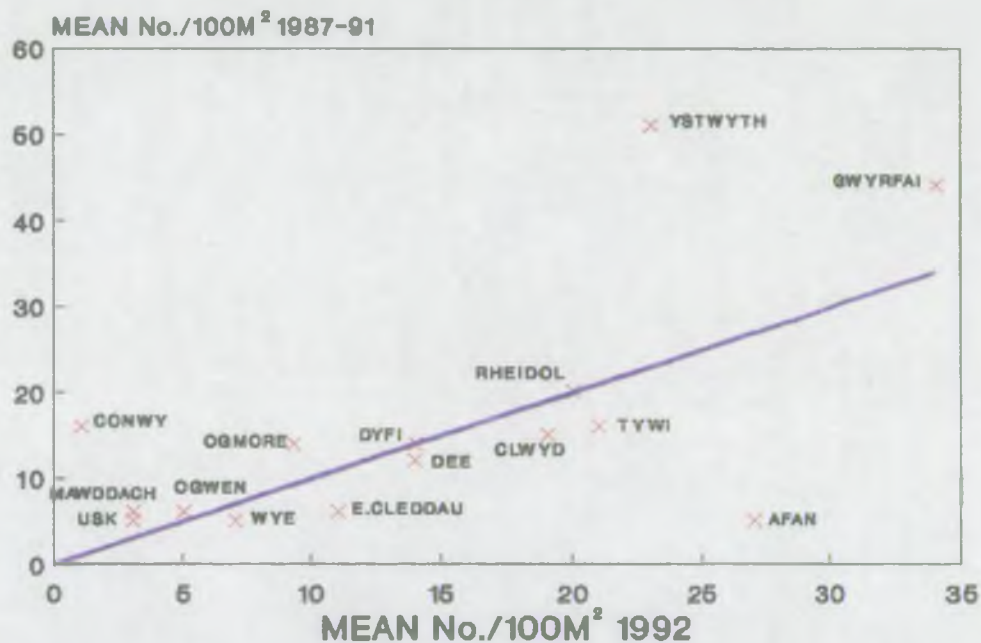


Figure 8. MEAN >0+ TROUT DENSITIES IN SEMI-QUANT SITES IN 1992 AND PREVIOUS YEARS

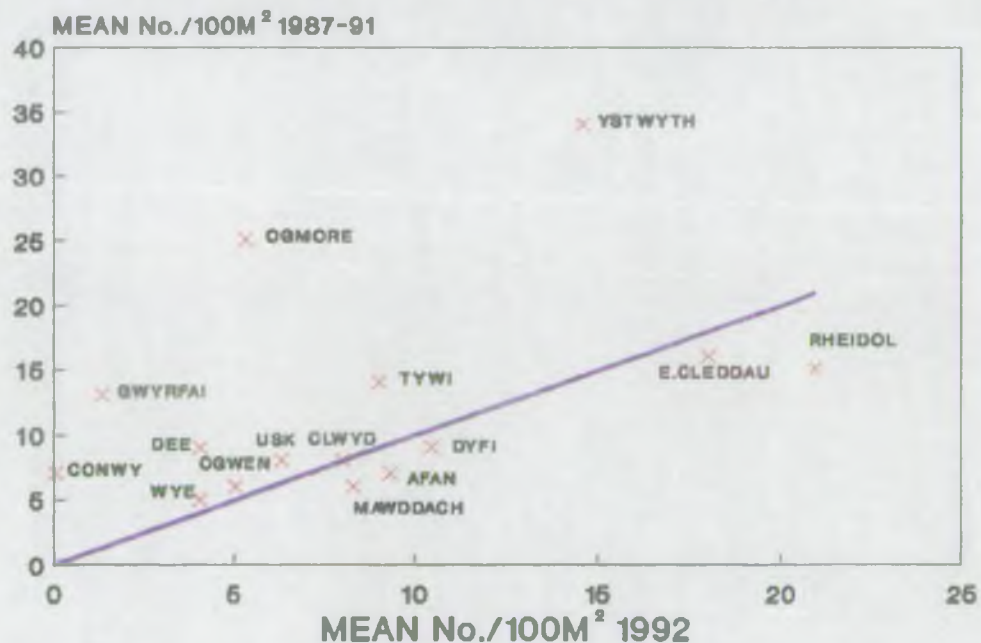




Figure 9. MEAN SALMON DENSITY AT KEY  
QUANTITATIVE SITES 1986-1992

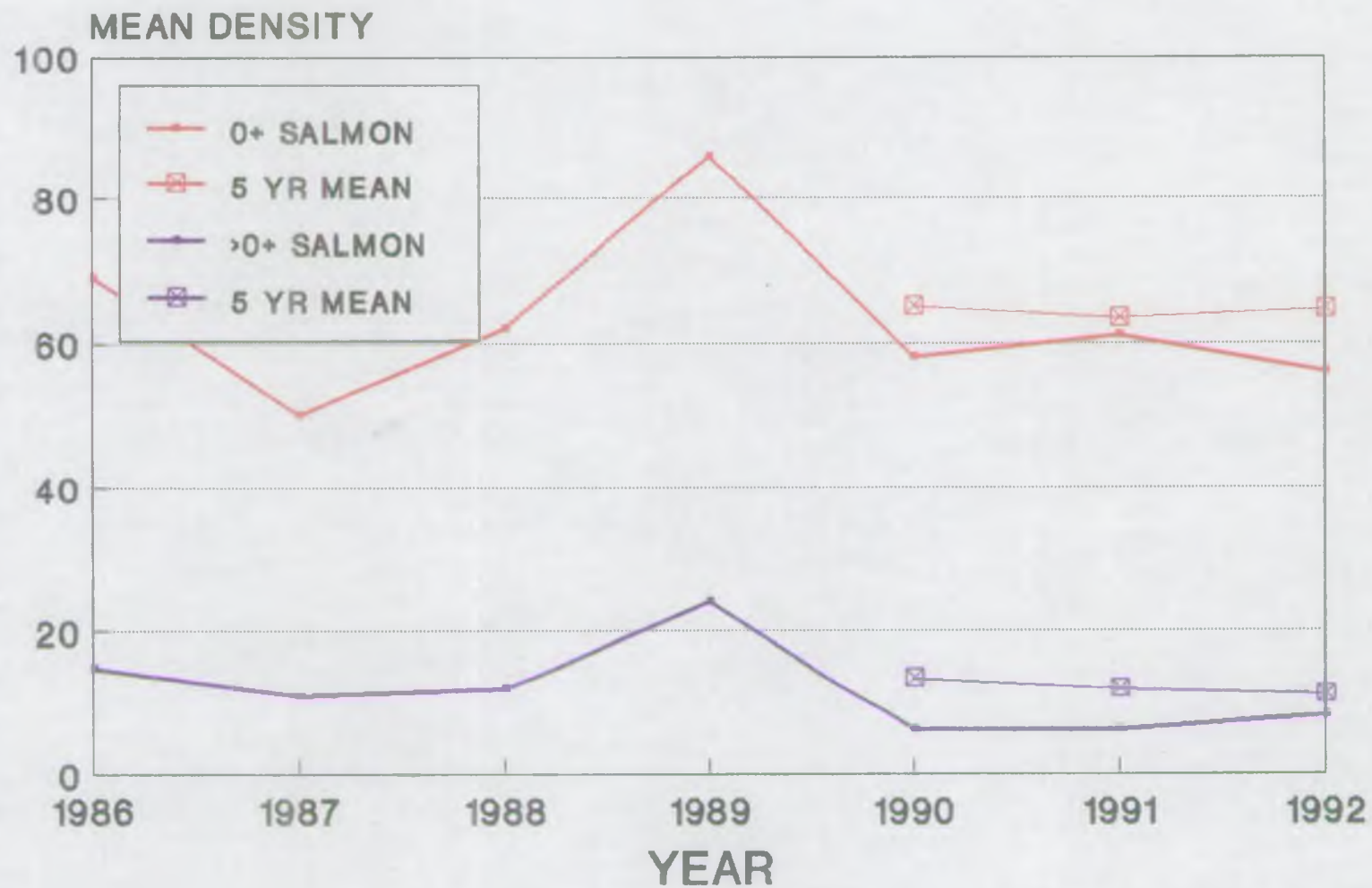
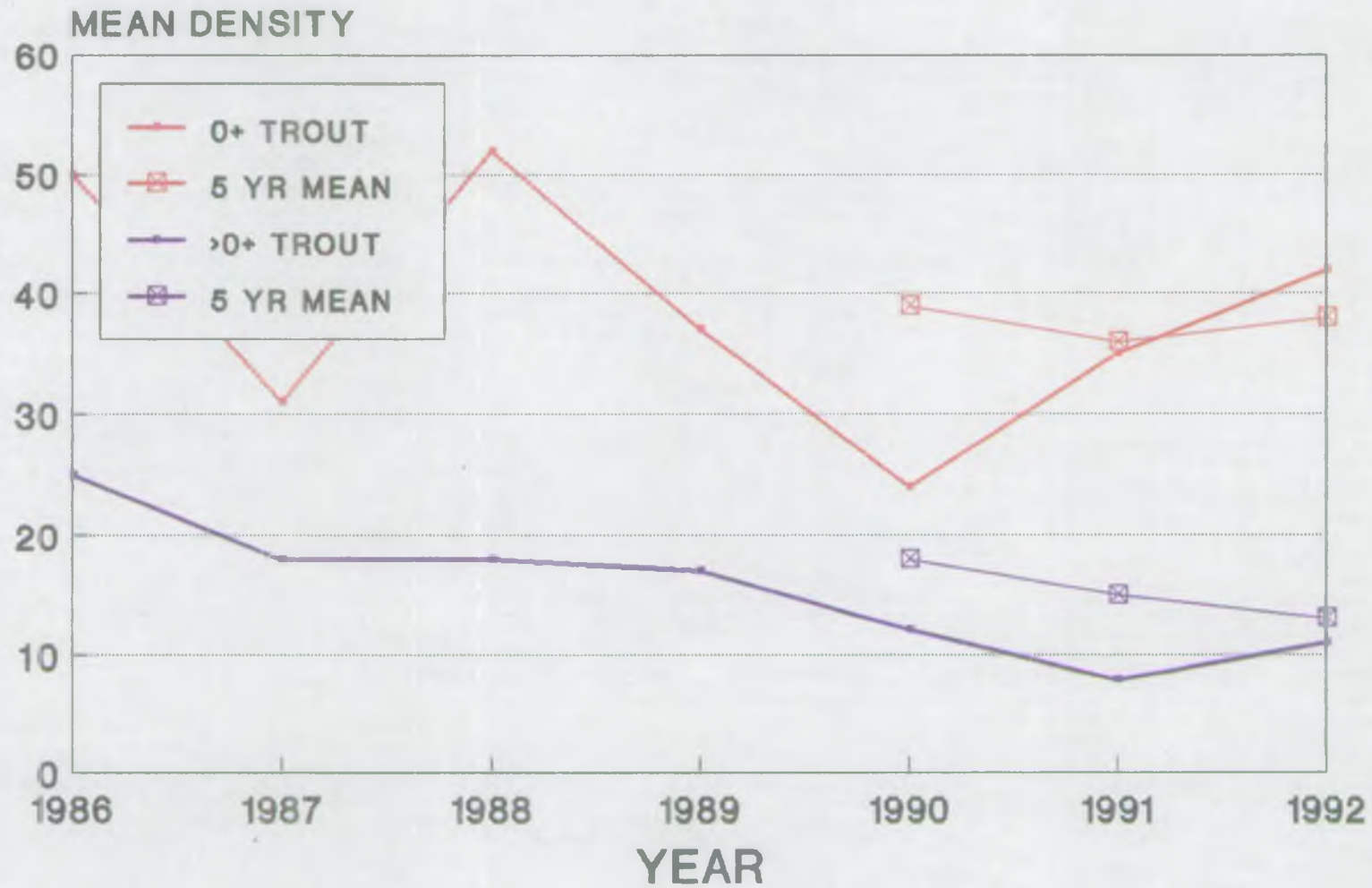






Figure 10. MEAN TROUT DENSITY AT KEY  
QUANTITATIVE SITES 1986-1992





# APPENDIX 1

Abundance categories (numbers 100 m<sup>2</sup>) 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			



APPENDIX 3  
NORTHERN DIVISION  
CATCHMENT SUMMARIES.

**GWYNEDD DISTRICT**

## AFON CEFNI SUMMARY

### 1. Catchment and Fishery Characteristics

Land use - middle reaches urban and industrial with reservoir in upper reaches. Elsewhere improved grazing.

Water quality - Cefni d/s industrial estate - class 3  
Cefni u/s Llangefni - class 1B  
A Ceint - class 1B

### 2. Sampling Programme

1992 - 4 semi-quantitative, 5 quantitative, 1 five minute fry site.

### 3. Assessment of status

No % of sites in each category

	A	B	C	D	E
Salmon					9(100)
Trout	0	4(44)	3(33)	2(22)	0

### 4. Key Points

Mean class B for trout was surprisingly high given the poor water quality in the catchment. Most sites fished were above the worst polluted industrial section except site 6 which was class D. Site 1 which was also poor was canalised and devoid of instream cover.

(KVH/fc3558)

FISHERIES MONITORING PROGRAMME 1992

CEFNI

CATCHMENT SUMMARY

QUANTITATIVE SITES

NUMBER OF FISH PER 100M<sup>2</sup>

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
3	CEINT	1.8	SH489748	0	0	0	E	14.2	5.9	1.2	C	E
4	CEINT	3.3	SH499759	0	0	0	E	30	12	1.6	B	E
7	CEFNI	3.3	SH457759	0	0	0	E	69.4	3.9	0	B	E, FL
8	CEFNI	3.3	SH452765	0	0	0	E	6.1	3	5.5	C	E
9	CEFNI	3.8	SH462762	0	0	0	E	92.2	4.7	0	B	E
MEAN				0	0	0	E	42.4	5.9	1.8	B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME 1992

CEFNI

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	
1	CEFNI	3	SH470743	0	0	0	E	1.3	0	0	D	E,FL,M
2	CEFNI	2.6	SH480752	0	0	0	E	15.2	9.6	1.6	B	E,S
6	CEFNI	4.6	SH461746	0	0	0	E	11.9	.3	0	C	
10	CEFNI TRIB.	1.4	SH466777	0	0	0	E	11.9	.3	0	C	
MEAN				0	0	0	E	7.4	2.5	.4	C	

#/ PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME 1992

CEFNI

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+	
5	CEINT	SH501760	0	0	5	0	E,S

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

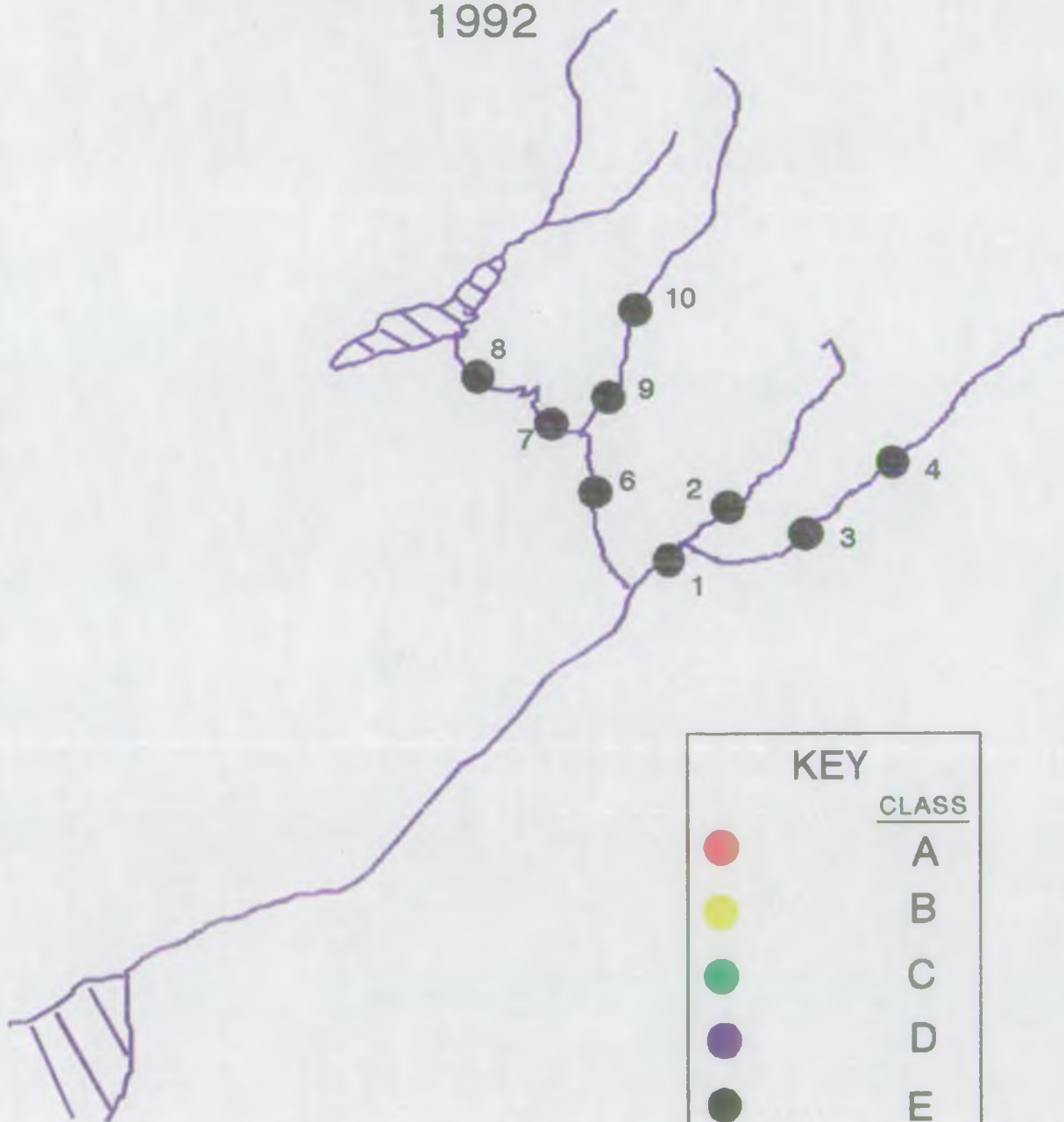
\* MINIMUM ESTIMATE



# RIVER CEFNI

## SALMON DENSITIES

### 1992

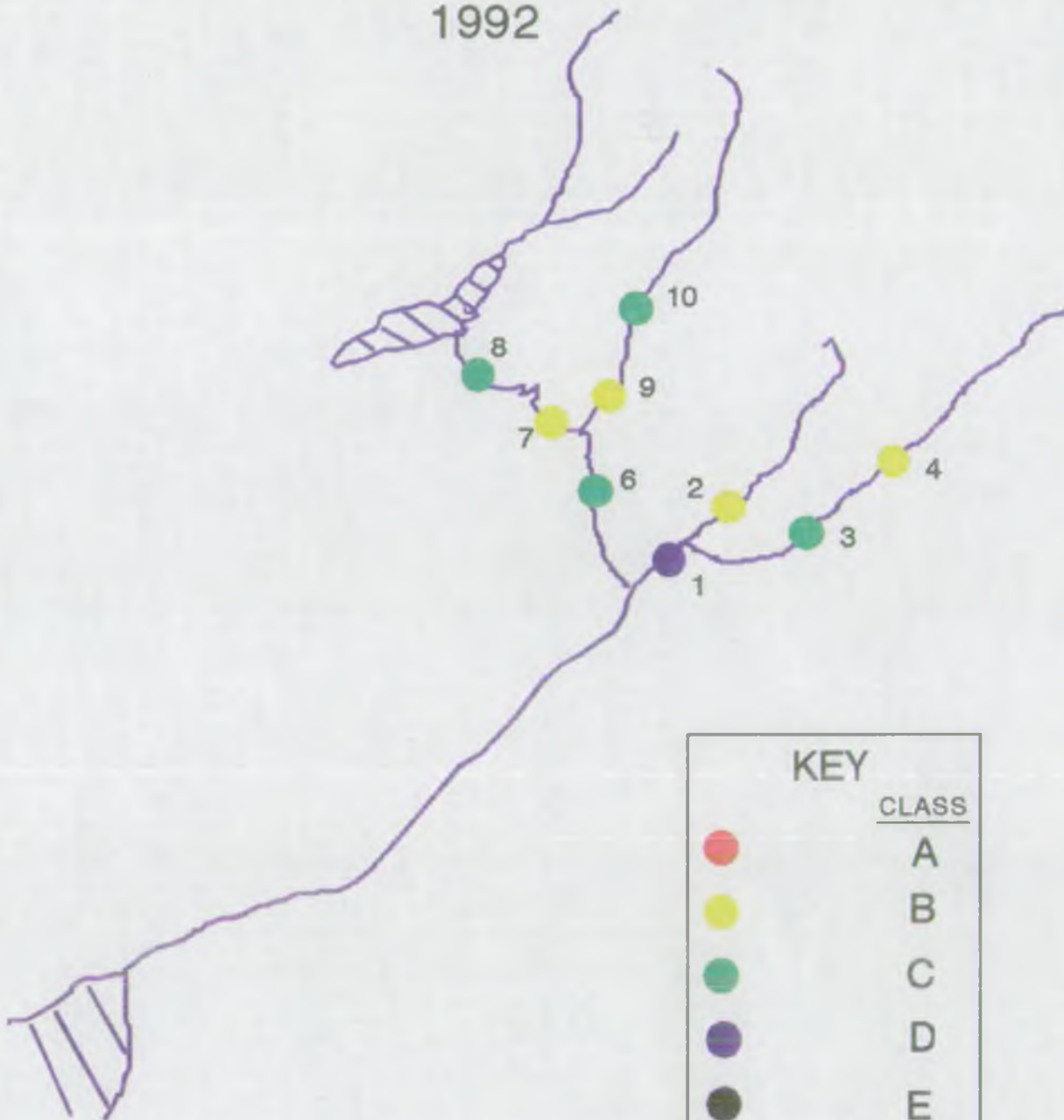




# RIVER CEFNI

## TROUT DENSITIES

1992



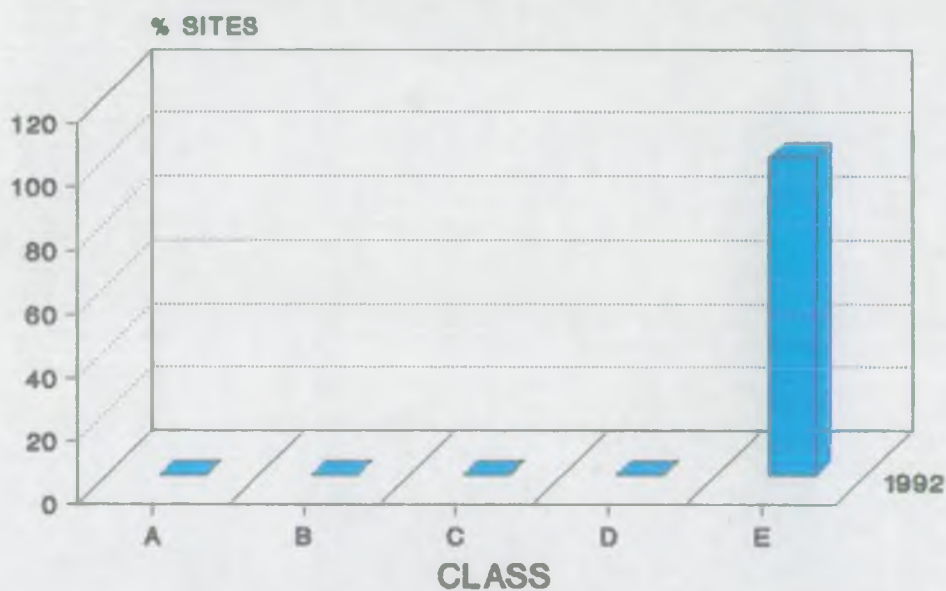
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	CLASS
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<span style="color: yellow;">●</span>	B
<span style="color: green;">●</span>	C
<span style="color: purple;">●</span>	D
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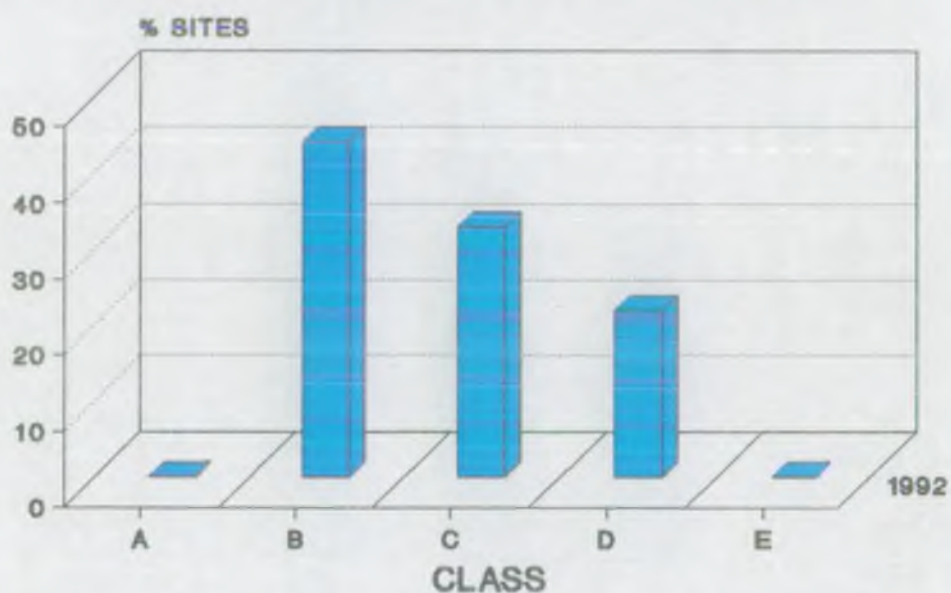
## RIVER CEFNI - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER CEFNI - TROUT

### % OF SITES IN EACH CATEGORY







## 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: 429 salmon, 404 sea trout (1987 - 1991) Nets: 125 salmon, 68 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.  
1992 23 Quantitative and 2 semi-quantitative sites.

### 3. Assessment of Status.

Number (%) of sites in each category in 1990.

	A	B	C	D	E
Salmon	4( 16)	7( 28)	5( 20)	3( 12)	6( 24)
Trout	3( 12)	9( 36)	4( 16)	9( 36)	0( 0)

### 4. Key Points.

1. 0+ trout densities were generally above running mean densities (based on 5-10 years data) at most sites (83%) while >0+ trout densities were below running mean densities at a majority (57%) of sites.
2. 0+ salmon densities were above running mean densities at all sites. >0+ salmon densities were generally above running mean densities (82% sites).
3. Salmon and sea trout were stocked into the Conwy system both upstream and down stream of Conwy Falls.
4. Construction of the Conwy Falls fish pass began in March 1993, and is scheduled to be completed in August.

## FISHERIES MONITORING PROGRAMME 1992

## CONWY 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	2.7	SH 803609	97.0	9.6	0	B	20.7	0	0	D	E, St
2	NANT Y GORON	3.2	SH 806608	46.5	5.0	0	B	13.8	0.6	0	D	E, St
3	NANT Y GORON	2.9	SH 806609	40.7	11.5	0	B	39.3	5.4	0	B	E
4	NANT Y GORON	3.3	SH 813607	31.8	3.7	0	C	55.1	4.3	0	B	E
5	NANT Y GORON	2.3	SH 814606	30.0	3.5	0	C	115.4	7.9	0.9	A	E
6	NANT Y GORON	1.8	SH 817602	0	0	0	E	246.7	13.3	1.1	A	E
7	NANT Y GORON	2.4	SH 817595	0	0	0	E	80.2	5.1	2.5	B	E
8	NANT Y GORON	1.7	SH 818595	0	0	0	E	41.6	11.6	3.5	B	E
9	ROE	3.9	SH 771697	54.7	14.2	0	B	18.7	16.7	1.5	B	E, Fl
10	ROE	3.9	SH 768699	54.1	5.7	0	B	46.4	1.6	0	C	E
11	ROE	4.1	SH 767702	73.7	12.7	0	B	69.8	3.9	0	C	E
12	ROE	5.0	SH 767703	104.6	11.5	0	A	52.3	0.8	0	B	E
13	ROE	5.3	SH 768708	76.2	22.5	0	A	42.4	9.4	0.4	B	E
14	LLEDR	8.8	SH 792539	19.1	8.2	0	C	7.3	4.1	0.4	D	E
15	LLEDR	7.5	SH 744524	130.7	6.4	0	A	8.3	2.7	1.6	D	E, M
16	LLEDR	8.1	SH 725521	85.1	5.4	0	B	3.4	0	0	D	E, M
17	LLEDR	7.5	SH 710517	5.6	0.3	0	D	1.1	0	0	D	E, M
18	LLEDR	5.1	SH 699516	10.9	10.5	0	C	16.4	5.9	0	C	E
19	LLEDR	4.7	SH 697513	69.5	12.6	2.5	A	21.1	2.5	0.4	D	E
20	GWYBRYNANT	2.6	SH 781535	6.2	3.1	0	D	42.0	20.2	4.7	B	E
21	NANT Y FOEL #	1.8	SH 872519					27.0	0	4.3	C	
22	NANT Y FOEL #	1.3	SH 869528					79.7	7.5	15	A	
23	NANT Y FOEL #	3.1	SH 870528					40.9	5.1	6.4	B	
MEAN				46.8	7.4	0.1	B	47.4	5.6	1.9	B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME 1992

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	37.5	SH 799614	12.3	0.1	0	C	1.6	0	0	D	E, St
25	CONWY	13.8	SH 798549	2.6	1.0	0	D	0.6	0	0	D	E
MEAN				7.4	0.5	0	D	1.0	0	0	D	

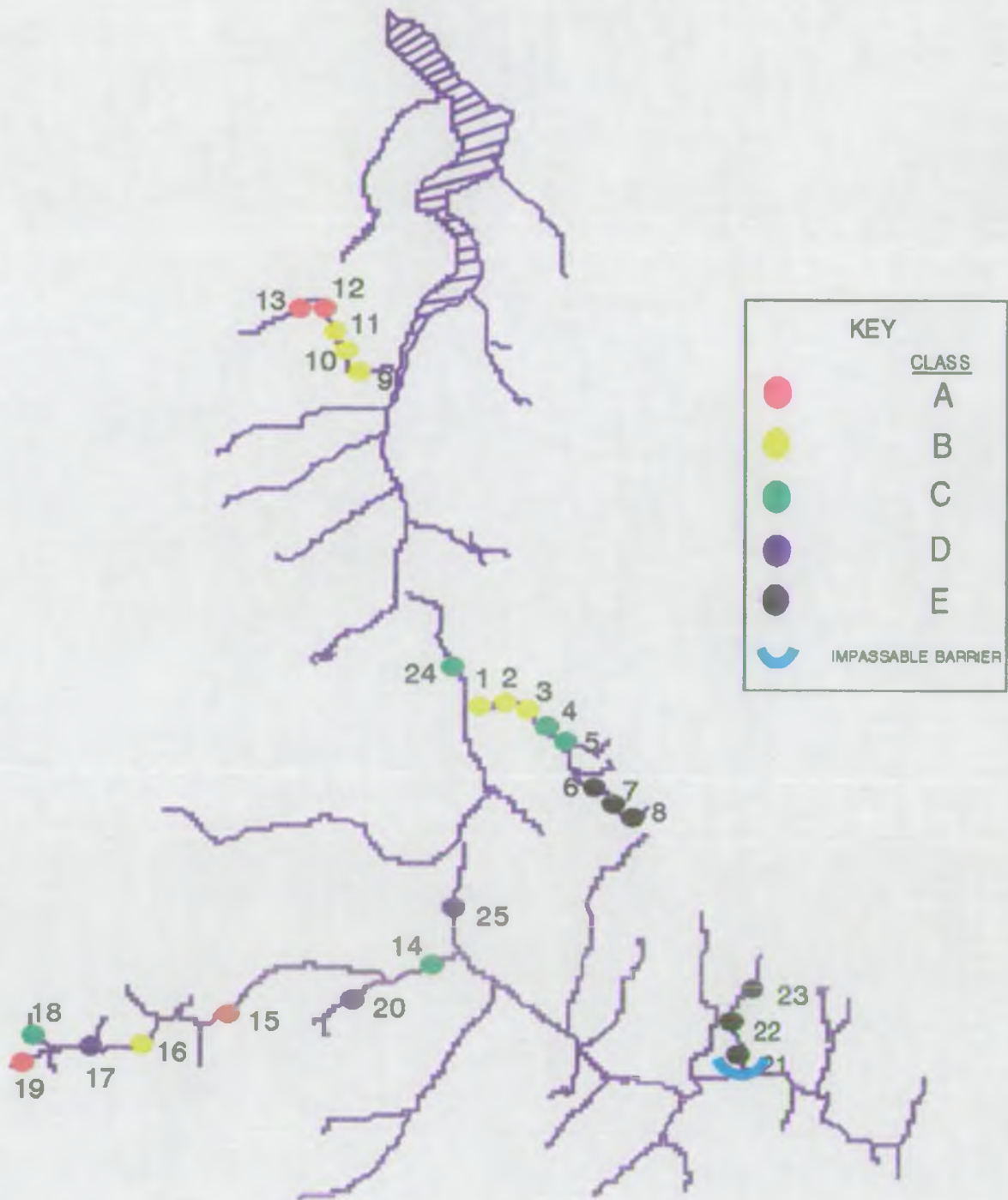
# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# RIVER CONWY

## SALMON DENSITIES

### 1992



WVDO FIVE

22 APR 1962

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1001

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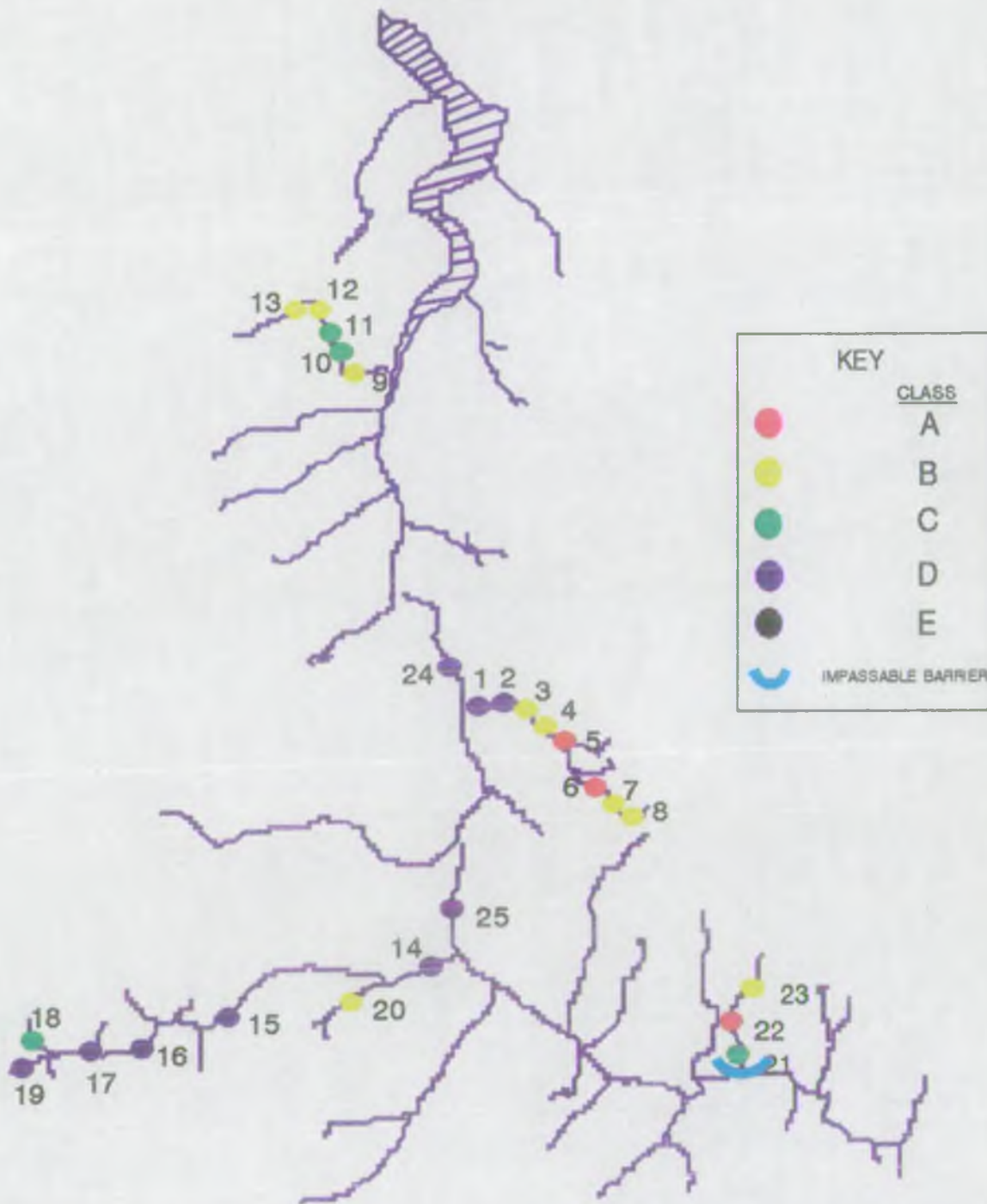
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# RIVER CONWY

## TROUT DENSITIES

### 1992



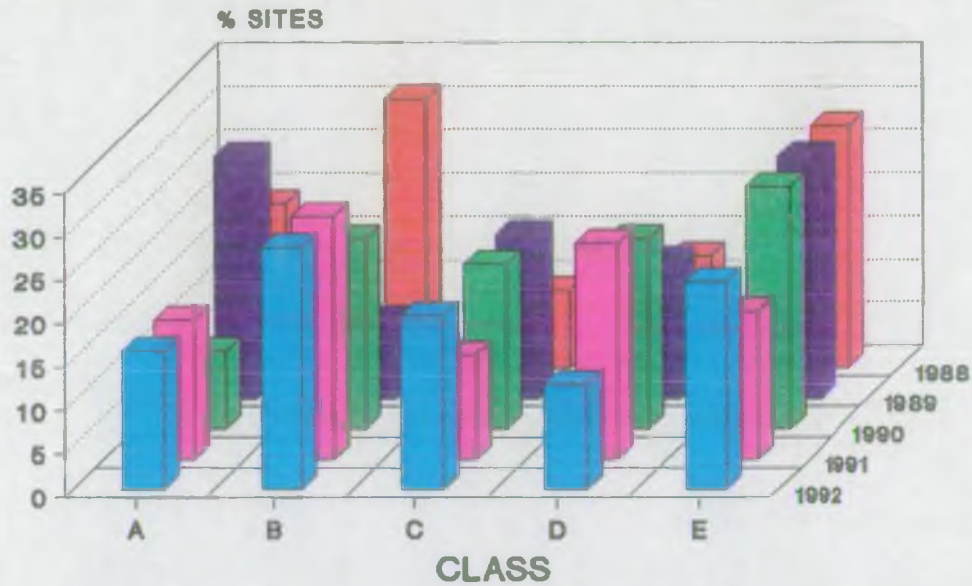






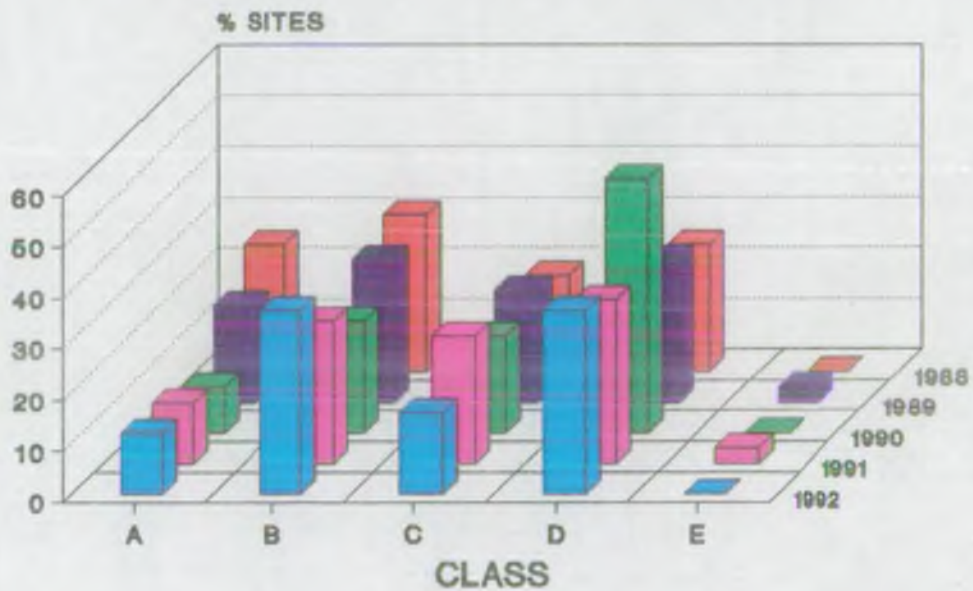
## RIVER CONWY - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER CONWY - TROUT

### % OF SITES IN EACH CATEGORY



OFFICE OF THE  
SHERIFF

CLARK COUNTY  
SHERIFF'S OFFICE

## AFON DYFI SUMMARY

### 1. Catchment and Fishery Characteristics.

Land Use - Hill sheep pasture with expanding forestry.  
Water Quality - All 1A wxcept Dulas North, 1B.  
Fishery Status - Average Catch: Rods: 358 salmon, 1563 sea trout  
(1987 - 1991) Nets: 75 salmon, 1292 sea trout

### 2. Sampling Programme

1986 - 13 quantitative and 56 semi-quantitative  
1987 - 15 semi-quantitative  
1988 - 16 quantitative  
1989 - 9 quantitative and 8 semi-quantitative  
1990 - 6 quantitative, 12 semi-quantitative and 7 riffle sites  
1991 - 5 quantitative and 16 semi-quantitative  
1992 - 4 quantitative, 14 semi-quantitative and 18 riffle sites.

### 3. Assessment of status

Number (%) of sites in each category in 1992.

	A	B	C	D	E
Salmon	0	2(11)	3(17)	8(44)	5(28)
Trout	1(6)	8(44)	7(39)	1(6)	1(6)

### 4. Key Points

- 4.1 Salmon densities were similar to last year with 28 and 33% of sites in at least class C. However, site 14 on the Cerist is of concern as this is normally a class A/B site which had declined to C through lack of fry. Trout numbers were also low at this site.
- 4.2 Trout densities were also unchanged on 1991, with mean classification remaining at B. Site 14 also continued to decline for trout which was class A in 1990 and is now class D. Further investigations are required on this tributary.
- 4.3 Five minute fry sampling demonstrated reasonable spawning throughout the main river with mean densities of 31, comparable to the Ceiriog, the best Dee tributary. High numbers of trout fry were also found at several locations, particularly on the Dulas South and surprisingly, on the Tremynyn.

FISHERIES MONITORING PROGRAMME 1992

DYFI

CATCHMENT SUMMARY

QUANTITATIVE SITES

NUMBER OF FISH PER 100M<sup>2</sup>

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
5	CREWI	3.3	SH768008	0	7.8	0	D	194.2	15.2	2.1	E	
12	DYFI	5.8	SH905202	.7	2.8	0	D	25.5	2.1	.7	C	E
13	CYWARCH	4.7	SH856178	0	6.2	0	D	70	9.4	2.4	B	E
14	CERIST	4.3	SH824164	0	15.6	0	C	6.5	3.7	.9	D	E
			MEAN	.2	8.1	0	C	74.1	7.6	1.5	B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME 1992

DYFI

CATCHMENT SUMMARY

SEMI-QUANTITATIVE SITES

NUMBER OF FISH PER 100M<sup>2</sup>

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	LLYFNANT	4.3	SN740975	0	0	0	E	13.9	8.8	.5	B	
2	DULAS SOUTH	3.3	SN765983	0	0	.6	D	25.2	11.2	3.4	A	E
3	DULAS SOUTH	6.1	SN796983	1.1	0	0	D	10.9	1.1	0	C	E
4#	DULAS SOUTH	3.6	SN776946					0	8.3	6.1	C	
6	GWYDOL	4.2	SH799027	0	0	0	E	8.4	6.1	.9	C	E
7	IAIN	6.1	SH911018	4.6	0	0	D	18.4	1	.7	C	E, B, ST
8A	CLYWEDOG	7.8	SH901138	16.4	4.1	0	B	8.2	3.6	0	C	E
9	CLEGIR	2.0	SH893076	0	4.8	0	D	17.4	10.6	5.8	B	E
10	CLEIFION	4.4	SH913128	14.1	0	0	D	13.2	10	2.7	B	E
11	CLEIFION	3.8	SH893107	1.6	4.2	.5	C	5.3	9	3.7	B	
16	CEIRIG	4.8	SH812053	14.6	2.1	0	C	27.9	1.2	0	B	E
17	DULAS NORTH	6.6	SH757059	0	0	0	E	3	4.2	2.7	C	E
18	DULAS NORTH	2.4	SH775108	0	0	0	E	8.3	28.3	2.5	B	E
19	DYFI	3.9	SH860149	38.1	2.8	0	B	15.9	0	0	B	E
			MEAN	7.5	1.5	0	D	13.5	8	2.4	B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME 1992

DYFI

CATCHMENT SUMMARY

5 MINUTE FRY SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	O.S. MAP REFERENCE	SALMON		TROUT		OTHER SPECIES
			0+	>0+	0+	>0+	
22	DULAS NORTH	SH752023	18	1	3	0	
23	DYFI	SH808042	23	0	0	0	
24	DYFI	SH833060	69	0	3	0	
25	DYFI	SH849101	19	0	0	0	
26	CERIST	SH849156	26	6	5	1	
27	DYFI	SH893177	29	3	0	0	
27A	DYFI	SH897182	16	7	8	0	E
28	DUGOED	SH858127	20	6	5	0	
29	CLEGIR	SH901031	9	4	6	0	E
30	TWYMYN	SH891027	11	0	10	0	
31	TWYMYN	SH887003	0	0	37	1	E
32	NANT GWYDOL	SH802018	0	0	10	0	
33	NANT GWYDOL	SH827003	0	0	26	16	E
34	DULAS SOUTH	SN783989	18	2	61	2	E
35	DULAS SOUTH	SH763005	10	10	10	1	E
36	DULAS SOUTH	SN797972	0	0	33	5	E
37	CEIRIG	SH806043	31	0	3	0	
39	NANT FFRYDLAN	SH779030	21	2	32	0	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

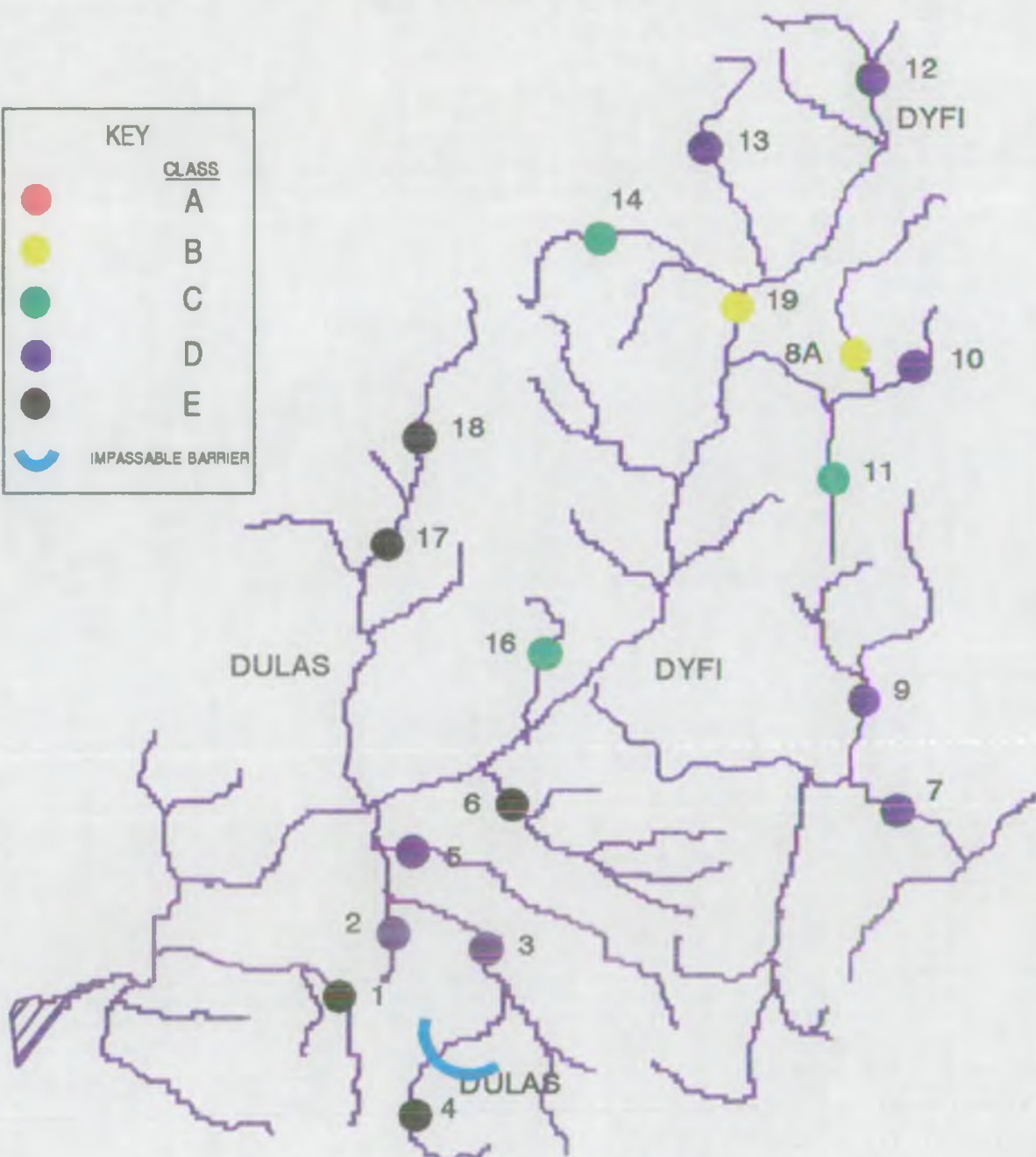
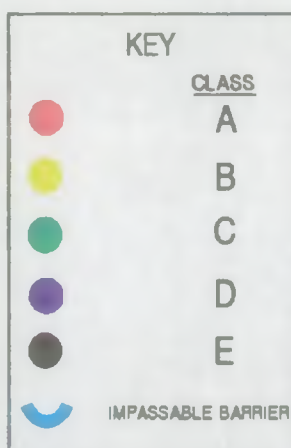
\* MINIMUM ESTIMATE



# RIVER DYFI

## SALMON DENSITIES

### 1992



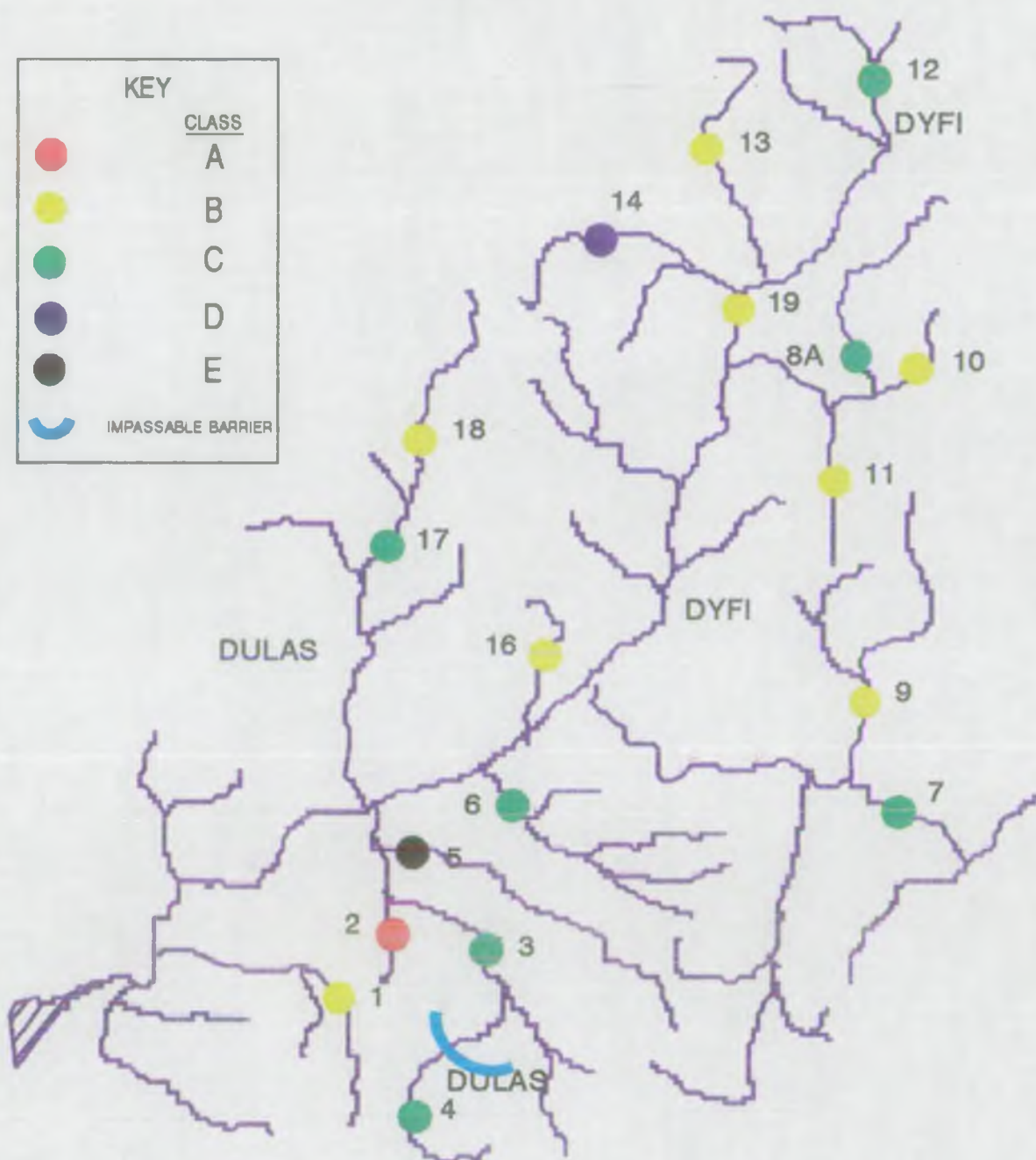
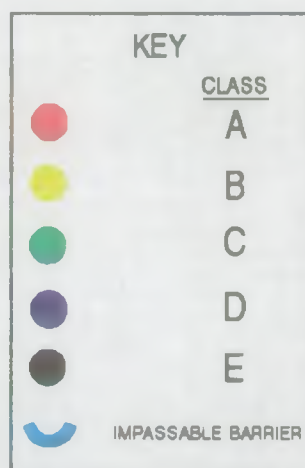




# RIVER DYFI

## TROUT DENSITIES

### 1992

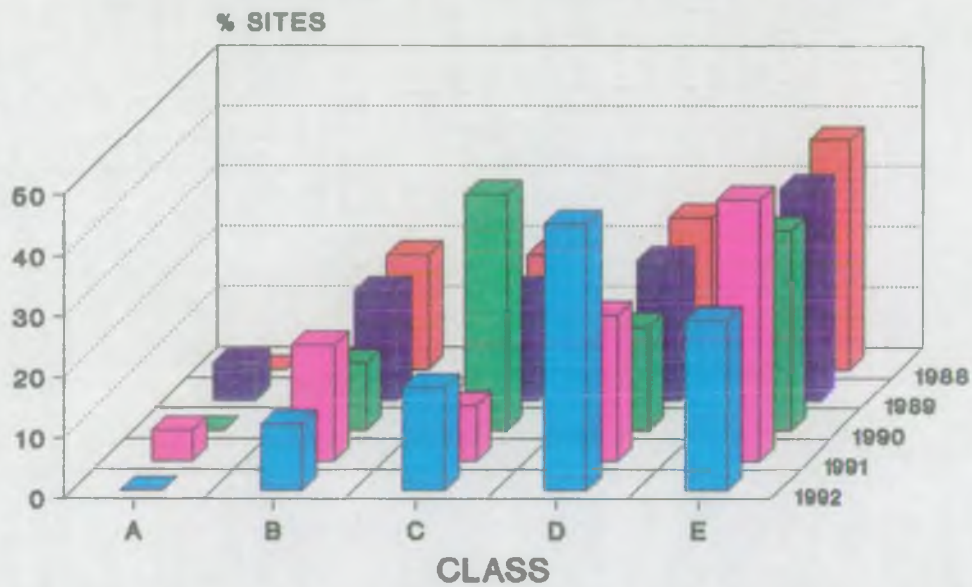






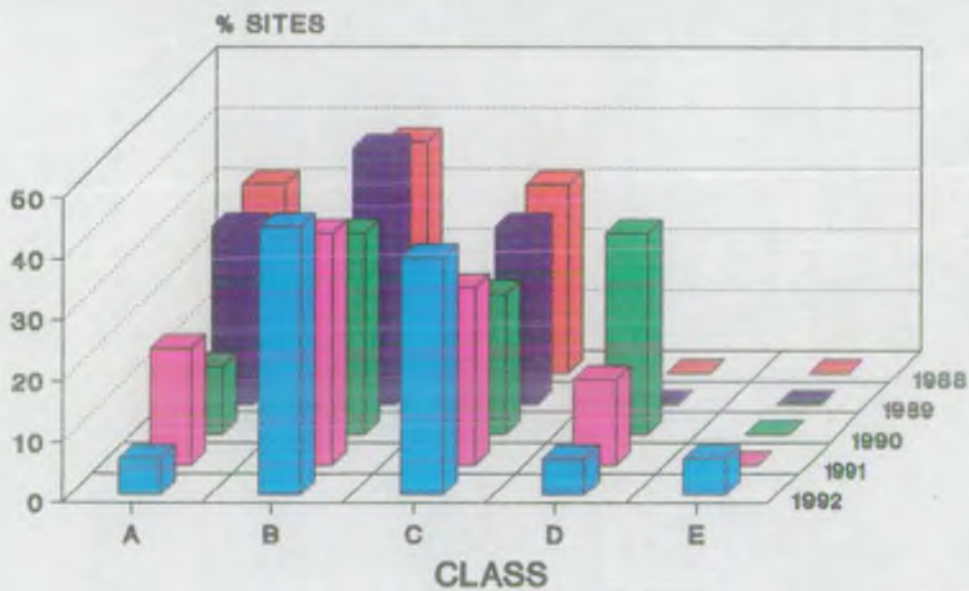
## RIVER DYFI - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER DYFI - TROUT

### % OF SITES IN EACH CATEGORY



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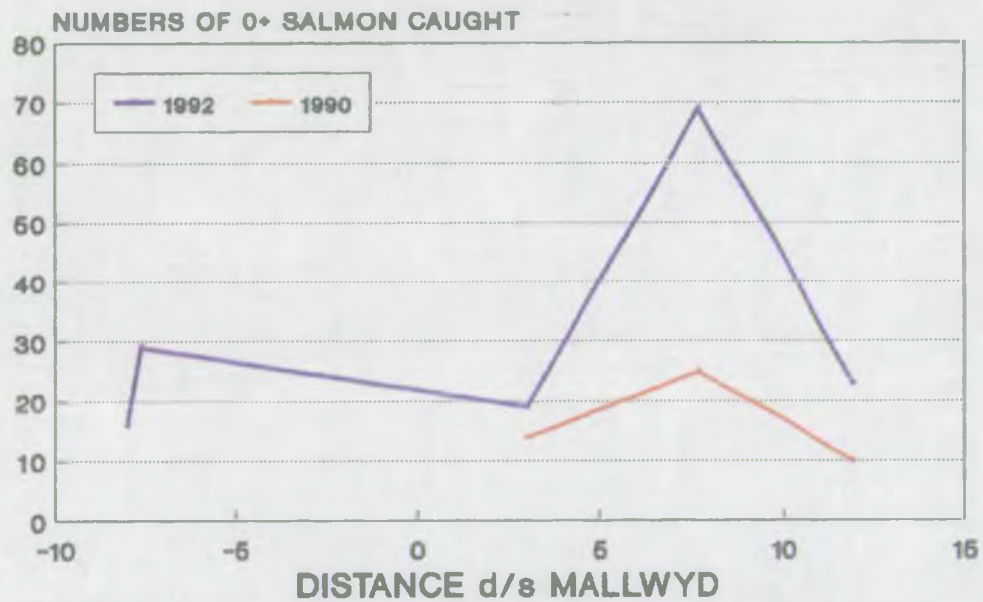
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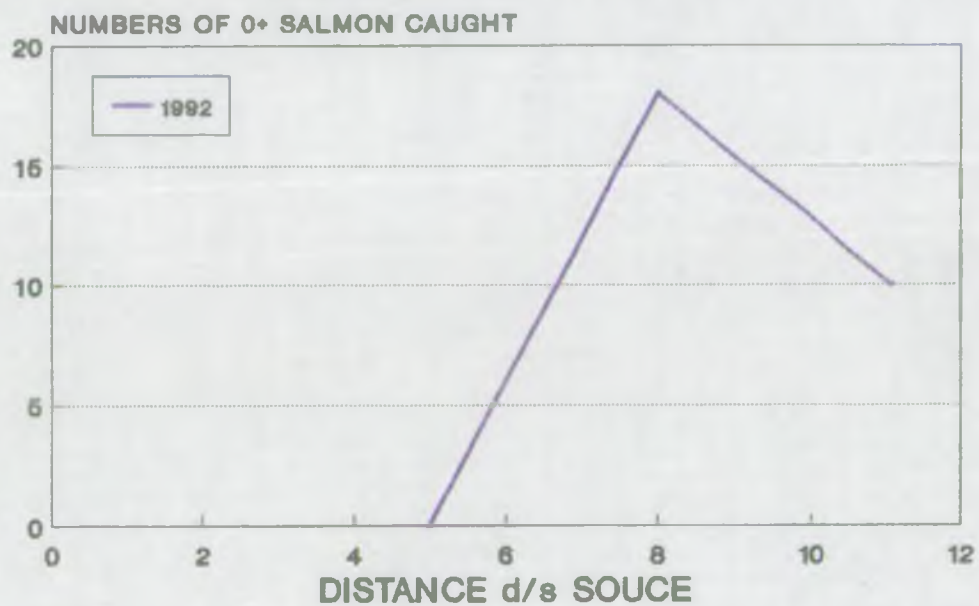
WARRIORS



## RIVER DYFI FIVE MINUTE SALMON FRY SITES



## DULAS SOUTH FIVE MINUTE SALMON FRY SITES







## AFON GWYRFAI SUMMARY

### 1. Catchment and Fishery Characteristics.

Land Use - Hill sheep pasture, some forestry.  
Water Quality - All 1A.  
Fishery Status - Average Catch: Rods: 14 salmon, 39 sea trout.  
(1987 - 1991)

### 2. Sampling programme

1986 - 9 quantitative and 13 semi-quantitative sites.  
1992 - 15 semi-quantitative, 4 five minute fry sites.

### 3. Assessment of status

	A	B	C	D	E
Salmon	0	2(13)	2(13)	9(60)	2(13)
Trout	2(13)	3(20)	3(20)	7(47)	0

### 4. Key Points

- 4.1 Salmon populations (fry and parr) had declined on 5 main river sites from mean class B in 1986 to class D. Declines were also observed on two smaller streams (Salem and Nant y Betws) which had been class B in 1986.
- 4.2 Trout densities on the main river were also lower, having declined from class B to C. Sea trout fry densities on the smaller productive streams (e.g. sites 14, 17, 18 and 22) were generally higher than in 1986, although parr densities at all sites except 1 were low.
- 4.3 Five minute fry sampling confirmed low numbers of fry on the main river.

## FISHERIES MONITORING PROGRAMME 1992

## GWYRFAI

## CATCHMENT SUMMARY

## SEMI-QUANTITATIVE SITES

NUMBER OF FISH PER 100M<sup>2</sup>

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	GWYRFAI	12.8	SH458594	4.6	0	0	D	1.4	.2	0	D	E
2	GWYRFAI	10.3	SH483599	7.8	0	0	D	1.6	0	.3	D	E
3	GWYRFAI	7	SH538569	21.9	3.3	0	B	4.3	0	0	D	E
4	GWYRFAI	4.7	SH568539	3.1*	0	0	D	16.1*	0	0	D	E
5	GWYRFAI	4.1	SH571531	1.2	0	1.2	D	11.9	0	.6	C	E
6	NANT BUENO	2.5	SH484602	0	0	0	E	48	3	1	B	E, L
7	SALEM STREAM	2.1	SH538569	9.7	1.1	0	D	8.7	0	0	D	
8	NANT-Y-BETWS	2.7	SH533589	5.8	10.8	0	D	18.1	4.9	0	B	E
9	GWYRFAI	6.9	SH551557	15.9	0	0	D	17.2	0	0	D	E
10	CWELLYN STREAM	1.2	SH561554	6.1	3	0	C	122.7	4.6	0	A	
17	CWELLYN STREAM	2	SH557555	2	0	0	D	9.9	2	1	A	
18	TREFLAN STREAM	2.7	SH534587	9.9	18.1	0	B	37.1	1.7	0	B	E
19	TREWEUNYDD	3.3	SH572541	4.1	7.6	0	C	11	0	0	D	
20	GADAIR OUTLET	4.1	SH569528	.7	0	1.3	D	11.2	0	.6	C	E
22	GLANRAFON	2.4	SH528609	0	0	0	E	98.5	0	0	C	
MEAN				6.2	2.3	.2	C	33.8	1.1	.2	B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME 1992

GWYRFAI

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+	
24A	GWYRFAI	SH477599	1	5	4	0	E
24B	GWYRFAI	SH465594	11	3	0	0	E
24C	GWYRFAI	SH5087595	5	1	2	1	E
24D	GWYRFAI	SH478599	4	0	0	0	E

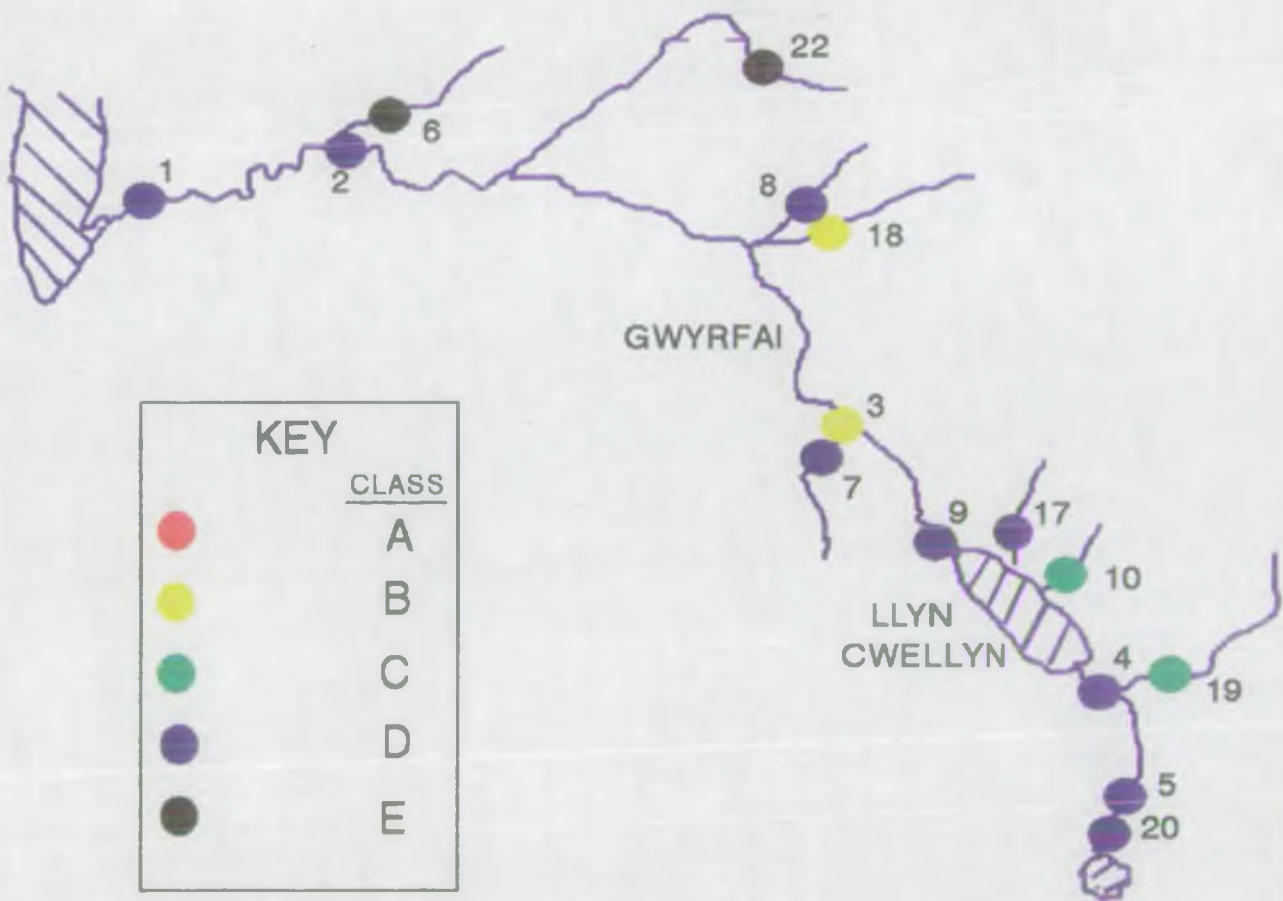
# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# RIVER GWYRFAI

## SALMON DENSITIES

### 1992



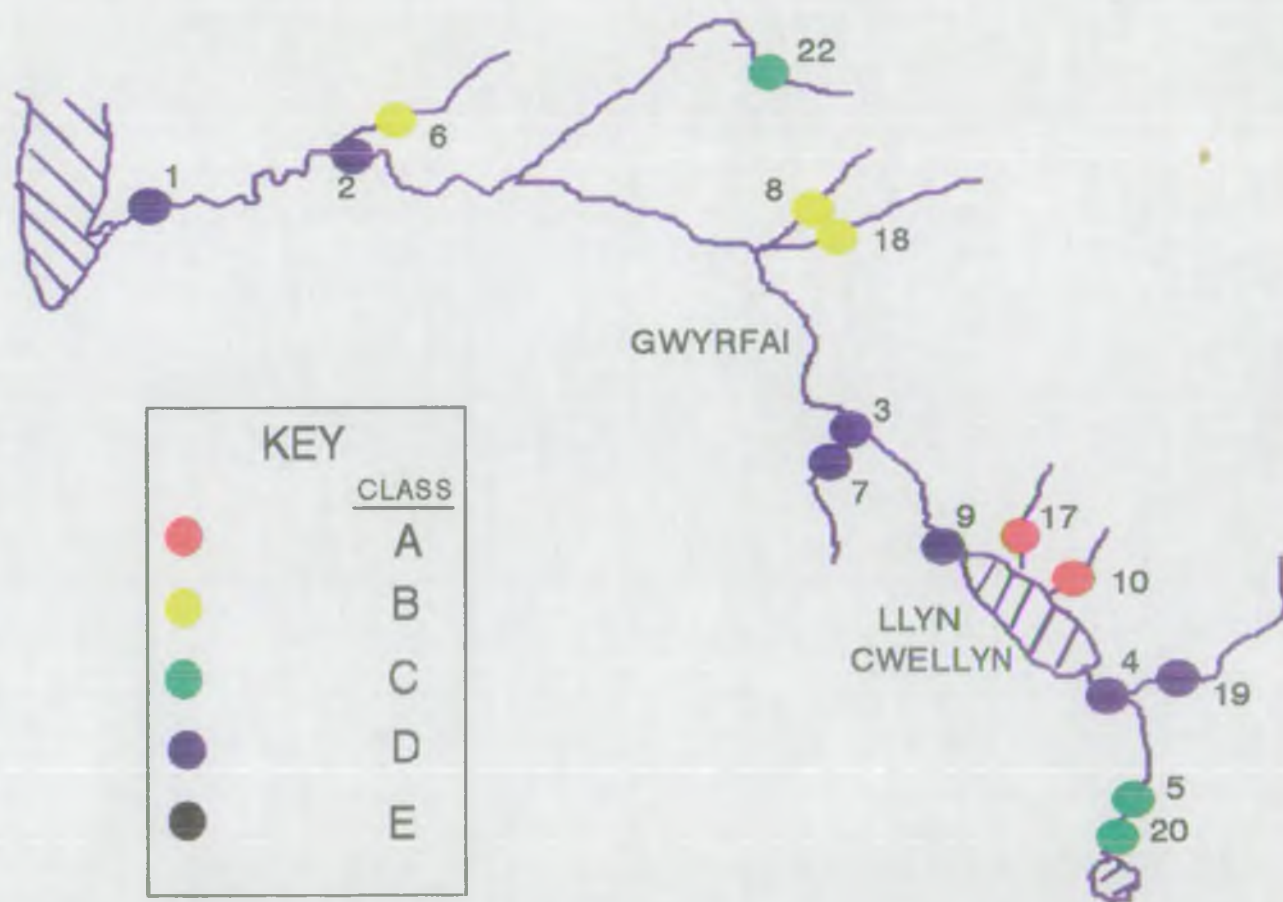




# RIVER GWYRFAI

## TROUT DENSITIES

### 1992

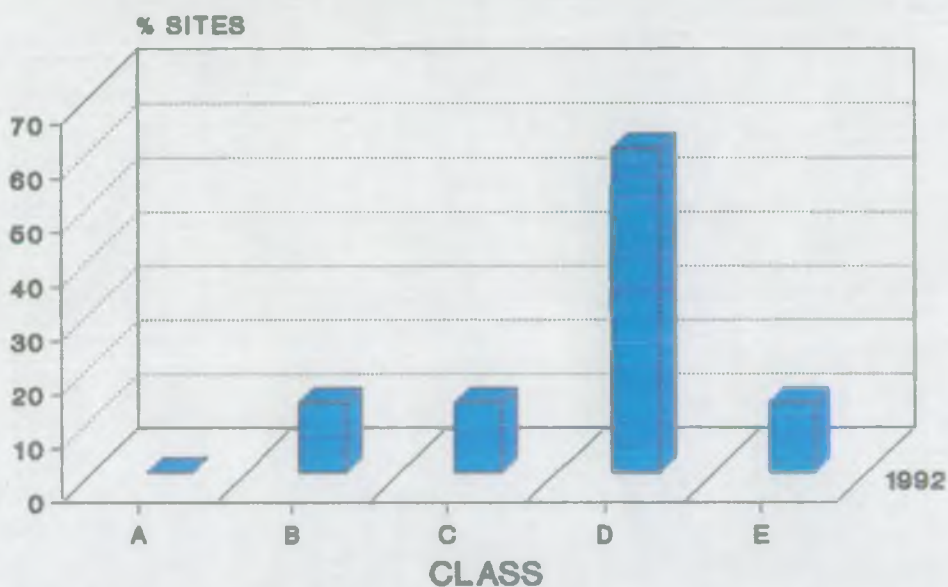






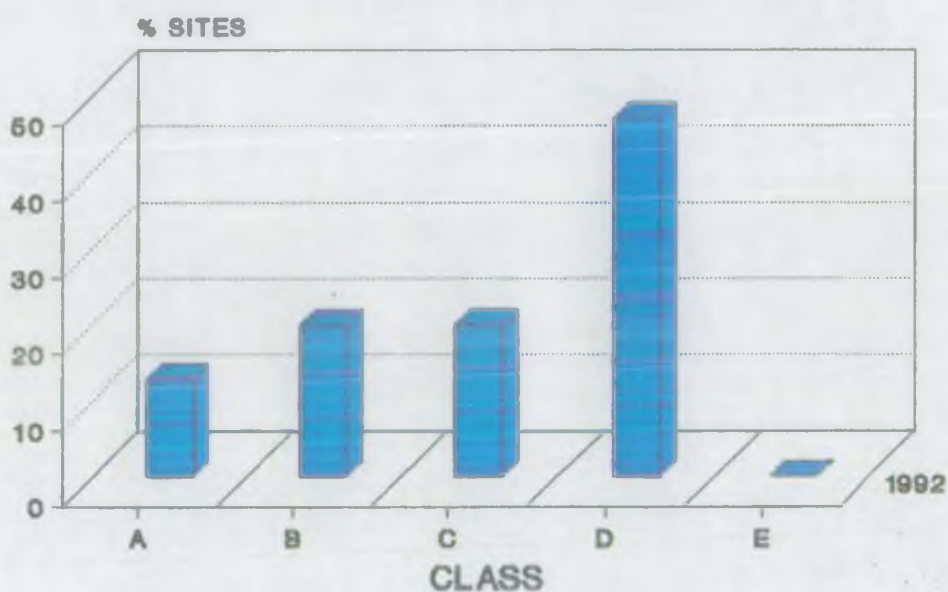
## RIVER GWYRFAI - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER GWYRFAI - TROUT

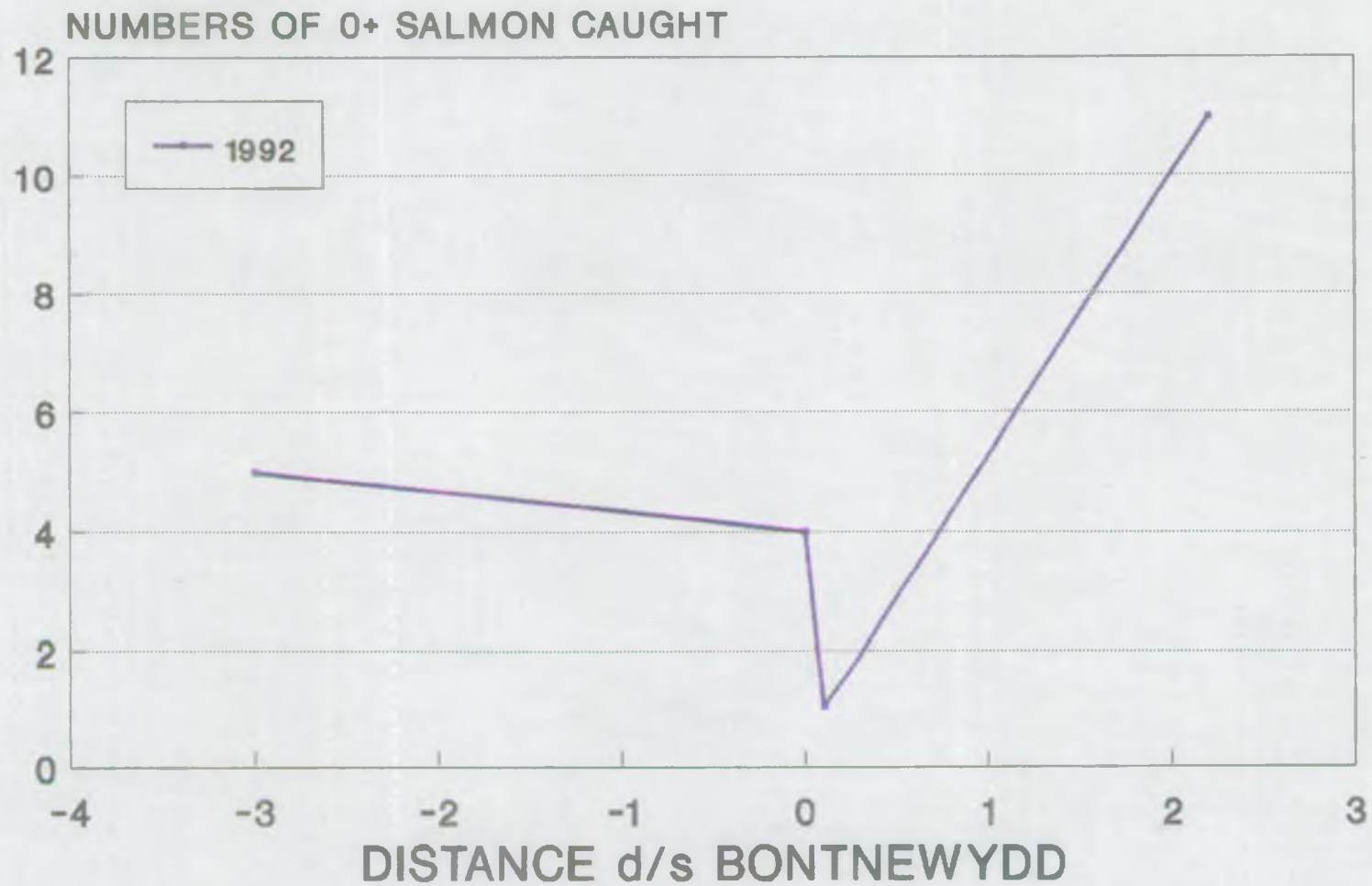
### % OF SITES IN EACH CATEGORY







# RIVER GWYRFAI FIVE MINUTE SALMON FRY SITES





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## AFON LERI SUMMARY

### 1. Catchment and fishery characteristics

Land use - predominantly hill pasture with some coniferous afforestation in the mid and upper reaches.

Water quality - all 1A.

Fishery status.

### 2. Sampling programme

1992 - 6 semi-quantitative, 5 five minute fry sites.

### 3. Assessment of status

Number (%) of sites in each category

	A	B	C	D	E
Salmon	0	0	0	2(33)	4(66)
Trout	2(29)	3(43)	0	1(14)	0

### 4. Key Points

4.1 Both sampling methods indicated that the river is very poor for salmon, which is thought to be due to access problems.

4.2 Good numbers of trout fry and parr were found throughout the system, the age structure indicating that at most sites, substantial numbers were brown trout.

FISHERIES MONITORING PROGRAMME 1992

LERI

CATCHMENT SUMMARY

SEMI-QUANTITATIVE SITES

NUMBER OF FISH PER 100M<sup>2</sup>

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	LERI	8.5	SN656891	0	0	0	E	14.7	11	2.9	B	E
2	LERI	4.3	SN684883	0	0	0	E	9.6	19.6	6.4	B	E
3	LERI	4.2	SN692885	0	0	0	E	21.7	16.6	5.1	A	E
4	LERI	5.2	SN684885	0	0	0	E	13.8	4	2.2	B	E
5	TRIB.	5.3	SN658898	0	.4	0	D	25.3	12.1	3.4	A	E
6	LERI	9	SN625882	4.9	1.1	0	D	9.3	1.8	.4	D	E
MEAN				.8	.3	0	D	15.7	10.9	3.4	B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME 1992

LERI

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	LERI	SN653891	0	0	7	0	
1B	LERI	SN622879	3	6	3	0	
1C	LERI	SN634881	6	1	2	0	
1D	LERI	SN635882	7	2	9	0	
1E	LERI	SN620885	13	0	6	0	

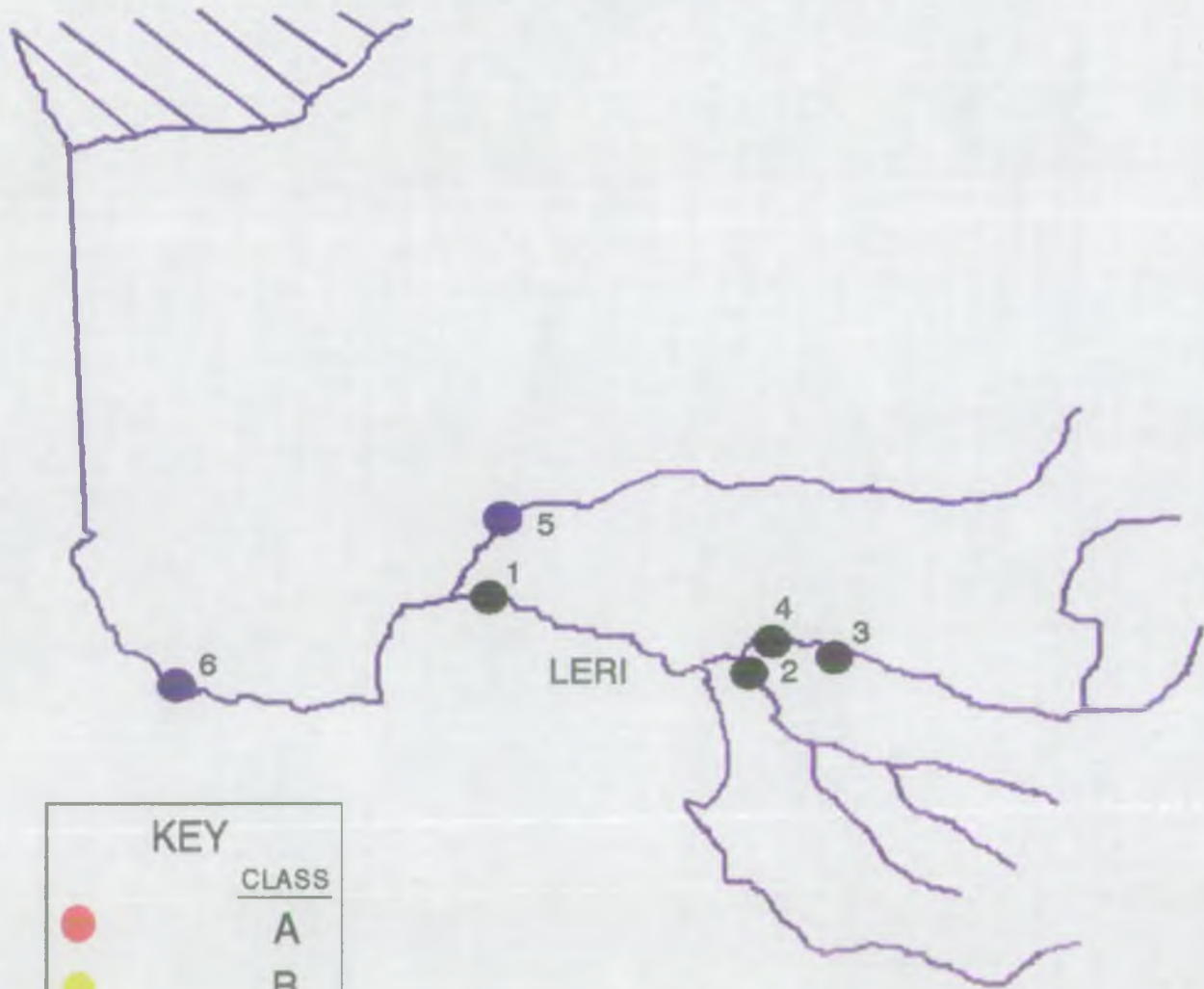
# PROBABLY INACCESSIBLE TO MIGRATORY FISH






\* MINIMUM ESTIMATE

# RIVER LERI

## SALMON DENSITIES

### 1992



KEY	
	CLASS
	A
	B
	C
	D
	E

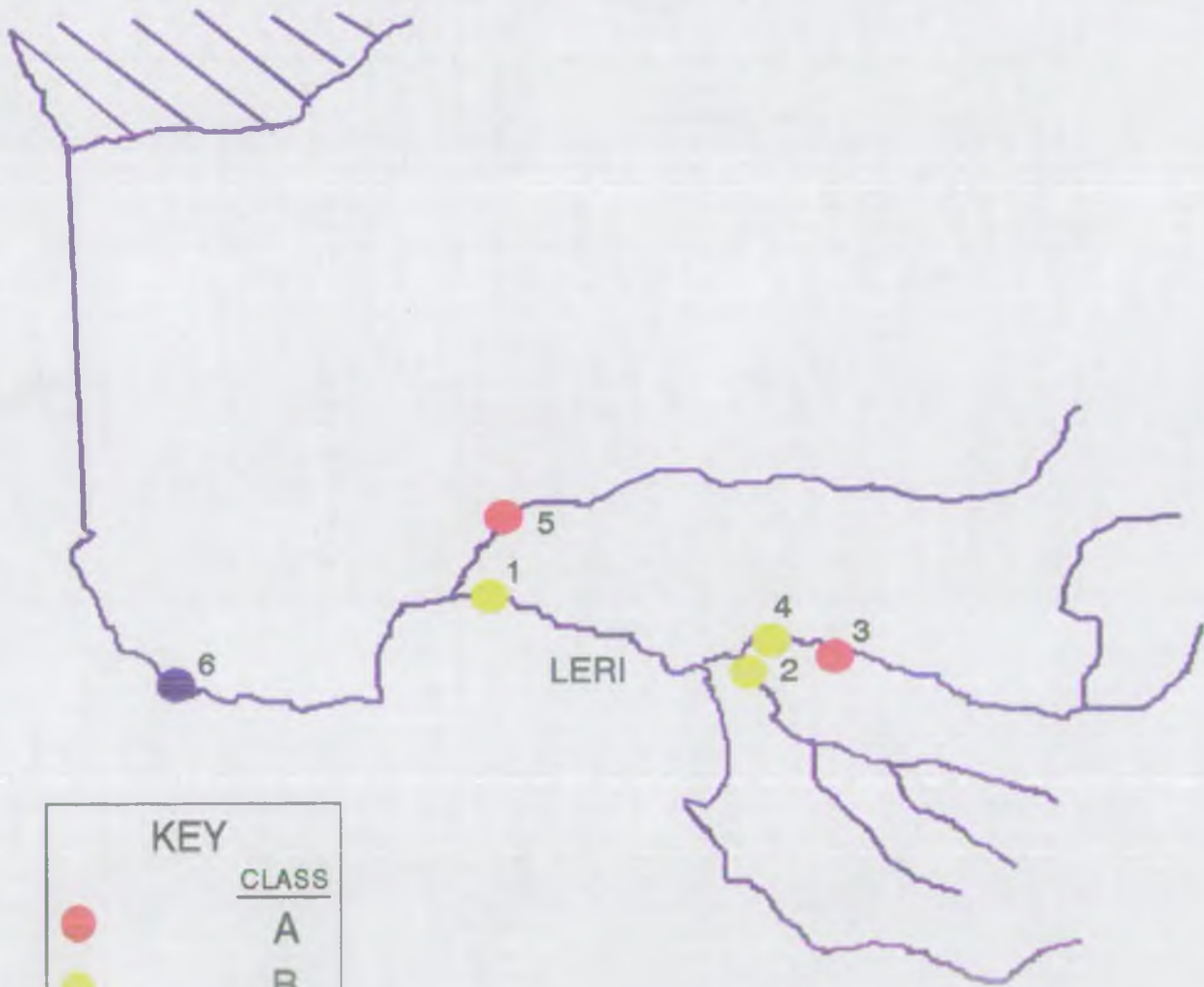









# RIVER LERI

## TROUT DENSITIES

### 1992



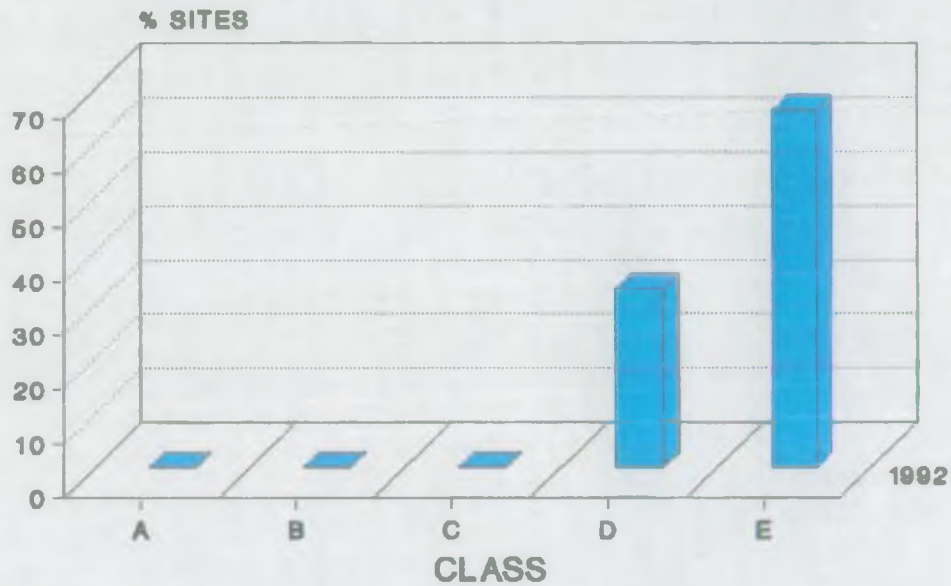
KEY	
	CLASS
	A
	B
	C
	D
	E





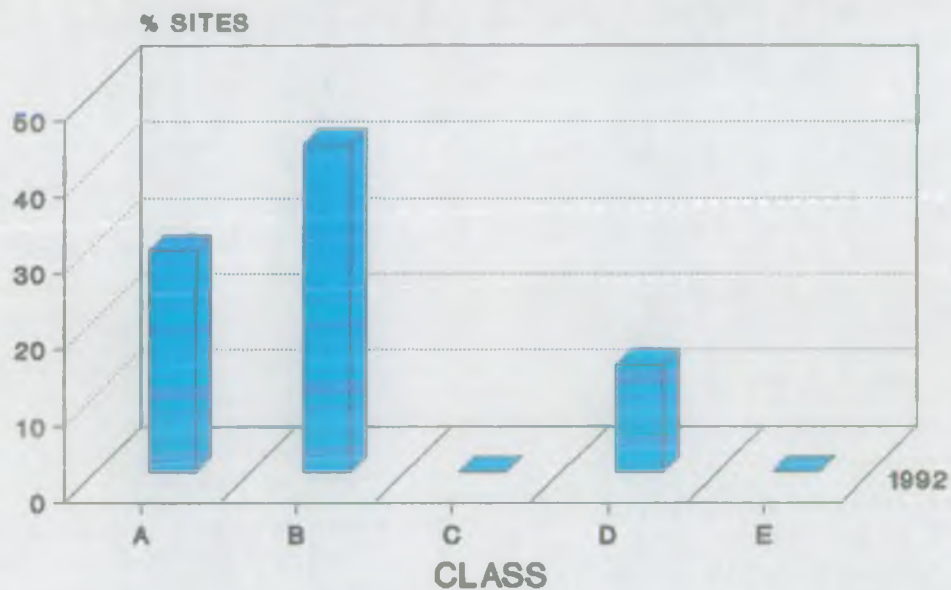
## RIVER LERI - SALMON

% OF SITES IN EACH CATEGORY



## RIVER LERI - TROUT

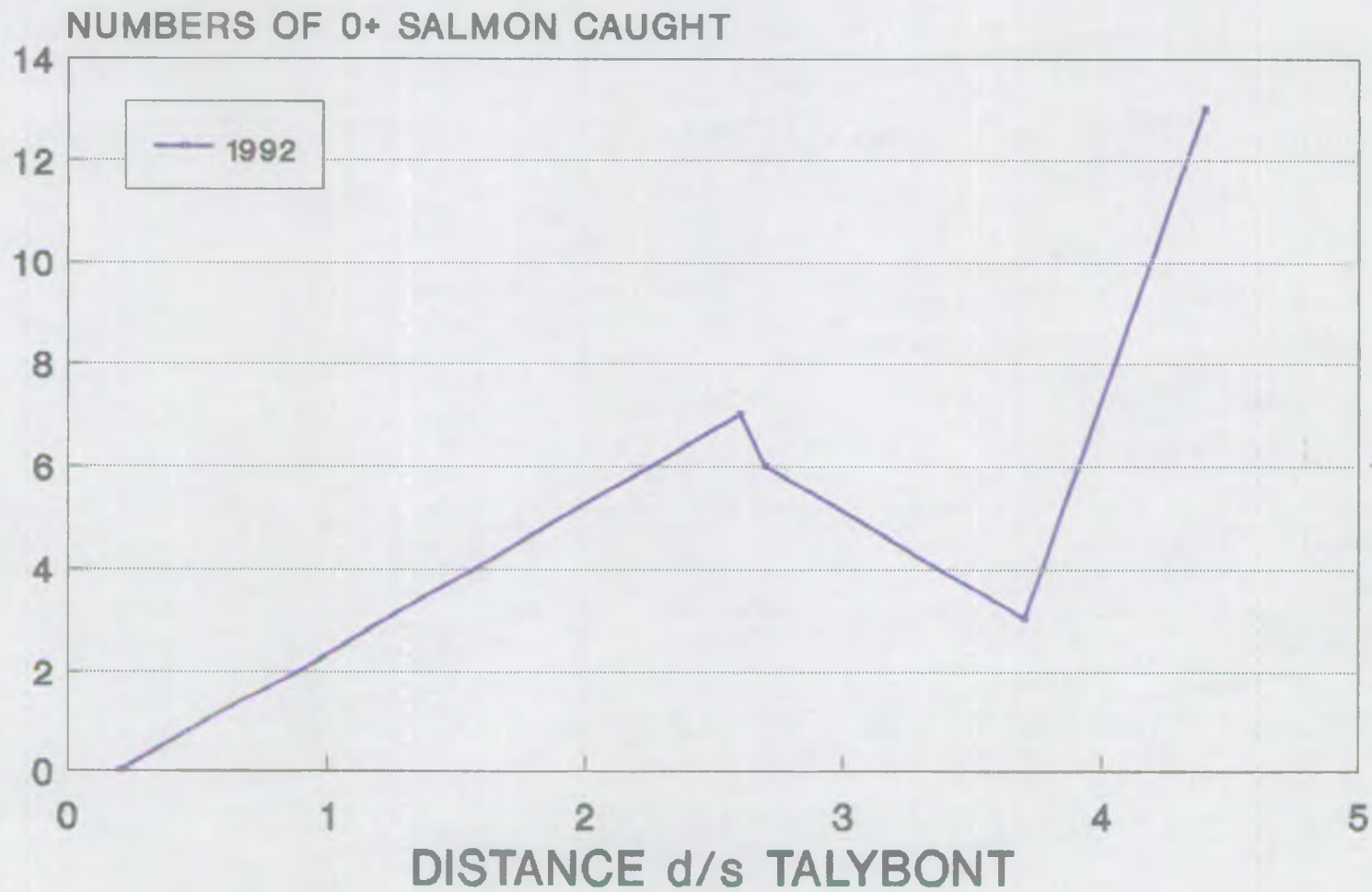
% OF SITES IN EACH CATEGORY







# RIVER LERI FIVE MINUTE SALMON FRY SITES





## AFON MAWDDACH SUMMARY

### 1. Catchment and Fishery Characteristics.

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

Water Quality - All Al. 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 - 46 semi-quantitative and 4 riffle sites.  
1991 - 5 quantitative and 17 semi-quantitative sites.  
1992 - 15 semi-quantitative sites, 4 quantitative, 9 five minute fry sites.

### 3. Assessment of status

Number (%) of sites in each category

	A	B	C	D	E
Salmon	1(5)	3(16)	4(21)	7(32)	5(26)
Trout	1(5)	8(42)	5(26)	4(21)	1(5)

### 4. Key Points

- 4.1 High numbers of salmon fry and parr were found at two sites on the Wnion which could only be partially attributed to stocking as only 4 fin-clipped parr were found. Although fry densities at site 31 could be accounted for by stocking, densities at site 33 were higher than in previous years.
- 4.2 Surprisingly, moderate numbers of salmon parr were found at 2 upper Mawddach sites stocked in 1991, confounding findings of few fry in that year. Moderate numbers of stocked salmon parr were also found on the Babi when no fry were recorded in the previous year.
- 4.3 Salmon fry numbers at 2 unstocked Eden sites (19 and 22) were considerably lower than last year although parr numbers remained high.
- 4.4 With the exception of stocked sites on the Wen and Wnion, trout fry numbers were poor throughout the catchment, although no decline was evident in previous years. Stocked site 44 on the Clywedog continued to be poor for sea trout fry. Parr densities from previous fry stockings were particularly good on the Gain, Babi and Wen.
- 4.5 Five minute fry sampling indicated moderate densities of salmon fry in the Mawddach main river (mean 18) compared to the Eden (mean 8).

## FISHERIES MONITORING PROGRAMME 1992

MAWDDACH

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	
22	ABER	2.3	SH705322	8.7	30.9	0	B	14.6	14.3	1	B	E
25	WEN	2.4	SH759263	0	0	0	E	42.6	31	16.5	A	E
31	WNION	5	SH829242	124.6	24.1	0	A	49.7	8.2	.5	B	E
33	WNION	9.1	SH798215	22	34.6	0	B	28.6	14.8	.6	B	E
MEAN				38.8	22.4	0	B	33.9	17.1	4.7	B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE



FISHERIES MONITORING PROGRAMME 1992

MAWDDACH

CATCHMENT SUMMARY

SEMI-QUANTITATIVE SITES

NUMBER OF FISH PER 100M<sup>2</sup>

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1#+	GAIN	3.7	SH755335					4.4	10.7	3.1	B	M
6#+	MAWDDACH	6.9	SH786294	0	3.3	0	D	3	0	0	D	
7#+	MAWDDACH	8.5	SH767291	0	7.3	0	D	.8	1.6	0	D	E
9#	MAWDDACH	7	SH795288	0	.7	0	D	.7	2.3	4.3	C	
11+	MAWDDACH	14.5	SH734251	.5	.9	0	D	3.7	1.6	.5	D	
12	MAWDDACH	17.8	SH729234	1.2	3.4	0	C	1.5	.9	0	D	E
17#+	BABI	4.1	SH748222	16.1	6.8	0	B	1.5	29.3	5.4	B	
18	EDEN	3.7	SH697329	0	0	0	E	0	0	0	E	
19+	EDEN	6	SH702323	4.1	8.2	0	C	.7	2.6	.7	C	E
27	WEN	6.4	SH746245	0	0	0	E	1.8	14.5	2.5	B	
37	EIDDON	6.3	SH804223	0	0	0	E	2.9	9.8	1.9	B	E
39	MELAU	5.1	SH797217	1.6	2.4	0	C	2	7.1	.8	C	E
40	GELE	3.2	SH755197	3.1	3.8	0	C	18.8	8.1	.6	B	E
44#+	CLYWEDOG	7.6	SH761180	.2	.2	0	D	2.6	3.2	2.4	C	
45#	CLYWEDOG	7.4	SH767166	0	3	0	D	3	6.5	3.5	C	
			MEAN	1.3	2.7	0	C	3.2	6.6	1.7	C	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

+ STOCKED WITH SALMON FRY - EXCLUDED FROM MEAN SALMON DENSITY WHEN U/S OF BARRIER

## FISHERIES MONITORING PROGRAMME 1992

MAWDDACH CATCHMENT SUMMARY

5 MINUTE FRY SITES

NUMBER OF FISH PER 100M<sup>2</sup>

SITE NO.	RIVER	O.S. MAP REFERENCE	SALMON		TROUT		OTHER SPECIES
			0+	>1+	0+	>1+	
13	MAWDDACH	SH733221	13	4	0	0	E
14	MAWDDACH	SH729211	21	1	0	0	
15	MAWDDACH	SH719193	27	1	0	0	
36	WNION	SH725180	28	1	4	0	E
46	EDEN	SH708306	10	4	1	0	E
47	EDEN	SH712298	9	6	1	1	E
48	EDEN	SH712290	13	0	12	0	E
49	EDEN	SH717277	0	0	0	0	
52	MAWDDACH	SH717193	11	0	3	0	

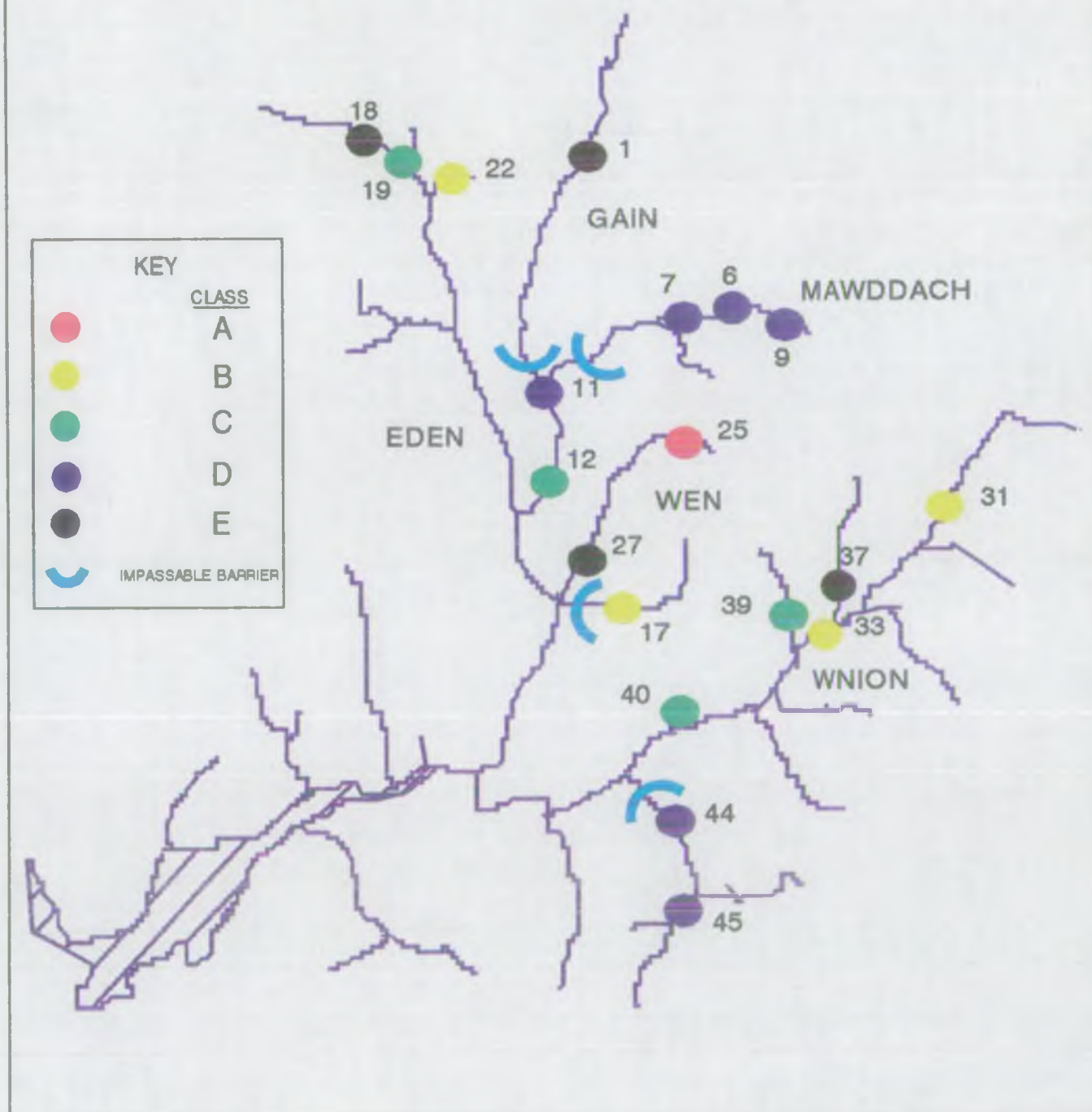
# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# RIVER MAWDDACH

## SALMON DENSITIES

### 1992



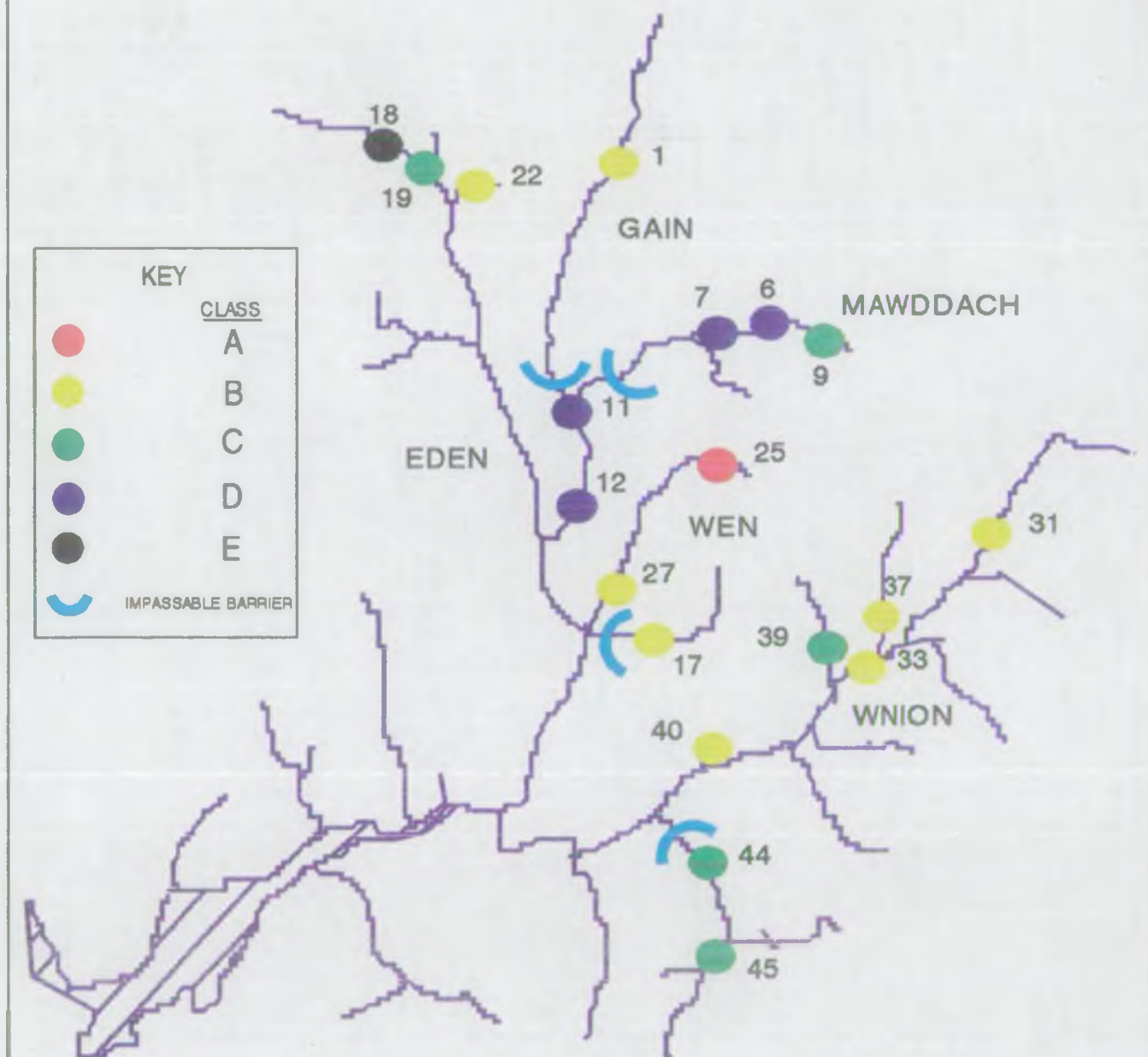




# RIVER MAWDDACH

## TROUT DENSITIES

### 1992



ARCADIAN RENAISSANCE

1890-1900

1890





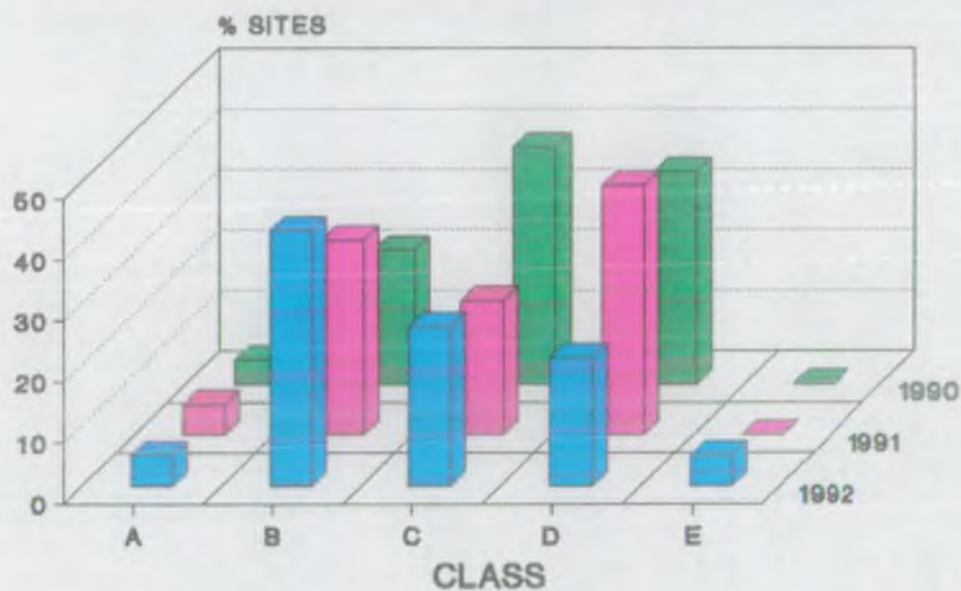
## RIVER MAWDDACH - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER MAWDDACH - TROUT

### % OF SITES IN EACH CATEGORY

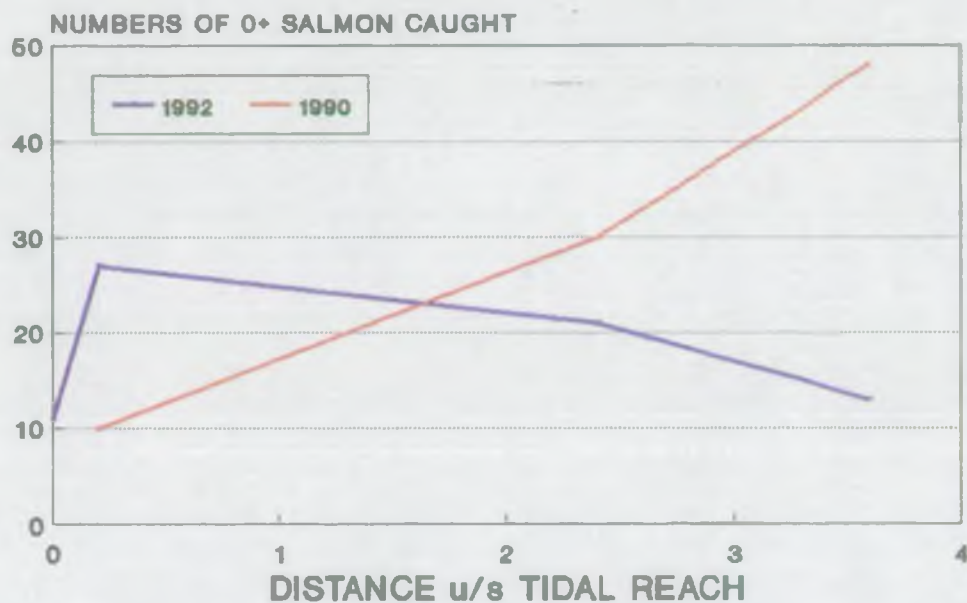


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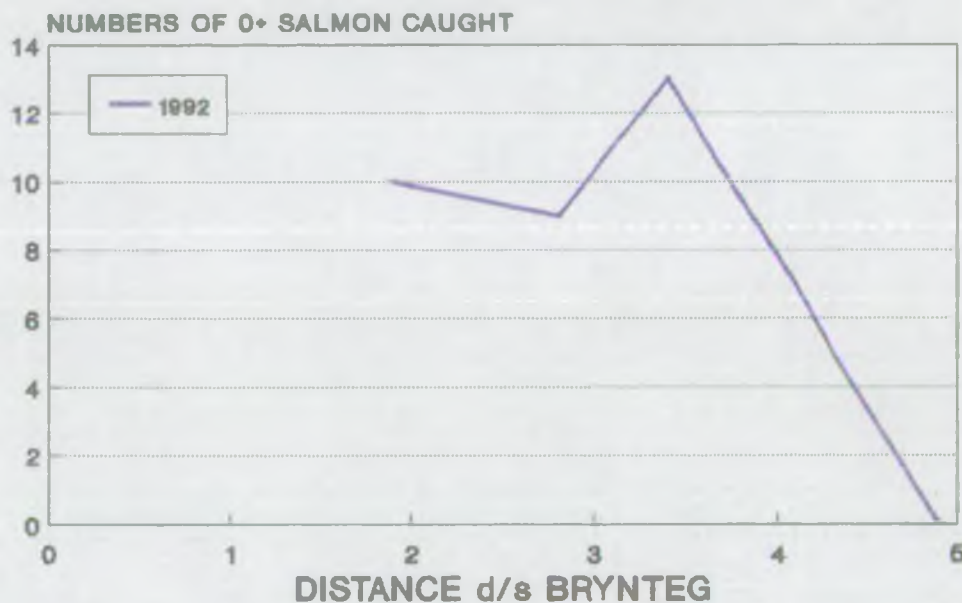
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## RIVER MAWDDACH FIVE MINUTE SALMON FRY SITES



## RIVER EDEN FIVE MINUTE SALMON FRY SITES





## AFON OGWEN SUMMARY

### 1. Catchment and Fishery Characteristics.

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

Water Quality - All main river and tributaries are 1A.

Fishery Status - Average catch: Rods: 123 salmon, 145 sea trout (1984 - 1990) Nets: 178 salmon, 142 sea trout.

### 2. Sampling programme

1989 - 16 semi-quantitative sites  
1990 - 2 quantitative and 9 semi-quantitative sites  
1991 - 2 quantitative, 11 semi-quantitative and 5 riffle sites  
1992 - 9 semi-quantitative, 2 quantitative and 5 riffle sites.

### 3. Assessment of status

Number (%) of sites in each category

	A	B	C	D	E
Salmon	1(9)	2(18)	3(27)	4(36)	1(9)
Trout	1(9)	3(27)	0	7(64)	0

### 4. Key Points

4.1 Densities of salmon and trout were remarkably similar between 1992 and 1991 at most sites. The exception was the Ffryddlas which dropped from A to D, although this site does appear to be variable both for salmon and trout.

## FISHERIES MONITORING PROGRAMME 1992

OGWEN

CATCHMENT SUMMARY

QUANTITATIVE SITES

NUMBER OF FISH PER 100M<sup>2</sup>

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
7	OGWEN	10.6	SH625659	31.1	29.8	0	A	6.2	2.1	1.1	D	
17	LLAN	2.9	SH608690	0	0	0	E	83.4	15.9	.9	A	
			MEAN	15.6	15	0	C	44.8	9	1	B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE



FISHERIES MONITORING PROGRAMME 1992

OGWEN

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	
3	OGWEN	6.8	SH642616	5.5	0	0	D	2.9	0	0	D	E
4	OGWEN	7.8	SH638627	8.7	0	0	D	2.2	0	0	D	E, S, M
6	BERTHEN	2.8	SH632641	33.3	.8	0	B	14.3	3.2	.8	B	E
8	CASEG	8	SH626663	6.3	3.4	0	C	1.5	0	0	D	E
12	OGWEN	15	SH618668	15.1	5.8	0	B	2.9	0	0	D	E
13	OGWEN	15	SH613673	9.1	1.6	.2	D	3.1	0	0	D	E
14	FFRYDLAS	3.6	SH628668	0	3.6	0	D	7.3	15.7	9.1	B	E
19	OGWEN	14.2	SH601700	7.9	2.8	.2	C	.7	0	.2	D	E
20A	MILLSTREAM	3.2	SH602699	5.2	3.7	0	C	14.1	8.2	7	B	E
MEAN				10.2	2.4	0	C	5.4	3	1.9	C	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME 1992

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	SH610686	10	0	0	0	
1B	OGWEN	SH602708	11	3	1	0	
1C	OGWEN	SH602712	17	0	5	0	
1D	OGWEN	SH602716	17	0	3	0	
1E	OGWEN	SH606715	26	0	4	0	

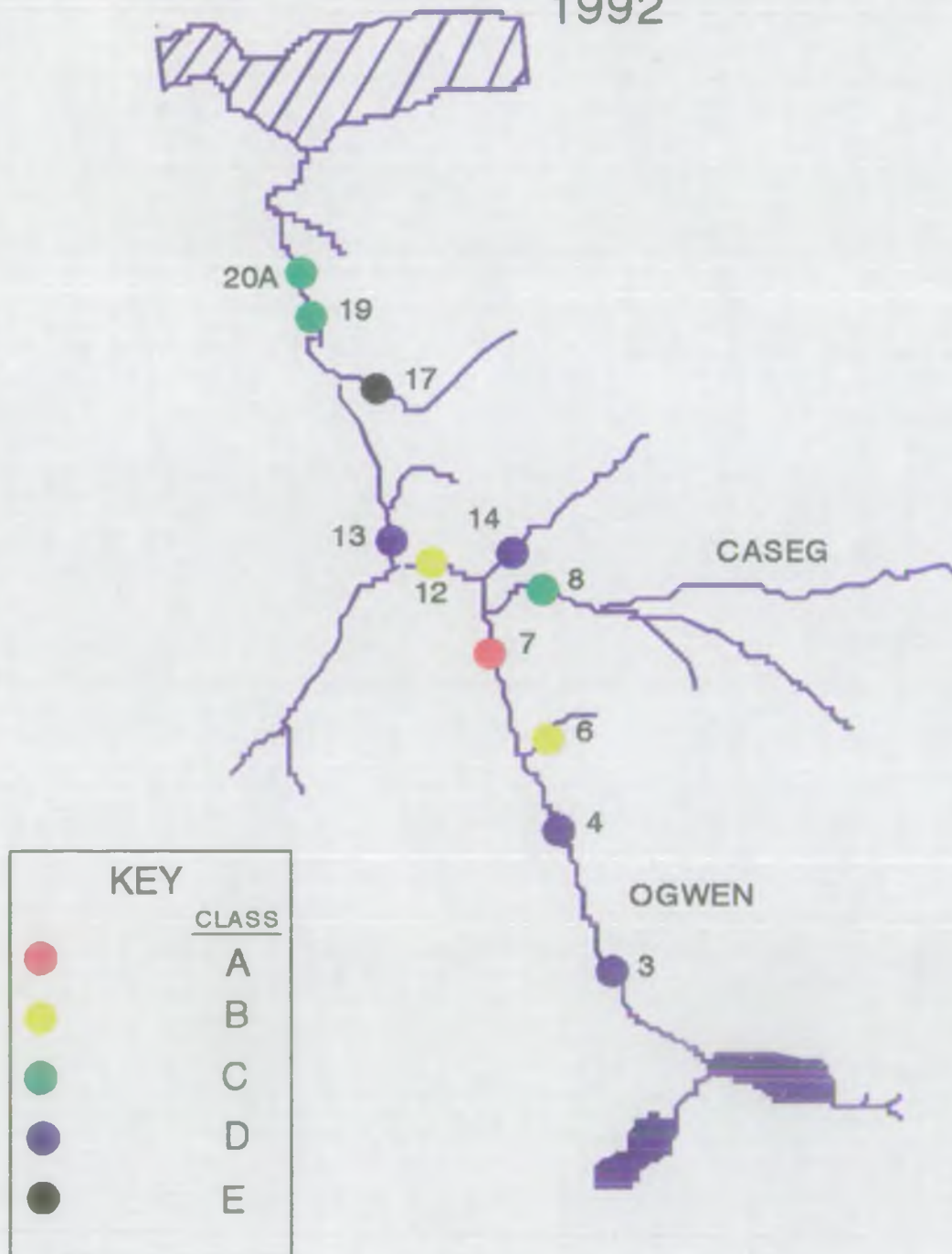
# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# RIVER OGWEN

## SALMON DENSITIES

1992



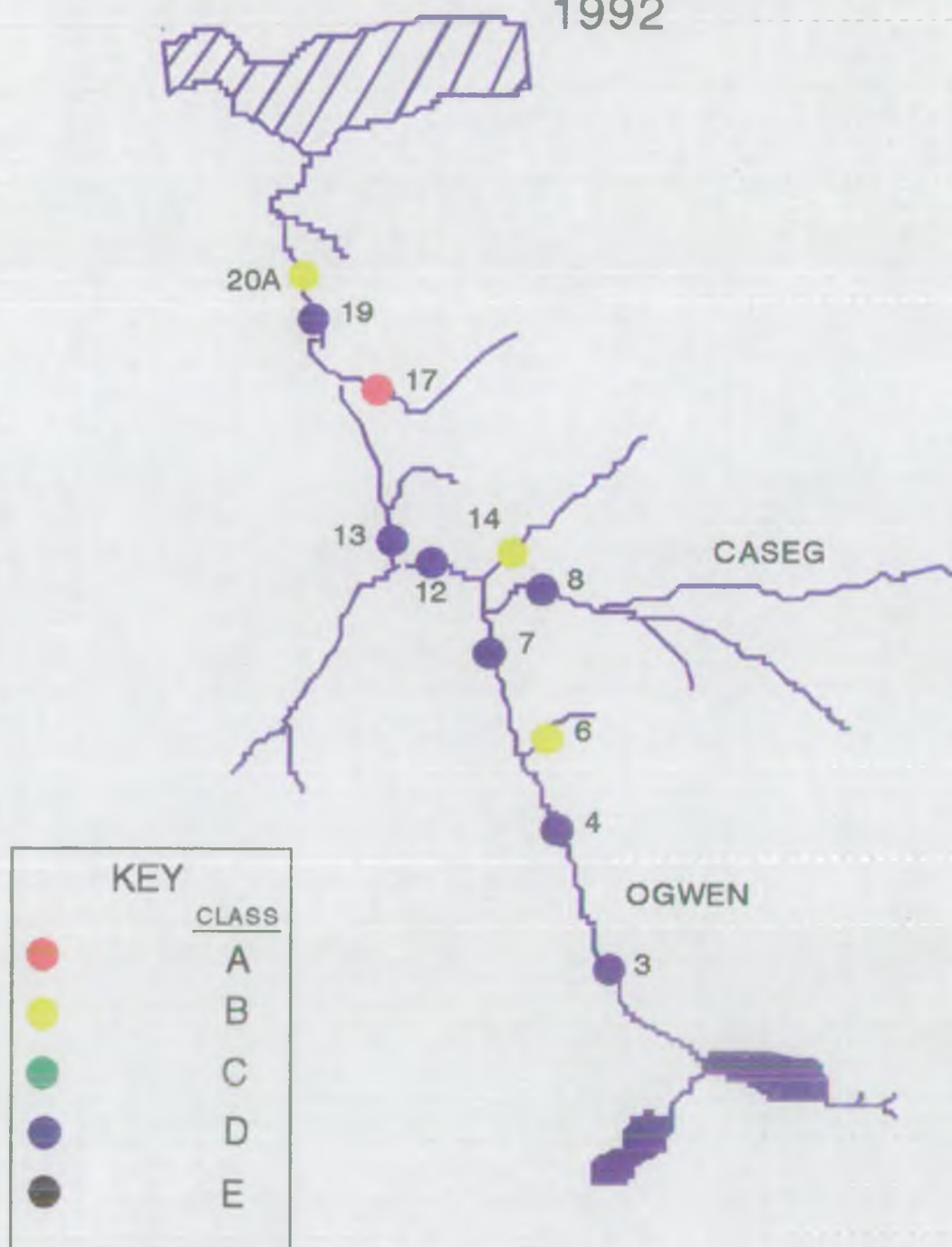




# RIVER OGWEN

## TROUT DENSITIES

1992

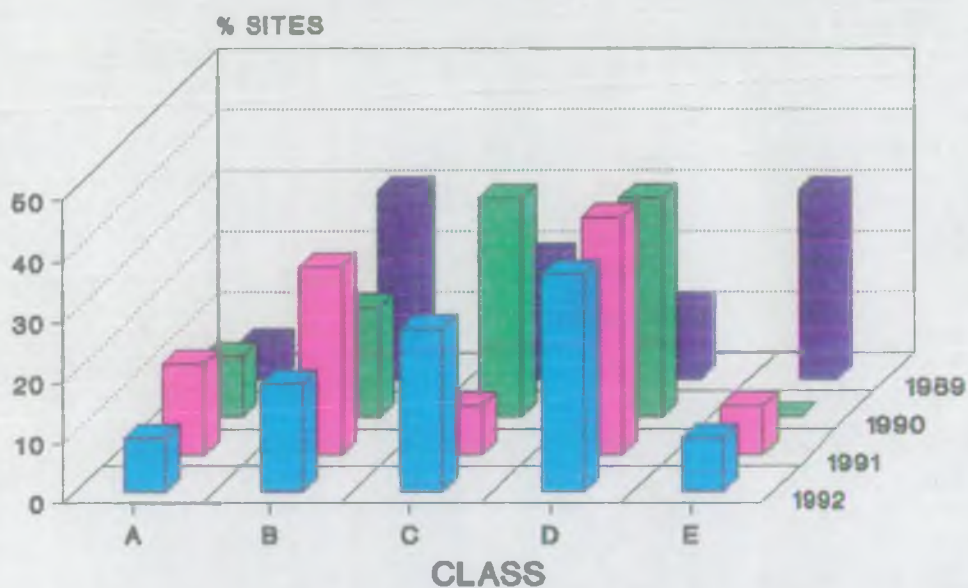






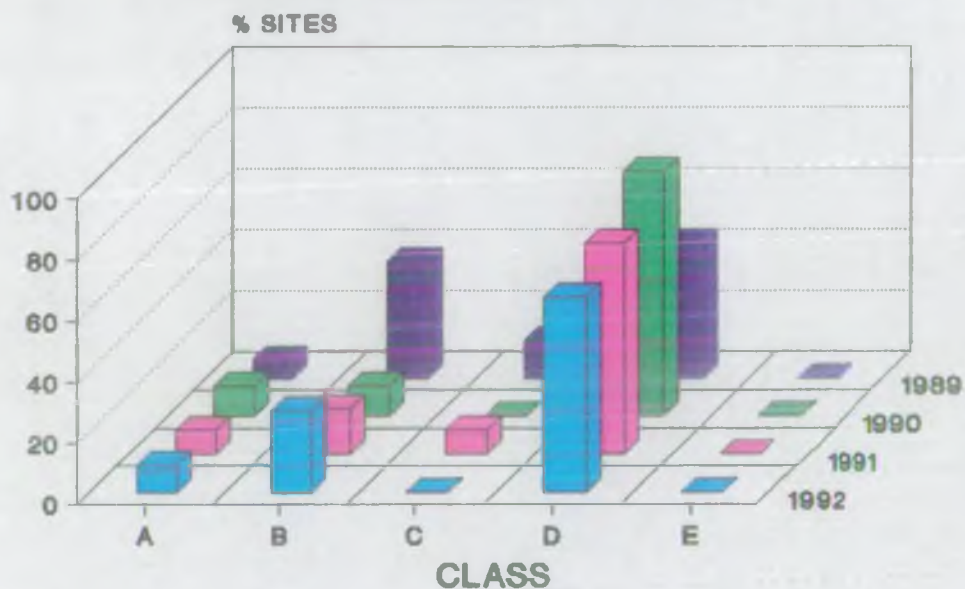
## RIVER OGWEN - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER OGWEN - TROUT

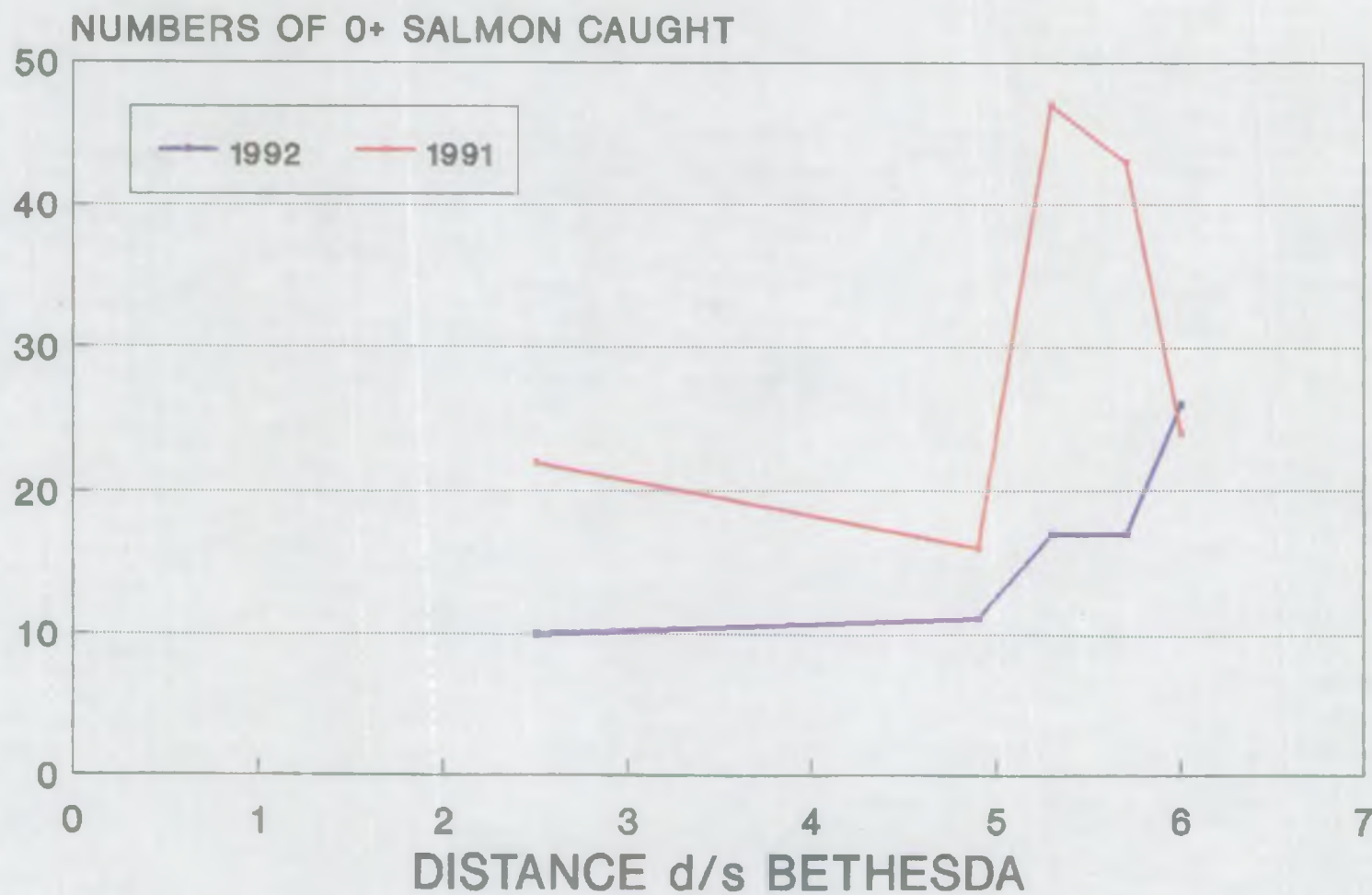
### % OF SITES IN EACH CATEGORY







# RIVER OGWEN FIVE MINUTE SALMON FRY SITES



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U.S. ARMY CORPS OF ENGINEERS

## 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. CECB 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 Catches: Rods: 117 salmon, 268 sea trout (1987 - 1991) Nets: 165 salmon, 86 sea trout

### 2. Sampling Programme.

1989 - 19 semi-quantitative sites  
1990 - 3 quantitative and 8 semi-quantitative sites  
1991 - 3 quantitative and 8 semi-quantitative sites  
1992 - 1 Quantitative and 4 riffle sites.

### 3. Assessment of Status.

Number (%) of sites in each category in 1990.

	A	B	C	D	E
Salmon	1(100)	( )	( )	( )	( )
Trout	( )	( )	1(100)	( )	( )

### 4. Key Points.

The one quantitative site was sampled for the purpose of the 'Habscore' National R&D programme.

The four 5 minute fry sites downstream of Llyn Padarn were fished in order to assess possible damage to the fishery caused by algal blooms earlier in the year. The poor results at these sites give cause for concern and will be the subject of further investigation in 1993.

## FISHERIES MONITORING PROGRAMME 1992

SEIONT

## CATCHMENT SUMMARY

QUANTITATIVE SITESNUMBER OF FISH PER 100M<sup>2</sup>

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
11	CALEDFFRWD	4.1	SH560628	99.2	20.1	2.2	A	39.9	0	1.1	C	
MEAN												

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE



## FISHERIES MONITORING PROGRAMME 1992

SEIONT

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+	
12A	SEIONT	SH559623	7	0	16	0	
12B	SEIONT	SH559623	1	0	2	0	
12C	SEIONT	SH559623	1	0	1	0	
12D	SEIONT	SH559623	3	1	3	0	

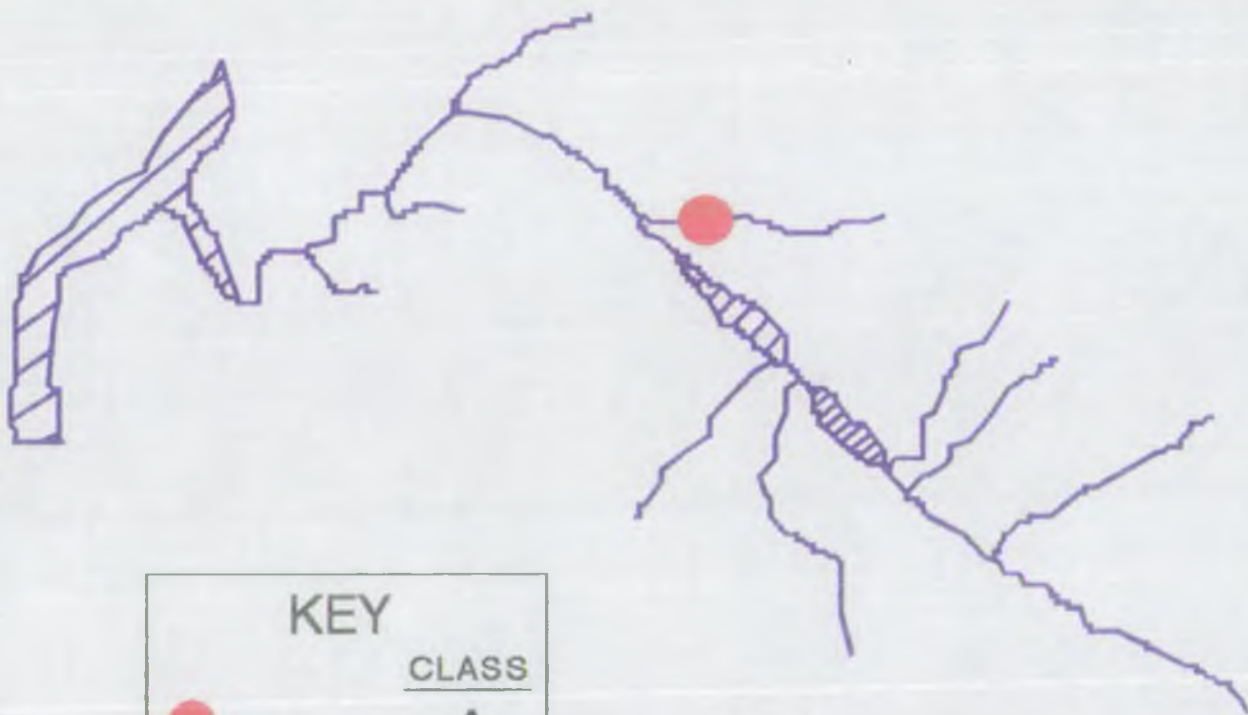
# PROBABLY INACCESSIBLE TO MIGRATORY FISH






\* MINIMUM ESTIMATE

# RIVER SEIONT

## SALMON DENSITIES

1992



KEY	
	<u>CLASS</u>
	A
	B
	C
	D
	E

THE 13th

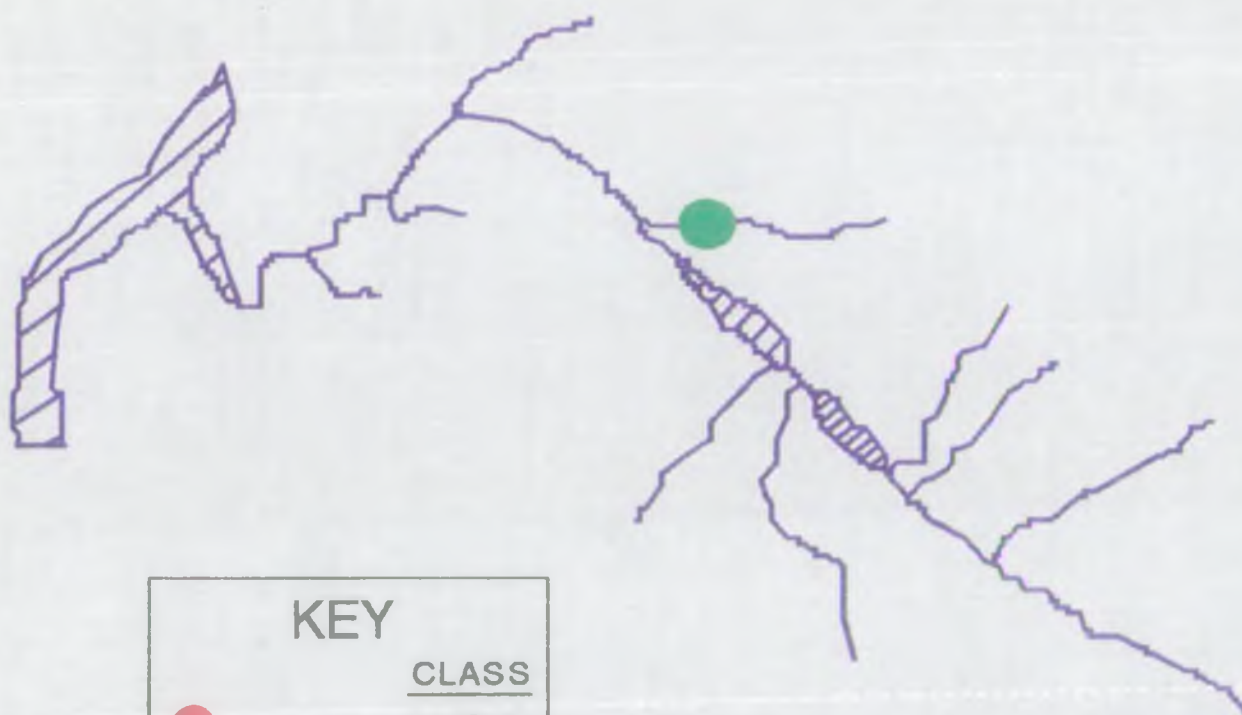
1891



# RIVER SEIONT

## TROUT DENSITIES

1992



KEY	
	<u>CLASS</u>
●	A
●	B
●	C
●	D
●	E



W.C. 43 8315

W.C. 43 8315

W.C. 43 8315

W.C. 43 8315

W.C. 43 8315

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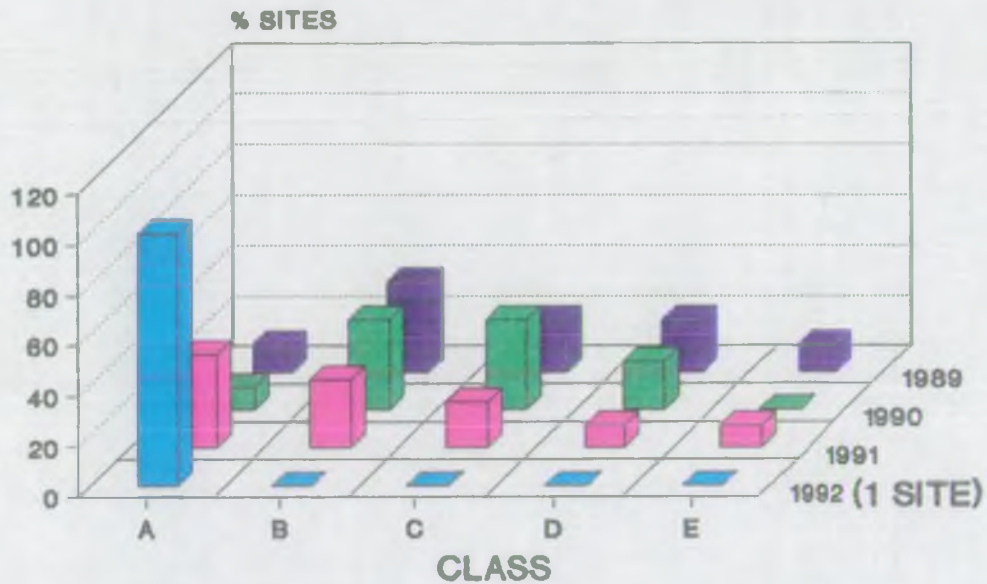
W.C. 43 8315

W.C. 43 8315

W.C. 43 8315

## RIVER SEIONT - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER SEIONT - TROUT

### % OF SITES IN EACH CATEGORY



August 19 - Thursday

August 20 - Friday

August 21 - Saturday

August 22 - Sunday

August 23 - Monday

August 24 - Tuesday

August 25 - Wednesday

August 26 - Thursday

August 27 - Friday

August 28 - Saturday

August 29 - Sunday

August 30 - Monday

August 31 - Tuesday

September 1 - Wednesday

September 2 - Thursday

September 3 - Friday

September 4 - Saturday

September 5 - Sunday

September 6 - Monday

September 7 - Tuesday

September 8 - Wednesday

September 9 - Thursday

September 10 - Friday

September 11 - Saturday

September 12 - Sunday

September 13 - Monday

September 14 - Tuesday

September 15 - Wednesday

September 16 - Thursday

DEE & CLWYD DISTRICT



## AFON 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 (1987 - 1991) Nets: 229 salmon, 772 sea trout

### 2. Sampling Programme

1985 - 11 quantitative and 30 semi-quantitative  
1986 - 17 quantitative and 9 semi-quantitative  
1987 - 17 quantitative  
1988 - 17 quantitative  
1989 - 21 semi-quantitative  
1990 - 5 quantitative, 12 semi-quantitative and 9 riffle sites  
1991 - 4 quantitative, 14 semi-quantitative and 20 riffle sites.  
1992 - 4 quantitative, 14 semi-quantitative and 22 riffle sites.

### 3. Assessment of status

Number (%) of sites in each category in 1992.

	A	B	C	D	E
Salmon	1(6)	2(11)	4(22)	5(28)	6(33)
Trout	5(28)	7(39)	2(11)	4(22)	0

### 4. Key Points

- 4.1 Mean salmon densities were relatively similar to 1991 although parr densities were higher at quantitative sites, reflecting recovery following the 1990 recruitment collapse. Combined with increased numbers of fry this increased the number of sites above class C from 16% to 39%.
- 4.2 Mean trout densities were also similar to 1991 although high fry numbers in the upper Clywedog demonstrated a recovery following poor recruitment in that year.
- 4.3 5 minute fry sampling confirmed last year's findings of good salmon densities on the Elwy and also demonstrated good densities throughout the Aled - comparable to the better Dee tributaries. The low trout fry numbers are likely to reflect the fact that their preferred marginal habitats were not sampled.

FISHERIES MONITORING PROGRAMME 1992

CLWYD

CATCHMENT SUMMARY

QUANTITATIVE SITES

NUMBER OF FISH PER 100M<sup>2</sup>

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	SH957671	8.5	12.9	0	C	55.3	14.5	2.4	A	
5	ELWY	3.6	SH958643	0	0	0	E	73	44.4	4.4	A	
9	CLWYD	6.5	SJ122548	.45	5	0	D	64.9	1.4	4.1	B	B, E,
14	CLYWEDOG	4.6	SJ108602	104.7	21.3	4.1	A	44.1	4.1	3.6	B	B, E, L
			MEAN	28.4	9.8	1	B	59.3	16.1	3.8	A	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME 1992

CLWYD

CATCHMENT SUMMARY

SEMI-QUANTITATIVE SITES

NUMBER OF FISH PER 100M<sup>2</sup>

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	ALED	9.2	SH955705	14.8	.2	.2	C	6	.9	0	D	B, E, L
2	ALED	6.6	SH956674	14.5	1.7	0	C	13.5	2	0	C	
3	ALED	6.7	SH938644	10.5	4.8	0	B	1.8	.9	0	D	B, E
6	ELWY	6.5	SH878673	13.1	.3	0	C	6.7	0	0	D	B, E, ST
7	ELWY	4.9	SH878617	0	0	0	E	5.7	.4	0	D	B, E
7A	ELWY	4.1	SH874605	8.8	1.5	0	D	23.4	2.9	2.9	B	B, E
10	CLWYD	4.5	SJ096509	0	.6	0	D	24	3	1.2	B	B, E
11	CLWYD	4.3	SJ040490	0	0	0	E	19.1	9.3	1.9	B	B, E
12	YSTRAD	5.1	SJ068657	31.7	2.9	0	B	14.6	1.7	1.7	B	B, E
13	YSTRAD	4.3	SJ008625	0	0	0	E	16.7	6.5	2.8	B	B, E
15	CLYWEDOG	2.5	SJ083568	0	.8	0	D	68	18.4	4	A	E
16#	CLYWEDOG	3.6	SJ057580					24.2	12.9	12.4	A	E
17#	CLYWEDOG	2.8	SJ04458					32.7	6.8	7.6	A	E
19	WHEELER	4.3	SJ098700	3.7	.5	0	D	6.5	9.3	0	C	B, E, L, M
MEAN				9.5	1.3	0	D	18.8	5.4	2.5	B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME 1992

## 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+	>0+	0+	>0+	
9A	CLWYD	SJ128554	8	1	14	0	E,B
9C	CLWYD	SJ105633	1	0	3	0	E,B,ST,M
9D	CLWYD	SJ091659	25	0	0	0	E
9F	CLWYD	SJ124571	0	0	26	0	E,B
9G	CLWYD	SJ113620	0	0	3	0	E,B,ST
9H	CLWYD	SJ110626	0	0	6	0	E,B,ST
21	ELWY	SH928702	26	0	3	0	E,B,ST
21A	ELWY	SH894698	21	0	7	0	E,B,ST
28	ELWY	SJ034710	30	0	3	0	E,B,ST,M,L
30	ELWY	SH953720	21	0	0	0	
44	EAST PENTRE	SJ095634	31	0	0	0	E,B,ST
44A	CLYWEDOG	SJ096615	40	0	0	0	E,B,ST
45	ALED	SH937644	9	4	0	1	B
46	ALED	SH936643	0	0	1	1	B,E
47	ALED	SH943664	35	1	9	0	B,E
48	ALED	SH942663	32	2	15	0	B,E
49	ALED	SH941663	40	1	12	0	B,E
50	ALED	SH957703	19	0	4	0	B,E
51	ALED	SH958702	23	3	7	0	B
52	ALED	SH960693	18	6	7	1	B,E
53	ALED	SH960687	17	5	2	7	E
54	ALED	SH954677	21	5	2	2	B,E

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

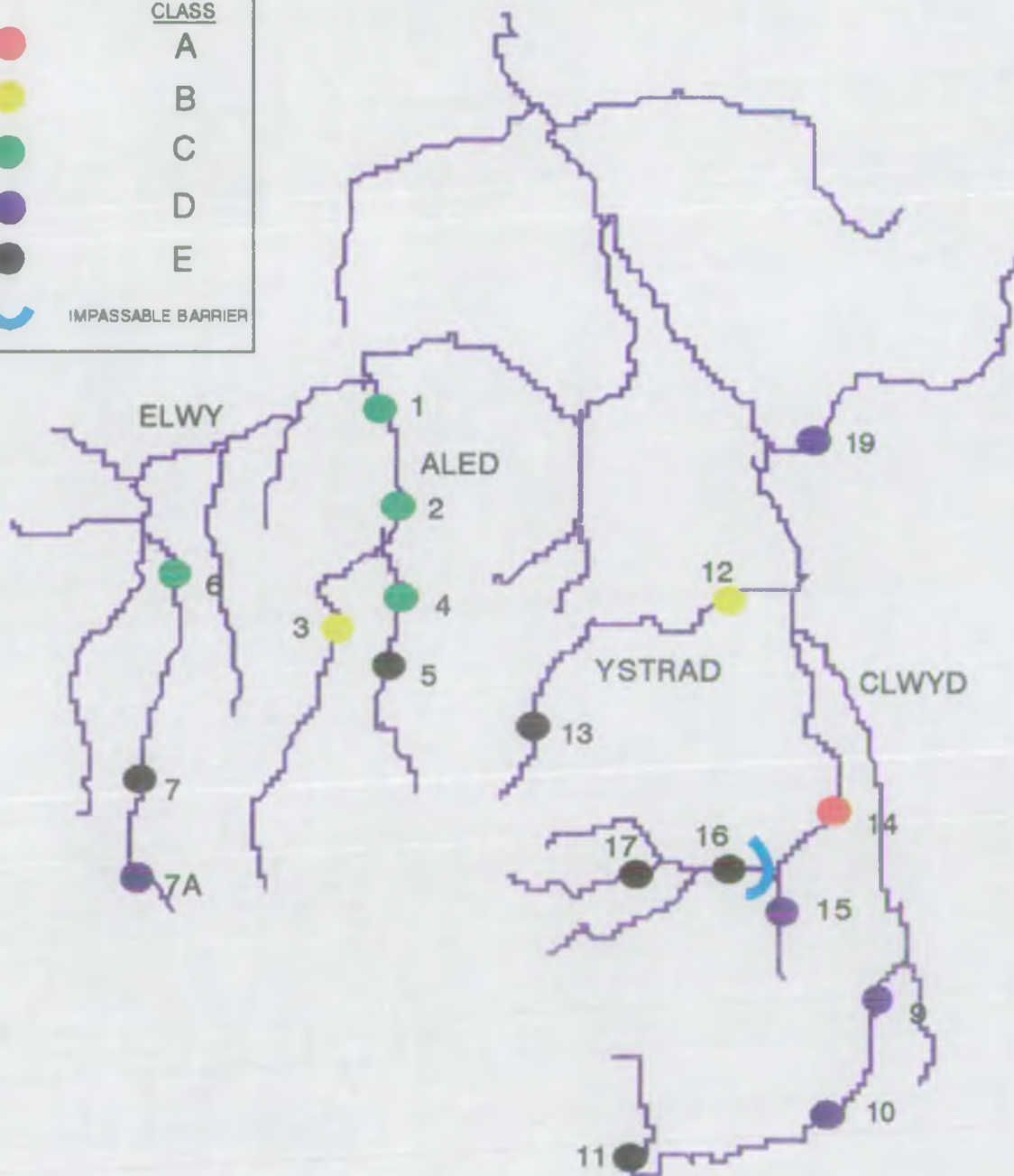
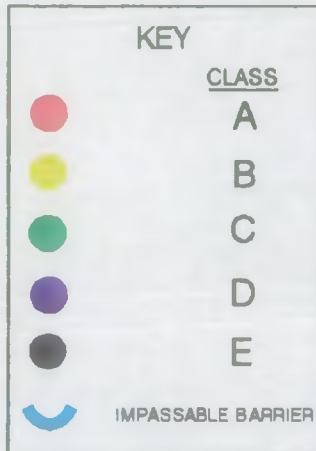
\* MINIMUM ESTIMATE



# RIVER CLWYD

## SALMON DENSITIES

### 1992



# THEORY OF THE EARTH

BY J. H. VAN DIJK

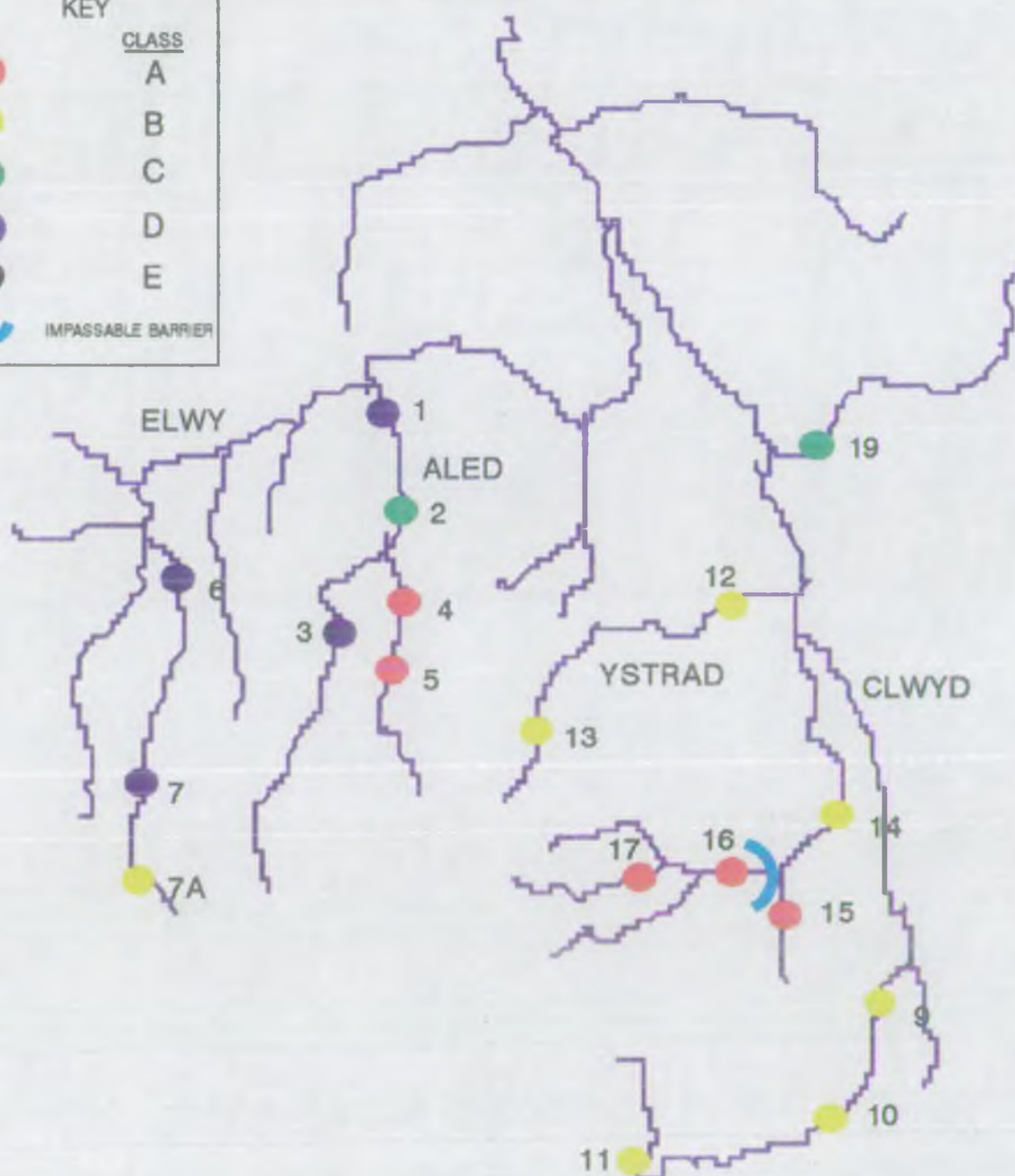
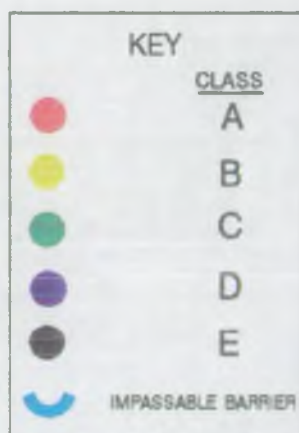




# RIVER CLWYD

## TROUT DENSITIES

### 1992

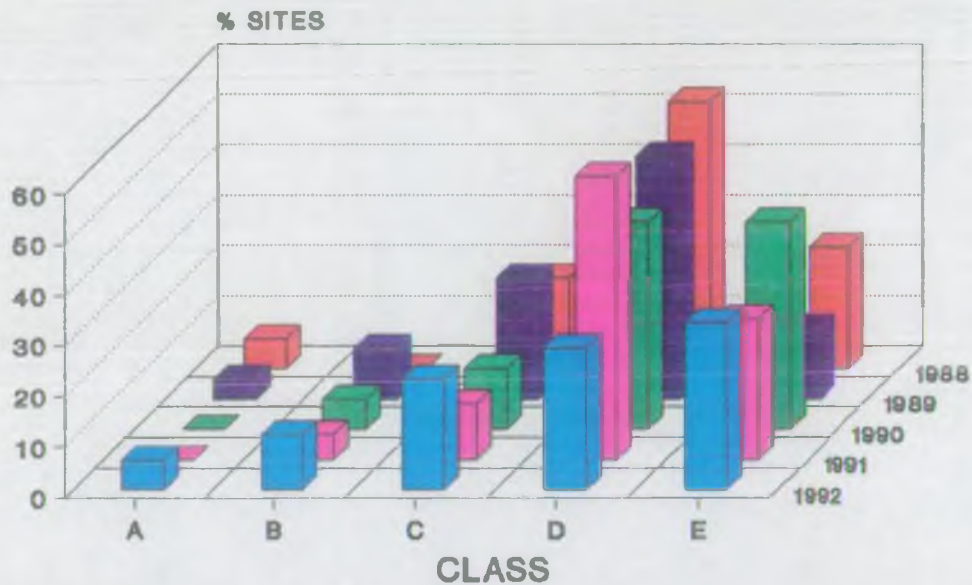






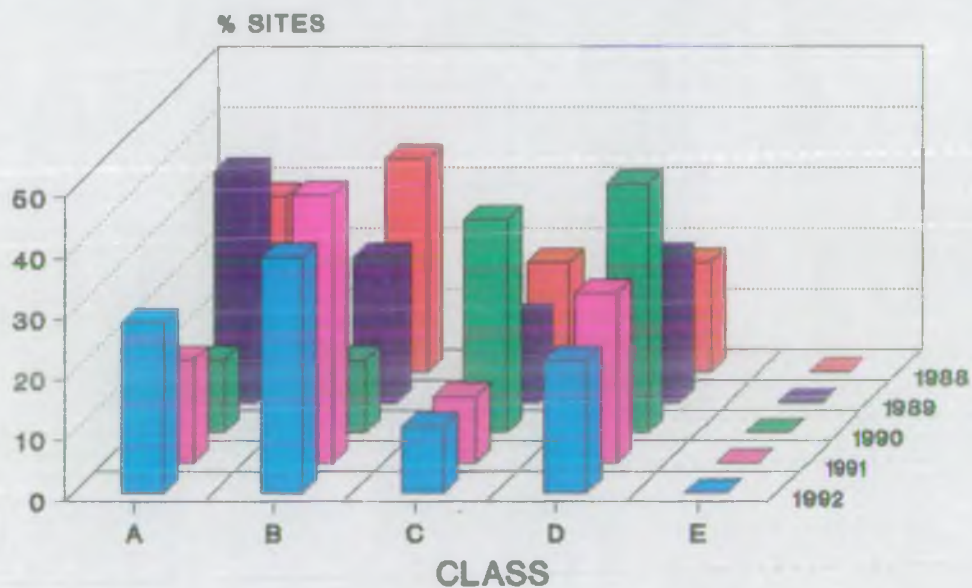
## RIVER CLWYD - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER CLWYD - TROUT

### % OF SITES IN EACH CATEGORY



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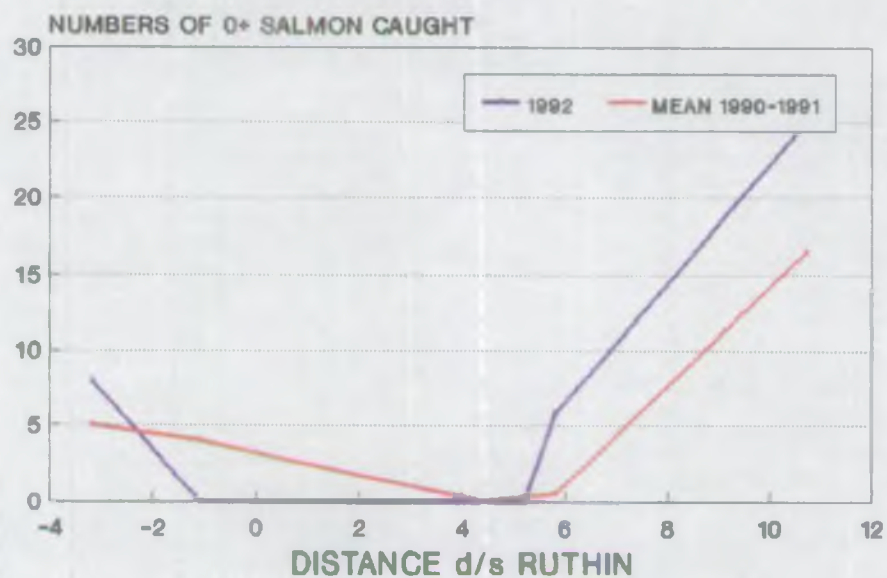
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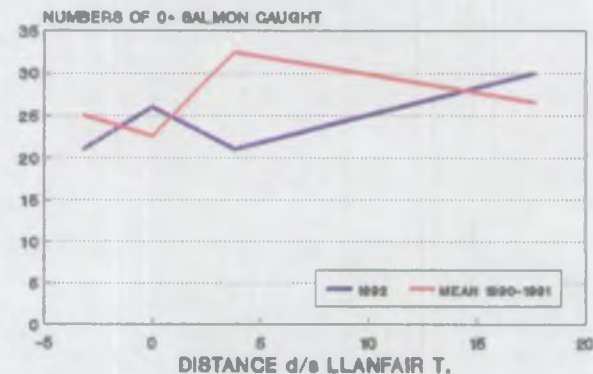
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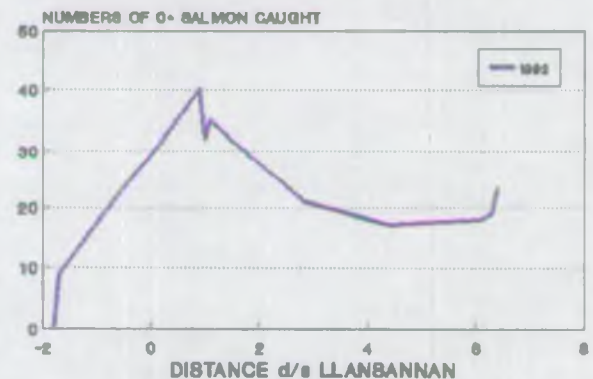
# RIVER CLWYD FIVE MINUTE SALMON FRY SITES



# RIVER ELWY FIVE MINUTE SALMON FRY SITES



# RIVER ALED FIVE MINUTE SALMON FRY 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, 26 semi-quantitative sites.  
1990 - 6 quantitative, 12 semi-quantitative and 4 riffle sites.  
1991 - 6 quantitative, 26 semi-quantitative and 27 riffle sites.  
1992 - 17 quantitative, 10 semi-quantitative, 84 riffle sites.

### 3. Assessment of status

Number (%) of sites in each category in 1992

	A	B	C	D	E
Salmon	2(7)	8(30)	7(26)	8(30)	2(7)
Trout	4(15)	5(19)	5(19)	13(48)	0

### 4. Key Points

- 4.1 Mean salmon and trout fry densities were similar to or greater than those found in 1991.
- 4.2 Comparison of Ceidiog salmon and trout densities in 1985 indicated a slight increase in fry (e.g. salmon mean from 12.0 to 18.7/100 m<sup>2</sup>) but a reduction in parr densities. The decrease in salmon parr (7.0 - 1.9/100m<sup>2</sup>) was significant ( $p < 0.05$ ). The Morwynion which was also intensively sampled showed very little change from 1987 for both species.
- 4.3 Salmon fry densities at several sites (Ffavr, Meloch and Mynach) were in the higher range of recorded densities.
- 4.4 Only 1 fish was caught on the upper Hirnant, reflecting a gradual decline from its class B status in 1986, possibly as a result of acidification.
- 4.5 5 minute fry sampling demonstrated highest salmon counts on the Ceiriog with results generally reflecting previous findings of low to moderate densities on the main river.

FISHERIES MONITORING PROGRAMME 1992

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	
3	LITTLE DEE	5.2	SH857286	5	0.8	0	D	9.5	1.6	0	D	B, E, M
11	FFRAUER	2.2	SJ043433	68.7	12.9	.5	B	20.2	2	3	D	B, E
12	CEIRW	16.5	SJ005445	6.8	.5	0	D	.2	.1	0	D	B, E, M
14	CEIDIOG	5	SJ035369	52.1	5.6	0	B	7.9	1.9	8.8	C	B
15	CEIDIOG	5.2	SJ.31356	29.2	3.5	0	C	3.5	2.3	1.5	D	B
16	CEIDIOG	5.2	SJ028343	11.5	.5	0	D	7.3	2.8	2.3	C	B, E
17	CEIDIOG	3.8	SJ026332	.53	0	0	D	0	4.2	0	D	B
19	CEIDIOG	4	SJ025328	0	0	0	E	7	.6	0	D	
32#	HIRNANT	4.6	SH957323					0	.9	0	D	B
33	MELOCH	2.3	SJ964384	70.1	5	0	B	33	5.6	1.7	B	E
34	ABBAY BROOK	4	SJ2054 7	39	7.5	0	B	40	11	1.5	B	B, ST, E
40	MYNACH	4.2	SH909415	98.1	16.2	0	A	38	6.3	1.4	B	E, ST
52	MORWYNION	1.8	SJ165484	0	1.1	0	D	83	11.3	6.7	A	B, E
54	MORWYNION	2.3	SJ145475	.9*	4.3	0	D	120	18.8	6	A	B, E, L
56	MORWYNION	4	SJ112434	59.1	2.5*	0	B	17.5	1.5	0	D	B, E, ST
56A	MORWYNION	3.3	SJ159481	23.6	6	0	C	58.6	18.1	1.4	A	B, L
57	CEIRIOG	7.5	SJ196357	23.5	6.1	.7	C	18.7	2.1	2.4	D	B, E
MEAN				30.5	4.9	0	C	29.5	5.7	2.3	B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME 1992

DEE CATCHMENT SUMMARY

SEMI-QUANTITATIVE SITES

NUMBER OF FISH PER 100M<sup>2</sup>

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
13	MERDDWR	3.4	SJ000426	18	1.5	0	C	24.9	5.5	4	B	B, E
35	HIRNANT	7.5	SH948363	16.2	.6	0	C	.9	.6	0	D	B
42	MYNACH	4.4	SH912418	44	22	.7	A	6.4	5	.7	C	
44	MYNACH	5	SH906392	40	2	0	B	7.2	.8	0	D	
46	MELOCH	3.6	SH963389	12.8	8	0	B	22.4	3.2	1.1	B	E
47	MELOCH	3.5	SJ952368	21.1	5.7	.6	B	44.6	0	0	C	E
60	CEIRIOG	4.7	SJ158328	17.5	1.6	0	C	0	0	.5	D	E, B
61	CEIRIOG	1.2	SJ157382	15	0	0	D	26.7	6.7	6.7	A	B
64	CEIRIOG	3.3	SJ363346	7.4	4.3	0	C	6.2	2.5	1.2	C	B
68	CEIRIOG	8.8	SJ245385	5.2	1.6	0	D	3.2	0	0	D	E, B
MEAN				19.7	4.7	.1	B	14.3	2.4	1.4	B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# FISHERIES MONITORING PROGRAMME

## DEE CATCHMENT SUMMARY

## 5 MINUTE FRY SITE

### NUMBER OF FISH CAUGHT IN FIVE MINS

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
D4.1	DEE		SJ 397464	8				0				
D4.2	DEE		SJ 387455	17				0				
D5.1	DEE		SJ 358422	9				0				
D5.2	DEE		SJ 344414	21				2				
D5.3	DEE		SJ 317397	28				0				
D5.4	DEE		SJ 296416	23				1				
D5.5	DEE		SJ 292421	12				1				
D6.1	DEE		SJ 232422	12				3				
D6.2	DEE		SJ 268417	15				0				
D7.1	DEE		SJ 157433	4				0				
D7.2	DEE		SJ 152429	14				2				
D8.1	DEE		SJ 069432	25				0				
D8.2	DEE		SJ 114437	17				1				
D8.3	DEE		SJ 117437	3				1				
D9.1	DEE		SH 983366	5				0				
D9.2	DEE		SJ 009373	3				0				
D9.3	DEE		SJ 016368	1				0				
D9.4	DEE		SJ 027378	2				0				
D9.5	DEE		SJ 043403	2				0				
D9.6	DEE		SJ 054423	13				9				
D10.1	DEE		SH 955364	17				1				
D10.2	DEE		SH 960364	1				0				

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE



## FISHERIES MONITORING PROGRAMME

## DEE CATCHMENT SUMMARY

## 5 MINUTE FRY SITE

## NUMBER OF FISH CAUGHT IN FIVE MINS

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
AL1.1	ALWEN		SJ 032436	23				0				
AL1.2	ALWEN		SJ 051435	27				1				
AL2.1	ALWEN		SJ 026459	11				0				
AL2.2	ALWEN		SJ 028465	18				0				
AL2.3	ALWEN		SJ 014474	14				1				
AL2.4	ALWEN		SH 991495	9				1				
AL2.5	ALWEN		SH 988517	1				3				
ALT1	ALWEN TRIB		SH 973526	1				5				
CW1	CEIRW		SJ 004446	19				1				
CW4.1	FRAUER		SJ 054432	4				12				
CW4.2	FRAUER		SJ 024426	12				6				
LF1.1	LLAFAR		SH 893327	0				0				
LF1.2	LLAFAR		SH 877339	0				0				
LF1.3	LLAFAR		SH 861349	0				18				
DY1	LITTLE DEE		SH 874304	10				1				
DY2.1	LITTLE DEE		SH 850276	1				4				
DY2.1	LITTLE DEE		SH 862283	1				9				
T1	TWRCH		SH 880298	4				1				
LL1.1	LLIW		SH 872307	3				2				
LL1.2	LLIW		SH 854308	6				0				

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# FISHERIES MONITORING PROGRAMME

## DEE CATCHMENT SUMMARY

## 5 MINUTE FRY SITE

### NUMBER OF FISH CAUGHT IN FIVE MINS

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
AY1.1	ALYN		SJ 397562	14				0				
AY1.2	ALYN		SJ 358569	0				0				
AY1.3	ALYN		SJ 337542	0				3				
AY1.4	ALYN		SJ 325543	0				8				
CL1	CLYWEDOG		SJ 396483	0				0				
CE1.1	CEIRIOG		SJ 310382	97				5				
CE1.2	CEIRIOG		SJ 279373	88				0				
CE2.1	CEIRIOG		SJ 260379	9				10				
CE2.2	CEIRIOG		SJ 233373	19				7				
CE2.3	CEIRIOG		SJ 208379	54				9				
CET1	CEIRIOG TRIB		SJ 194359	1				24				
CE3.1	CEIRIOG		SJ 139342	26				15				
CE3.2	CEIRIOG		SJ 187343	40				13				
CE3.3	CEIRIOG		SJ 158328	32				5				
CET2	CEIRIOG TRIB		SJ 136347	1				9				
TR1.1	TRYWERYN		SH 929363	13				0				
TR1.2	TRYWERYN		SH 914383	15				0				
TR1.3	TRYWERYN		SH 883398	15				0				
TR2.1	MYNACH		SH 910410	36				3				
TR2.2	MYNACH		SH 911418	37				3				

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME

## DEE CATCHMENT SUMMARY

## 5 MINUTE FRY SITE

## NUMBER OF FISH CAUGHT IN FIVE MINS

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
WB1.1	WORTHENBURY BROOK		SJ 418464	0				0				
WB2.1	WORTHENBURY BROOK		SJ 441447	0				0				
DT3.1	SHELL BROOK		SJ 354403	0				0				
DT4.1	EITHA		SJ 301425	0				33				
DT4.2	EITHA		SJ 297444	0				23				
DT5.1	N VALE OF LLANGOLLEN		SJ 277423	0				2				
DT7.1	EGLWYSEG(ABBET BROOK)		SJ 206443	1				52				
M1.1	MORWYNION		SJ 106437	17				5				
M1.2	MORWYNION		SJ 128464	11				9				
M1.3	MORWYNION		SJ 148476	2				23				
M1.4	MORWYNION		SJ 156481	0				19				
DT9.1	NANT FAWR		SJ 083446	2				14				
DT10.1	LLYNOR		SJ 042486	16				3				
DT10.1	LLYNOR		SJ 057383	25				11				
DT10.2	TRYSTION		SJ 053409	16				11				
CD1.1	CEIDIOG		SJ 035374	14				0				
CD1.2	CEIDIOG		SJ 032357	19				0				
CD1.3	CEIDIOG		SJ 027342	12				2				
DT12.1	MELOCH		SH 964387	22				17				
DT12.1	MELOCH		SH 958378	12				5				
DT12.2	NANT HAFHESP		SH 937365	9				6				
CY1	HIRNANT/CYMERIG		SH 948362	22				1				

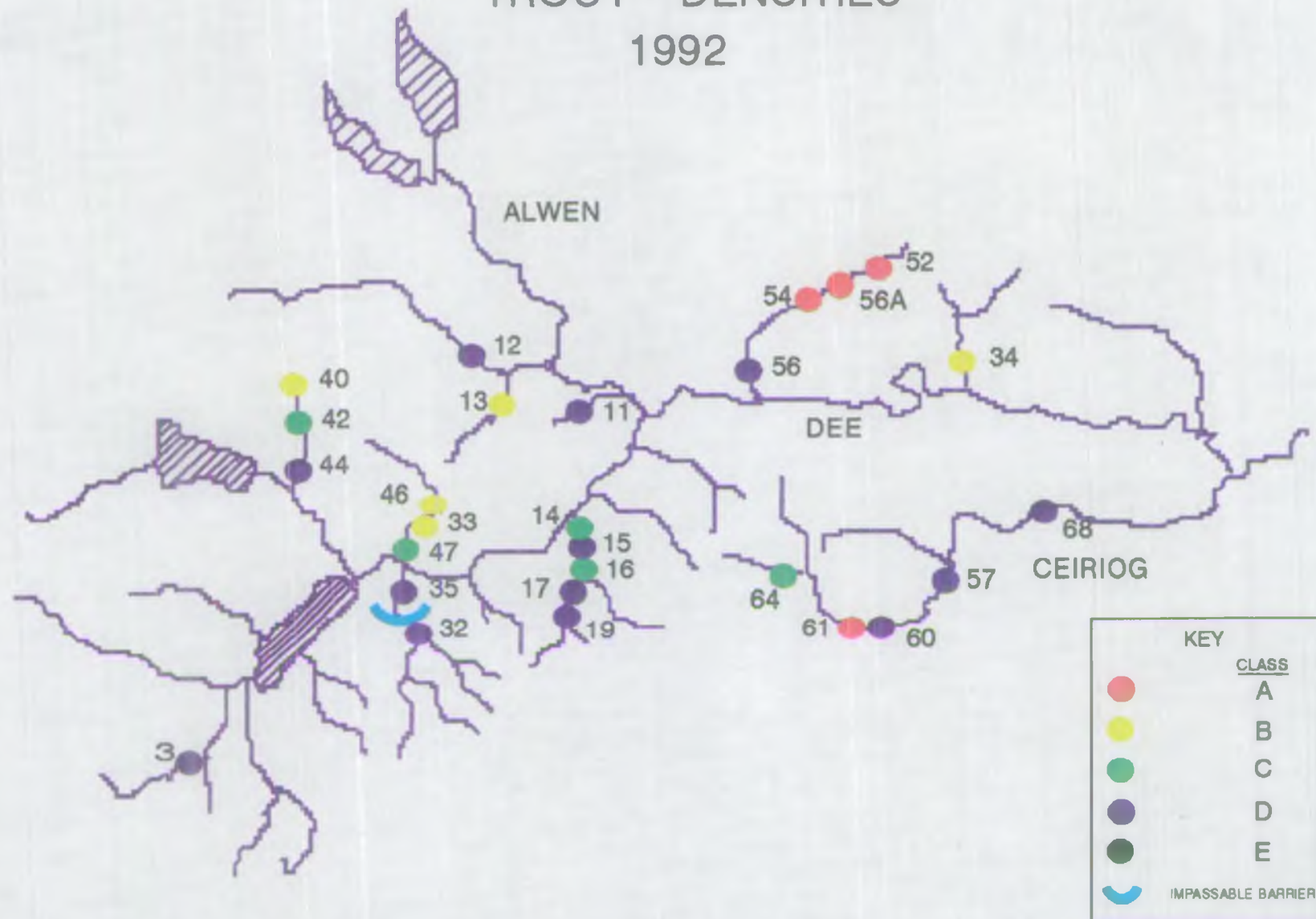
# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# RIVER DEE

## TROUT DENSITIES

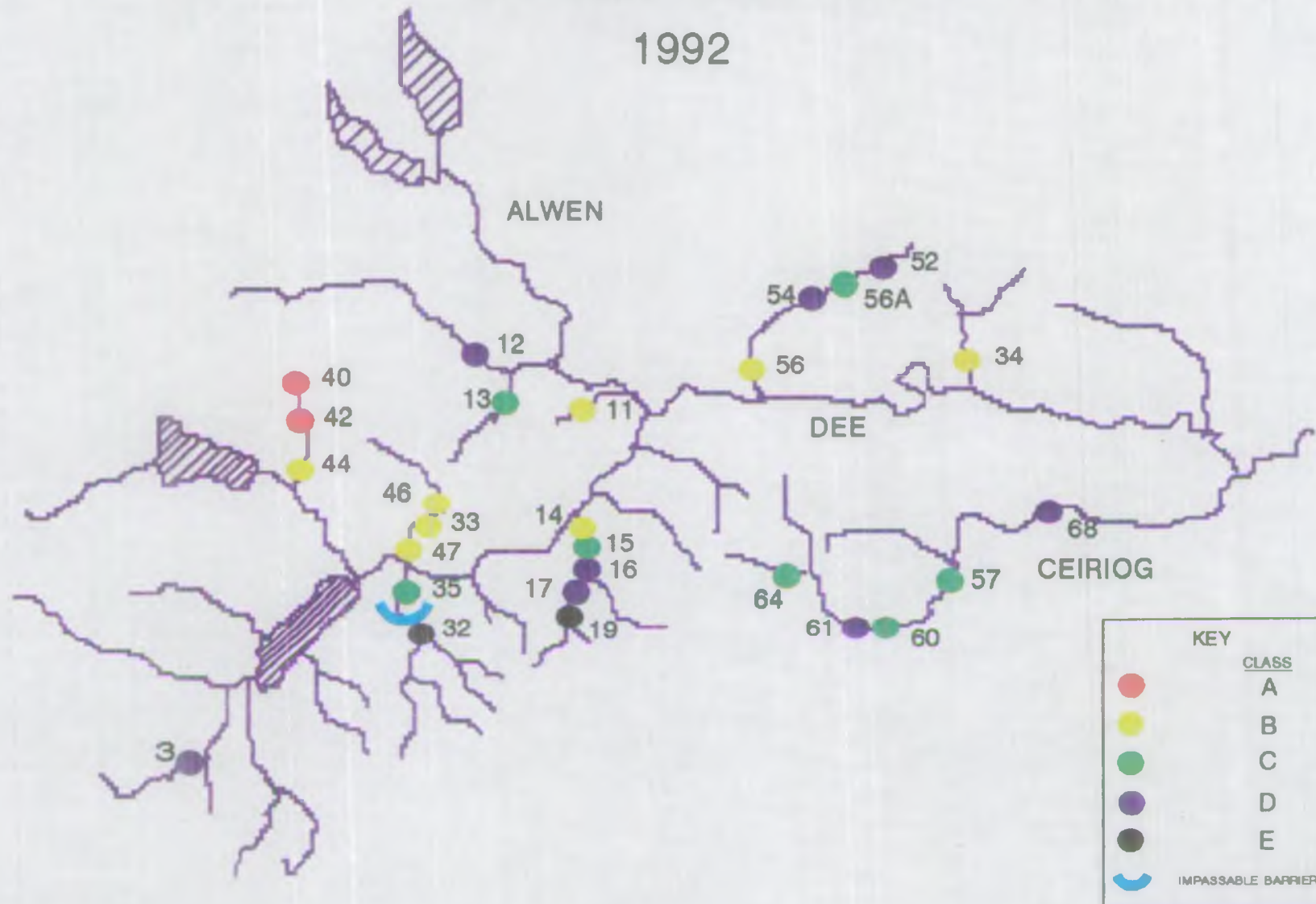
### 1992







# RIVER DEE SALMON DENSITIES 1992

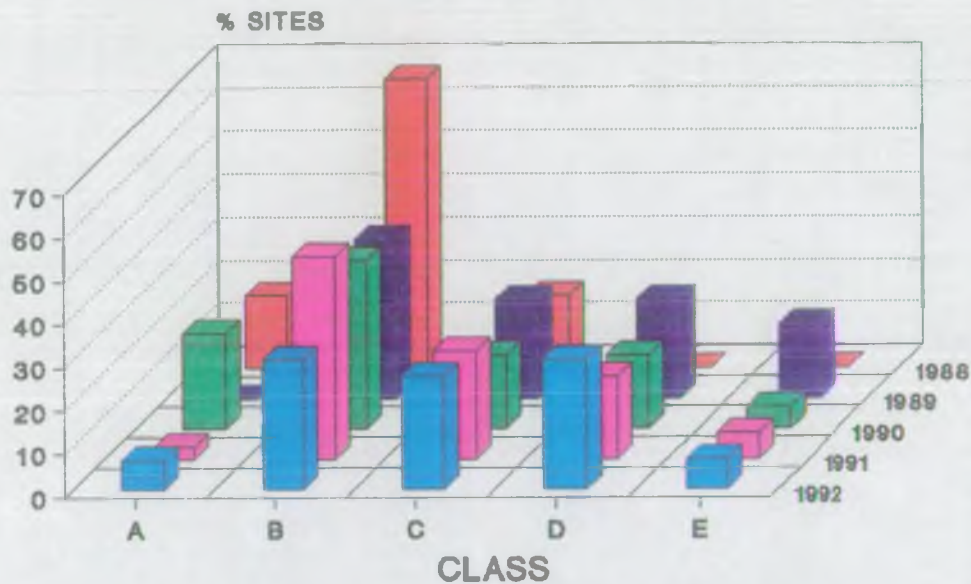






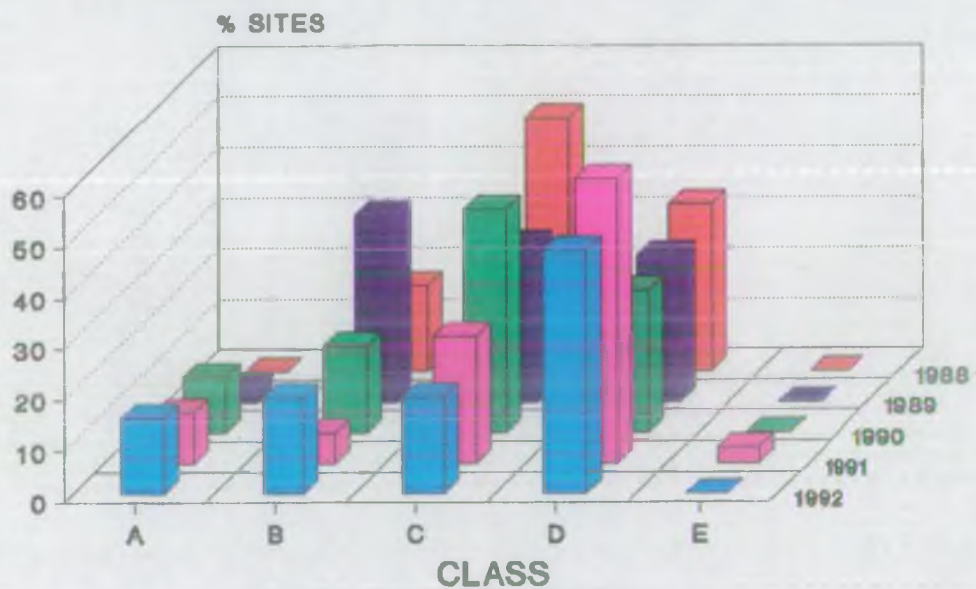
## RIVER DEE - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER DEE - TROUT

### % OF SITES IN EACH CATEGORY





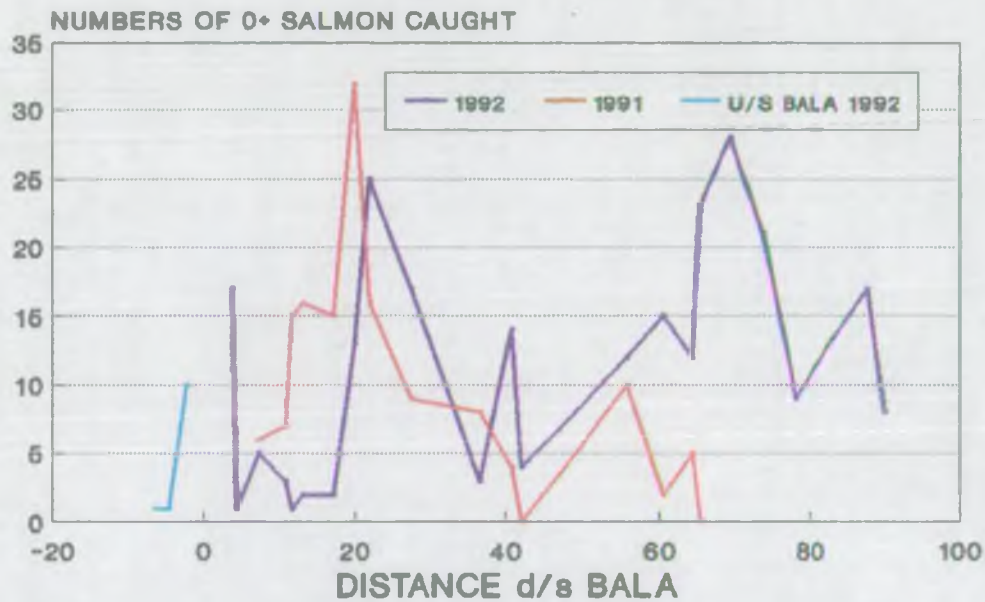
VOLUME 12 - 1981

1981-1982

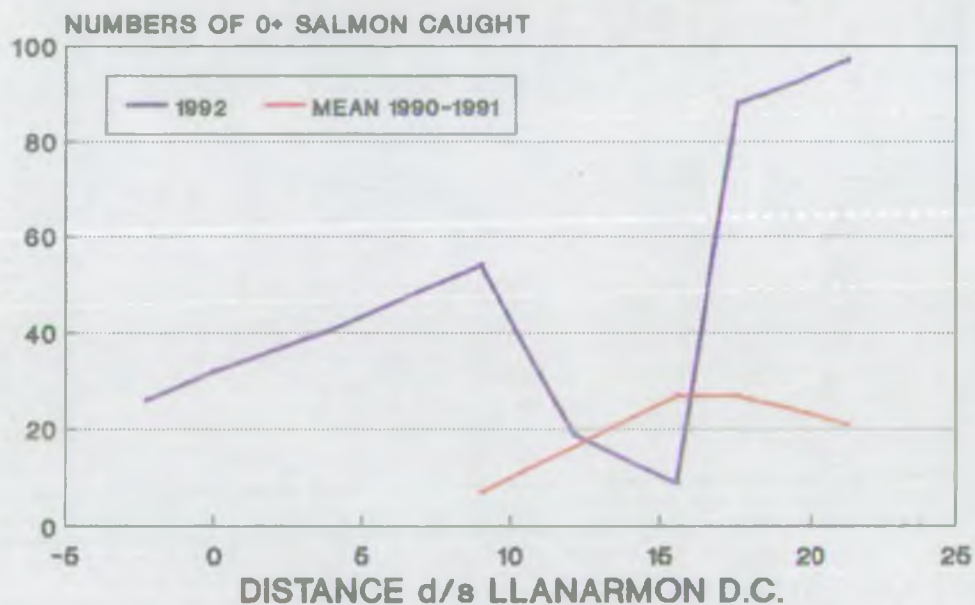
VOLUME 12 - 1981

1981-1982

## RIVER DEE FIVE MINUTE SALMON FRY SITES



## RIVER CEIRIOG FIVE MINUTE SALMON FRY SITES



BY APPOINTMENT

TO THE HOUSE OF COMMONS

ON FRIDAY, 11th JANUARY 1901

THE HOUSE OF COMMONS

IN THE EVENING

AT 7.15 P.M.

THE HOUSE OF COMMONS

IN THE EVENING

AT 7.15 P.M.

THE HOUSE OF COMMONS

IN THE EVENING

AT 7.15 P.M.

THE HOUSE OF COMMONS

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IN THE EVENING

AT 7.15 P.M.

THE HOUSE OF COMMONS

IN THE EVENING

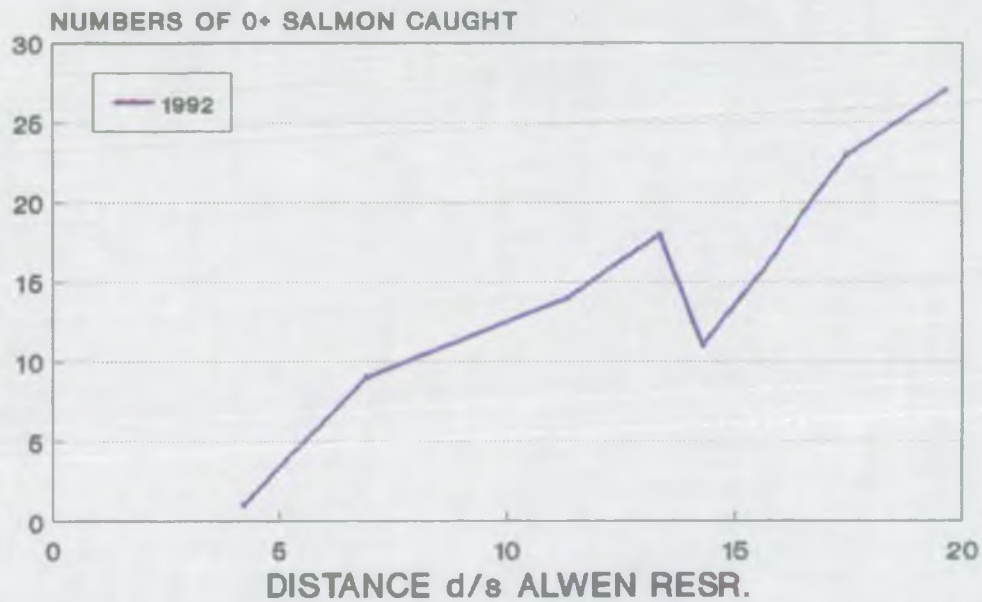
AT 7.15 P.M.

THE HOUSE OF COMMONS

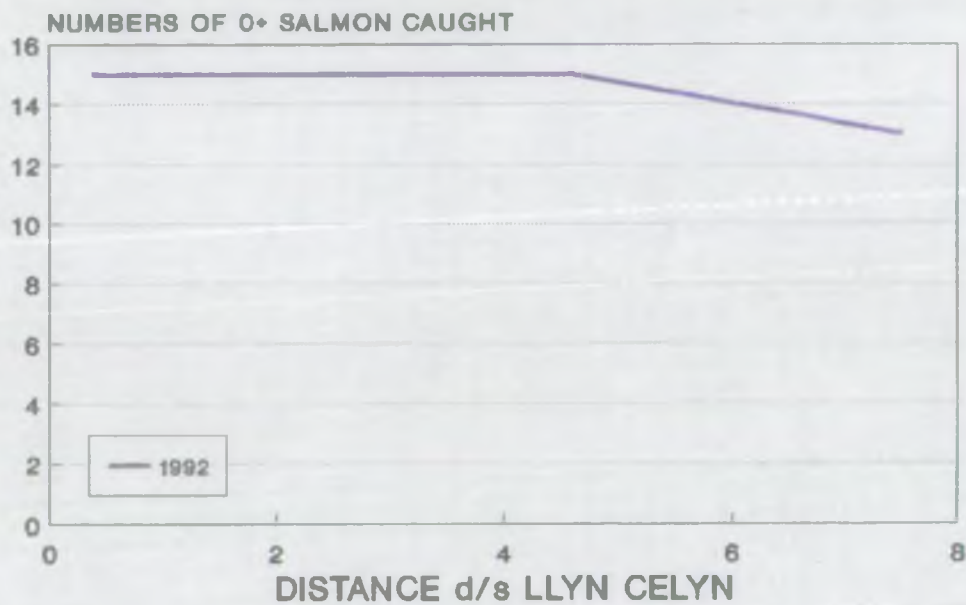
IN THE EVENING



## RIVER ALWEN FIVE MINUTE SALMON FRY SITES



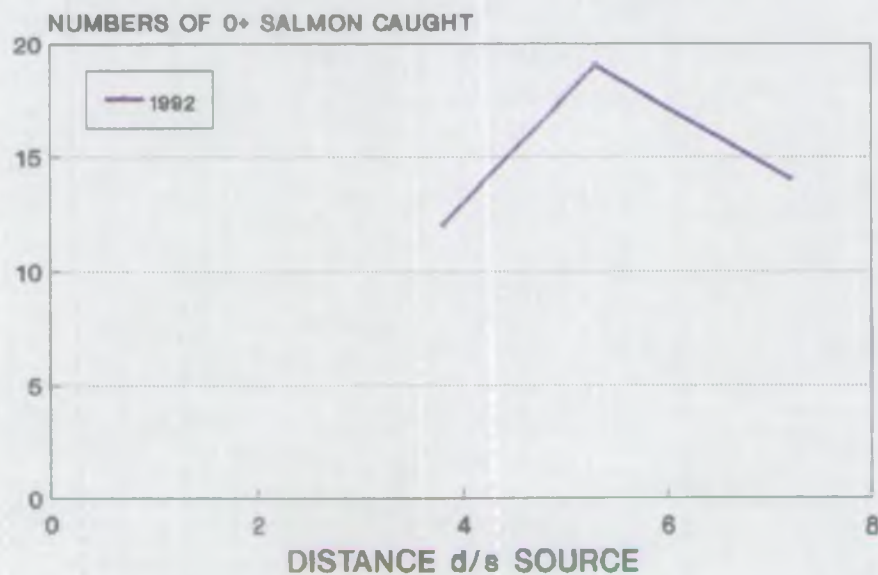
## RIVER TRYWERYN FIVE MINUTE SALMON FRY SITES



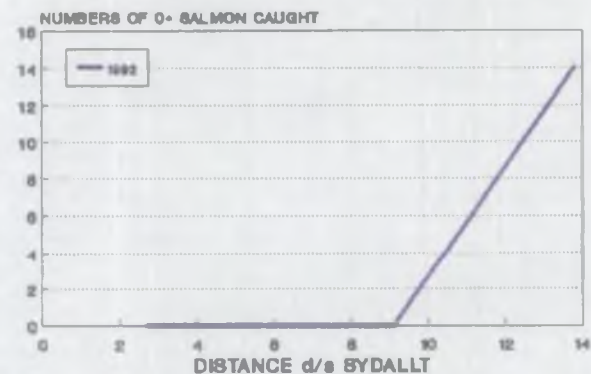




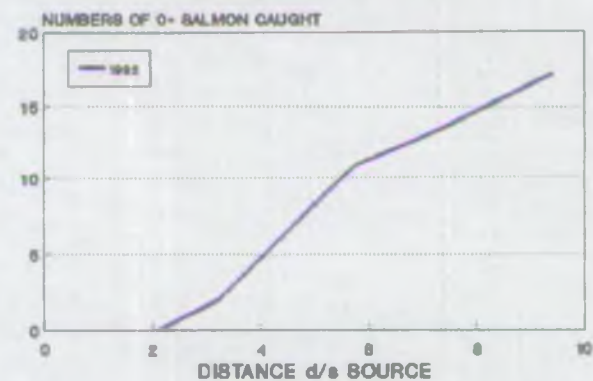
### RIVER CEIDIOG FIVE MINUTE SALMON FRY SITES



### RIVER ALYN FIVE MINUTE SALMON FRY SITES



### RIVER MORWYNION FIVE MINUTE SALMON FRY SITES





APPENDIX 4  
SOUTH EASTERN DIVISION  
CATCHMENT SUMMARIES.



**TAFF/USK DISTRICT**

## RIVER USK SUMMARY.

### 1. Catchment and Fishery Characteristics.

- Land Use - Principally pastoral farming with some arable and forestry. Several small market towns but little large developments or industry except for 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 1985 - 1991:-  
Rods: 524 salmon, 63 sea trout  
Nets: 2161 salmon, 426 sea trout

### 2. Sampling Programme.

- 1986 - 40 semi-quantitative sites  
1987 - 13 quant and 23 semi-quant sites  
1988 - 13 quant and 19 semi-quant sites  
1989 - 12 quant and 27 semi-quant sites, 12 x 5 mins  
1990 - 14 quant and 20 semi-quant sites, 8 x 5 mins  
1991 - 13 quant and 35 semi-quant sites, 7 x 5 mins  
1992 - 12 semi-quant sites

### 3. Assessment of Status

Number (%) of sites in each category in 1992.

	A	B	C	D	E
Salmon	0( 0 )	1( 8 )	2( 17)	4( 23)	5( 42)
Trout	0( 0 )	1( 8 )	10( 84)	1( 8 )	0( 0 )

### 4. Key Points.

- 4.1 Due to high river levels in the period programmed for the survey only 12 sites were sampled, all semi-quantitative and in the lower catchment. Comparison with mean densities for previous years is not therefore meaningful.
- 4.2 For those sites directly comparable with 1991 mean densities were higher in 1992 for both salmon and trout of all age-classes (by a factor of approximately 3).

FISHERIES MONITORING PROGRAMME 1992

USK

CATCHMENT SUMMARY

SEMI - QUANT 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	
12	GRWYNE FAWR	7.1	SO 284226	3.9	5.3	0	C	2.8	5.3	2.1	C	B,E
13	GRWYNE FECHAN	5.5	SO 245199	7.5	10.5	0	B	7.4	4.7	0	C	B,E
26A	RHIANGOLL	4.8	SO 185211	7.9	9.7	0	C	0.9	1.4	6.0	C	
29	GAVENNY #	3.7	SO 302139					1.6	0	9.1	C	B,E
29A	GAVENNY #	3.3	SO 310158					0.9	0	8.7	C	
30	BERTHIN	5.2	SO 365019	0	0	0	E	0.6	5.6	0.6	C	B,M,E,St,D
30A	BERTHIN	5.9	SO 352018	0	0	0	E	9.3	0.7	2.5	C	B,M,E,D
31	SOR BROOK	4.2	ST 338957	1.1	0.5	0	D	4.9	7.1	0.5	C	B,E
31A	SOR BROOK	3.2	ST 349941	0.7	0	0	D	4.8	9.7	3.2	B	B,E,St
37	OLWAY	2.8	SO 407023	0.6	1.2	0	D	0.6	0	1.8	D	E,M,St,D
37A	LLANGWM	4.1	SO 425001	0	0	0	E	1.5	1.0	1.5	C	M,E,St
39	OLWAY	5.5	ST 392985	0.4	1.5	0	D	0.7	1.1	1.8	C	B,M,E,St,D
MEAN				2.2	2.9	0	D	3.0	3.1	3.2	C	

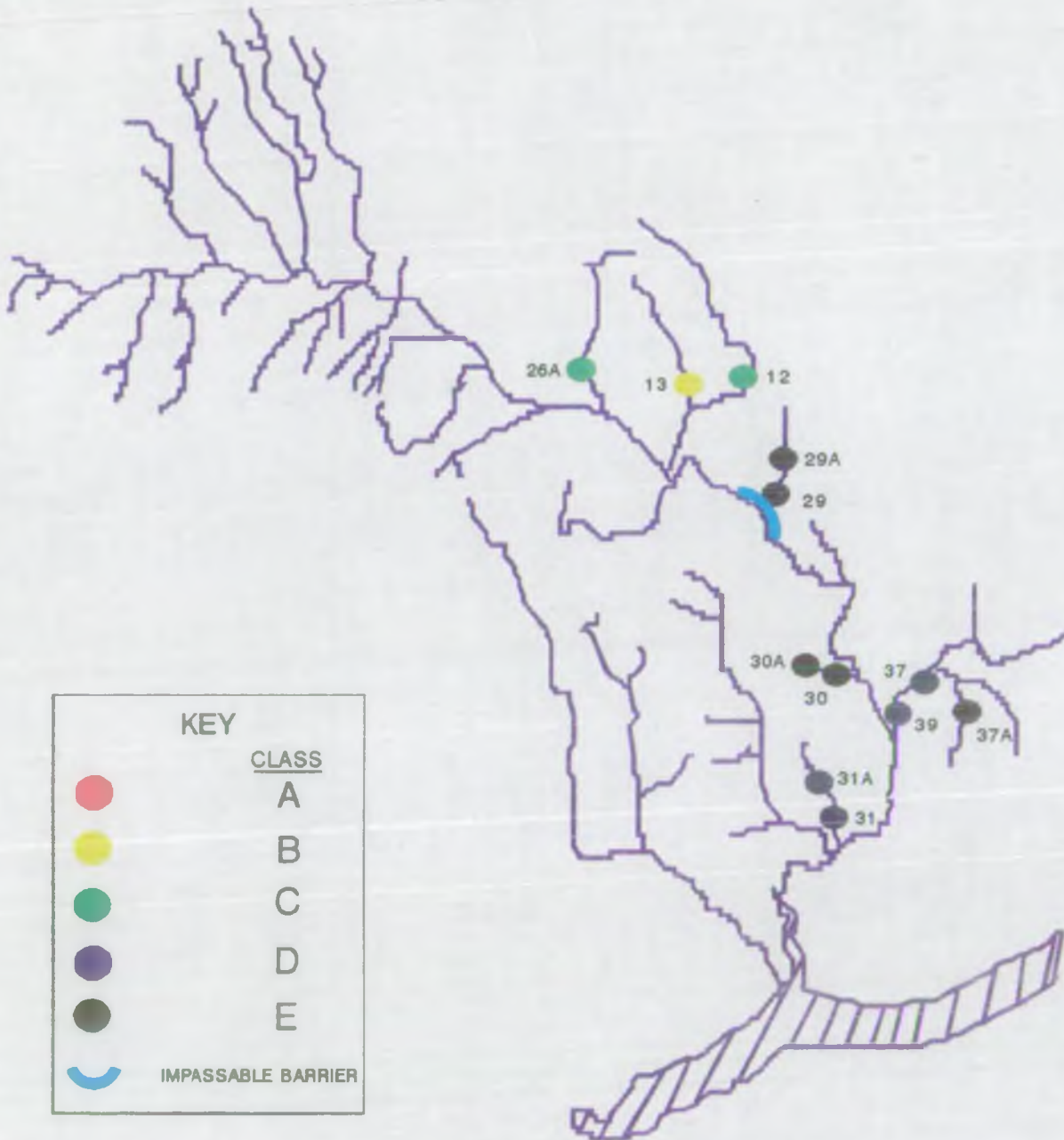
# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# RIVER USK

## SALMON DENSITIES

1992



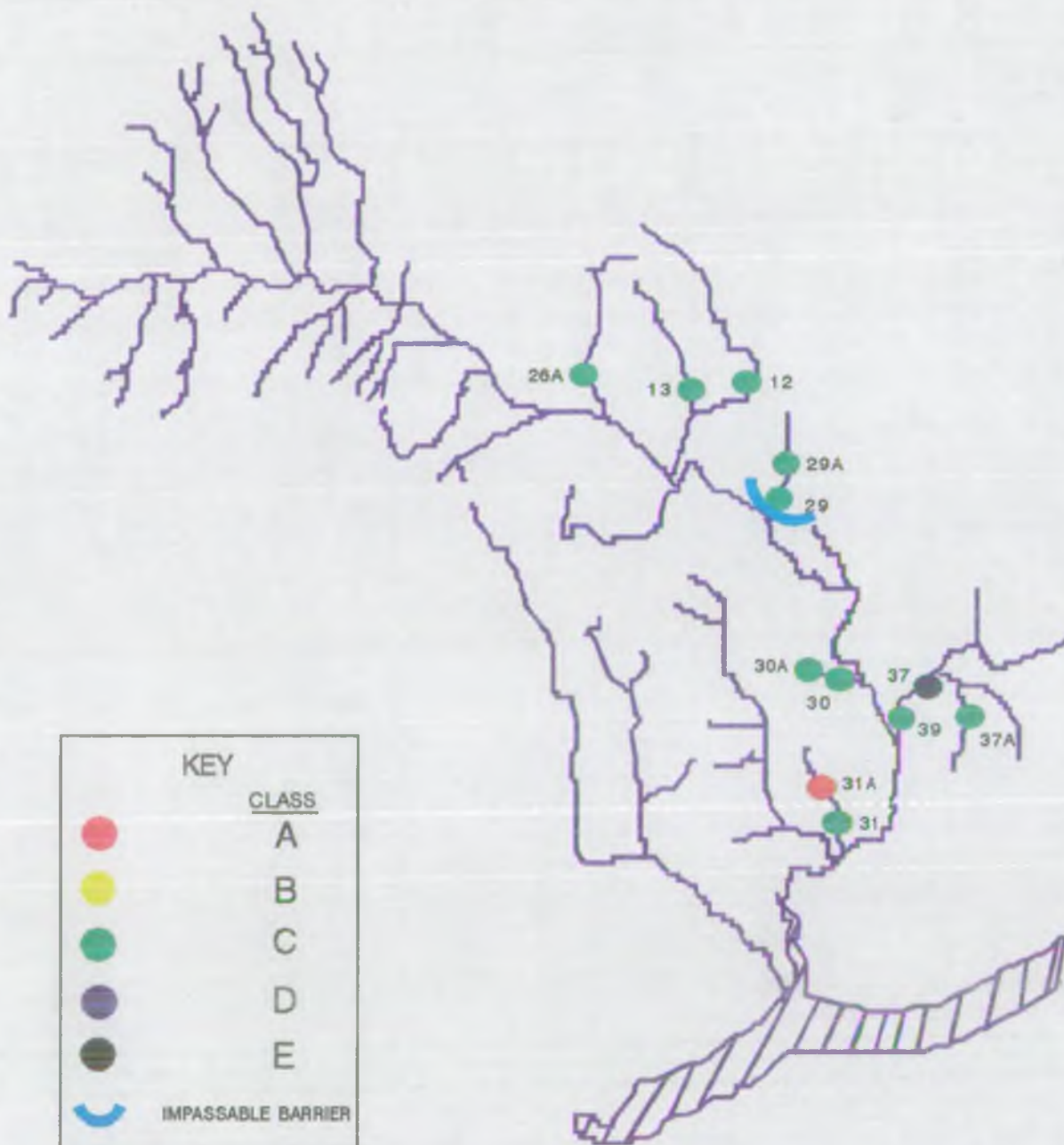




# RIVER USK

## TROUT DENSITIES

1992

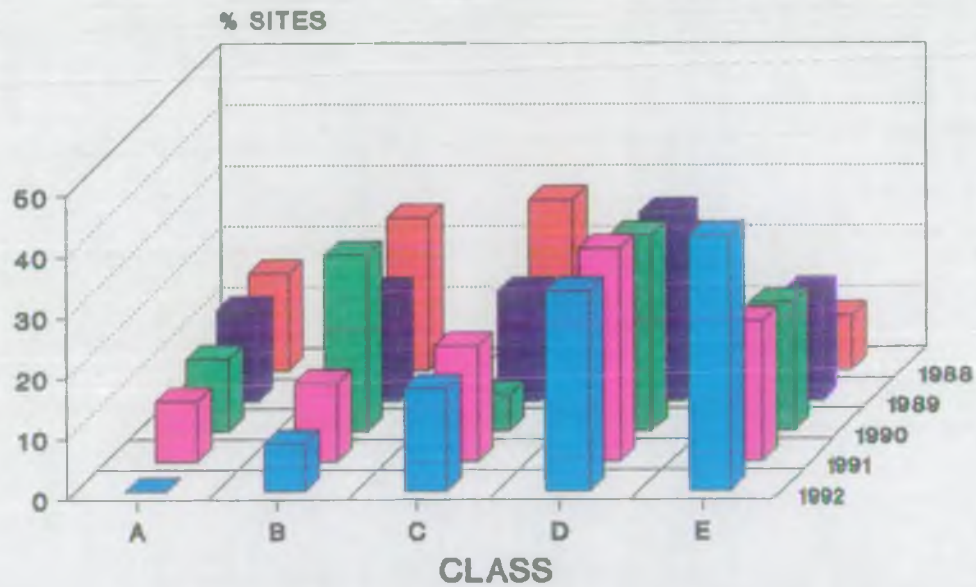






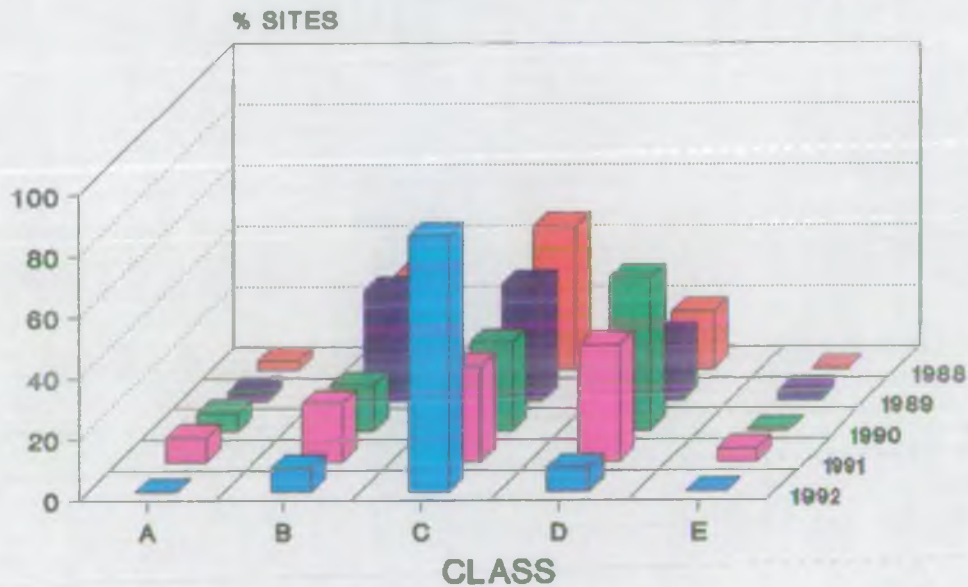
## RIVER USK - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER USK - TROUT

### % OF SITES IN EACH CATEGORY







WYE DISTRICT

## 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 1985 - 1991:-  
Rods: 1751 salmon, 31 sea trout

### 2. Sampling Programme.

1986	- 15 quant and 102 semi-quant sites			
1987	- 23 quant and 46 semi-quant sites			
1988	- 23 quant and 41 semi-quant sites			
1989	- 16 quant and 52 semi-quant sites	8	5min samples	
1990	- 14 quant and 52 semi-quant sites	13	"	
1991	- 15 quant and 73 semi-quant sites	13	"	
1992	- 15 quant and 85 semi-quant sites	23	"	

### 3. Assessment of Status

Number (%) of sites in each category in 1992.

	A	B	C	D	E
Salmon	6( 6 )	13(13 )	4( 4 )	19( 19)	58( 58)
Trout	4( 4 )	17(16 )	25(25 )	38( 38)	16( 16)

### 4. Key Points.

- 4.1 Mean salmon densities at quantitative and semi-quantitative sites were slightly lower than 1991 but if the comparison is restricted to those sites common to the 1991 and 1992 surveys then the mean densities are virtually identical for quantitative sites and show a decline in fry and an increase in parr at semi-quantitative sites. The proportion of sites in classes were very similar to 1991.
- 4.2 A review of juvenile salmon densities in the upper Wye catchment (A.J. Winstone, 1993 Internal Report) indicates that mean densities of salmon fry and parr have been lower than the long term average in 1990, 1991 and 1992, though this is not statistically significant.
- 4.3 Habscore analysis was used at a number of quantitative sites to compare observed densities with those that could be expected from habitat features. Of the 7 sites scored, 5 were better than or as good as could be expected while 2 were worse. One of these sites was on the upper reaches of the Lugg and probably reflects limited access to spawning adults. The second site is on the Ithon where regular clearance of a ford immediately upstream may be affecting the site. It is intended to establish a new site in the vicinity.

- 4.4 The highest densities of salmon fry were found on the Garth Dulas, Edw and Duhonw and the highest densities of parr on the Clywedog, Duhonw, South Dulas and Cammarch.
- 4.5 Mean trout densities at both quantitative and semi-quantitative sites were increased in comparison with 1991. The proportion of sites in classes A and B showed an increase from 16% to 21%
- 4.6 Three out of nine sites sampled has populations less than predicted by Habscore. At two of these sites, on the Clywedog and Garth Dulas, it is considered that there is no actual problem and that the low numbers of trout is related to the high densities of juvenile salmon at the lower end of these tributaries. The site on the Honddu appears to support a smaller population than expected but there is no obvious explanation for this.
- 4.7 Highest densities of trout fry were found on several headwater streams on the Irfon, Ithon and Lugg sub-catchments. Older trout were most abundant on the Lugg and its tributaries and on Irfon tributaries.
- 4.8 Five-minute fry surveys on the main rivers showed similar results on the Wye to previous years with good densities in the middle reaches but declining downstream of Hay-on-Wye. Results on the Lugg were significantly better than 1991 suggesting more succesful spawning in the main river. Now surveys on the lower main Irfon and Ithon produced densities comparable to the Wye itself.



## FISHERIES MONITORING PROGRAMME 1992

WYE		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	ITHON	11.1	SO 105681	36.1	0	0	D	0	0	0	E	B,M,St
5	CLYWEDOG	5.9	SO 085651	117.7	17.0	0	A	0	0	0.4*	D	B,M,St
8	GARTH DULAS	6.5	SN 947497	301.6	2.3	0	B	0.6	0.6	0	D	B,M,St
9	CHWEFRU	4.8	SN 976552	32.7	6.8	0	B	23.3	9.4	1.8	C	B,L,St
9E	NANT-YR-ESGOB	2.0	SN 975550	0	0	0	E	98.9	7.5	0.9	B	B
10	DUHONW	6.6	SO 063509	42.4	14.0	0	B	2.2	8.8	2.2	C	B,M,E,L,St,Cr
11	EDW	11.3	SO 110487	153.1	11.3	0	A	4.1	0.9	1.8	D	B,M,St,Cr
13	LLYNFI	8.5	SO 163364	61.2	1.4	0	B	0	0	0.3	D	B,M,St
14	LUGG	4.1	SO 237685	0	0	0	E	63.2	3.6	8.6	B	B,M,L
19	MONNOW #	4.4	SO 310317					27.8	5.9	8.4	B	B,Cr
20	HONDDU #	8.6	SO 289273					3.5	4.1	0.3	D	B,E
53	ARROW	8.9	SO 392584	0	0	0	E	2.5	0.3	0.5	D	B,M,St,l
53A	ARROW	7.4	SO 374596	0	0	0	E	0	0.9	0	D	B,M,Gr
53B	PINSLEY	5.2	SO 451605	0	0	0	E	3.6	0	7.3	C	B,E,L
61A	DORE #	7.6	SO 387308					11.9	1.7	2.3	D	B,M,E,D
MEAN				62.1	4.4	0	B	16.1	2.9	2.3	D	

#/ PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME 1992

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	7.0	SN 842826	0	0.3	0	D	0	0	0	E	
24A	WYE	15.2	SN 853820	0.2	0	0	D	0.1	0	0	D	M
25	WYE	11.9	SN 879804	3.6	0.2	0	D	0.4	0.2	0	D	M
26	WYE	15.0	SN 909747	3.2	0.7	0	D	1.0	0	0	D	M
27	WYE	17.6	SN 921738	11.6	1.9	0	C	0	0	0	E	B,M,St
27B	WYE	20.9	SN 969677	49.7	3.8	0	B	0	0	0	E	B,St
25A	TROEDYRESGAIR	2.5	SN 885796	0	0	0	E	3.0	3.7	0	C	
25B	CLOCHFAEN	2.1	SN 904793	0	0	0	E	5.8	4.9	0	C	
28	BIDNO	5.3	SN 873823	0	0	0	E	0	0	0	E	
29	BIDNO	3.7	SN 891808	0.7	2.7	0	C	2.7	1.3	0	D	M
29A	PENYFOEL	0.6	SN 891810	0	0	0	E	19.0	9.5	0	B	
1	DERNOL	3.1	SN 904752	6.7	10.8	0	B	3.6	2.1	0	D	B
3	LLANWRTHWL BK	3.4	SN 974637	13.1	2.9	0	B	8.0	4.4	0.7	C	B
2	MARTEG	6.8	SN 957714	64.4	9.2	0	A	0.4	0.8	0	D	B,St
30	MARTEG	3.8	SO 003755	1.1	0.6	0	D	2.8	5.0	3.9	C	B,M,L
30B	MARCHENI FAWR	3.2	SN 966724	0	3.6	0	D	9.0	8.4	0.6	C	B
31	HIRIN #	4.0	SN 888723					1.2	1.2	0	D	M
65	ELAN	24.7	SN 956668	34.6	0.3	0	B	0	0	0	E	
32	ITHON	10.4	SO 098776	41.7	6.1	0	B	0	0	0	E	B,St
32B	GWENLAS	1.5	SO 100795	0	0	0	E	31.0	0	2.8	B	B
33	ARAN	3.3	SO 156710	0	1.2	0	D	5.4	1.8	0.6	C	B,M
34A	FFRWD-WEN	3.3	SO 069738	0	0	0	E	28.2	10.2	0.6	A	
37	IRFON	7.5	SN 853526	0	0	0	E	0	0	0	E	B,M,L,St
39	IRFON	13.3	SN 872469	0	0	0	E	0	0	0	E	
38	GWESYN	5.3	SN 855526	0	0	0	E	2.8	0	0	D	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME 1992

## WYE CATCHMENT SUMMARY

## SEMI - QUANTITATIVE SITE

NUMBER OF FISH PER 100M<sup>2</sup>

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
41	CLEDAN	6.6	SN 881456	28.0	2.7	0	B	2.7	0.4	0	D	B, M, St
42	SOUTH DULAS	5.7	SN 880415	29.4	15.4	0	A	4.5	0	0	D	B, M, St
43B	CAMMARCH	10.3	SN 919575	69.6	1.9	0	B	0.8	0	0	D	B, M
43C	CAMMARCH	7.0	SN 905537	35.5	16.2	0	A	4.2	0.6	0	D	B
43	CNYFFIAD	3.3	SN 907523	6.0	6.7	0	C	9.7	4.5	0.7	C	B, M, Rt
44B	EINION	2.5	SN 908505	0	0	0	E	57.0	19.3	1.8	A	B, L
44	GARTH DULAS	6.5	SN 946514	131.3	1.2	0	B	0	0	0	E	B, M, St
44A	GWYNFEL	2.9	SN 930538	0	0	0	E	16.5	6.0	3.0	B	B
46	EDW	6.1	SO 124532	28.5	0.6	0	B	5.6	2.8	0.6	C	B, M, Cr
46B	GLAS BROOK	3.3	SO 141519	0	0	0	E	32.6	7.2	1.1	B	B
10B	DUHONW #	5.8	SN 996472					11.4	2.3	0.5	B	B
10A	DUHONW	6.0	SO 038488	105.4	2.9	0	A	10.9	2.1	0	C	B
47	LLYNFI	3.5	SO 133305	0.7	0	0	D	0	0	2.7	D	B, M, E, Cr
47A	LLYNFI	4.0	SO 141324	20.8	0	0	C	1.9	0	0	D	B, M, E, Cr
47B	LLYNFI	5.3	SO 149343	3.3	0	0	D	0	0.9	0.5	D	B, M, E, St, Cr
48	TRIFFWD	3.8	SO 126345	4.2	0	0	D	5.5	1.0	2.1	C	B, M, St
14A	LUGG	2.3	SO 215711	0	0	0	E	9.5	22.1	32.6	B	B
49	LUGG	7.9	SO 309651	0	0	0	E	4.9	1.8	2.8	C	B, M
49C	LUGG	16.0	SO 423655	0.2	0	0	D	0.8	0	0.6	D	B, M, St, Cr
49D	LUGG	9.5	SO 428638	0	0	0	E	3.1	4.6	1.5	C	B, M, St, Gr
49E	LUGG	12.6	SO 459622	0.3	0	0	D	2.3	1.4	1.4	C	B, M
49F	LUGG	3.6	SO 490600	0	1.2	0	D	0.6	1.9	0	D	B, M, St, E, Gr
49G	LUGG	10.4	SO 508579	0.1	0	0	D	0.4	0	0	D	M, St, E, Ch
49H	LUGG	15.6	SO 537513	9.4	0	0	D	0	0	0	E	B, M, St, E, Gr, Ch, L, P
49J	LUGG	15.0	SO 517480	2.7	0	0	D	0	0	0	E	M, E

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME 1992

## 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	
49K	LUGG	19.4	SO 573459	7.0	0.5	0	D	0	0	0	E	B,M,St,E,Gr,Gu
49L	LUGG	18.0	SO 529446	2.0	0	0	D	0	0.2	0	D	B,M,St,E,Gu,Gr,Ba,P
49M	LUGG	15.0	SO 538406	0	0	0	E	0	0	0	E	M,St,E,D,BI,Gr
14D	BLEDDFA	2.0	SO 210681	0	0	0	E	82.9	3.8	1.0	A	B
14B	CASCOB	3.0	SO 242664	0	0	0	E	18.4	10.6	5.0	A	B,L
50A	NORTON	2.8	SO 313656	0	0	0	E	0	1.0	1.0	D	B
51A	LINGEN	3.2	SO 375660	0	0	0	E	0	7.1	6.2	C	B
52	ARROW	4.4	SO 217507	0	0	0	E	5.2	3.9	11.0	B	B
53C	GLASNANT	2.6	SO 190517	0	0	0	E	28.2	3.9	1.0	B	B,Cr
53D	GLADESTRY	3.4	SO 244547	0	0	0	E	10.2	2.2	3.2	B	B
49N	COGWELL	2.8	SO 505607	0	0	0	E	21.2	0	1.4	B	B
49P	STRETFORD	3.8	SO 546594	0	0	0	E	6.3	2.4	7.9	B	B
49Q	HUMBER	3.5	SO 536863	0	0	0	E	0	0	0	E	B
64F	FROME	3.1	SO 669594	0	0	0	E	7.0	0	1.9	D	B,St
57	HONDDU #	7.3	SO 277295					3.5	5.9	1.2	C	B
58	HONDDU #	9.5	SO 312211					2.2	3.0	1.2	C	B,E
57A	NANT BWCH #	5.4	SO 254320					7.3	1.7	2.2	C	
59	OLCHON #	5.2	SO 312297					6.3	3.1	3.8	C	B,E
60	DORE #	3.8	SO 341390					15.9	0	2.0	C	
60B	DORE #	4.3	SO 358365					6.8	2.4	0	C	B,E
60C	DORE #	6.8	SO 366358					0.6	0.6	1.5	D	B,E,L
60D	DORE #	2.5	SO 300417					11.5	3.8	1.3	B	B
60A	CHANSTONE #	1.9	SO 345357					6.9	15.3	9.7	B	B,E,St
62A	TROTHY	5.3	SO 371177	0	0	0	E	1.5	1.0	1.0	D	B,M,St,E,L,Cr
62B	FULL BROOK	4.1	SO 364195	0	0	0	E	9.2	0.6	0.6	D	B,M

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE



FISHERIES MONITORING PROGRAMME 1992

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	
62C	PANT BROOK	3.9	SO 358127	0	0	0	E	1.5	0	1.5	D	B, E, St
62D	LLYMON BROOK	3.5	SO 437151	0	0	0	E	8.6	1.2	1.8	C	B, M, E, L
64G	FROME	4.7	SO 670503	0	0	0	E	0.5	0	1.6	D	B, M, St
64H	FROME	6.2	SO 666489	0	0	0	E	0	1.4	0	D	B, M, St
64J	FROME	4.9	SO 645436	0	0	0	E	0.8	0	0	D	B, M, St, D, Ch
64K	FROME	3.9	SO 656455	0	0	0	E	0	0	0	E	B, M, St
64D	LODON	2.8	SO 607545	0	0	0	E	9.7	2.9	0	C	B
64L	LODON	3.3	SO 613525	0	0	0	E	5.6	0	0	D	B
64M	LODON	3.0	SO 618494	0	0	0	E	3.0	2.2	0	D	B, M, E, L
55	MONNOW #	5.1	SO 295343	0	0	0	E	2.0	3.6	9.1	B	B, E
MEAN				9.8	1.3	0	D	7.1	2.5	1.6	C	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME 1992

## WYE CATCHMENT SUMMARY

## 5 MINUTE FRY SITE

## NUMBER OF FISH CAUGHT IN 5 MINUTES

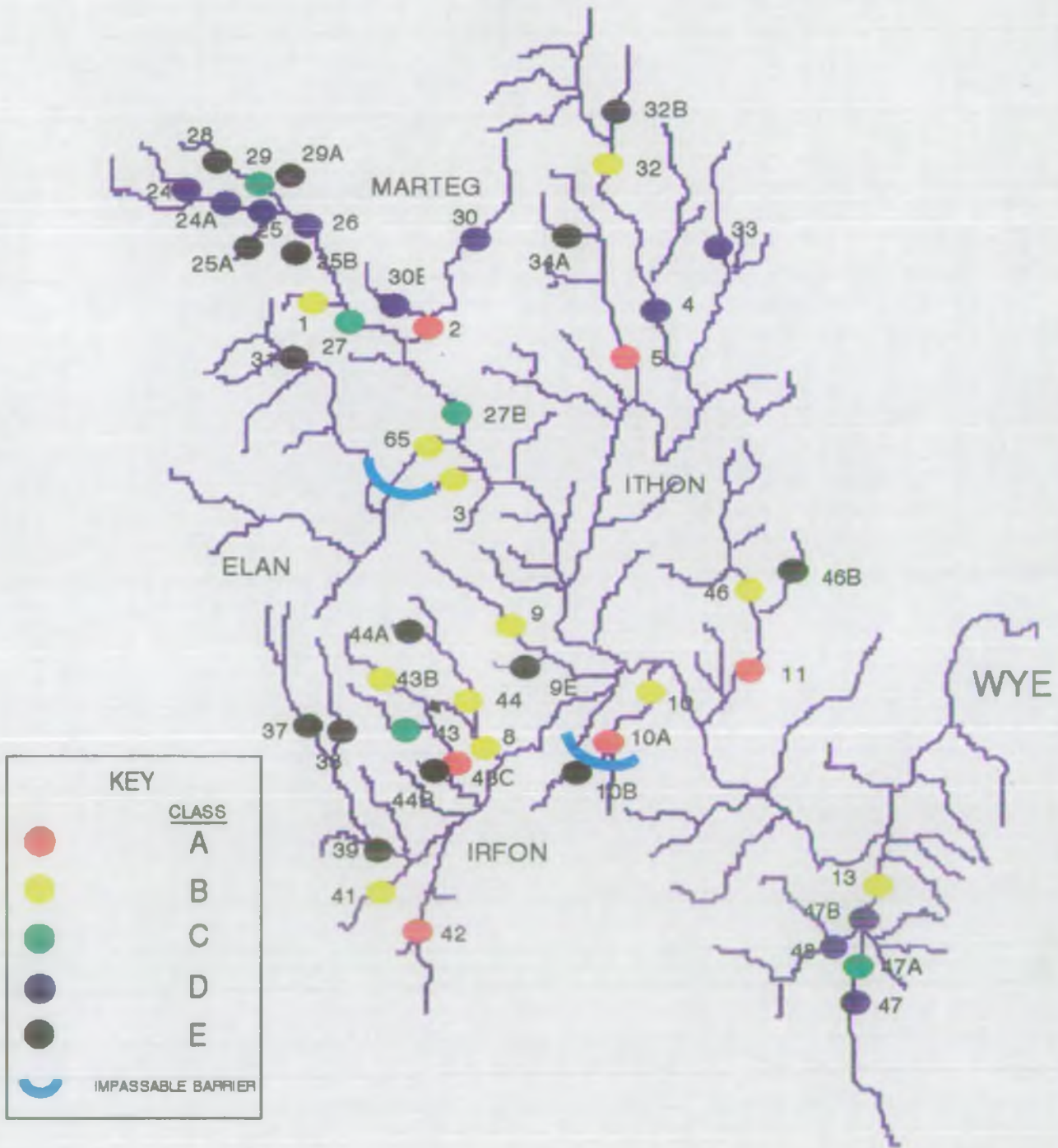
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
	WYE		SN 991628	59				0				
	WYE		SO 014583	80				3				
	WYE		SO 048518	89				0				
	WYE		SO 074449	37				0				
	WYE		SO 170389	56				0				
	WYE		SO 228427	19				0				
	WYE		SO 273367	12				0				
	WYE		SO 318463	0				0				
	ITHON		SO 092747	52				0				
	ITHON		SO 104702	21				0				
	ITHON		SO 111654	79				0				
	ITHON		SO 086639	52				0				
	ITHON		SO 034583	51				0				
	IRFON		SN 891460	20				0				
	IRFON		SN 935472	138				0				
	IRFON		SN 956495	65				0				
	IRFON		SO 002506	72				0				
	IRFON		SO 032510	75				0				
	LUGG		SO 494599	2				0				
	LUGG		SO 501596	0				10				
	LUGG		SO 535512	47				0				
	LUGG		SO 529447	12				0				
	LUGG		SO 547407	8				1				

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# UPPER RIVER WYE SALMON DENSITIES

1992

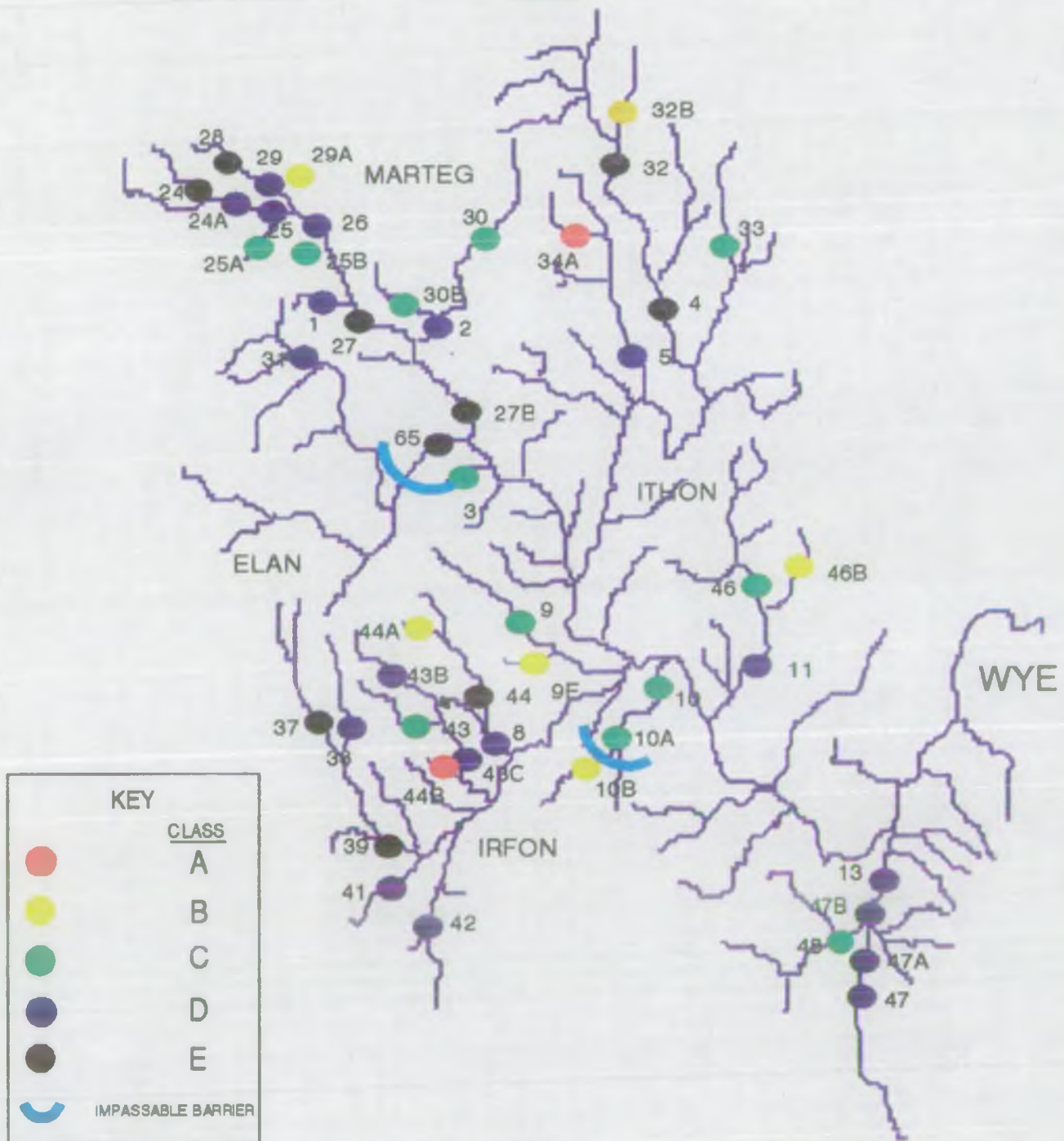






# UPPER RIVER WYE TROUT DENSITIES

1992

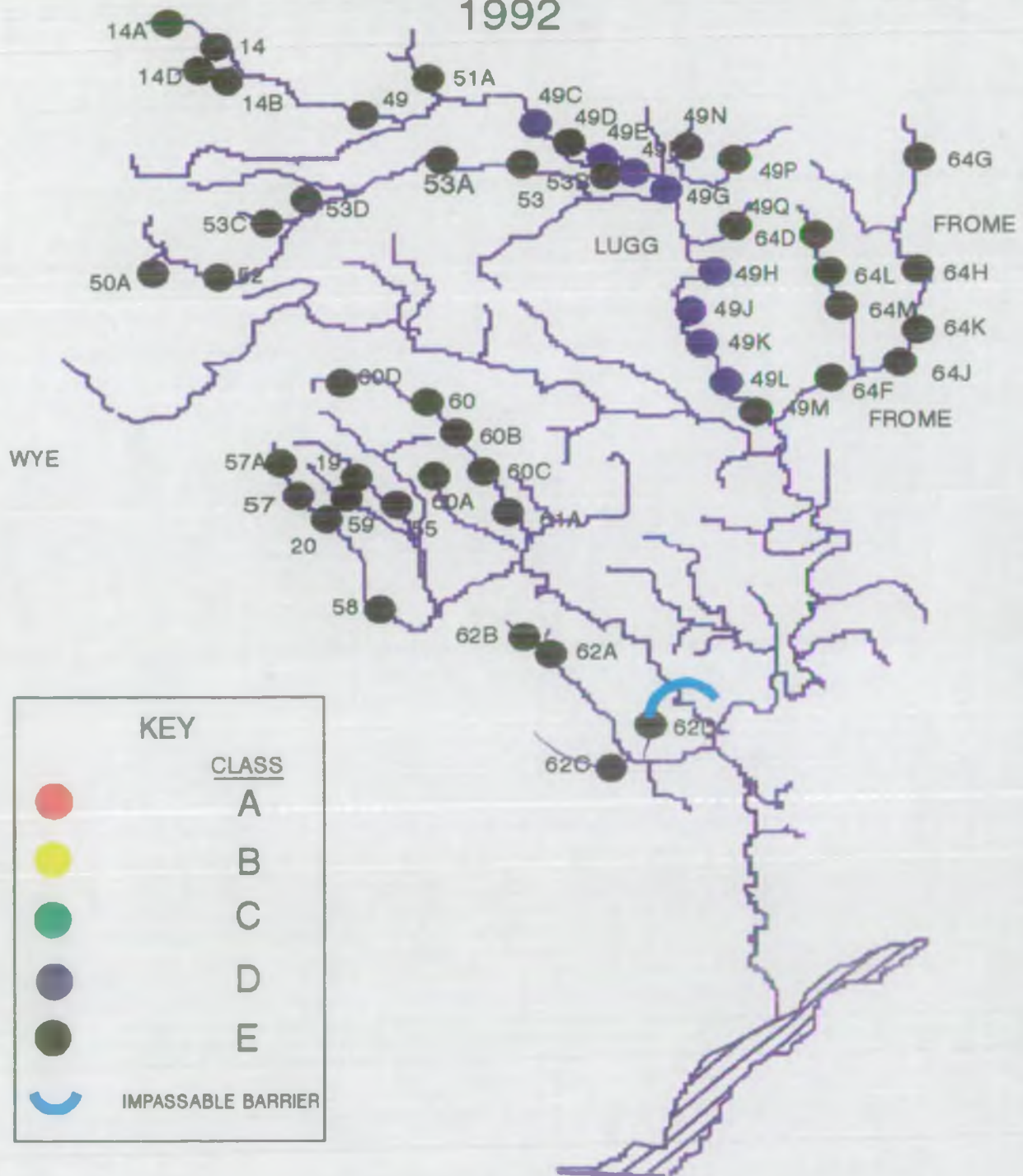






# LOWER RIVER WYE SALMON DENSITIES

1992



FOR THE RECORD

RECEIVED

Handwritten notes and signatures, mostly illegible due to fading and bleed-through.



## 1992







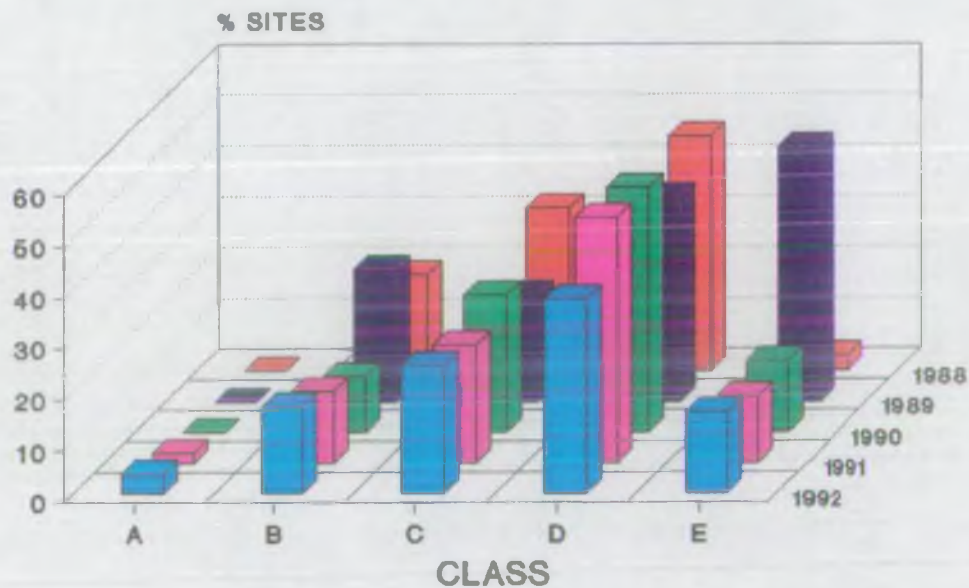
## RIVER WYE - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER WYE - TROUT

### % OF SITES IN EACH CATEGORY



WILLIAM - 3/11/42

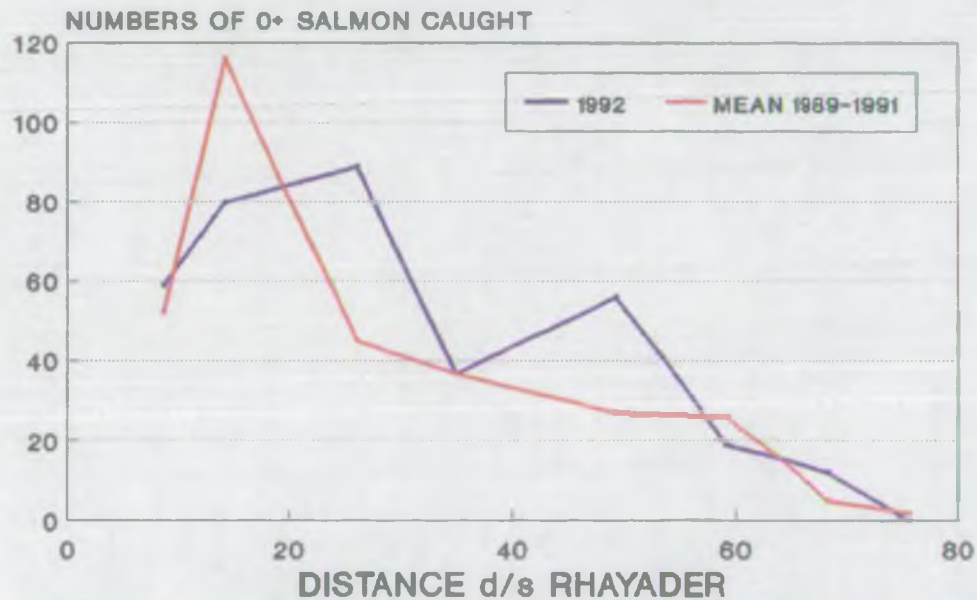
WILLIAM - 3/11/42

WILLIAM - 3/11/42

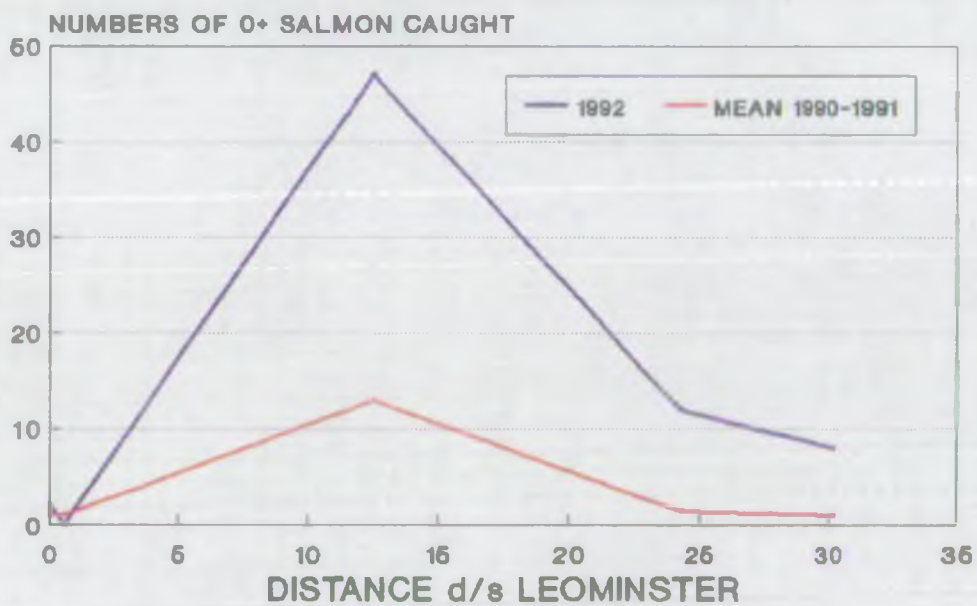
WILLIAM - 3/11/42



## RIVER WYE FIVE MINUTE SALMON FRY SITES



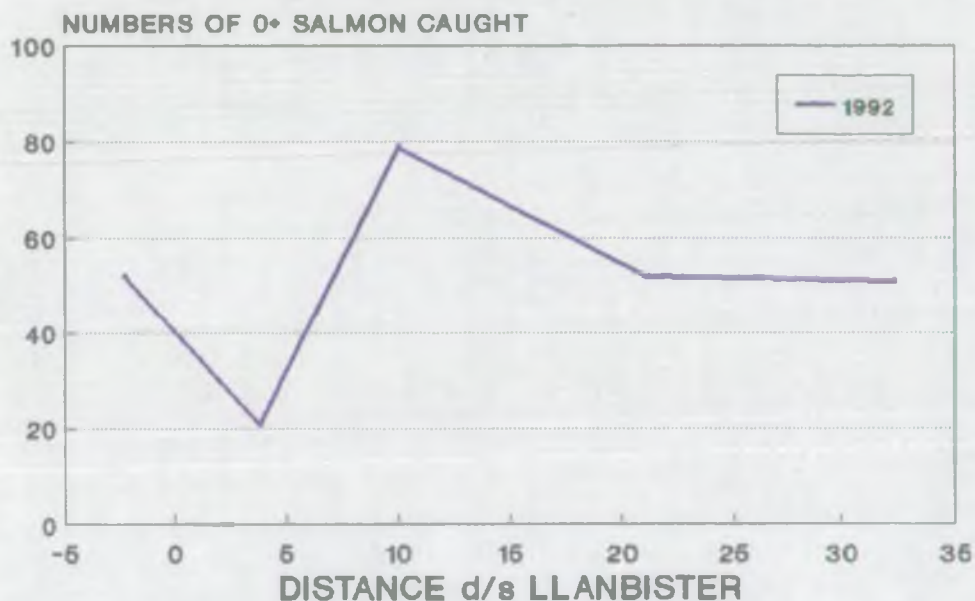
## RIVER LUGG FIVE MINUTE SALMON FRY SITES



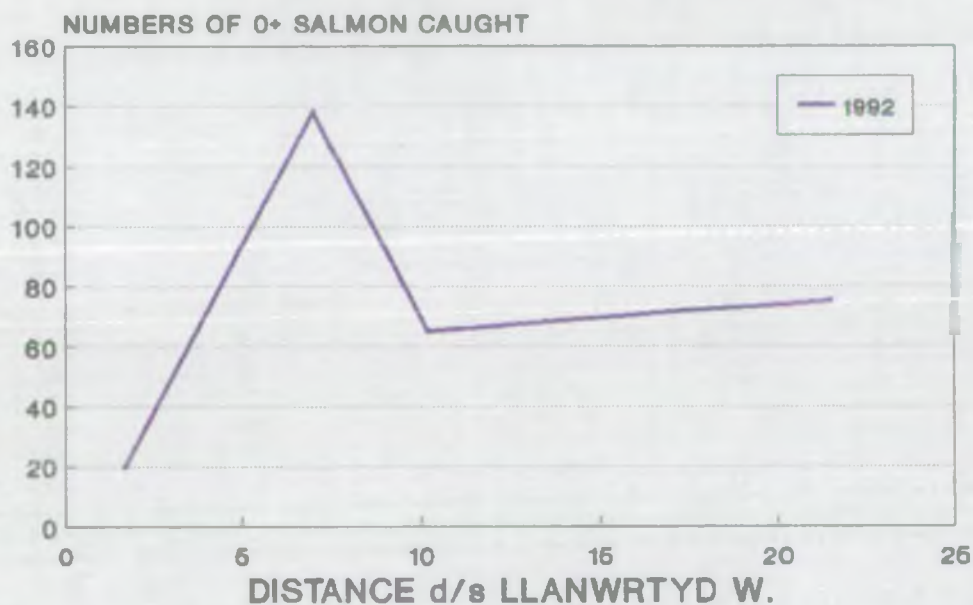




## RIVER ITHON FIVE MINUTE SALMON FRY SITES



## RIVER IRFON FIVE MINUTE SALMON FRY SITES



20. 10/10/1971 - 10/10/1971

10/10/1971 - 10/10/1971

10/10/1971 - 10/10/1971

10/10/1971 - 10/10/1971

10/10/1971 - 10/10/1971

10/10/1971 - 10/10/1971

10/10/1971 - 10/10/1971

10/10/1971 - 10/10/1971



APPENDIX 5

SOUTH WESTERN DIVISION

CATCHMENT SUMMARIES.

GOWER DISTRICT

## RIVER AFAN SUMMARY.

### 1. Catchment and Fishery Characteristics.

**Land Use -** Extensive coniferous afforestation with unimproved pasture.  
Abandoned mines present in the upper and middle reaches.  
Industrial and urbanised in the lower reaches.

**Water Quality -** The main river is all class 1A apart from a small stretch in the lower reaches which is 1B. The Pelenna tributary falls to class 3 due to abandoned mines.

**Fishery Status -** 91 catch: Rods; 15 Salmon; 300 Sea Trout  
Nets; 0 Salmon; 0 Sea Trout

### 2. Sampling Programme.

1986 - 5 semiquantitative sites.  
1992 - 15 semiquantitative sites.

### 3. Assessment of Status.

Number (%) of Sites in each Category in 1992:

	A	B	C	D	E
Salmon	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	15 (100)
Trout	5 (33)	5 (33)	3 (20)	1 ( 7)	1 ( 7)

### 4. Key Points.

4.1 Salmon were absent from all sites.

4.2 Trout were recorded from all sites except the Pelenna (9), where a pollution incident had been reported. There had been a marked increase in trout densities since the previous survey in 1986, with the mean classification increasing from C to B.

4.3 Trout fry were generally found in good numbers, particularly in the main river and an unpolluted tributary of the Pelenna (11A).

4.4 The Pelenna(1), which did not support any fish species when sampled in 1986 due to water quality problems associated with old mine discharges, supported low densities of trout in 1992.

4.4 The Corrwg (14) , which is inaccessible to migratory fish, supported a good population of native brown trout. Lower trout densities were recorded from the other inaccessible site (Cregan, 13).

4.5 Trout are generally good throughout the catchment with stocks increasing.

## FISHERIES MONITORING PROGRAMME 1992

## AFAN 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	PELENNNA	6.4	SS 799962	0	0	0	E	2.2	1.3	2.2	C	E,L
2	CREGAN	6.1	SS 848964	0	0	0	E	48.5	2.0	0.8	B	
3	CORRWG	7.1	SS 876993	0	0	0	E	49.6	11.0	7.0	A	E
4	CORRWG FECHAN	3.9	SS 875994	0	0	0	E	17.5	9.3	7.6	B	
5	AFAN	7.1	SS 872964	0	0	0	E	68.8	7.5	3.9	A	E
6	FFRWDWYLLT	7.6	SS 775895	0	0	0	E	19.8	1.0	5.9	B	B,L
7	FFRWDWYLLT	5.0	SS 816922	0	0	0	E	36.8	6.8	4.5	A	B,E
8	FFRWDWYLLT TRIB	3.3	SS 800905	0	0	0	E	9.7	6.7	6.1	B	B,E
9	PELENNNA	1.8	SS 782957	0	0	0	E	0	0	0	E	E,L
10	PELENNNA TRIB	4.3	SS 797963	0	0	0	E	3.0	1.2	0	D	
11	BLAENPELENNNA	7.5	SS 815969	0	0	0	E	7.1	4.3	0.6	C	L
11A	BLAENPELENNNA TRIB	2.1	SS 817968	0	0	0	E	63.0	18.2	1.4	A	L
12	NANT-Y-FEDW	3.8	SS 872959	0	0	0	E	59.2	16.1	6.0	A	
13	CREGAN #	4.0	SS 845972					1.0	0	3.1	C	
14	CORRWG #	4.6	SS 887001					15.3	5.1	0	B	
MEAN				0	0	0	E	26.8	6.0	3.3	B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE



# RIVER AFAN

## SALMON DENSITIES

### 1992



1973-74

1974-75

1975

1976

1977

1978

1979

1980

1981

1982

1983

1984

1985

1986

1987

1988

1989

1990

1991

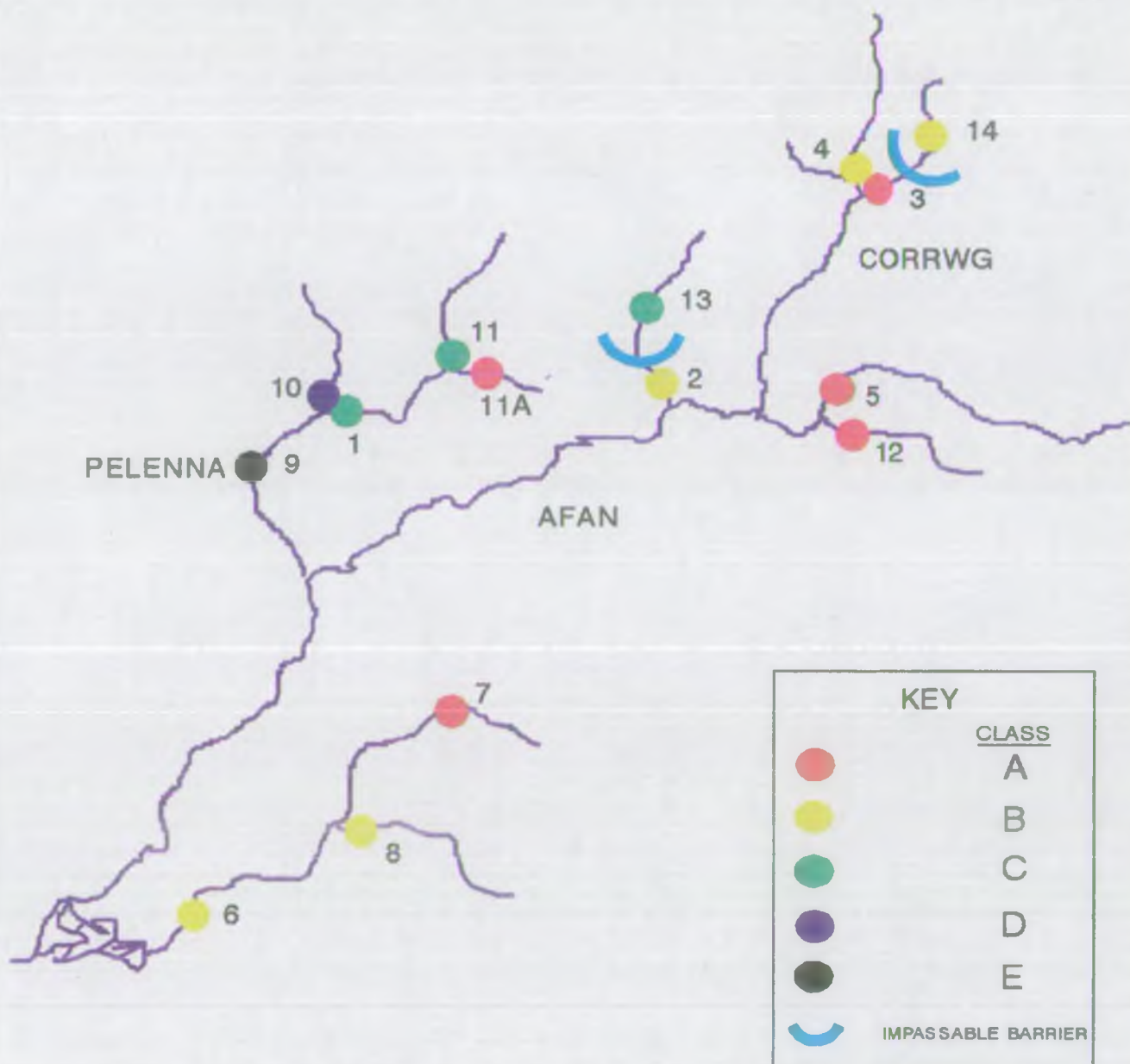
1992

1993

# RIVER AFAN

## TROUT DENSITIES

### 1992









## RIVER AFAN - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER AFAN - TROUT

### % OF SITES IN EACH CATEGORY





## RIVER GWENDRAETH FACH SUMMARY.

### 1. Catchment and Fishery Characteristics.

Land Use - Mainly dairying with some mixed farming.

Water Quality - Generally class 1A and 1B

Fishery Status - 91 catch: Rods; 0 Salmon; 205 Sea Trout

### 2. Sampling Programme.

1986 - 2 quantitative and 2 semiquantitative sites.

1992 - 10 semiquantitative sites.

### 3. Assessment of Status.

Number (%) of Sites in each Category in 1992:

	A	B	C	D	E
Salmon	0 ( 0)	0 ( 0)	0 ( 0)	1 (10)	9 (90)
Trout	0 ( 0)	4 (40)	1 (10)	5 (50)	0 ( 0)

### 4. Key Points.

4.1 Salmon were absent from all sites except the Nant Rhydw (7) where parr were recorded in low numbers.

4.2 Trout were recorded throughout the catchment with trout fry well distributed except in the Nant Rhydw (7) where a pollution incidence had caused a fish mortality prior to the survey. Fry densities were generally low; the upper reaches of the main river being an exception at (10).

4.3 Trout parr were recorded in low densities throughout, being absent from the Banwen (1) which is subject to low flows and is downstream Nantycaws refuse tip.

4.4 There is cause for concern for the general status of trout stocks with 50% of sites in class D. It is recommended that a macroinvertebrate survey is carried out to identify any water quality problems and further surveys to monitor recolonisation of previously polluted sites.

## FISHERIES MONITORING PROGRAMME 1992

## GWENDRAETH FACH 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	BANTWEN	4.2	SN 493156	0	0	0	E	7.1	0	0	D	B,M,St
2	GWENDRAETH FACH	6.3	SN 516162	0	0	0	E	3.5	0.6	0.3	D	
3	GWENDRAETH FACH	2.3	SN 526163	0	0	0	E	14.2	0.9	0	C	E
4	GWENDRAETH FACH	3.7	SN 544164	0	0	0	E	24.7	1.6	0	B	B,E,St
5	GWEN. FACH TRIB	3.5	SN 417102	0	0	0	E	12.1	3.0	0.6	B	B,E,M,St
6	GWEN. FACH TRIB	2.7	SN 440118	0	0	0	E	5.2	0.8	0.8	D	E
7	NANT RHYDW	4.2	SN 435129	0	0.5	0	D	0	0.5	1.0	D	B,St
8	GWENDRAETH FACH	4.8	SN 495152	0	0	0	E	4.2	1.3	0	D	B,M,St
9	GWEN. FACH TRIB	4.1	SN 517154	0	0	0	E	1.0	8.7	4.9	B	B,St
10	GWENDRAETH FACH	2.9	SN 555170	0	0	0	E	42.6	1.0	0	B	B,E,St
MEAN				0	0.1	0	D	11.5	1.8	0.8	B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

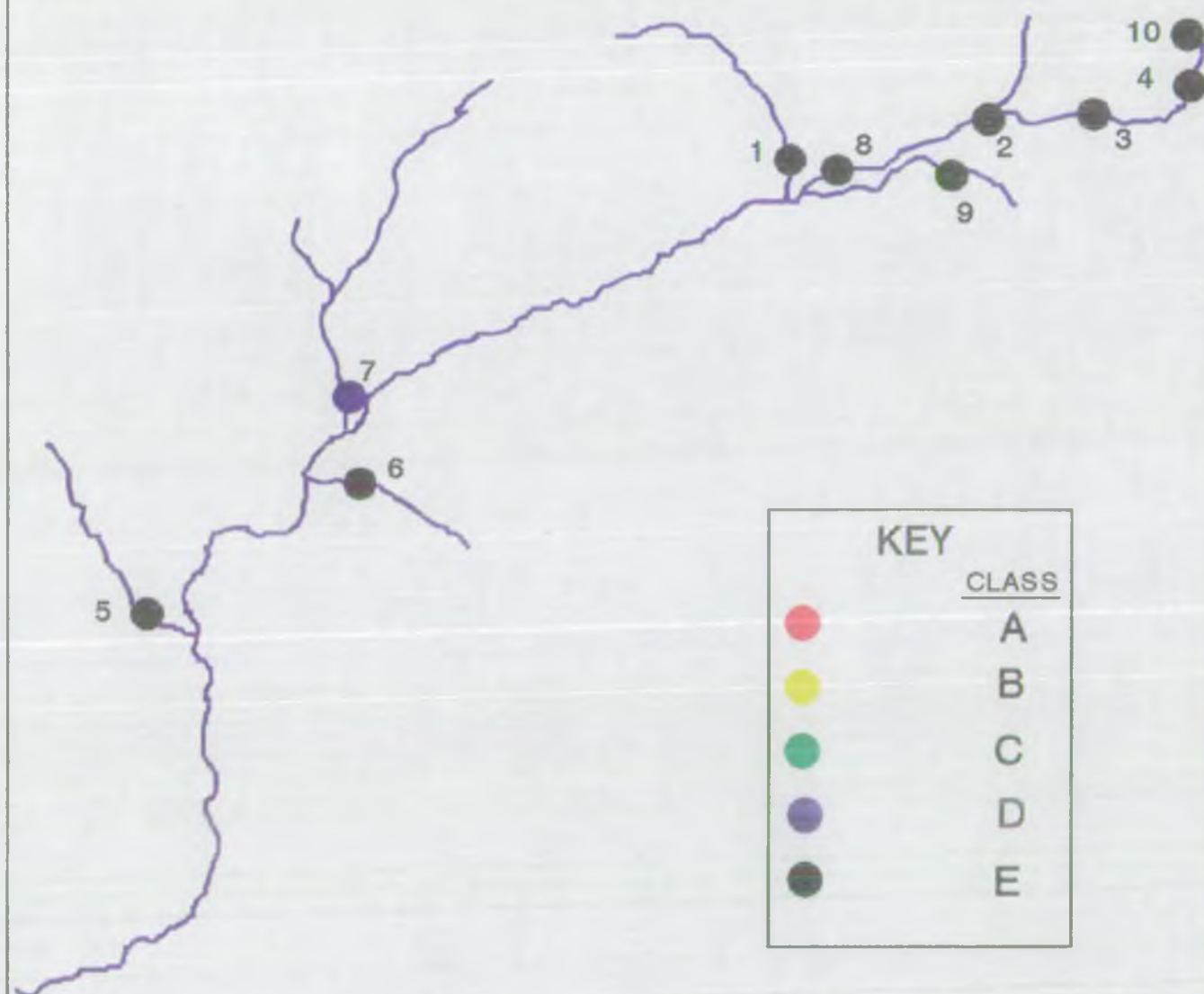
\* MINIMUM ESTIMATE



# GWENDRAETH FACH

## SALMON DENSITIES

1992

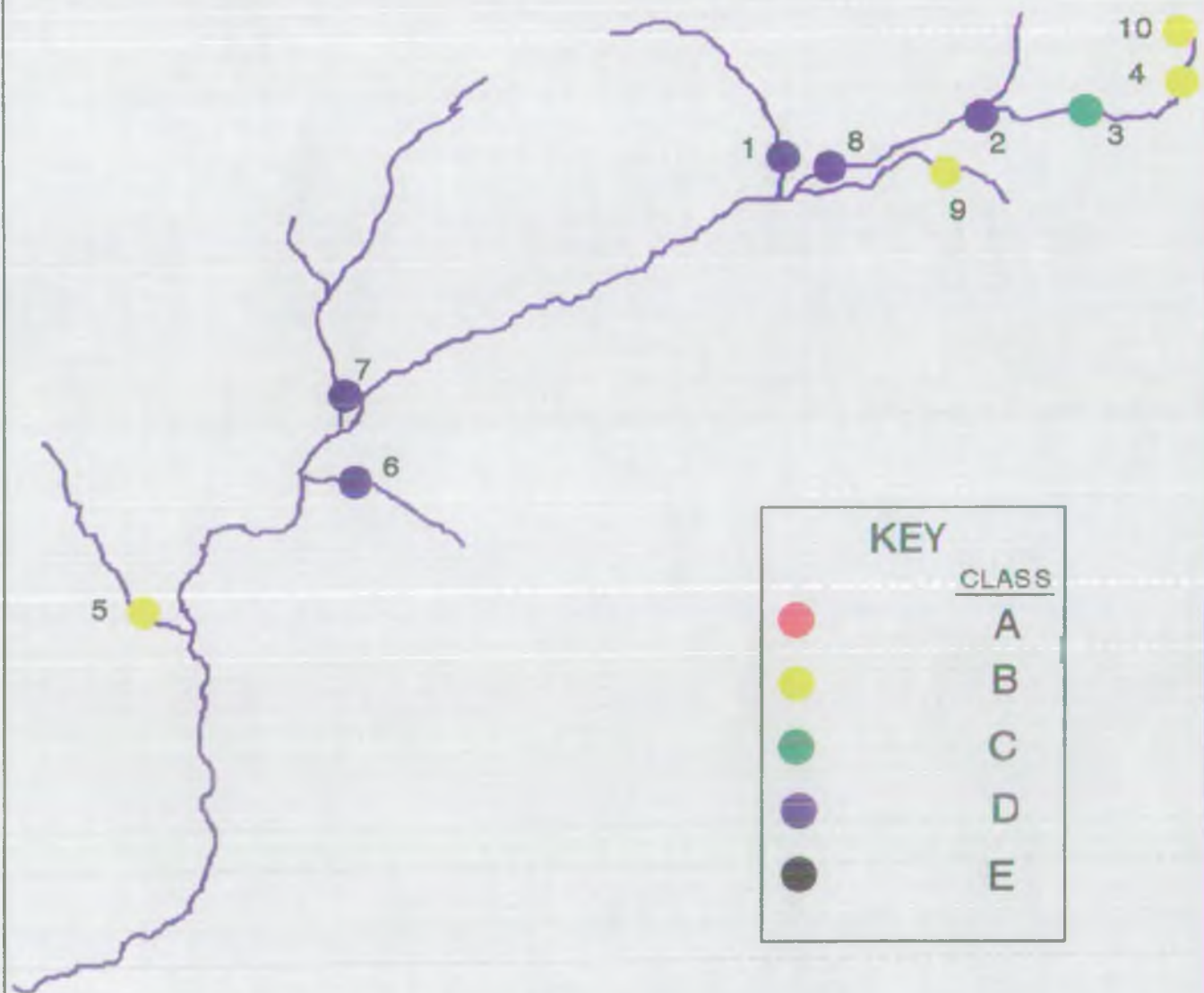




# GWENDRAETH FACH

## TROUT DENSITIES

1992

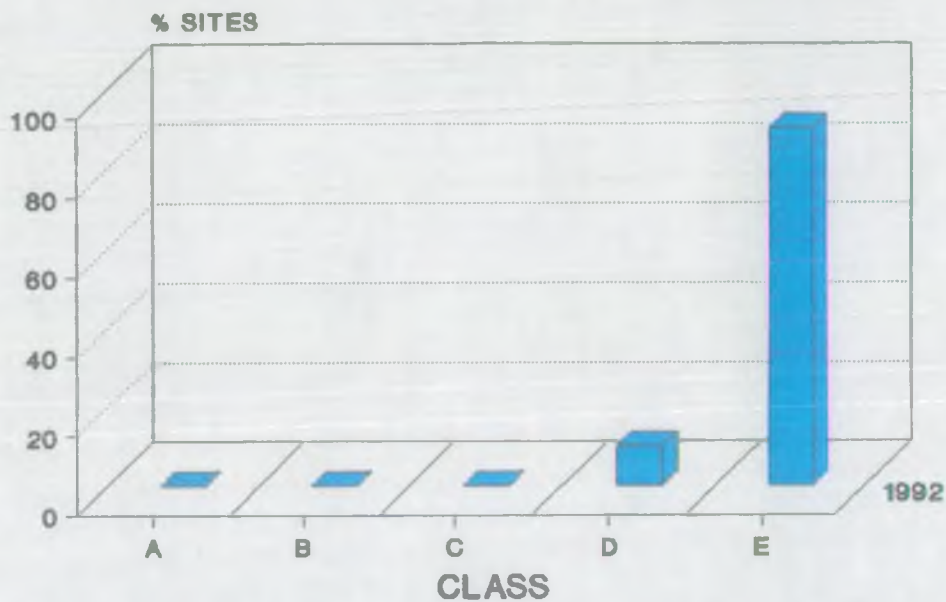




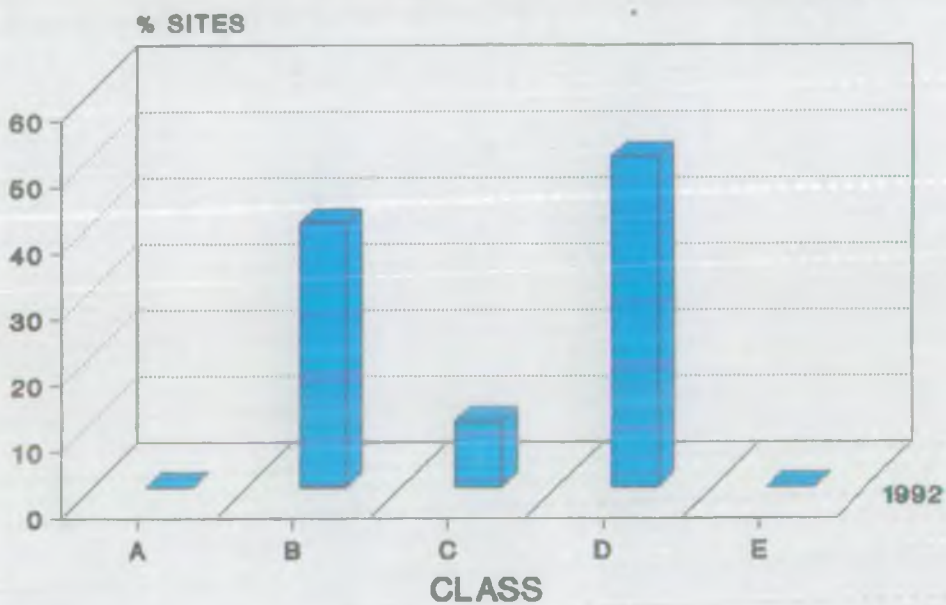




# RIVER GWENDRAETH FACH - SALMON % OF SITES IN EACH CATEGORY



# RIVER GWENDRAETH FACH - TROUT % OF SITES IN EACH CATEGORY





## RIVER OGMORE SUMMARY.

### 1. Catchment and Fishery Characteristics.

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

Water Quality - Generally class 1A and 1B.

Fishery Status - 91 catch: Rods; 11 Salmon; 327 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.  
1992 - 12 quantitative, 29 semi-quantitative sites and 70 riffle sites.

### 3. Assessment of Status.

Number (%) of Sites in each Category in 1992:

	A	B	C	D	E
Salmon	0 ( 0)	0 ( 0)	0 ( 0)	13 (32)	28 (68)
Trout	3 ( 7)	12 (29)	10 (24)	15 (37)	1 ( 2)

### 4. Key Points.

- 4.1 Salmon were present at 33% of sites in low densities where previously they had been unrecorded. Microtagged salmon parr were caught from Iechyd (19).
- 4.2 Trout were present throughout the catchment and were abundant (class A) in Iechyd (19) and Garw Fechan (14).
- 4.3 There was a marked decline in trout densities in the Garw (28) which is approximately 3 km downstream of the Upper Garw Land Reclamation Scheme, currently in progress. A slight deterioration in densities was also recorded at Garw (13) at a further distance of 2km downstream. Trout stocks, however, appeared stable at the lowermost site (Garw 27) some 6km from the scheme. It is likely that increased siltation may be affecting the trout population and further monitoring of this tributary will continue.
- 4.4 Increased sedimentation is likely to be affecting recruitment in Llynfi (12) where discharges from a land reclamation scheme delayed completion of the survey.
- 4.5 Trout densities continue to be poor in the middle and lower reaches of the Ewenny Fach, despite healthy macroinvertebrate communities (BMWP scores >100). Increased siltation has been reported in the lower reaches where biotic scores have decreased from 140 to 100 since 1990. This tributary is

also well stocked with takeable size trout early in the fishing season which may contribute to the low numbers of juveniles. It is recommended that further surveys should be undertaken pre and post stocking to assess the impact of introduced fish on native stocks.



## 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	
4	CRYMLYN	3.6	SS 958834	1.5	0		D	33.0	17.0		B	B,E,L
6	CIWC	2.7	SS 984835	0.8	0		D	35.7	20.6		B	B,E,L
9	GADLYS	4.8	SS 871879	0	0		E	33.5	18.1		B	B,E,L
10	CWMDU	3.9	SS 874894	0	0		E	35.0	20.4		B	B,E,M
11	SYCHBANT	4.2	SS 859899	0	0		E	3.8	15.1		B	B,E,L
12	LLYNFI	5.4	SS 853930	0	0		E	8.9	11.8		C	E,ST
13	GARW	6.9	SS 914876	0	0		E	11.8	11.7		C	B,E
14	GARW FECHAN	3.3	SS 903898	0	0		E	82.4	36.1		A	B,E
17	OGWR FAWR		SS 933914	0	0.6		D	33.3	9.6		B	
19	IECHYD	5.6	SS 944874	0	0.4		D	84.1	16.1		A	B,E,L
32	OGWR FACH		SS 981895	0	0		E	41.2	4.4		C	
33	GARW		SS 901921	0	0		E	13.3	37.2		B	
MEAN				0.2	0.1		D	34.7	18.1		B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME 1992

OGMORE 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	
2	EWENNY FACH	3.6	SS 972813	0	0		E	0	4.3		D	B,E
2A	EWENNY FACH	2.6	SS 982827	0	0		E	4.2	6.2		C	B,E
2C	EWENNY FACH	1.4	SS 002834	0	0		E	4.5	15.8		B	B
2E	EWENNY FACH	3.2	SS 955800	0.7	0		D	2.5	9.4		C	S,E,M,St
9A	GADLYS		SS 864880	0	0		E	46.7	20.0		A	
11A	SYCHBANT		SS 841901	0	0		E	0	0		E	
11B	SYCHBANT		SS 847901	0	0		E	14.2	3.4		D	
16A	OGWR FAWR		SS 934898	5.8	3.7		D	13.8	2.2		D	
23A	LLYNFI		SS 863945	0	0		E	0	15.6		C	
23B	LLYNFI		SS 852934	0	0		E	21.7	6.3		B	
24	LLYNFI		SS 861909	0	0		E	2.5	0		D	
25	LLYNFI		SS 863900	0	0		E	1.6	1.4		D	
25A	LLYNFI		SS 877883	0	0		E	11.2	5.3		C	
25B	LLYNFI		SS 879878	0	0		E	1.0	1.4		D	
25C	LLYNFI		SS 880873	0	0		E	4.2	2.5		D	
25D	LLYNFI		SS 886869	0	0		E	2.5	0		D	
25E	LLYNFI		SS 889865	0	0		E	2.5	2.5		D	
25F	LLYNFI		SS 895848	0	0		E	1.0	2.5		D	
27	GARW	8.5	SS 907868	0	1.7		D	12.8	8.3		B	B,E
28	GARW	5.1	SS 905895	0	0		E	8.3	1.3		D	B,E
31A	OGWR FAWR		SS 933898	0	0		E	23.5	6.4		B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME 1992

## OGMORE CATCHMENT SUMMARY

## SEMI - QUANTITATIVE SITE

NUMBER OF FISH PER 100M<sup>2</sup>

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	(1+	>1+)	CLASS	0+	(1+	>1+)	CLASS	
34	OGWR FACH		SS 974975	26.2	0		D	14.2	7.5		C	
35	OGWR FACH		SS 969872	0	0		E	32.5	12.2		B	
36	OGWR FACH		SS 941869	2.9	0		D	16.7	7.2		C	
37	CWMCERWYN		SS 841905	0	0		E	4.2	3.4		D	
40	OGMORE		SS 918855	3.6	0.1		D	4.8	2.7		C	
41	OGMORE		SS 902839	5.5	0		D	9.3	2.5		D	
42	OGMORE		SS 883774	3.2	0		D	4.3	2.4		D	
43	OGMORE		SS 890783	3.5	0		D	1.2	1.8		D	
			MEAN	1.8	0.2		D	9.3	5.3		C	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# FISHERIES MONITORING PROGRAMME

OGMORE CATCHMENT SUMMARY

5 MINUTE FRY SITE

NUMBER OF FISH CAUGHT IN FIVE MINS

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
L1	LLYNFI		SS 862945	0				2				
L2	LLYNFI		SS 854937	0				6				
L3	LLYNFI		SS 853930	0				6				
L4	LLYNFI		SS 851920	0				5				
L5	LLYNFI		SS 857911	0				4				
L6	LLYNFI		SS 863899	0				5				
L7	LLYNFI		SS 873890	0				6				
L8	LLYNFI		SS 879883	0				5				
L9	LLYNFI		SS 879881	0				3				
L10	LLYNFI		SS 879880	0				6				
L11	LLYNFI		SS 879878	0				0				
L12	LLYNFI		SS 880873	0				3				
L13	LLYNFI		SS 883871	0				1				
L14	LLYNFI		SS 886869	0				1				
L15	LLYNFI		SS 891864	0				1				
L16	LLYNFI		SS 890854	0				0				
L17	LLYNFI		SS 895848	0				0				
L18	LLYNFI		SS 897842	0				0				
L19	LLYNFI		SS 897838	0				1				
SY1	SYCHBANT		SS 843903	0				0				
SY2	SYCHBANT		SS 844903	0				3				
SY3	SYCHBANT		SS 855898	0				5				
SY4	SYCHBANT		SS 856899	0				4				
CW1	CWMCERWYN		SS 842904	0				7				
CE1	CERDYN		SS 849893	0				5				

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE



# FISHERIES MONITORING PROGRAMME

## OGMORE CATCHMENT SUMMARY

## 5 MINUTE FRY SITE

### NUMBER OF FISH CAUGHT IN FIVE MINS

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
CD1	CWM DU		SS 878899	0				8				
CD2	CWM DU		SS 873891	0				9				
GD1	GADLYS		SS 863880	0				8				
GD2	GADLYS		SS 871879	0				7				
SS1	SHWT STREAM		SS 892869	0				9				
GW1	GARW		SS 901923	0				9				
GW2	GARW		SS 905894	0				0				
GW3	GARW		SS 912885	0				3				
GW4	GARW		SS 913874	0				4				
GW5	GARW		SS 907867	0				4				
GW6	GARW		SS 906847	1				1				
GF1	GARW FECHAN		SS 903898	0				12				
OW1	OGWR FAWR		SS 934916	0				14				
OW2	OGWR FAWR		SS 933904	0				3				
OW3	OGWR FAWR		SS 935895	3				12				
OW4	OGWR FAWR		SS 935883	4				11				
OW5	OGWR FAWR		SS 929872	7				10				
OW6	OGWR FARW		SS 933867	0				13				
OC1	OGWR FACH		SS 981903	0				16				
OC2	OGWR FACH		SS 979892	0				13				
OC3	OGWR FACH		SS 975876	9				15				
OC4	OGWR FACH		SS 968871	0				9				
OC5	OGWR FACH		SS 960869	0				45				
OC6	OGWR FACH		SS 940869	0				13				
OC7	OGWR FACH		SS 934867	0				13				

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# FISHERIES MONITORING PROGRAMME

OGMORE CATCHMENT SUMMARY

5 MINUTE FRY SITE

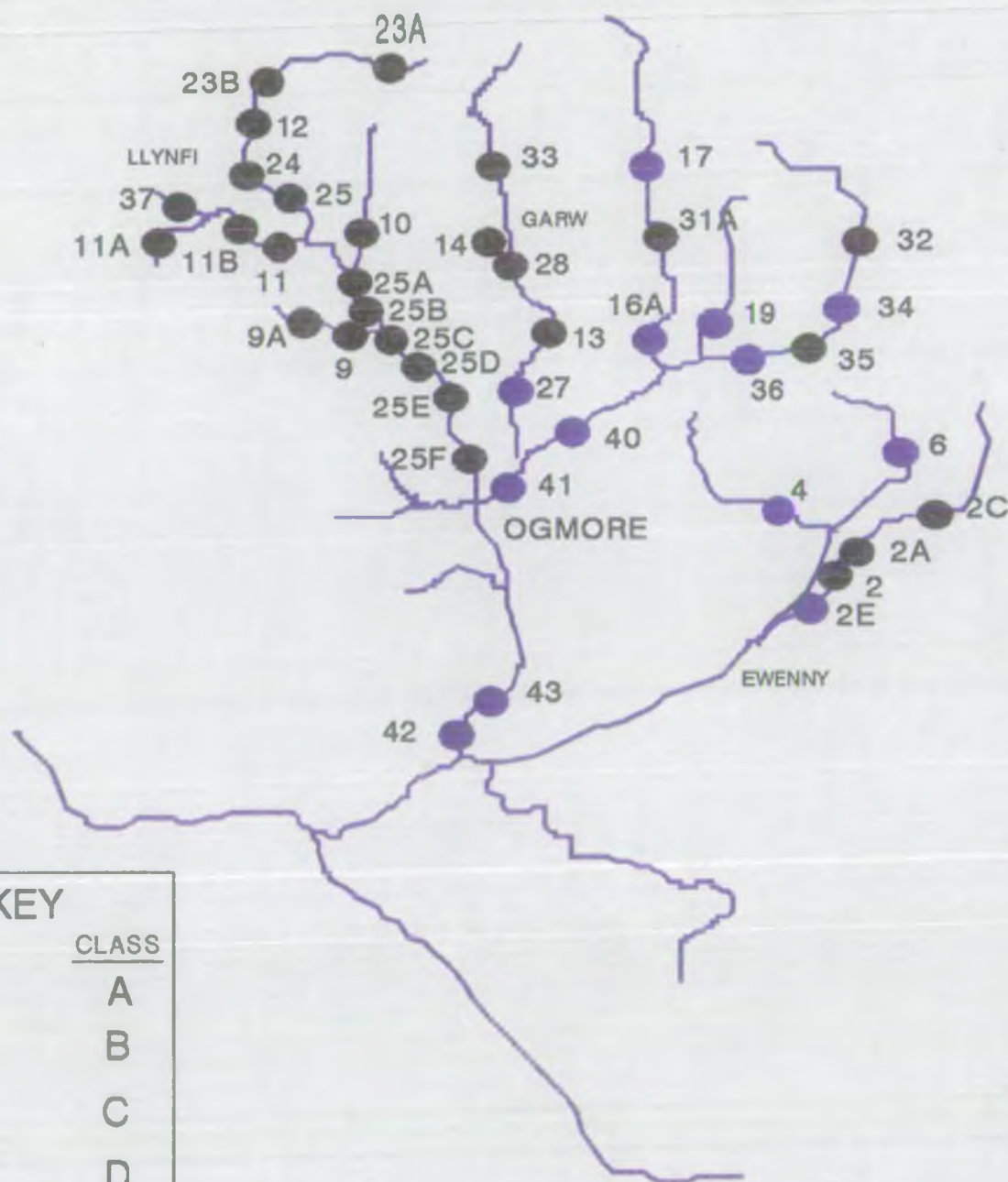
NUMBER OF FISH CAUGHT IN FIVE MINS

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
I1	IECHYD		SS 949880	0				3				
I2	IECHYD		SS 941873	0				9				
I3	IECHYD		SS 939870	1				19				
O1	OGMORE		SS 916853	7				12				
O2	OGMORE		SS 911847	0				3				
O3	OGMORE		SS 906847	1				8				
O4	OGMORE		SS 902839	0				3				
O5	OGMORE		SS 897836	0				5				
O6	OGMORE		SS 894834	0				0				
O7	OGMORE		SS 900827	0				3				
O8	OGMORE		SS 901825	1				7				
O9	OGMORE		SS 901815	0				7				
O10	OGMORE		SS 905802	0				0				
O11	OGMORE		SS 903793	0				0				
O12	OGMORE		SS 899793	0				2				
O13	OGMORE		SS 893787	0				0				
O14	OGMORE		SS 893787	1				1				
O15	OGMORE		SS 890783	0				1				
O16	OGMORE		SS 892778	0				3				
O17	OGMORE		SS 883774	0				8				

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# RIVER OGMORE SALMON DENSITIES 1992



## KEY

### CLASS



A



B



C



D



E

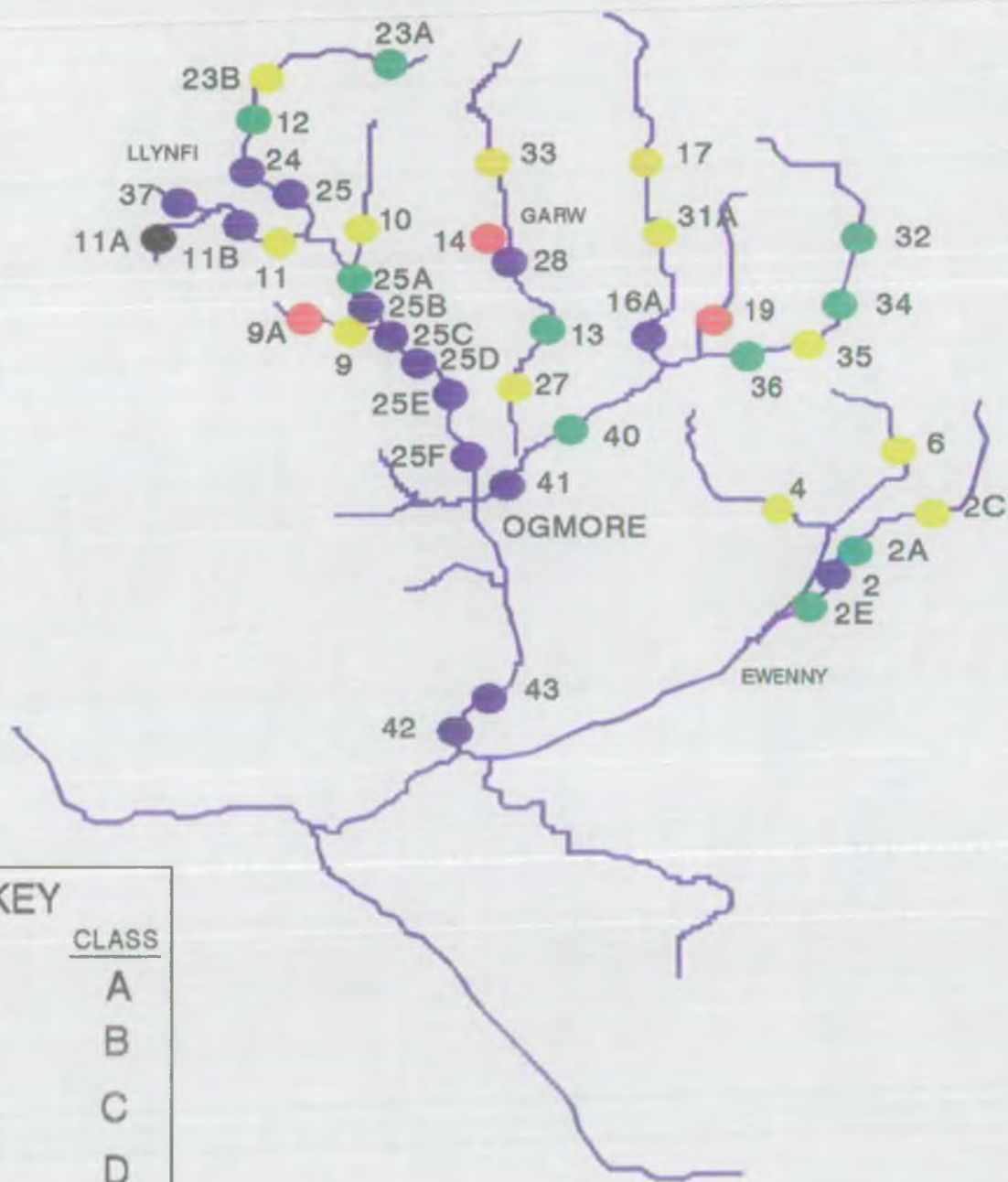
BRANDT, J. W.

BRANDT, J. W.

1925



# RIVER OGMORE TROUT DENSITIES 1992



## KEY

### CLASS



A  
B  
C  
D  
E

THE UNIVERSITY OF

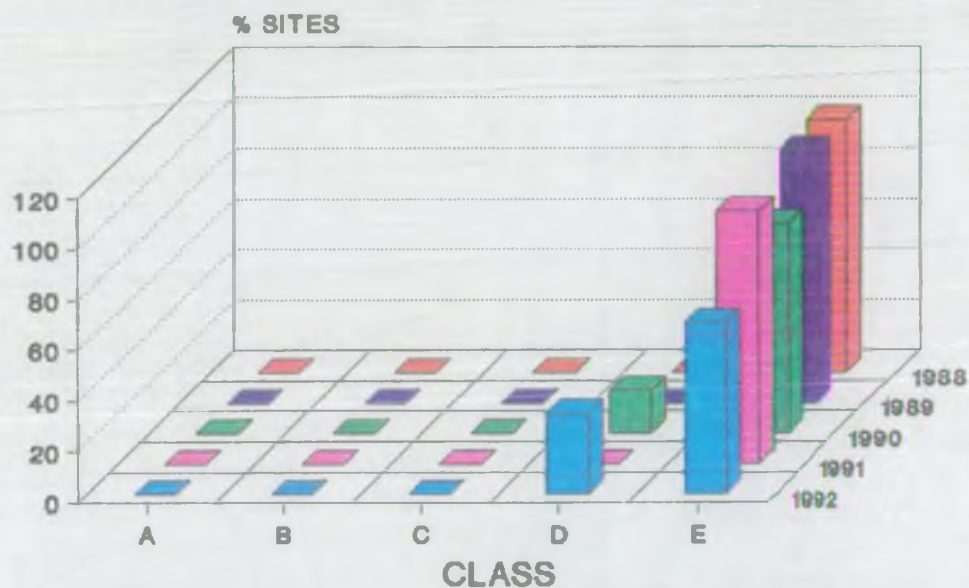
CHICAGO

LIBRARY



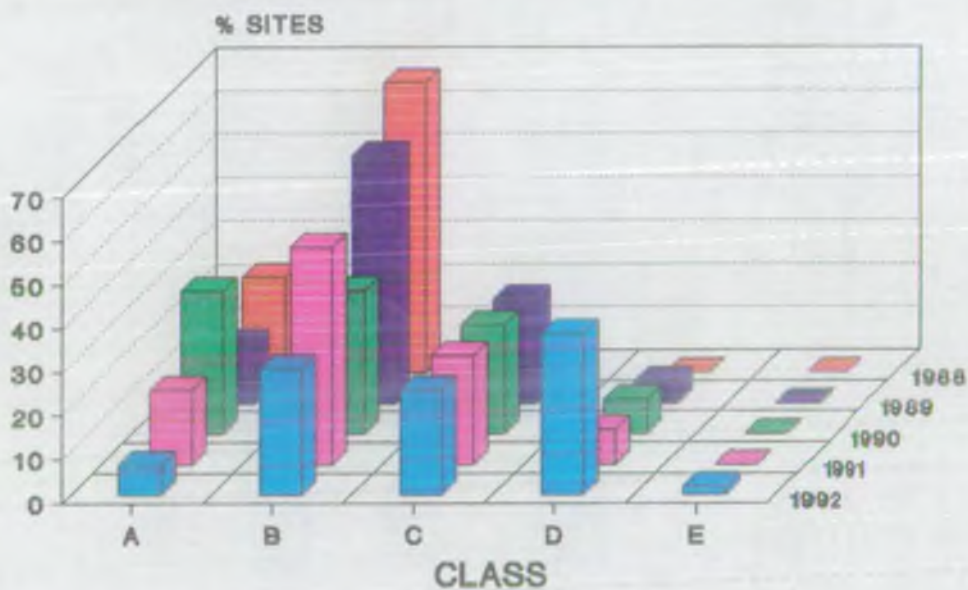
## RIVER OGMORE - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER OGMORE - TROUT

### % OF SITES IN EACH CATEGORY



FROM: AS - CIVIL ENGINEER

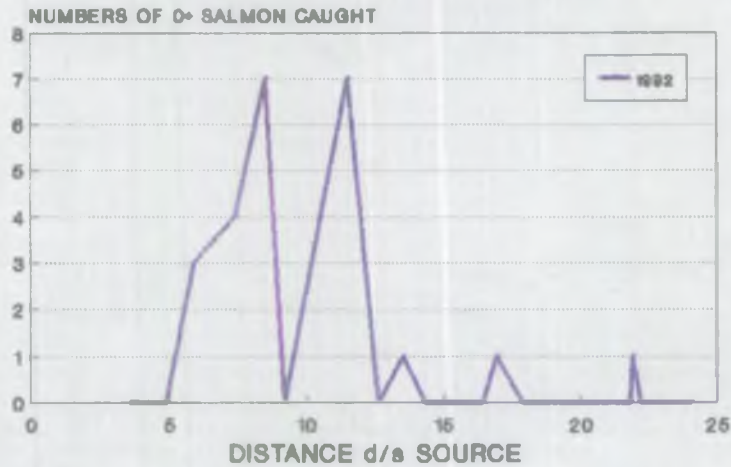
TO: AS - CIVIL ENGINEER

FROM: AS - CIVIL ENGINEER

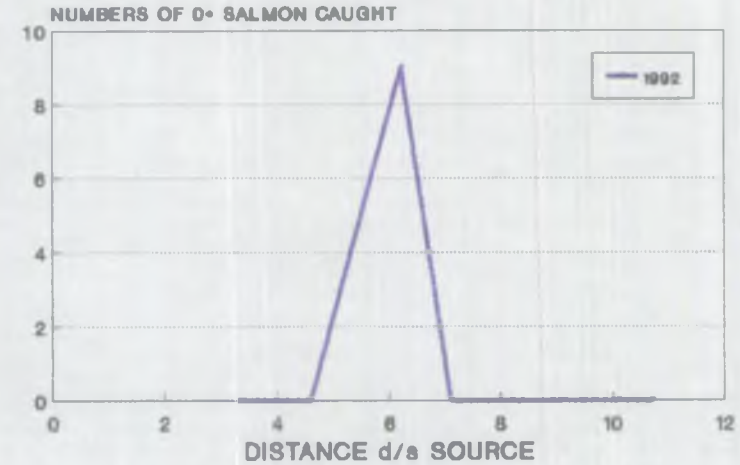
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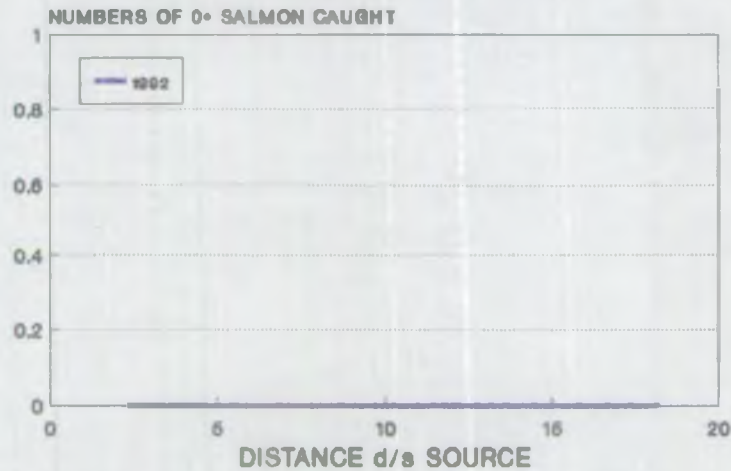
### RIVER OGMORE FIVE MINUTE SALMON FRY SITES



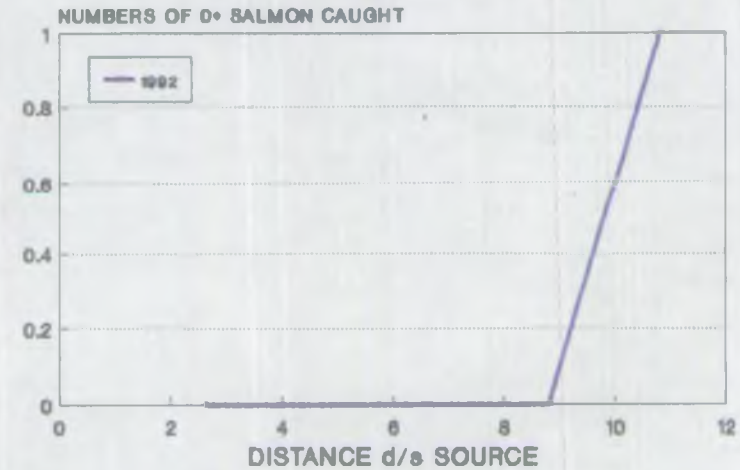
### RIVER OGWR FACH FIVE MINUTE SALMON FRY SITES



### RIVER LLYNFI FIVE MINUTE SALMON FRY SITES



### RIVER GARW FIVE MINUTE SALMON FRY SITES





WEST WALES DISTRICT

## EASTERN CLEDDAU SUMMARY.

### 1. Catchment and Fishery Characteristics.

Land Use - Predominately dairying and livestock rearing.

Water Quality - Generally class 1A and 1B.

Fishery Status - 91 catch: Rods; 23 Salmon; 245 Sea Trout  
Dau Cleddau Nets; - 3 Salmon; - 2 Sea Trout

### 2. Sampling Programme.

1985 - 4 semiquantitative sites.  
1986 - 1 quantitative and 5 semiquantitative sites.  
1987 - 5 quantitative sites.  
1992 - 10 semiquantitative sites.

### 3. Assessment of Status.

Number (%) of Sites in each Category in 1992:

	A	B	C	D	E
Salmon	0 ( 0)	1 (10)	3 (30)	2 (20)	4 (40)
Trout	2 (20)	5 (50)	2 (20)	1 (10)	0 ( 0)

### 4. Key Points.

4.1 Salmon were present at 60% of sites in fairly low densities.

4.2 Trout were recorded throughout the catchment and the generally good densities provided a mean class B for the catchment.

4.3 Trout fry and 1+ parr were absent from Deepford (2) where water quality problems have been investigated.

4.4 It is not possible to comment on the trends in this catchment due to the small sampling programme of previous years, however the current state of the catchment appears satisfactory.



## FISHERIES MONITORING PROGRAMME 1992

## EASTERN CLEDDAU CATCHMENT SUMMARY

## SEMI - QUANTITATIVE SITE

NUMBER OF FISH PER 100M<sup>2</sup>

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	PONTSHAEN	2.0	SN 117180	0	0	0	E	2.0	6.1	0	C	B,E,S
2	DEEPFORD	4.8	SN 072198	3.3	2.5	0	C	0	0	7.1	D	B,E,M,S
4	LLANYCEFN	4.2	SN 099236	0	8.5	0	D	3.3	3.3	11.4	B	B,E
5	GLANDY	2.9	SN 143282	0	0	0	E	16.2	17.1	0	B	E
6A	WERN	2.1	SN 117308	0	1.9	0	D	21.5	28.0	2.8	A	
7	NARBERTH BROOK	2.2	SN 103142	0	0	0	E	29.8	19.5	4.7	A	B,E
8	RHYD AFALLEN	3.0	SN 086231	2.0	13.4	0	B	6.0	36.9	4.7	B	B,E
9	RHYD WILYM	4.3	SN 113251	0.5	2.8	0	C	1.9	6.0	0.9	C	B,E
11	RHYD Y BIL	1.4	SN 117231	0	0	0	E	20.1	2.5	0	B	
12	E. CLEDDAU	5.4	SN 145305	0.7	5.8	0	C	6.9	25.3	2.9	B	E
MEAN				0.7	3.5	0	C	10.8	14.5	3.4	B	

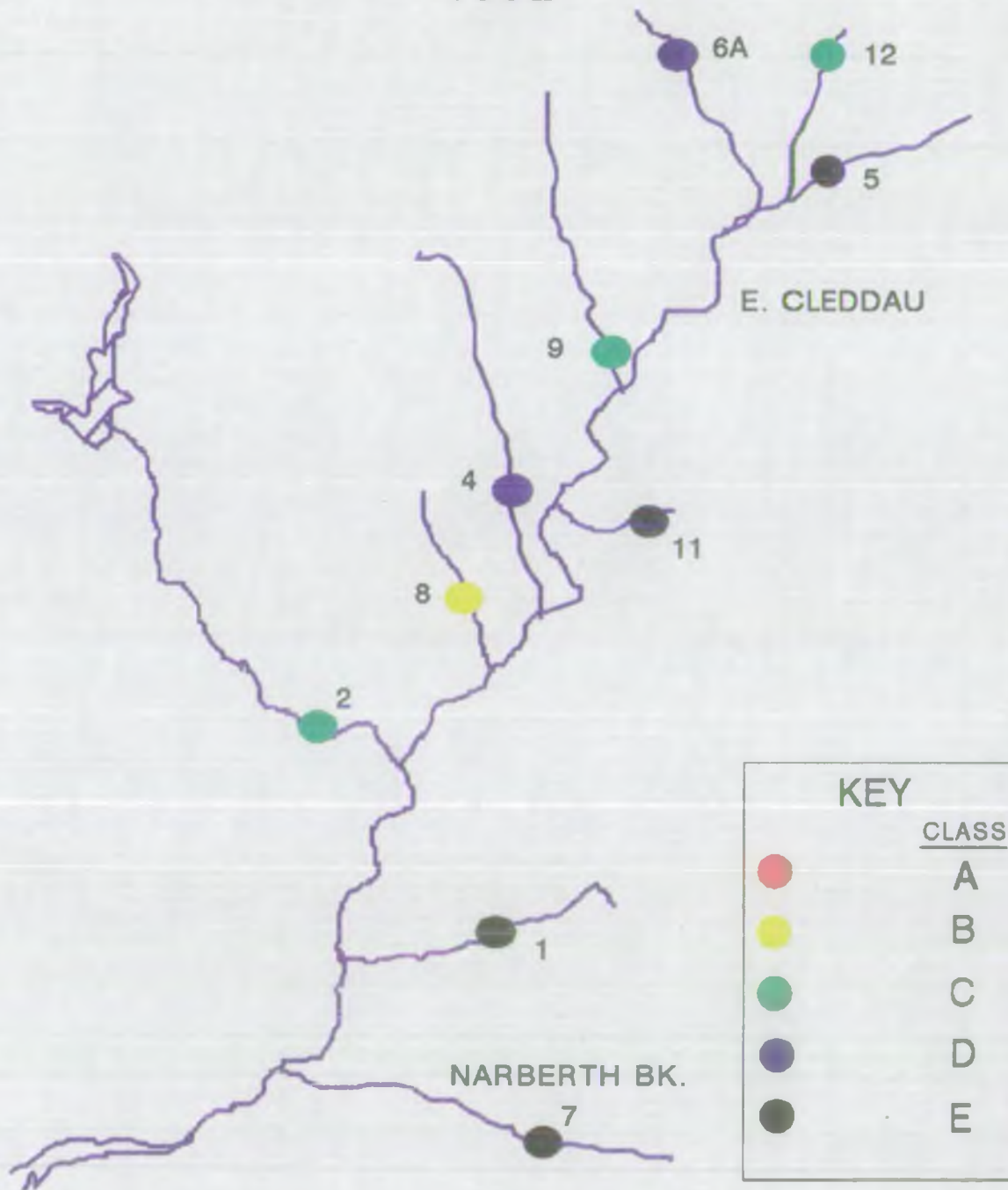
# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# EASTERN CLEDDAU

## SALMON DENSITIES

1992



AD 1340 MS 2742

INTERIOR WALL

100

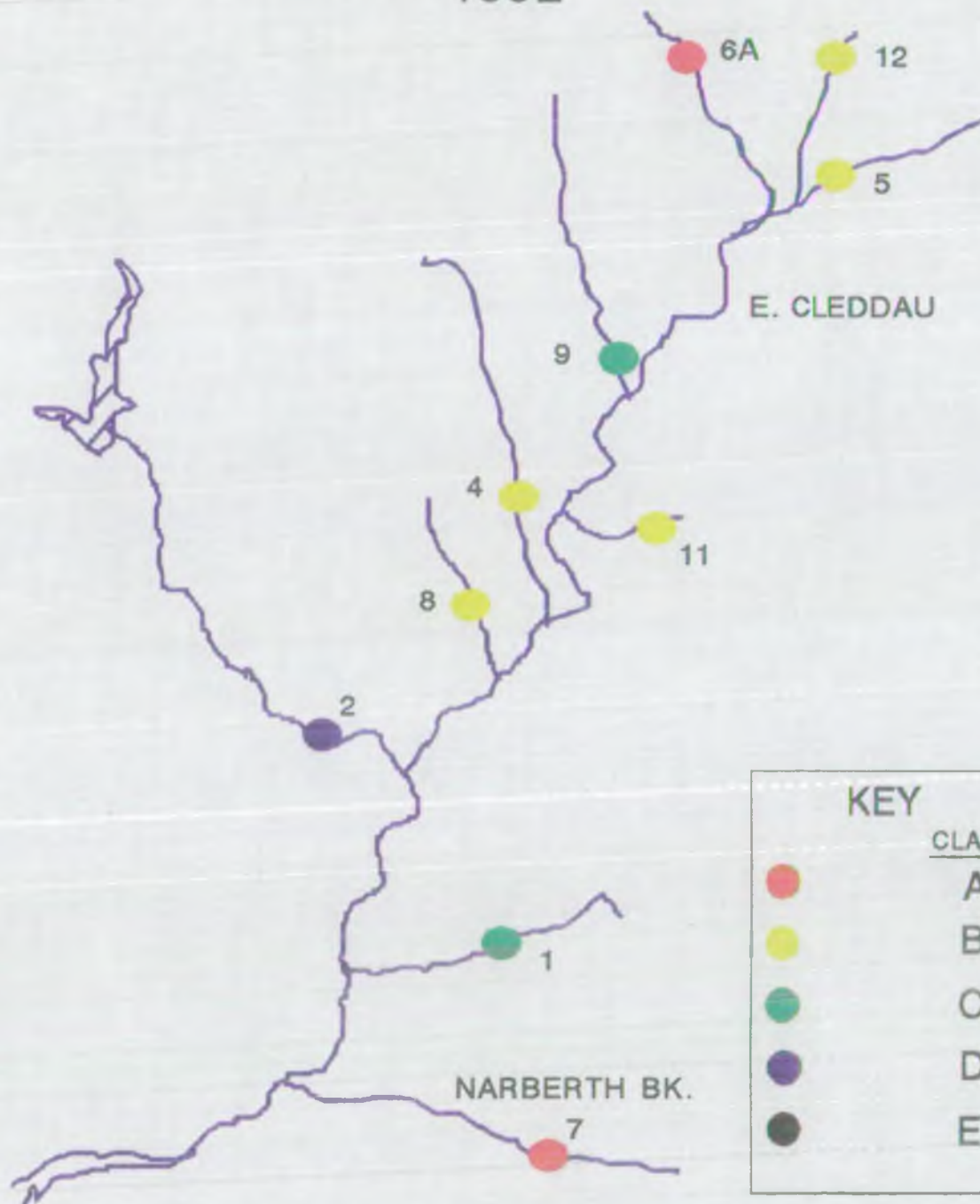




# EASTERN CLEDDAU

## TROUT DENSITIES

1992



### KEY

#### CLASS



A



B



C



D



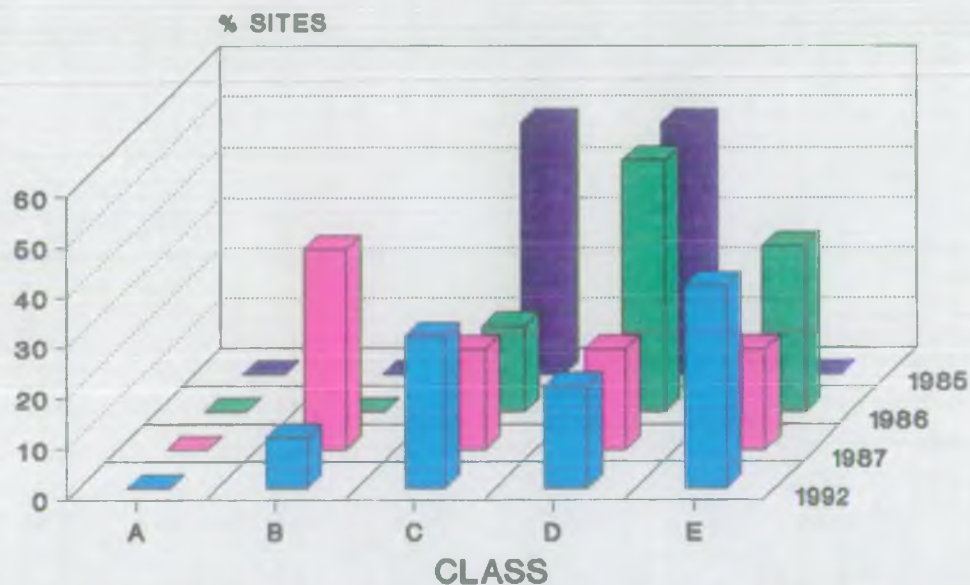
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## RIVER E.CLEDDAU - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER E.CLEDDAU - TROUT

### % OF SITES IN EACH CATEGORY





THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

REPORT NO. 1000

BY J. D. JARVIS

CHICAGO, ILLINOIS

## RIVER RHEIDOL SUMMARY.

### 1. Catchment and Fishery Characteristics.

Land Use - Afforestation in the upper reaches, agriculture in the lower reaches. Historically the river has been affected by metal extraction.

Water Quality - Generally class 2, class 3 in headwaters due to mine drainage and afforestation.

Fishery Status - 91 catch: Rods; 24 Salmon; 137 Sea Trout

### 2. Sampling Programme.

1986 - 2 quantitative, and 6 riffle sites.

1989 - 4 semi-quantitative and 6 riffle sites.

1992 - 5 semi-quantitative and 2 riffle sites.

### 3. Assessment of Status.

Number (%) of Sites in each Category in 1992:

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

### 4. Key Points.

4.1 Salmon fry were not recorded from the semi-quantitative sites, but were recorded in the two main river riffle sites. Salmon parr were recorded in the Melindwr (1 & 1A) and Castell (2) where fry had been stocked two years previously.

4.2 Trout were recorded throughout, although fry were not recorded in the Castell (2). There were excellent parr densities in the Melindwr and both sites in this tributary were class A.

4.3 Mean densities of both salmon parr and trout fry were consistent with those of the previous survey in 1989.

4.5 The planned number of riffle sites in the main river was not achieved due to high river flows in 1992. These sites will be sampled during 1993.

4.6 Stocks appear to be stable at the semiquantitative sites, although this observation is based on a small number of sites.



## FISHERIES MONITORING PROGRAMME 1992

RHEIDOL CATCHMENT SUMMARYSEMI - 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	MELINDWR	2.6	SN 657801	0	15.6	0	C	38.9	43.6	5.5	A	E
1A	MELINDWR	3.8	SN 687815	0	0.5	0	D	33.1	16.0	0	A	
2	CASTELL	3.8	SN 750808	0	9.0	0	D	0	22.3	10.6	C	
3	RHEIDOL	4.2	SN 755770	0	0	0	E	1.0	4.8	0.5	C	
4	RHEIDOL	5.0	SN 755860	0	0	0	E	27.1	3.2	0.4	B	
MEAN				0	5.0	0	D	20.0	18.0	3.4	A	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME 1992

RHEIDOL CATCHMENT SUMMARY






5 MINUTE FRY SITE

NUMBER OF FISH CAUGHT IN 5 MINUTES

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	RHEIDOL		SN 725782	42				13				
2	RHEIDOL		SN 674786	29				4				

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

KEY	
	<u>CLASS</u>
	A
	B
	C
	D
	E



# RIVER RHEIDOL

## SALMON DENSITIES

### 1992







# RIVER RHEIDOL

## TROUT DENSITIES

### 1992

KEY	
	CLASS
●	A
●	B
●	C
●	D
●	E

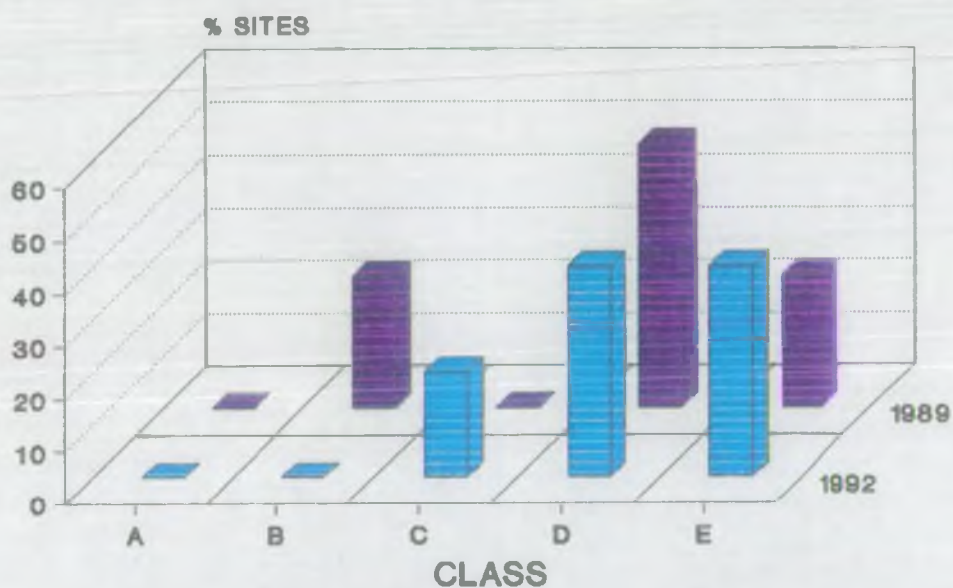






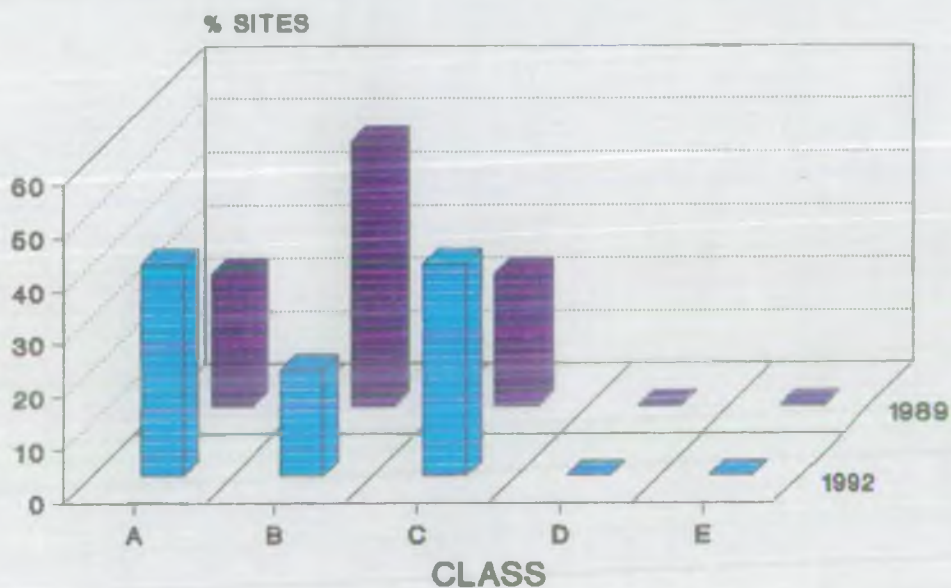
## RIVER RHEIDOL - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER RHEIDOL - TROUT

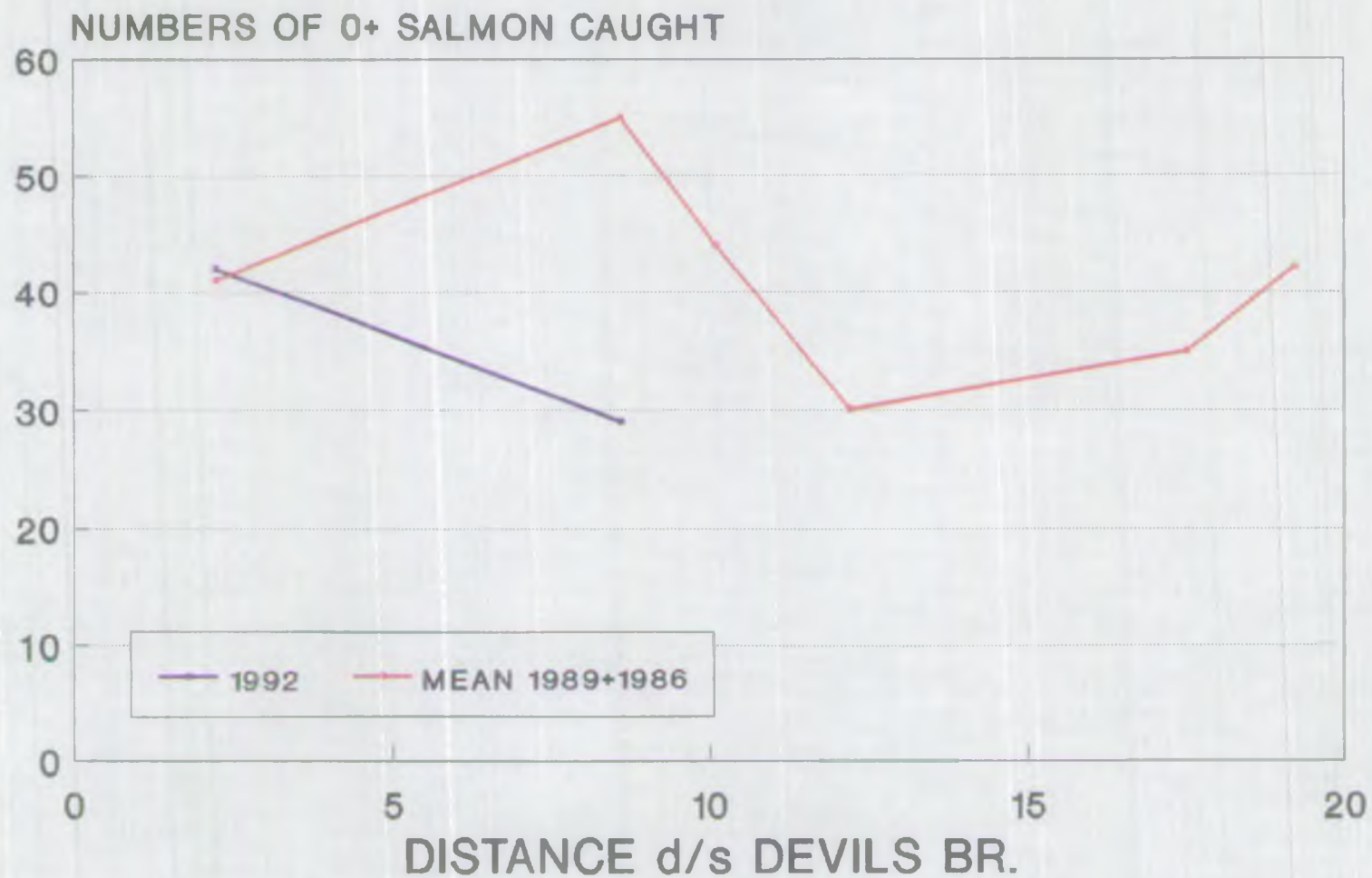
### % OF SITES IN EACH CATEGORY







# RIVER RHEIDOL FIVE MINUTE SALMON FRY SITES







## RIVER TEIFI SUMMARY.

### 1. Catchment and Fishery Characteristics.

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

Water Quality - Generally 1A, with acidification reducing a small reach at the top of the catchment to 1B.

Fishery Status - 91 catch: Rods; 414 Salmon; 1140 Sea Trout  
Nets; 102 Salmon; 312 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.  
1992 - 10 quantitative and 15 riffle sites.

### 3. Assessment of Status.

Number (%) of Sites in each Category in 1992:

	A	B	C	D	E
Salmon	4 (40)	3 (30)	2 (20)	0 (0)	1 (10)
Trout	4 (40)	5 (50)	1 (10)	0 (0)	0 (0)

### 4. Key Points.

- 4.1 Salmon were recorded at 90% of quantitative sites and fry were abundant in the Ceri<sub>2</sub> (8), Cledlyn (17) and Brenig (30) where densities exceeded 100 fry per 100m<sup>2</sup>.
- 4.2 Low river flows during the spawning season prevented access to the Cych (5) and the Bargod where salmon fry were not recorded in 1992.
- 4.3 Good numbers of salmon fry (mean: 68) were recorded throughout the main river riffle sites, consistent with those of the previous year.
- 4.4 The salmon parr population was stable, being 22 per 100m<sup>2</sup> in both 1991 and 1992.
- 4.5 Trout were recorded throughout the catchment. Fry were particularly abundant in the Grannell (21) and mean fry density of quantitative sites was higher than the previous year with the overall classification increasing from B to A. Lower numbers of trout fry were recorded in the main river fry sites, but this was consistent with previous surveys.
- 4.6 The salmonid population in this catchment is excellent (mean class A for both salmon and trout) and appears stable.



## FISHERIES MONITORING PROGRAMME 1992

## 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	3.6	SN 292346	0	37.4	0.5	C	83.2	36.0	9.8	A	E,L
8	CERI	5.5	SN 302424	106.8	31.2	0	A	47.1	12.4	1.0	B	E,L,M,S,St
10	BANC #	3.6	SN 355418					52.8	24.6	6.8	A	E,L
12	BARGOD	3.1	SN 358380	0	22.2	0	C	121.9	13.9	2.6	A	E
17	CLEDLYN	3.4	SN 502455	135.5	4.9	0	B	67.3	13.3	3.5	A	E,St
21	GRANNELL	4.2	SN 516509	66.2	6.1	0	B	68.7	4.2	1.3	B	B,E,L,M,St
28	BREFI	6.4	SN 681546	94.2	24.7	0	A	15.2	9.9	2.3	C	B,E,M,St
30	BRENIG	6.3	SN 674590	144.9	15.3	0	A	30.8	9.5	0	B	B,E,M,St
32	GROES	3.6	SN 702606	63.2	51.4	0	A	24.4	16.9	2.0	B	B,E
39	EGNANT	2.4	SN 769656	24.4	23.1	0	B	33.7	10.1	10.1	B	
MEAN				70.6	24.0	0.1	A	54.5	15.1	3.9	A	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME 1992

## TEIFI CATCHMENT SUMMARY

## 5 MINUTE FRY SITE

## NUMBER OF FISH CAUGHT IN 5 MINUTES

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	TEIFI		SN 218436	11				6				
2	TEIFI		SN 256422	22				19				
3	TEIFI		SN 314405	65				4				
4	TEIFI		SN 367405	89				1				
5	TEIFI		SN 419406	66				1				
6	TEIFI		SN 456402	65				1				
7	TEIFI		SN 472412	65				5				
8	TEIFI		SN 521444	131				1				
9	TEIFI		SN 583475	63				4				
10	TEIFI		SN 615498	107				5				
11	TEIFI		SN 642546	70				2				
12	TEIFI		SN 642546	70				2				
13	TEIFI		SN 646565	39				8				
14	TEIFI		SN 675585	72				6				
15	TEIFI		SN 730665	89				10				

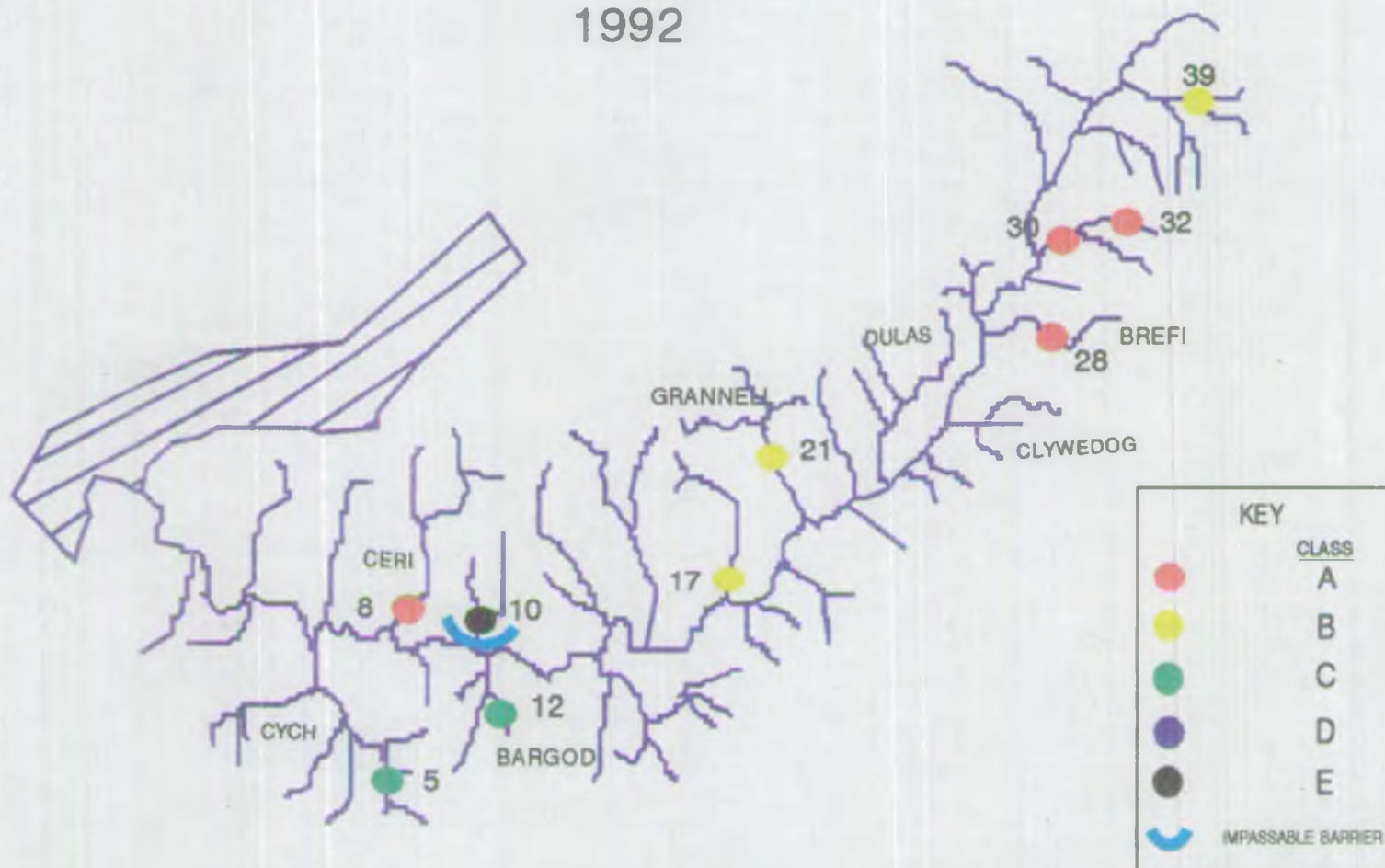
# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# RIVER TEIFI

## SALMON DENSITIES

### 1992



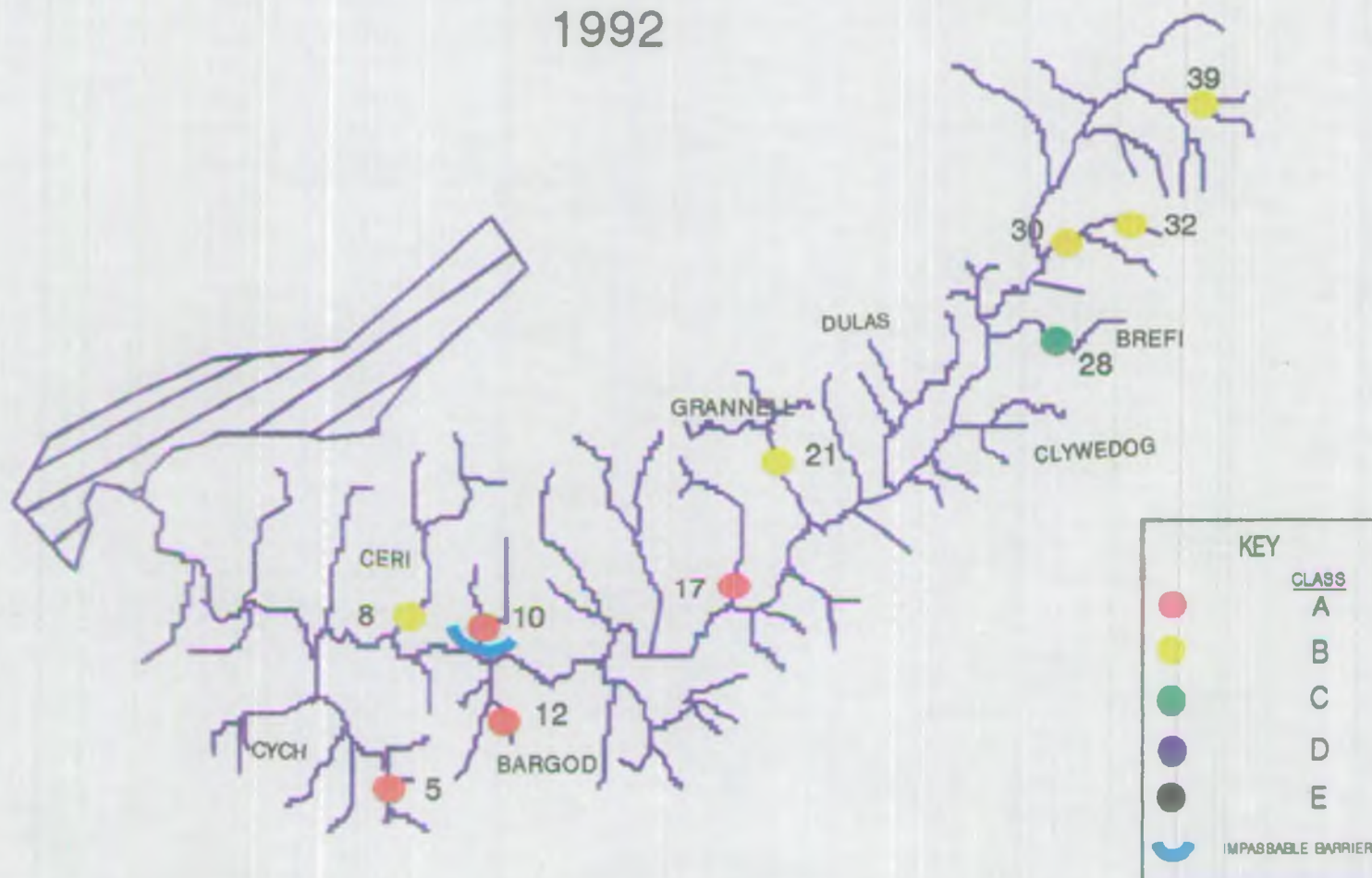




# RIVER TEIFI

## TROUT DENSITIES

### 1992







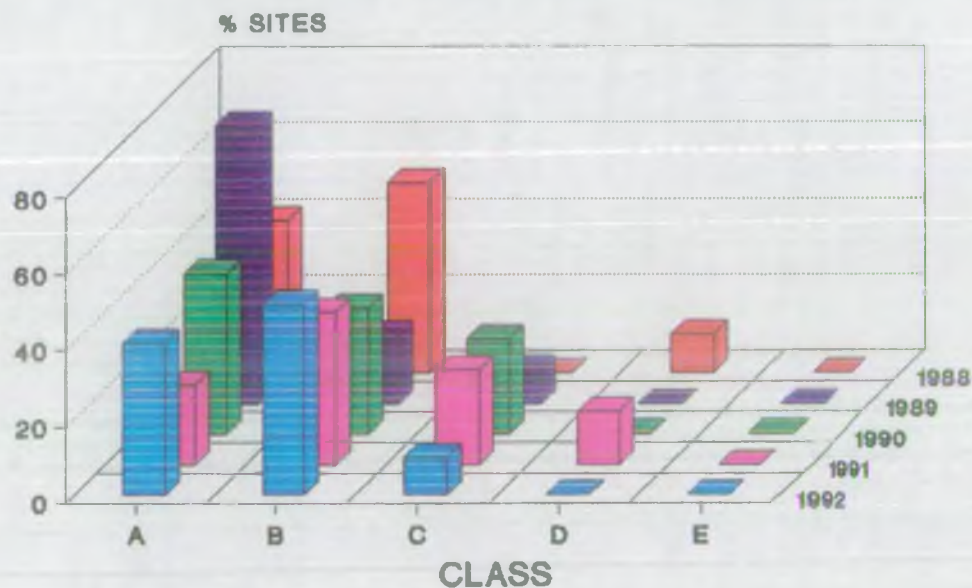
## RIVER TEIFI - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER TEIFI - TROUT

### % OF SITES IN EACH CATEGORY

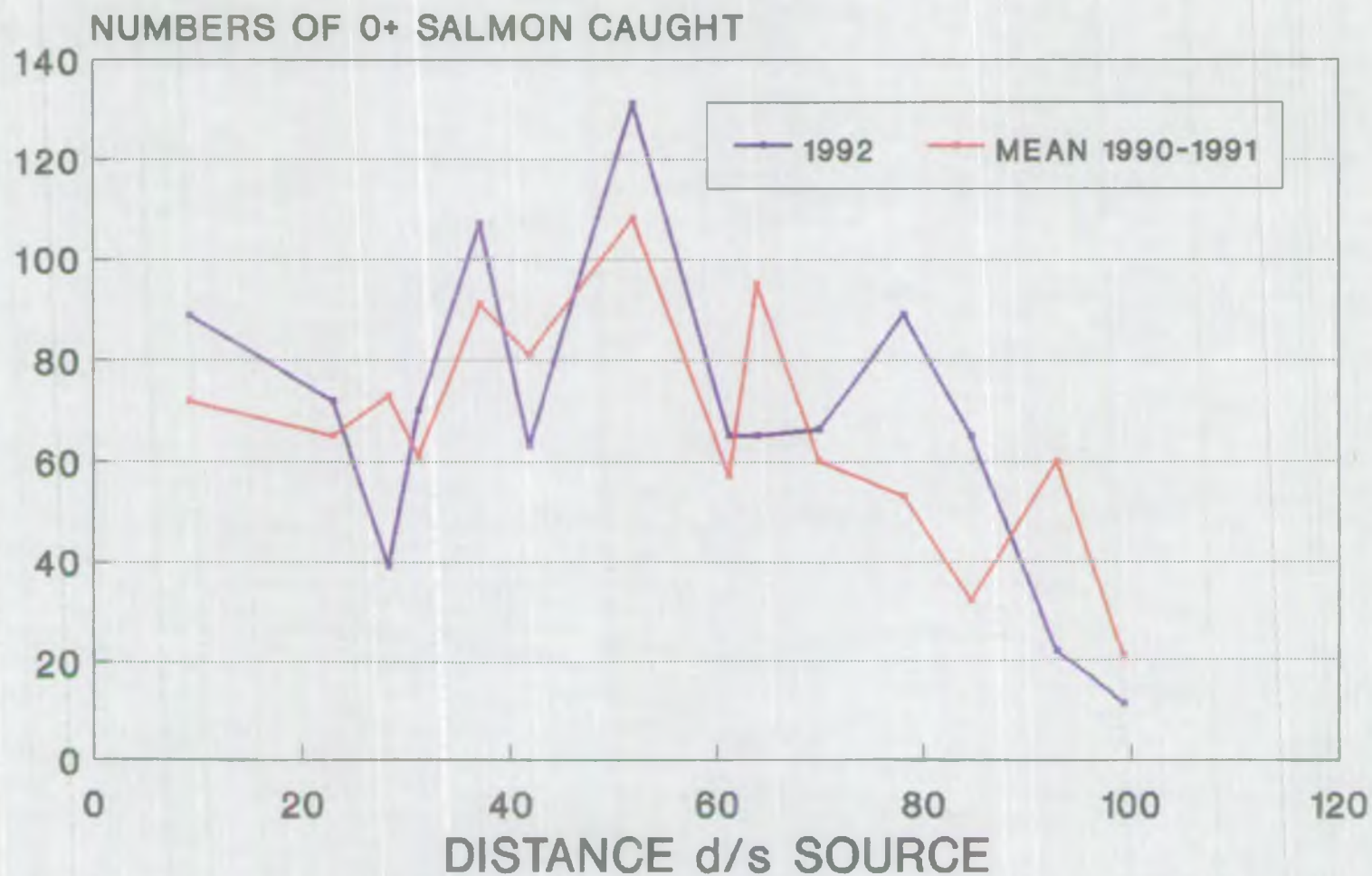


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# RIVER TEIFI FIVE MINUTE SALMON FRY SITES



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## RIVER TYWI SUMMARY.

### 1. Catchment and Fishery Characteristics.

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

Water Quality - Generally class 1. Class 3 at the top of the catchment due to acidification and impoundment. Lower main river class 2.

Fishery Status - 91 catch: Rods; 485 Salmon; 3109 Sea Trout  
Nets; 104 Salmon; 1120 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.  
1992 - 11 quantitative, 18 semi-quantitative and 31 riffle sites.

### 3. Assessment of Status.

Number (%) of Sites in each Category in 1992:

	A	B	C	D	E
Salmon	1 ( 3)	10 (35)	5 (17)	9 (31)	4 (14)
Trout	10 (35)	11 (38)	7 (24)	1 ( 3)	0 ( 0)

### 4. Key Points.

- 4.1 Salmon were recorded from 88% of river sites with Tywi riffle sites, consistent with previous surveys, supporting low numbers of fry (mean: 7). The additional riffle sites sampled in the Gwili and Cothi supported higher numbers (mean: 13 and 26 respectively) than the main river in 1992.
- 4.2 Trout were present throughout and fry densities were particularly abundant in the Gwili<sub>2</sub> (5), Cennen (25) and Nant y ffin (38) where densities exceeded 140 per 100m<sup>2</sup>.
- 4.3 Trout fry were absent from 45% of all riffle sites sampled and were generally in low numbers where present; marginally higher numbers, however, were recorded in the Gwili (mean: 13).
- 4.4 Trout parr were well distributed being absent from only one site, Dulas (22A), which runs dry during low flows.
- 4.5 There is general concern for potential pollution from extensive felling of conifer plantations in the Gochen and Blotweth catchments and from sheep dips throughout the Tywi catchment. Surveys are to be undertaken with PC to identify fishery sensitive areas.

## FISHERIES MONITORING PROGRAMME 1992

## TYWI CATCHMENT SUMMARY

## QUANTITATIVE SITE

NUMBER OF FISH PER 100M<sup>2</sup>

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	44.2	42.0	0	A	141.2	17.3	20.5	A	B,E,M
11	BLOTWETH	3.3	SN 528345	4.9	2.4	0.6	D	12.7	71.5	5.4	B	B,E,L,M,S,St
13A	FFIN	2.8	SN 555321	43.3	10.9	0	B	61.3	18.5	0.7	A	B,E,St
15	ANNELL	2.0	SN 666385	0	0	0	E	58.0	60.2	7.1	A	B,E,L
17	MELINDWR	2.8	SN 611362	0.7	7.3	0	C	28.0	17.6	3.1	B	B,E
22	DULAS	2.1	SN 565239	1.2	34.7	0	B	42.7	72.5	8.5	A	B,E,L,M
25	CENNEN	4.0	SN 655188	13.5	9.3	0.5	C	168.4	33.9	0	A	
28	SAWDDE	5.1	SN 757242	15.9	12.8	0	C	41.4	33.9	0.8	A	B,E
37	GWENLAIS	4.6	SN 759390	20.7	17.5	0	B	27.2	26.5	4.8	A	B,E,L
38	GWENFFRWD	3.9	SN 763452	2.7	3.9	0	D	22.6	12.9	0.5	C	B,E,L
40	NANT Y FFIN	2.0	SN 787472	0	0	0	E	173.0	28.6	0	A	
MEAN				13.4	12.8	0.1	C	70.6	35.8	4.7	A	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE



FISHERIES MONITORING PROGRAMME 1992

TYWI CATCHMENT SUMMARY

SEMI - QUANTITATIVE SITE

NUMBER OF FISH PER 100M<sup>2</sup>

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
6A	DUAD	6.5	SN 374275	3.3	2.5	0	C	11.8	6.9	0.9	B	
7A	GOCHEN	3.0	SN 373276	2.1	0	0	D	7.1	4.3	0	C	B,E
8A	ANNELL	4.1	SN 463214	15.8	3.7	0	B	6.3	5.8	0	C	B,E,M,F1
12	NENOG	3.8	SN 529345	0	0	0	E	19.0	12.6	1.6	B	E
14	GORLECH	5.9	SN 583343	29.0	3.0	0	B	7.8	3.3	0.4	C	B,E,L
21	SANNAN	2.8	SN 559242	0	0	0	E	18.6	8.6	0	B	B
22A	DULAS	8.2	SN 557229	5.9	5.9	0	D	4.9	0	0	D	B,E,S,St
23	MYDDFI	4.9	SN 597228	21.2	4.0	0	B	25.0	7.6	1.6	B	B,E,M,S
31A	DULAIS	5.6	SN 708327	0	5.7	1.1	D	11.8	11.8	3.2	B	B,E,L
31B	DULAIS	4.7	SN 702352	2.5	2.5	0	C	5.4	1.7	0.8	C	B,E
32A	MYNYS	4.7	SN 732329	3.3	0	0	D	7.5	5.4	1.7	C	B,E,L,M,S
33A	BRAN	6.9	SN 798387	11.0	2.8	0	B	10.7	2.6	0	B	B,E,L
34	BRAN	3.7	SN 806400	14.1	18.4	0	B	36.8	13.5	0.5	A	B,E,L
35C	GWYDDERIG	4.6	SN 833329	7.4	2.2	0	D	20.4	10.4	1.3	B	B,E,L
35D	GWYDDERIG	5.1	SN 849317	13.8	3.3	0	B	42.0	7.5	0.8	B	B
35K	GWYDDERIG	3.0	SN 869298	0	0.6	0	D	67.0	25.6	4.4	A	B,E,L
39	NANT MELYN	3.6	SN 748456	2.8	0.6	0	D	9.4	3.3	0	C	B,E,L
23A	CIB	2.8	SN 633217	57.0	2.6	0	B	64.2	13.2	0	B	B,E,St
MEAN				10.5	3.2	0	B	20.9	8.0	1.0	B	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME 1992

## TYWI CATCHMENT SUMMARY

## 5 MINUTE FRY SITE

## NUMBER OF FISH CAUGHT IN 5 MINUTES

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	TYWI		SN 774459	0				11				
2	TYWI		SN 777436	2				8				
3	TYWI		SN 763362	10				10				
4	TYWI		SN 755335	2				2				
5	TYWI		SN 735319	1				1				
6	TYWI		SN 466214	32				0				
7	TYWI		SN 433207	7				0				
8	TYWI		SN 436204	8				0				
9	TYWI		SN 717310	1				0				
10	TYWI		SN 688268	36				1				
11	TYWI		SN 676255	4				0				
12	TYWI		SN 644230	5				0				
13	TYWI		SN 552203	0				0				
14	TYWI		SN 592215	9				0				
15	TYWI		SN 581215	3				0				
16	TYWI		SN 507217	15				0				
17	COTHI		SN 503212	61				3				
18	COTHI		SN 537285	8				0				
19	COTHI		SN 536284	43				7				
20	COTHI		SN 562322	39				2				
21	COTHI		SN 584336	44				1				
22	COTHI		SN 634345	16				0				
23	COTHI		SN 643370	20				0				
24	COTHI		SN 652390	11				6				

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME 1992

TYWI CATCHMENT SUMMARY

5 MINUTE FRY SITE

NUMBER OF FISH CAUGHT IN 5 MINUTES

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
25	COTHI		SN 656396	9				3				
26	COTHI		SN 641408	10				9				
27	GWILI		SN 431219	24				1				
28	GWILI		SN 418247	5				0				
29	GWILI		SN 417292	25				8				
30	GWILI		SN 444287	12				31				
31	GWILI		SN 373287	0				27				

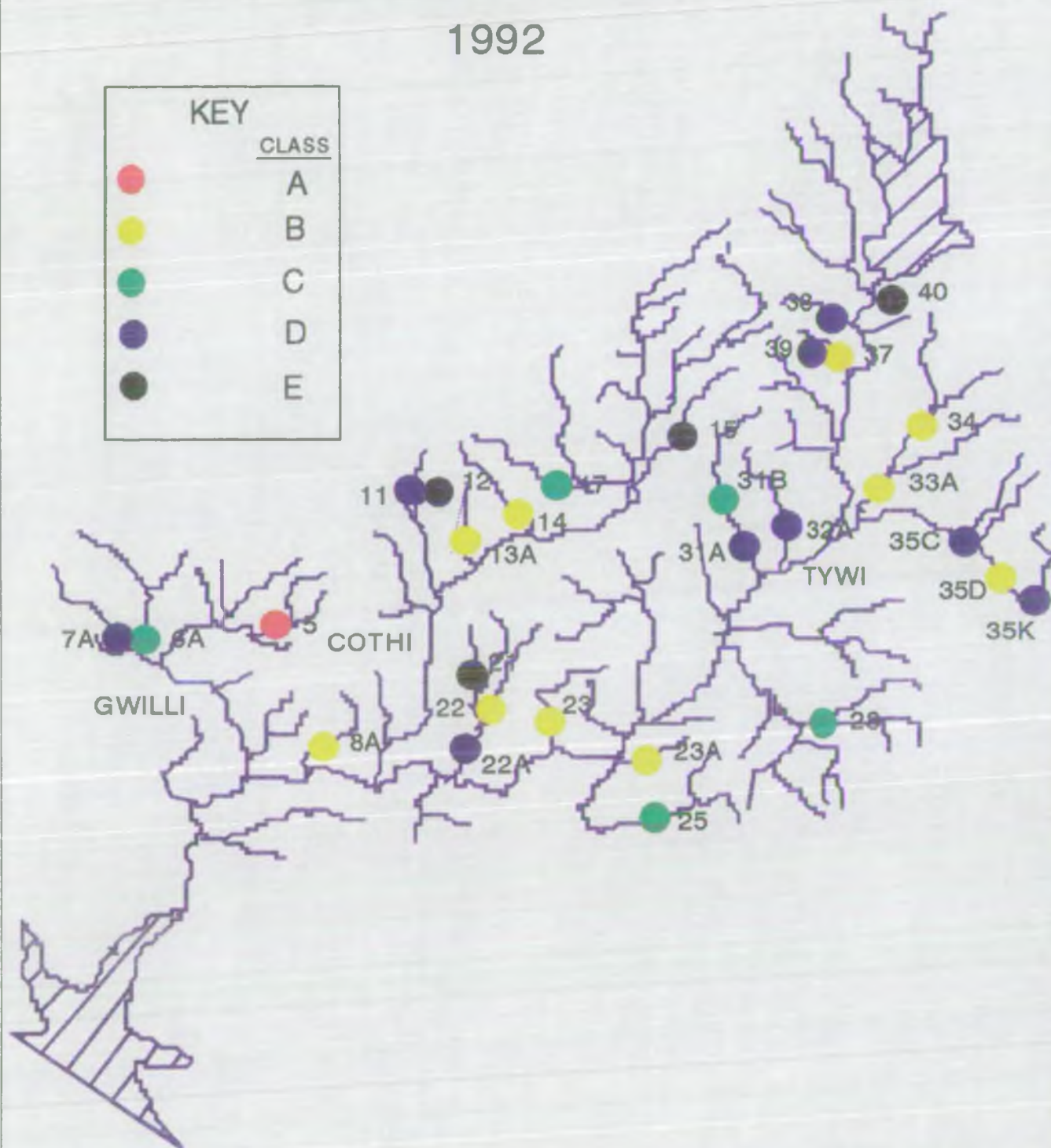
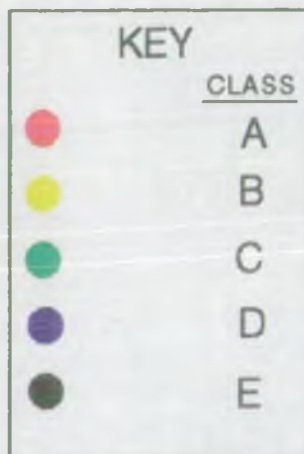
# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# RIVER TYWI

## SALMON DENSITIES

### 1992





MOORE ADVIS

STATIONER

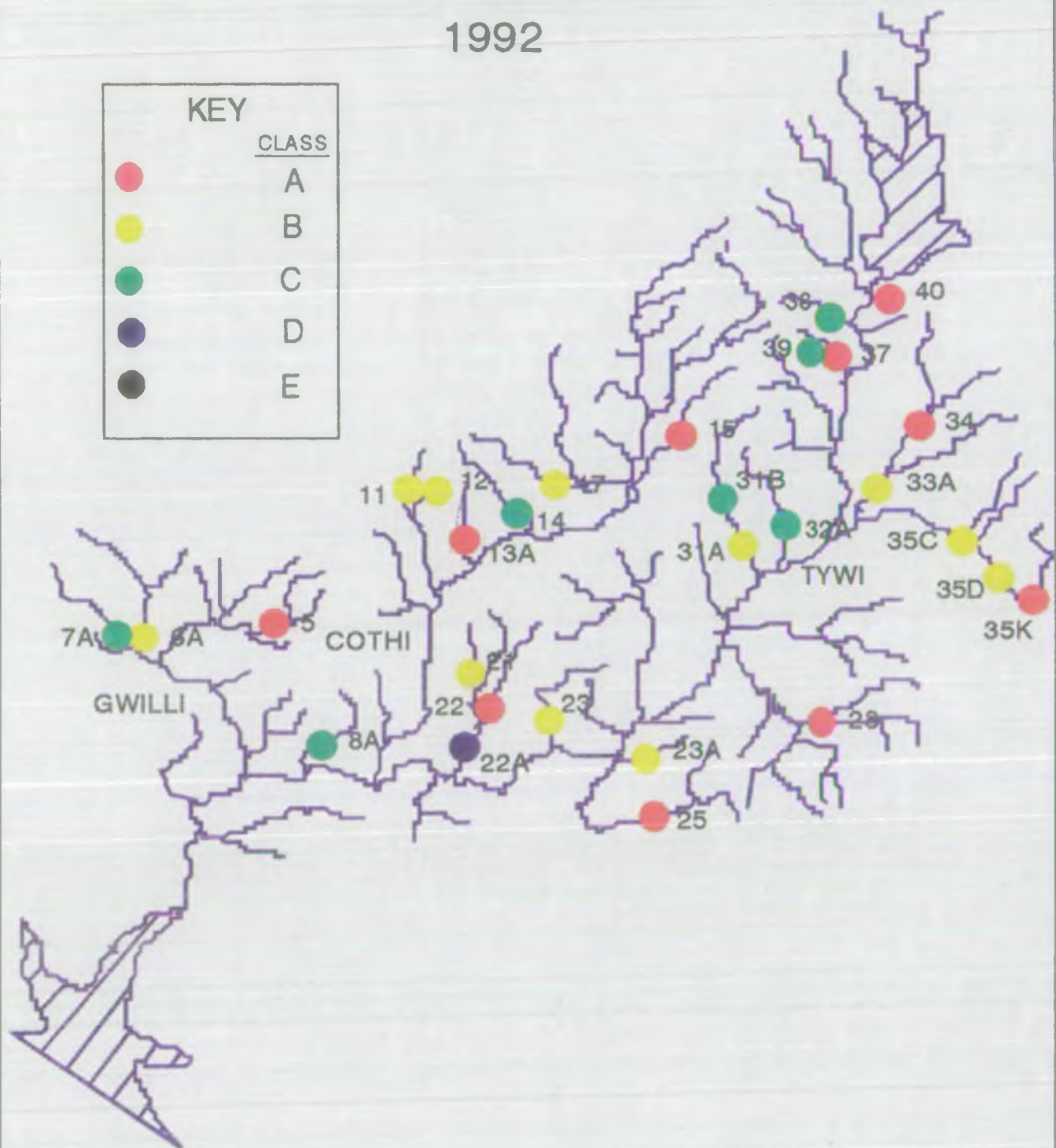
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# RIVER TYWI

## TROUT DENSITIES

### 1992

KEY	
	CLASS
●	A
●	B
●	C
●	D
●	E

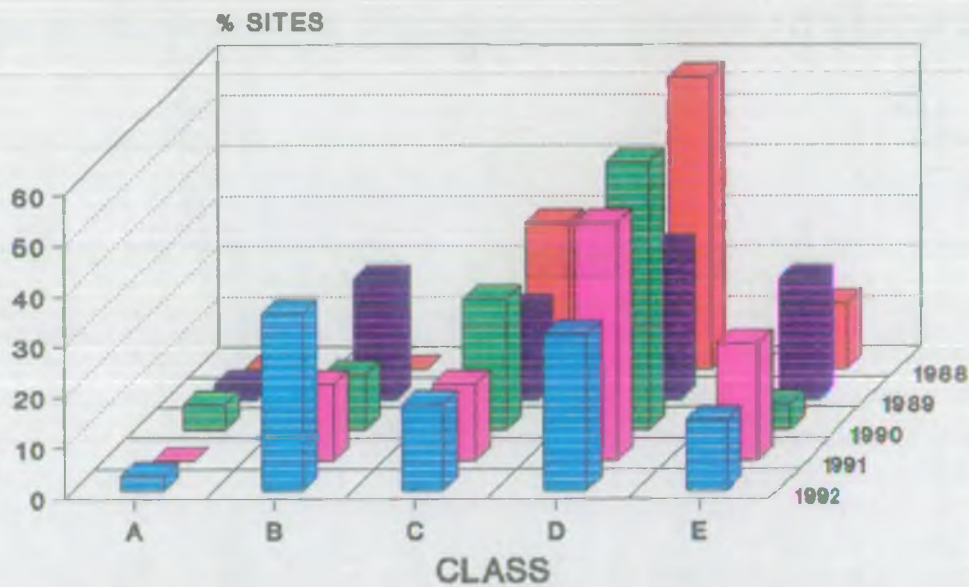






## RIVER TYWI - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER TYWI - TROUT

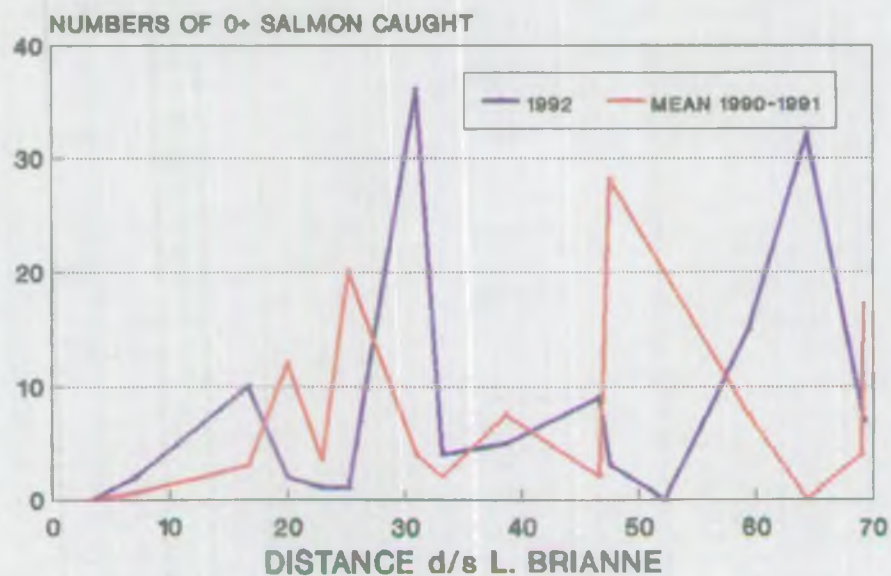
### % OF SITES IN EACH CATEGORY



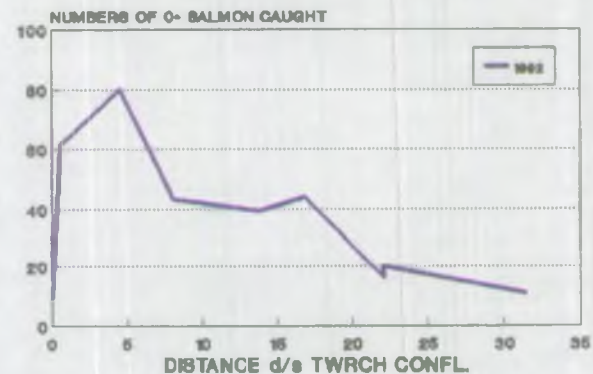




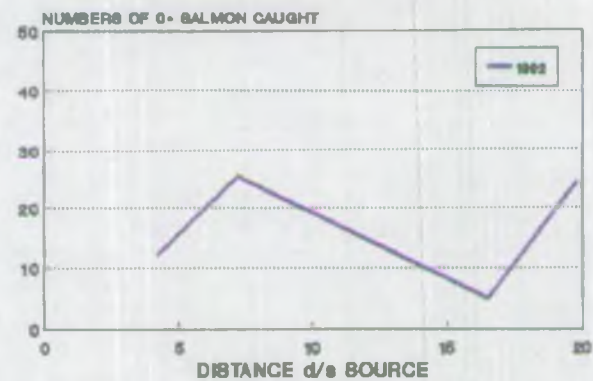
## RIVER TYWI FIVE MINUTE SALMON FRY SITES



## RIVER COTHI FIVE MINUTE SALMON FRY SITES



## RIVER GWILI FIVE MINUTE SALMON FRY SITES







## RIVER YSTWYTH SUMMARY.

### 1. Catchment and Fishery Characteristics.

Land Use - Historically the upper reaches have been affected by heavy metal mining, there are also large areas of afforestation. The lower catchment is agricultural.

Water Quality - Generally class 3; class 4 reach on Magwr.

Fishery Status - 91 catch: Rods; - 1 Salmon; - 89 Sea-Trout - - - - -

### 2. Sampling Programme.

1986 - 1 quantitative, 3 semi-quantitative and 10 riffle sites.

1989 - 4 semi-quantitative and 10 riffle sites.

1992 - 5 semi-quantitative and 7 riffle sites.

### 3. Assessment of Status.

Number (%) of Sites in each Category in 1992:

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

### 4. Key Points.

4.1 Salmon were recorded in low numbers, with the majority of the spawning occurring in the lower reaches of the main river. The mean number of fry recorded at riffle sites had decreased from 27 in 1989 to 9 in 1992.

4.2 Trout were recorded throughout (mean class A), however densities were generally lower than those of the previous survey in 1989.

4.3 There was concern for the general reduction in salmonid stocks throughout the catchment and an additional survey of riffle sites will be included in the 1993 programme to monitor the fry population.



FISHERIES MONITORING PROGRAMME 1992

YSTWYTH 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	PAITH	2.4	SN 604787	0	3.3	0	D	43.6	35.4	0	A	E, L
2	CREUDDYN	2.6	SN 642755	0	0.8	0	D	41.9	4.7	0.8	B	E
3	MAGWR #	2.5	SN 672745					1.6	13.5	0.8	B	
4	TYN Y GRAIG #	2.7	SN 685710					28.0	10.6	2.3	A	E
5	YSTWYTH	8.1	SN 824754	0	0	0	E	0.3	4.0	0.5	C	
			MEAN	0	1.4	0	D	23.1	13.6	0.9	A	

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

## FISHERIES MONITORING PROGRAMME 1992

YSTWYTH CATCHMENT SUMMARY5 MINUTE FRY SITE

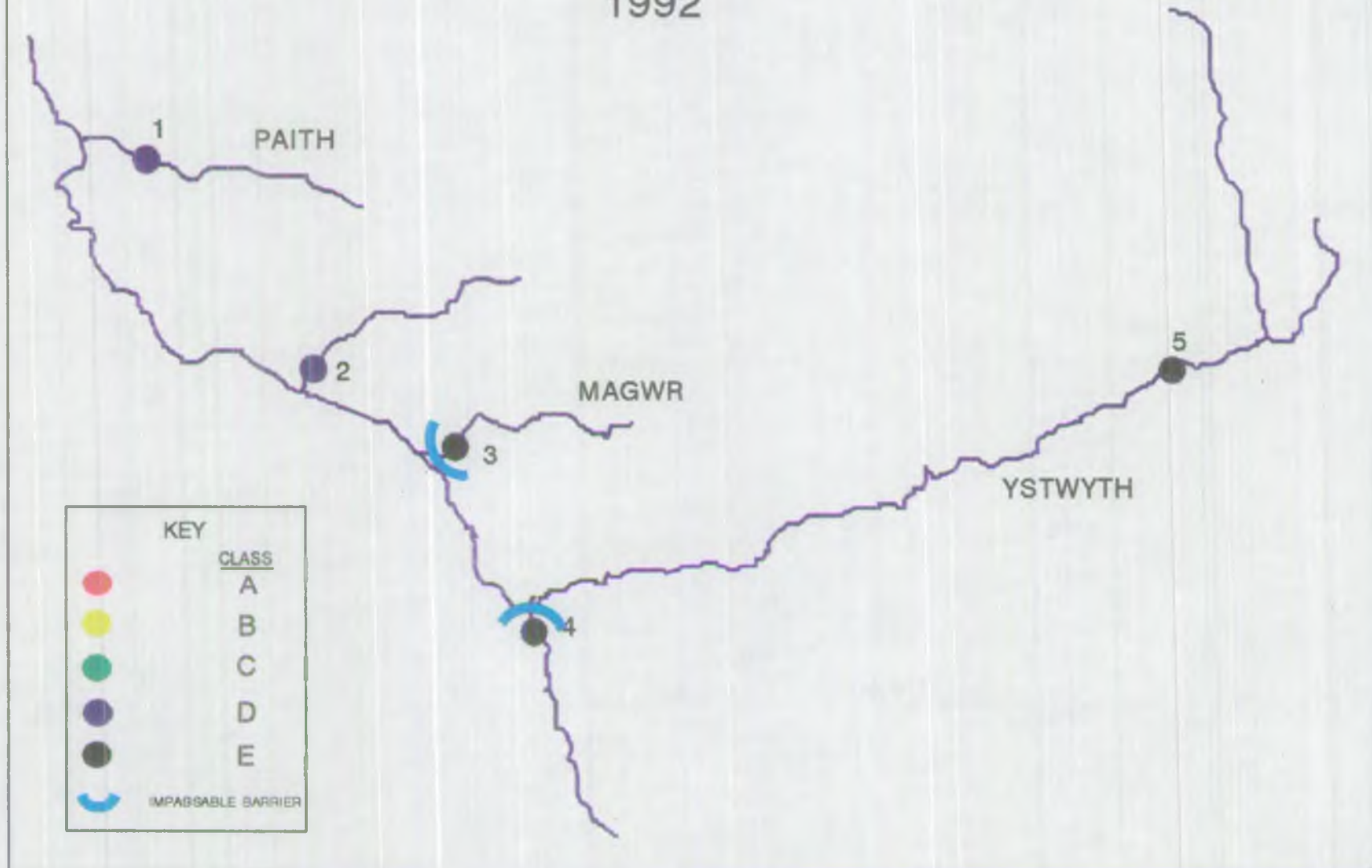
NUMBER OF FISH CAUGHT IN 5 MINUTES

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	YSTWYTH		SN 588787	20				25				
2	YSTWYTH		SN 591775	10				19				
3	YSTWYTH		SN 607756	18				19				
4	YSTWYTH		SN 618756	5				20				
5	YSTWYTH		SN 664736	0				27				
6	YSTWYTH		SN 673717	7				12				
7	YSTWYTH		SN 695716	0				12				

# PROBABLY INACCESSIBLE TO MIGRATORY FISH

\* MINIMUM ESTIMATE

# RIVER YSTWYTH SALMON DENSITIES 1992







# RIVER YSTWYTH TROUT DENSITIES 1992

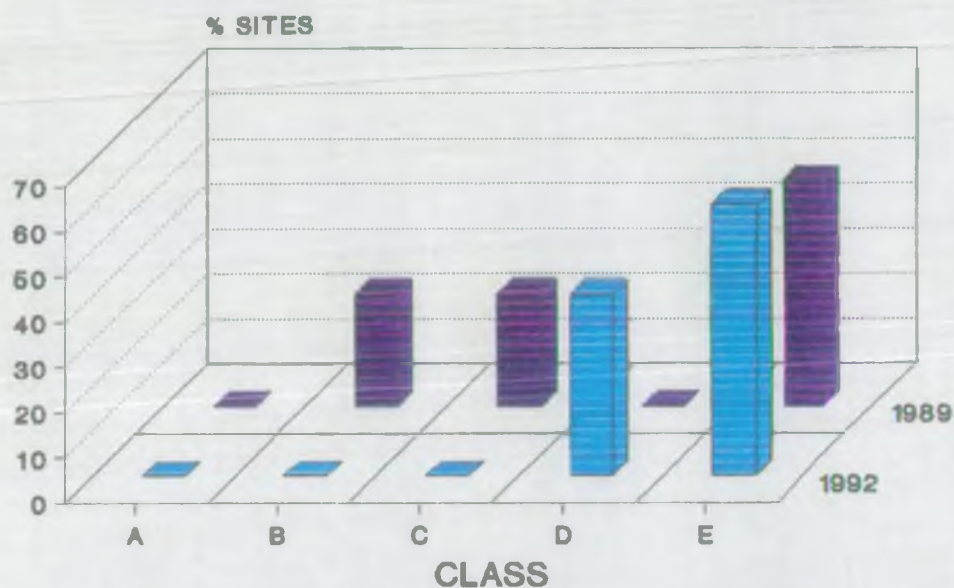






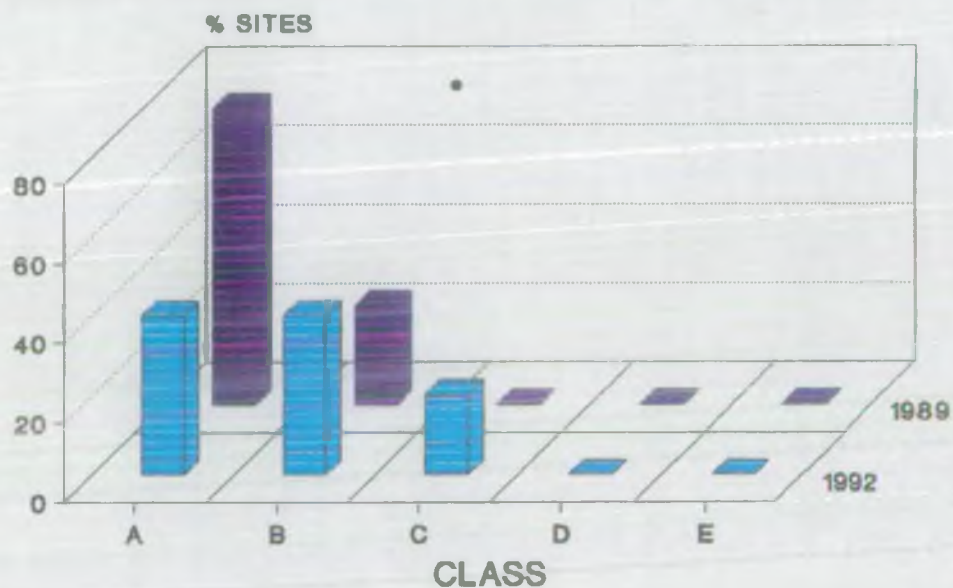
## RIVER YSTWYTH - SALMON

### % OF SITES IN EACH CATEGORY



## RIVER YSTWYTH - TROUT

### % OF SITES IN EACH CATEGORY



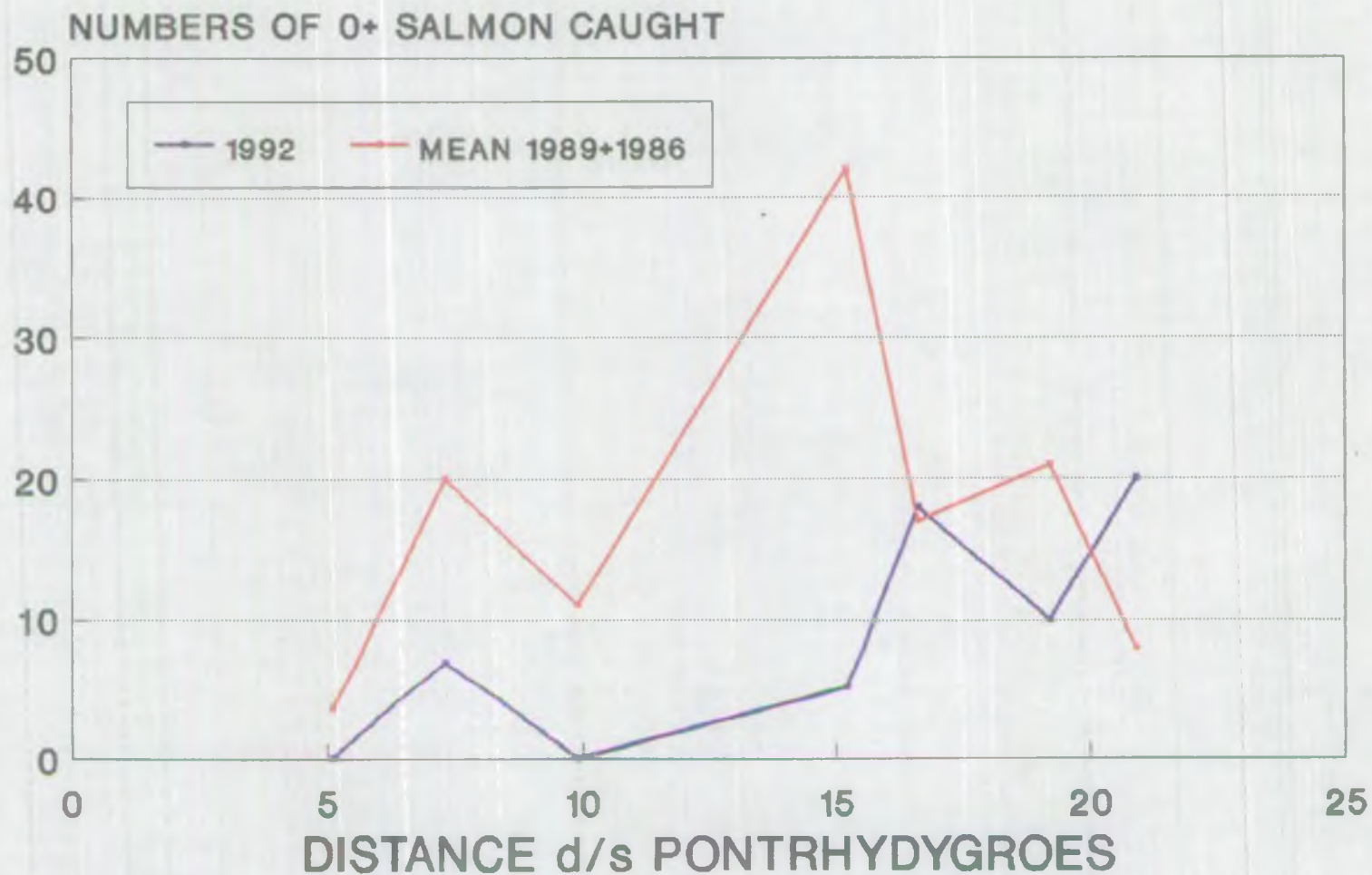
PORT 1-2 - 157-105-1020  
THE CITY - 100-10-1020

15-10-1020

15-10-1020



# RIVER YSTWYTH FIVE MINUTE SALMON FRY SITES





## APPENDIX 6

Expected and Observed JMP classes (using earliest HABSCORE data available for each site).

Habscore provides a standardised procedure for measuring and recording habitat features at a site. The data are measured in the field and recorded on a standard form. The data are then transferred to a computer spreadsheet that incorporates models predicting fish abundance from the habitat features. Catchment details (eg. catchment area) are included in the models. The models are species and age specific and produce a Habitat Quality Score (HQS) and a habitat utilisation index (HUI). The HQS is the expected fish density predicted from the habitat data and the HUI is a comparison of the observed and predicted fish densities, ie. a measure of the probability that the observed value differs from the expected value.

The expected and observed classes are expressed as combined classes using the notation "HQS class/Observed class. Results of possible interest are highlighted in two different ways:

- 1) If the observed class is 2 or more classes below the expected (HQS) class then the result is underlined.
- 2) If the Habscore results had either a significantly lower HUI for fry and/or parr the significance is indicated. The JSMP class is a composite of fry and parr densities and a deficit in either may be masked by the classification system. A significant HUI result can highlight any differences in observed and predicted age classes of fish.

A site need only be surveyed every three years unless, the site is known to have suffered some disturbance, thus minimising resources necessary for habitat surveying.

### Key to Tables

B/C - Expected (HQS) class/Observed class

     - observed class is 2 or more classes < expected

\*\*\* - HUI significant at 0.1% level for either or both 0+ & >0+

\*\* - HUI significant at 1.0% level for either or both 0+ & >0+

\* - HUI significant at 5.0% level for either or both 0+ & >0+

# - probably inaccessible to migratory salmonids

**NORTH 1. CEFNI**

Site no.	Site	1990		1991		1992	
		T	S	T	S	T	S
1	Ceint					B/C*	<u>A/E****</u>
2	Ceint					A/B	D/E*

**2. CONWY**

Site no.	Site	1990		1991		1992	
		T	S	T	S	T	S
1	Nant y Goron			<u>A/D****</u>	B/B	<u>A/D****</u>	B/B
2	Nant y Goron			<u>A/D****</u>	B/B	<u>A/D****</u>	B/C
3	Nant y Goron			A/B*	B/A	<u>A/C*</u>	B/B
4	Nant y Goron			<u>A/C****</u>	<u>B/D**</u>	A/B**	B/C
5	Nant y Goron			A/B***	B/B	A/A*	B/C
6	Nant y Goron			A/A**	<u>B/E**</u>	A/A	<u>B/E**</u>
7	Nant y Goron			A/B**	<u>B/E**</u>	A/B**	<u>B/E*</u>
8	Nant y Goron			A/B**	<u>B/E**</u>	A/B*	<u>B/E**</u>
9	Roe			B/B	B/C	B/B	B/B
10	Roe			B/C*	B/B	B/C	B/B
11	Roe			B/B*	B/B	B/B	B/B
12	Roe			<u>B/D****</u>	B/A	B/B**	B/A
13	Roe			B/B*	B/A	B/B	B/A
14	Lledr			C/D	B/C	C/D	B/C
15	Lledr			C/C	A/A	C/D	A/A
16	Lledr			C/D	B/C*	C/D**	B/B
17	Lledr			C/D**	C/D	C/D****	C/D
18	Lledr			B/C	C/B	B/C*	C/C
19	Lledr			<u>B/D*</u>	B/A	<u>B/D*</u>	B/B
20	Gwybrnant			B/A	C/D	B/B	C/D
21	Nant y Foel	A/B***		<u>A/C****</u>		<u>A/C****</u>	
22	Nant y Foel	A/A		A/B***		A/A	
23	Nant y Foel	A/B		A/B***		A/B*	



### 3. CLWYD

Site no.	Site	1990		1991		1992	
		T	S	T	S	T	S
4	Deunant					A/A	<u>A/C*</u>
14	Clywedog					B/C	A/B

### 4. DEE

Site no.	Site	1990		1991		1992	
		T	S	T	S	T	S
57	Ceirlog			C/D	C/C		

### 5. DYFI

Site no.	Site	1990		1991		1992	
		T	S	T	S	T	S
13	Cywarch					A/B	<u>A/D****</u>
14	Cerist					<u>A/C**</u>	<u>B/D**</u>

### 6. MAWDDACH

Site no.	Site	1990		1991		1992	
		T	S	T	S	T	S
25	Wen					A/A	<u>B/E**</u>
31	Wnion			<u>A/C*</u>	D/A		
33a	Wnion					B/C	B/B
33	Wnion			C/C	B/B		

### 7. OGWEN

Site no.	Site	1990		1991		1992	
		T	S	T	S	T	S
7	Bonttwr					<u>B/D**</u>	B/A

### 8. SEIONT

Site no.	Site	1990		1991		1992	
		T	S	T	S	T	S
11	Caledffrwd					B/C**	C/A

**SOUTH EAST 1. WYE**

Site no.	Site	1990		1991		1992	
		T	S	T	S	T	S
1	Dernol	C/C	B/A	C/B	B/A		
3	Llanwrthwl	C/B	C/D	C/B	C/C		
4	Ithon	D/E	<u>A/C*</u>	D/E	<u>A/C**</u>	D/E	<u>A/D**</u>
5	Clywedog	D/E**	B/B	D/D*	B/B	D/E**	B/A
7	S. Dulas	D/D**	C/B	D/D*	C/B		
8	G. Dulas	D/D***	B/A	D/D*	B/A	D/D**	B/B
10	Duhonw	C/D*	C/B	C/D**	C/A	D/C	C/B
11	Edw	D/D	A/A	D/D	A/A	D/D	A/A
13	Llynfi	D/E*	C/C	D/E*	C/D	D/E	C/B
14	Lugg	D/B	<u>C/E*</u>	D/C	<u>C/E*</u>	C/B	<u>C/E*</u>
16	Hindwell #	C/C		B/C			
17	Arrow #	C/C		C/C			
19	Monnow #	B/C**		<u>B/D**</u>		B/B	
20	Honddu #	C/C**		B/C		<u>B/D*</u>	

**2. USK**

Site no.	Site	1990		1991		1992	
		T	S	T	S	T	S
1	Usk	C/B	C/D*	C/A	C/D		
2	Hydfer	C/C	C/D	C/D*	C/C		
3	Crai			C/D	B/C*		
4	Senni	C/D**	C/B	C/D**	C/C		
5	Cilieni	C/A	B/A	C/B	B/A		
6	Bran	C/C	C/B	C/C	C/C		
7	Ysgir	C/D*	A/A	C/D*	A/A		
8	Tarrell	C/D***	C/D*	C/D***	C/D		
9	Honddu	C/C	D/D	C/C	D/D		
10	Menascin	B/A	B/B	A/B	B/A		
11	Rhiangoll	C/C	<u>B/E**</u>	C/C	<u>B/E**</u>		
13	Grwyne Fechan	B/C*	B/B	B/C	B/C		

**SOUTH WEST 1. TYWI**

Site no.	Site	1990		1991		1992	
		T	S	T	S	T	S
5	Gwilli			B/B	C/C	B/A	C/A
11	Blotweth			B/C*	C/D	B/B	C/D
18	Melindwr			B/C	D/D		
22	Dulais			B/B	D/B	B/A	D/B
25	Cennen			B/A	C/D	A/A	C/C
37	Gwenlais			B/B	B/C	C/A	B/B
38	Gwenffrwd			C/D*	<u>B/D**</u>	C/C	<u>B/D</u>

**2. TEIFI**

Site no.	Site	1990		1991		1992	
		T	S	T	S	T	S
5	Sylgen					A/A	B/C
8	Ceri					B/B	B/A
12	Bargoed					A/A	B/C**
30	Brenig					C/B	A/A
32	Groes					C/C	A/A
39	Egnant					B/B	B/B