REGIONAL JUVENILE SALMONID

MONITORING PROGRAMME

ANNUAL REPORT 1990

Ref HQ FC 91/1

FISHERIES DEPARTMENT
NATIONAL RIVERS AUTHORITY
WELSH REGION
ST. MELLONS

JUNE 1991

1. Introduction

The results from the Regional Juvenile Salmonid Monitoring Programme have been collated and published annually since its inception in 1985. The objectives of the programme are to establish a baseline of information on the status of juvenile salmonid fish stocks in all catchments within the Welsh Region and to monitor any changes in relation to natural and management based factors.

In Welsh Region there are over 50 river catchments which support salmonid populations amounting to over 20,000 km of streams of which over 7,000 km is available to migratory salmonids. In view of this large stream number and area, annual sampling at key sites is targeted at a number of major catchments with other catchments being sampled less frequently under a rolling programme. This strategy enables maximum management information to be obtained using the limited staff resources available.

The sampling methodology using electric fishing employs either a catch-depletion population estimate on an isolated, netted site; a minimum one-catch density on an un-netted open site; or an estimate of fry (0+) abundance by fishing for a period of 5 minutes on an un-netted shallow, riffle site. Each method has different levels of accuracy and staff requirements and can be utilised in an integrated sampling strategy which can vary according to the main aims of the programme and the staff resources available. Sampling is generally restricted to streams with a maximum average width of 10m, and is carried out during the period July to September.

This report presents the results obtained from surveys carried out in 1990 and assesses them in relation to historical data. The key points arising from the results are provided for each catchment and a Regional overview of the status of stocks is given.

2. Review of Results

The data for each catchment sampled is presented in the form of a catchment summary which lists key points arising from the data, tables of survey results, colour coded maps showing sites sampled and the salmon and trout classes and finally a comparison of the 1990 classes with those from previous surveys.

In 1990 a total of 20 catchments were sampled, comprising 113 quantitative sites, 284 semi-quantitative sites and 96 riffle sites. This has maintained approximately the same level of sampling as that carried out in 1989. The results from each catchment for quantitative and semi-quantitative sites are given in Tables 1 and 2 respectively.

As in 1989, 1990 was characterised by sustained low river flows during the summer months which resulted in many headwaters and small streams either drying up or being reduced significantly in area. The effects of these low flows on fish stocks are difficult to identify in isolation from the many factors which can influence fish distribution and abundance.

A comparison of mean 0+ salmon densities in 1990 compared to previous years indicates no overall decline in abundance (Figures 1 and 3). For salmon parr (>0+) at quantitative sites the majority of rivers do show a decline in mean densities compared to previous years (Figure 2) although this trend is not demonstrated at semi-quantitative sites and is therefore inconclusive.

For juvenile trout (Figures 5 to 8) the overall picture shows a decline in mean fry (0+) and parr (>0+) densities in 1990 compared to previous years. However, in general densities at individual sites are within the range recorded for previous years.

Therefore, the overall picture appears to indicate relatively stable salmon population densities in 1990 compared to previous years, though lower than the higher than average densities recorded in 1989. For trout there is some evidence of an overall decline in abundance compared to previous years, particularly 1989 which was above average. There is also evidence that trout utilise smaller tributary streams than salmon and therefore it is likely that these streams have been more severely affected by low flows than the larger watercourses.

As in previous years 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.

TABLE 1 - RESULTS FROM QUANTITATIVE SITES

RIVER SURVEYED	NUMBER OF SITES	SALMON				TROUT			
		MEAN DENSITY No/m^2			MEAN CLASS	MEAN DENSITY No/m^2			MEAN CLASS
		0+	1+	>1+		0+	1+	>1+	
OGMORE	7	0.4	0.1	0	D	39.8	17.4	11.0	A
SOLFACH	1	0.5	9.6	0	C	17.7	13.9	7.7	B
TAF	7	19.0	0.3	0	D	49.0	13.0	10.7	B
TAWE	3	4.2	1.4	0	D				
TEIFI	10	57.8	9.4	0.1	B	36.3	15.1	8.7	B
TYWI	9	13.2	5.1	0	C	39.3	11.4	4.0	B
W.CLEDDAU	2	0	0	0	E	45.5	3.3	3.6	B
RHYMNEY	1	0	0	0	E	0	0	0	E
USK	14	49.3	9.3	0.1	B	12.3	6.1	3.7	C
WYE	14	67.7	4.2	0.1	B	6.8	2.9	2.7	C
CLWYD	5	5.9	2.3	0.1	D	12.1	19.4	3.3	A
CONWY	23	46.5	5.7	0	B	25.6	9.3	1.6	B
DEE	6	57.1	13.6	0.4	B	17.6	6.4	1.8	B
DYFI	6	28.4	4.6	0.1	C	47.3	11.8	1.7	B
OGWEN	2	16.0	19.1	0	B	47.2	6.1	0.1	B
SEIONT	3	88.5	10.1	0.2	B	62.1	4.0	1.1	B

TABLE 2 RESULTS AT SEMI-QUANTITATIVE SITES

RIVER SURVEYED	NUMBER OF SITES	SALMON				TROUT			
		MEAN DENSITY No/m^2			MEAN CLASS	MEAN DENSITY No/m^2			MEAN CLASS
		0+	1+	>1+		0+	1+	>1+	
NEATH	14	0.1	0.1	0	D	7.5	5.6	3.1	C
OGMORE	14	0	0	0	E	5.6	14.1	10.8	B
SOLFACH	1	57.8	5.1	0	B	29.5	14.8	6.4	B
TAF	1	19.9	2.2	0	C	2.6	2.6	1.3	C
TEIFI	2	0	0	0	E	50.1	20.5	9.0	A
TYWI	10	7.6	6.2	0	C	16.3	6.1	5.6	B
W.CLEDDAU	30	1.0	1.0	0	D	10.9	5.2	4.3	B
RHYMNEY	13	0	0	0	E	0.9	5.0	1.4	C
THAW	8	0.3	0	0	D	0.9	0	2.2	D
USK	20	11.1	2.9	0.6	B	2.6	1.9	3.0	C
WYE	52	18.0	1.5	0	C	5.6	2.9	1.3	C
ARTRO	11	3.4	2.4	0	C	3.5	3.3	0.7	C
CLWYD	12	3.0	0.8	0	D	8.1	6.6	4.0	B
CONWY	9	8.4	1.6	0	C	13.9	5.6	1.1	B
DEE	12	17.5	4.7	0.1	B	10.3	4.1	1.6	B
DYFI	12	3.5	1.3	0.2	D	9.8	5.6	1.3	C
MAWDDACH	46	8.6	3.5	0	C	7.2	4.6	1.5	C
OGWEN	9	7.8	3.2	0	C	4.3	2.8	0.2	C
SEIONT	8	8.8	6.1	0.1	C	2.8	2.0	0.3	C

FIGURE 1

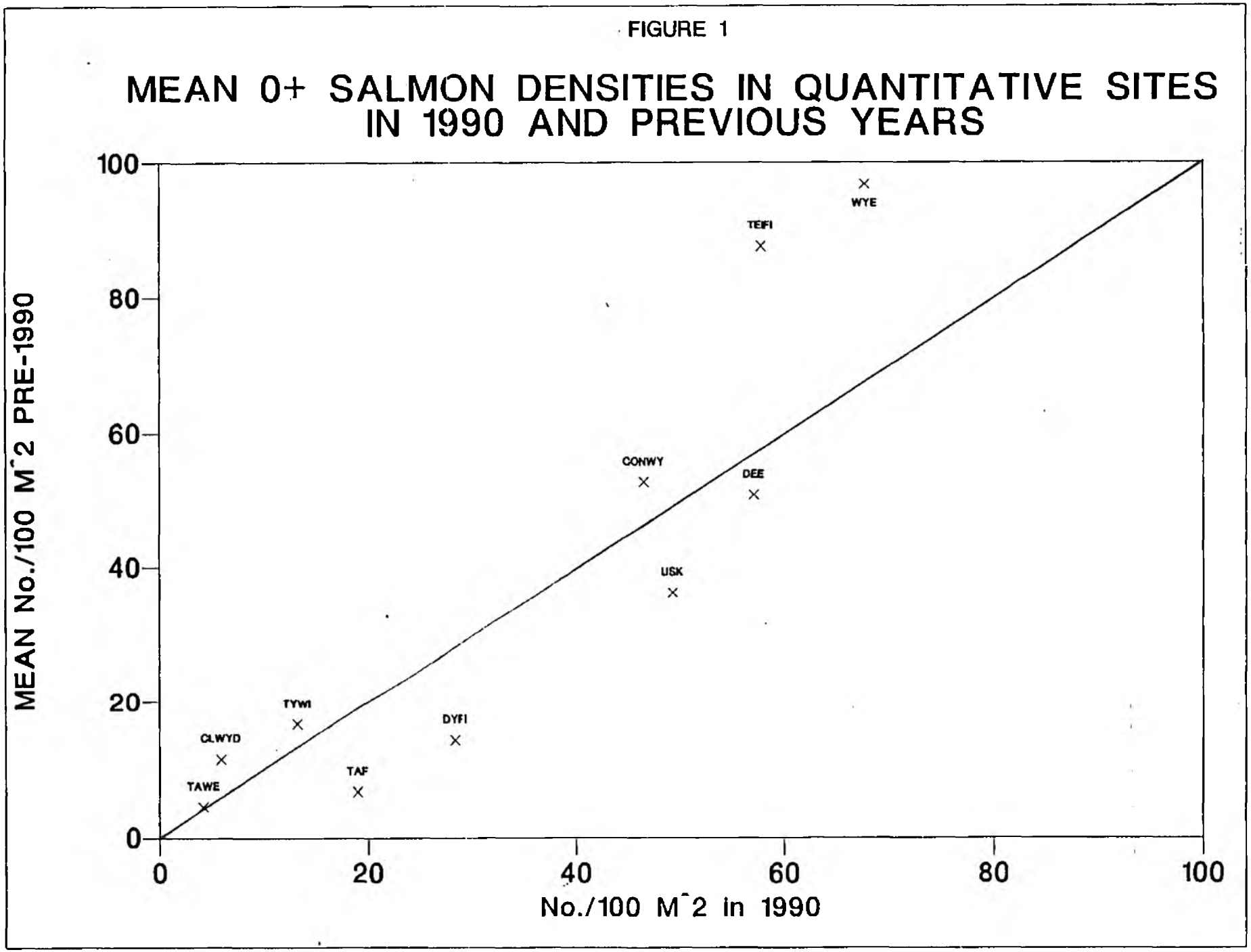

MEAN 0+ SALMON DENSITIES IN QUANTITATIVE SITES IN 1990 AND PREVIOUS YEARS
MEAN No./100 M^2 PRE-1990
No./100 M^2 in 1990
0
20
40
60
80
100
WYE
TEIFI
CONWY
DEE
USK
TYWI
DYFI
CLWYD
TAF
TAWE

FIGURE 2

MEAN >0+ SALMON DENSITIES IN QUANTITATIVE SITES IN 1990 AND PREVIOUS YEARS

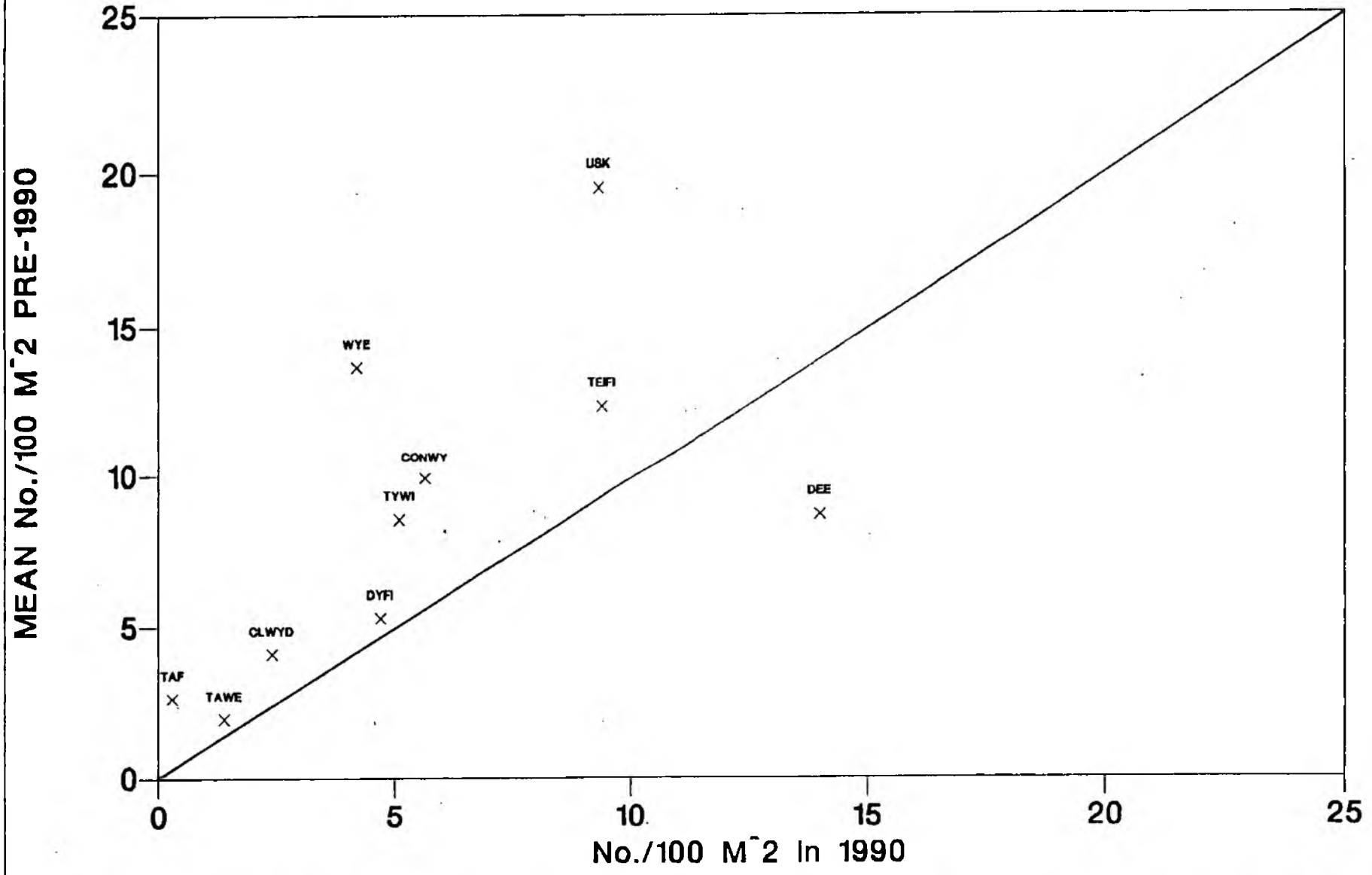


FIGURE 3

MEAN 0+ SALMON DENSITIES IN SEMI-QUANTITATIVE SITES IN 1990 AND PREVIOUS YEARS.

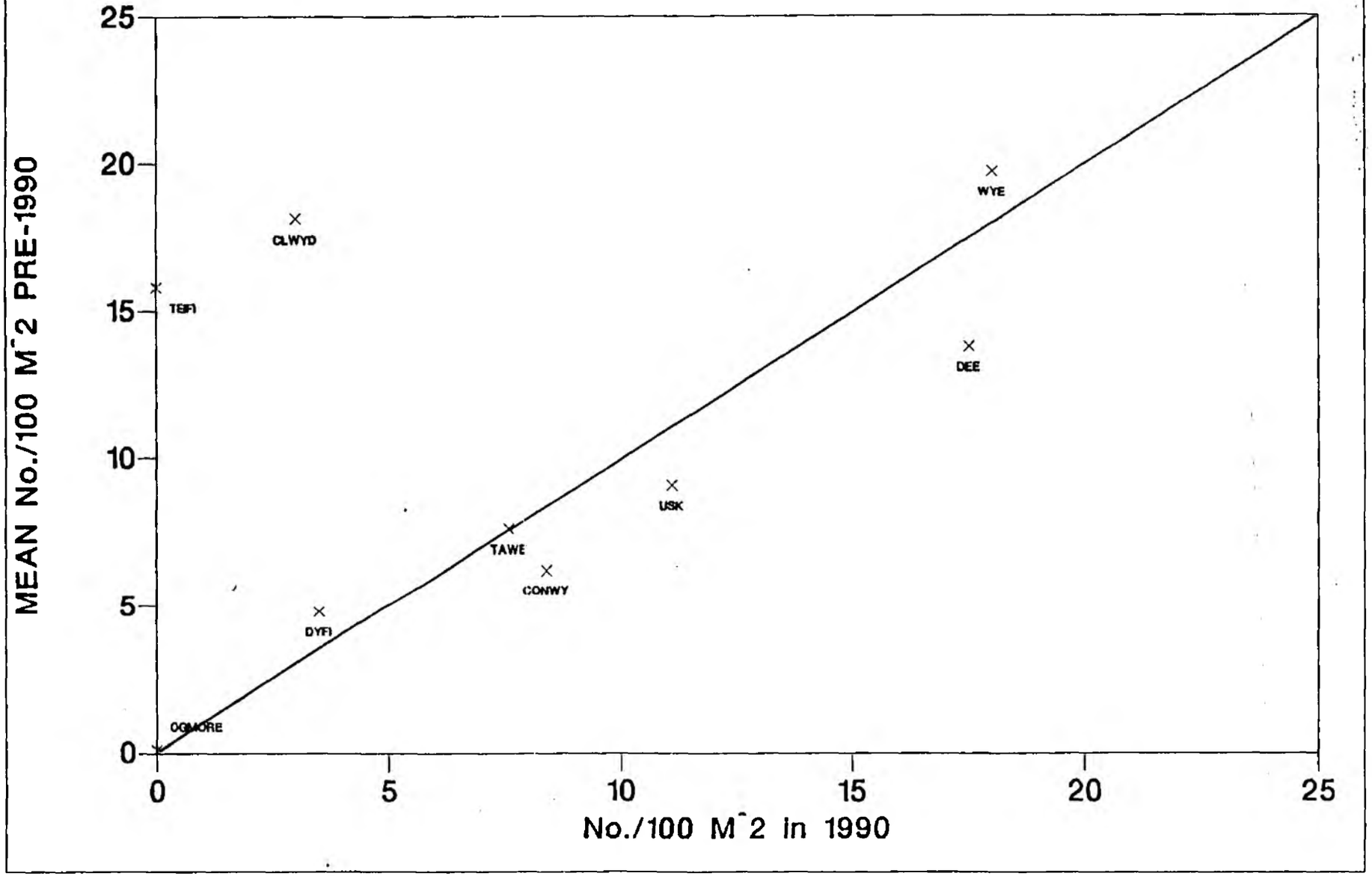


FIGURE 4

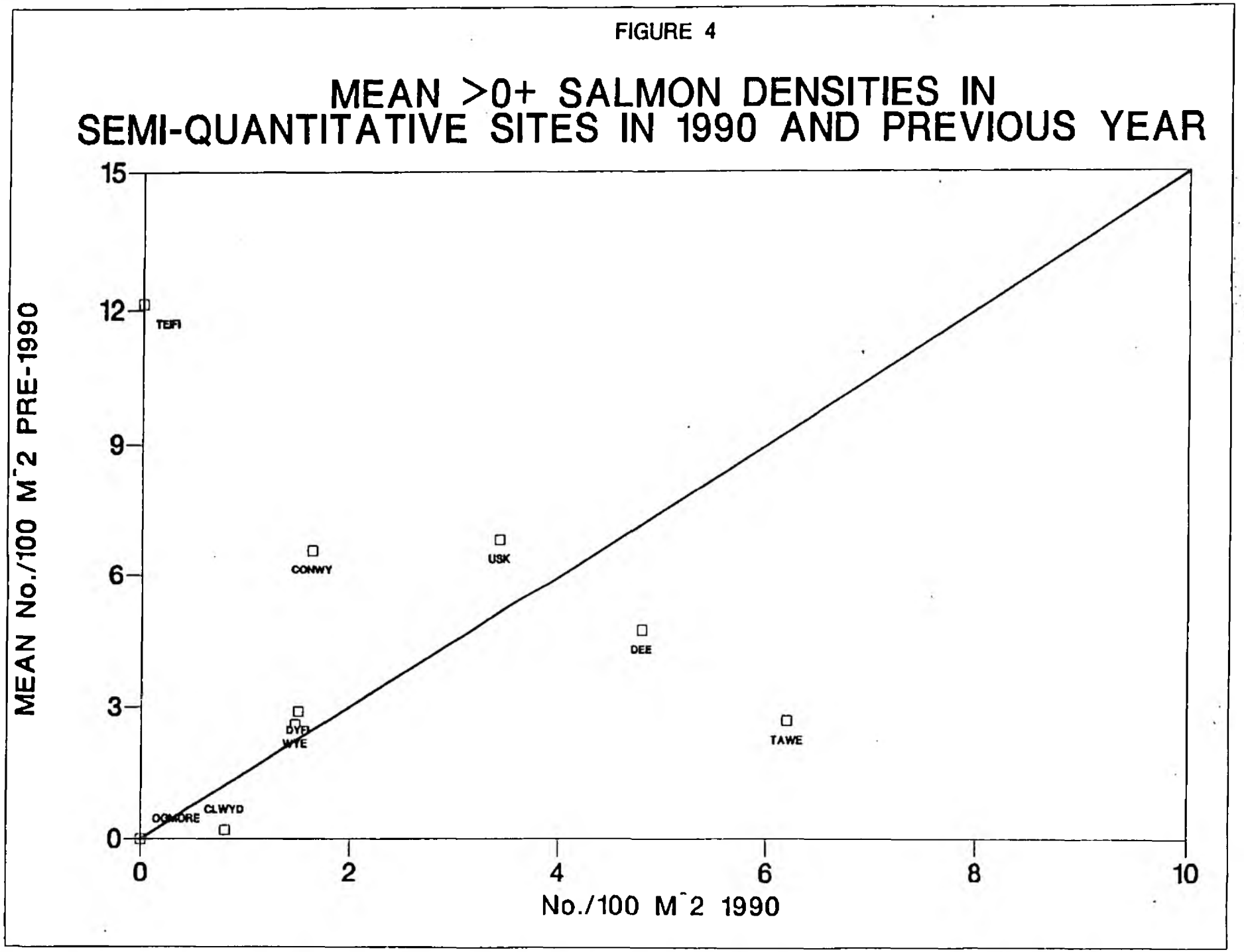

MEAN >0+ SALMON DENSITIES IN
SEMI-QUANTITATIVE SITES IN 1990 AND PREVIOUS YEAR
MEAN No./100 M^2 PRE-1990
No./100 M^2 1990
0
3
6
9
12
15
0
2
4
6
8
10
TEFI
CONWY
USK
DEE
DYFI
WYE
TAWE
CLWYD
OGMORE

FIGURE 5

MEAN 0+ TROUT DENSITIES IN QUANTITATIVE SITES IN 1990 AND PREVIOUS YEARS.

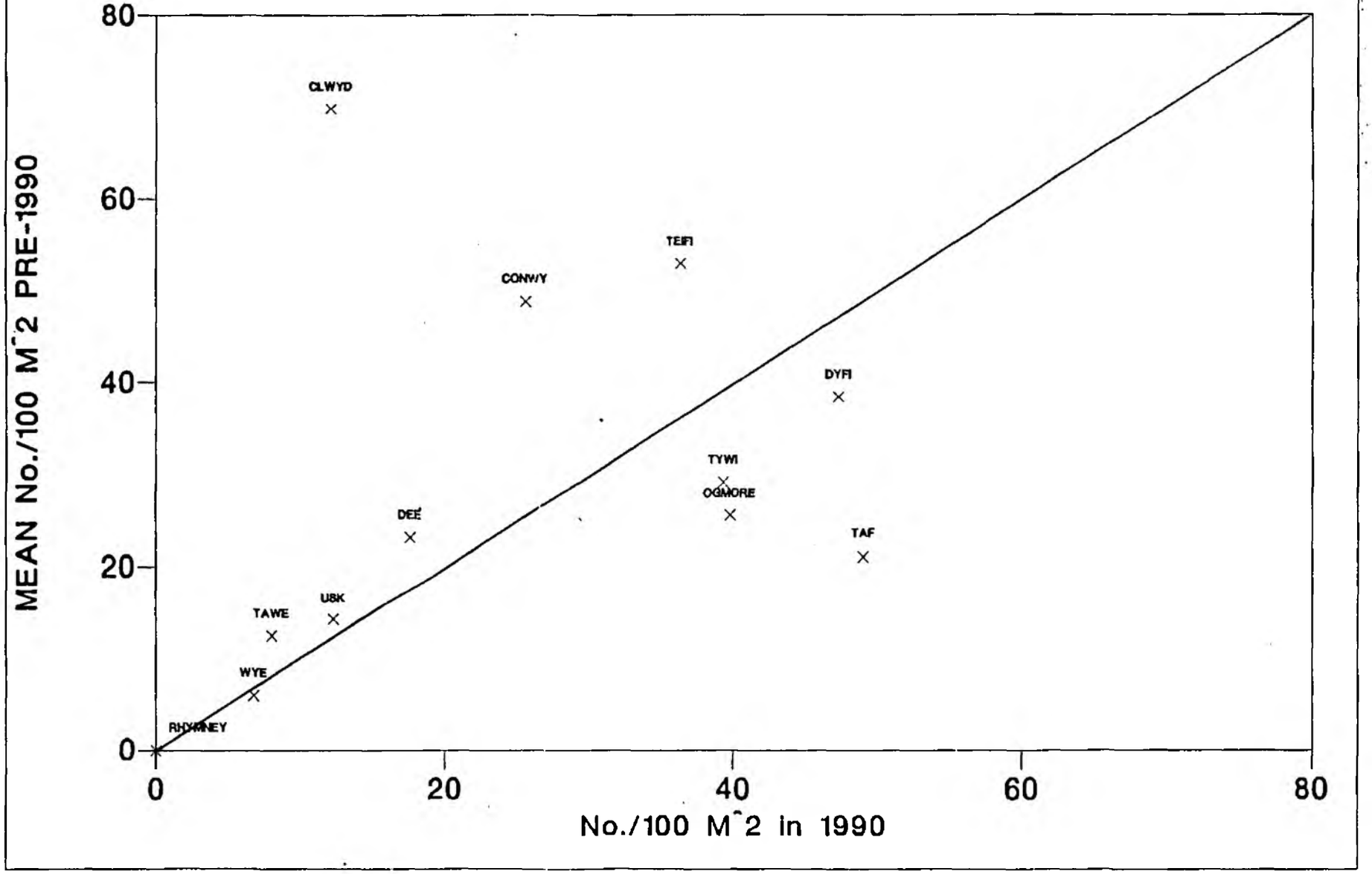


FIGURE 6

MEAN >0+ TROUT DENSITIES IN QUANTITATIVE SITES IN 1990 AND PREVIOUS YEARS

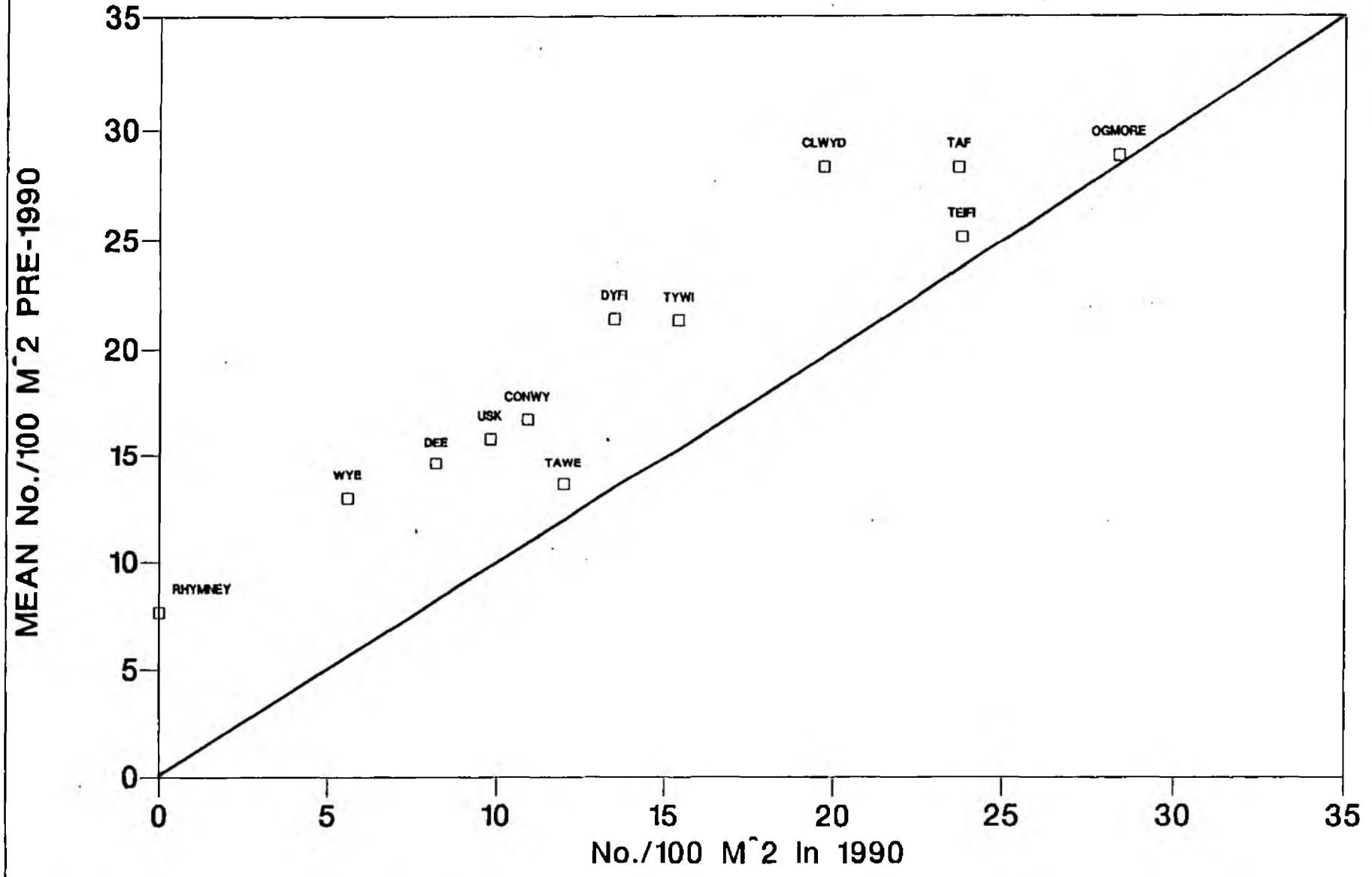


FIGURE 7

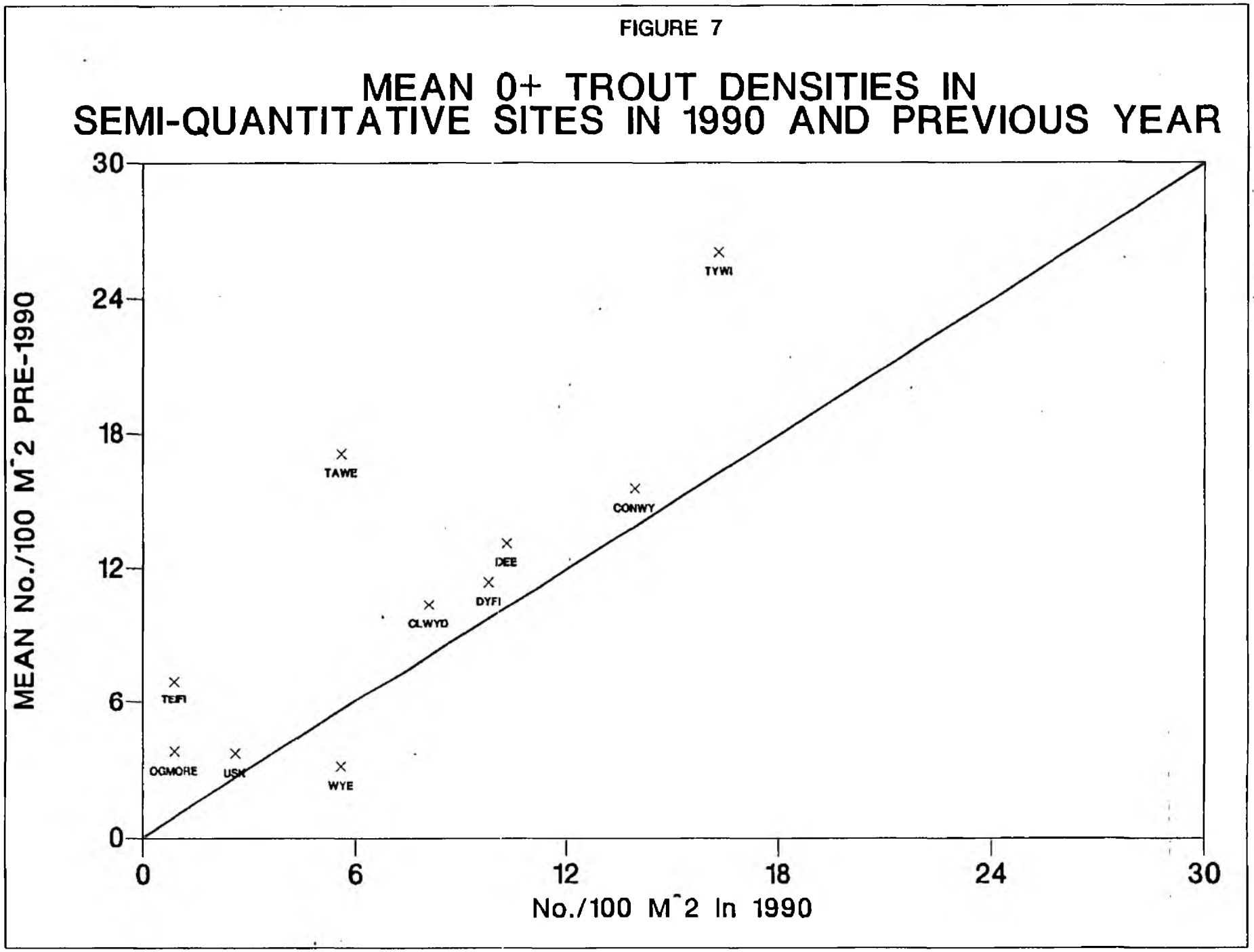
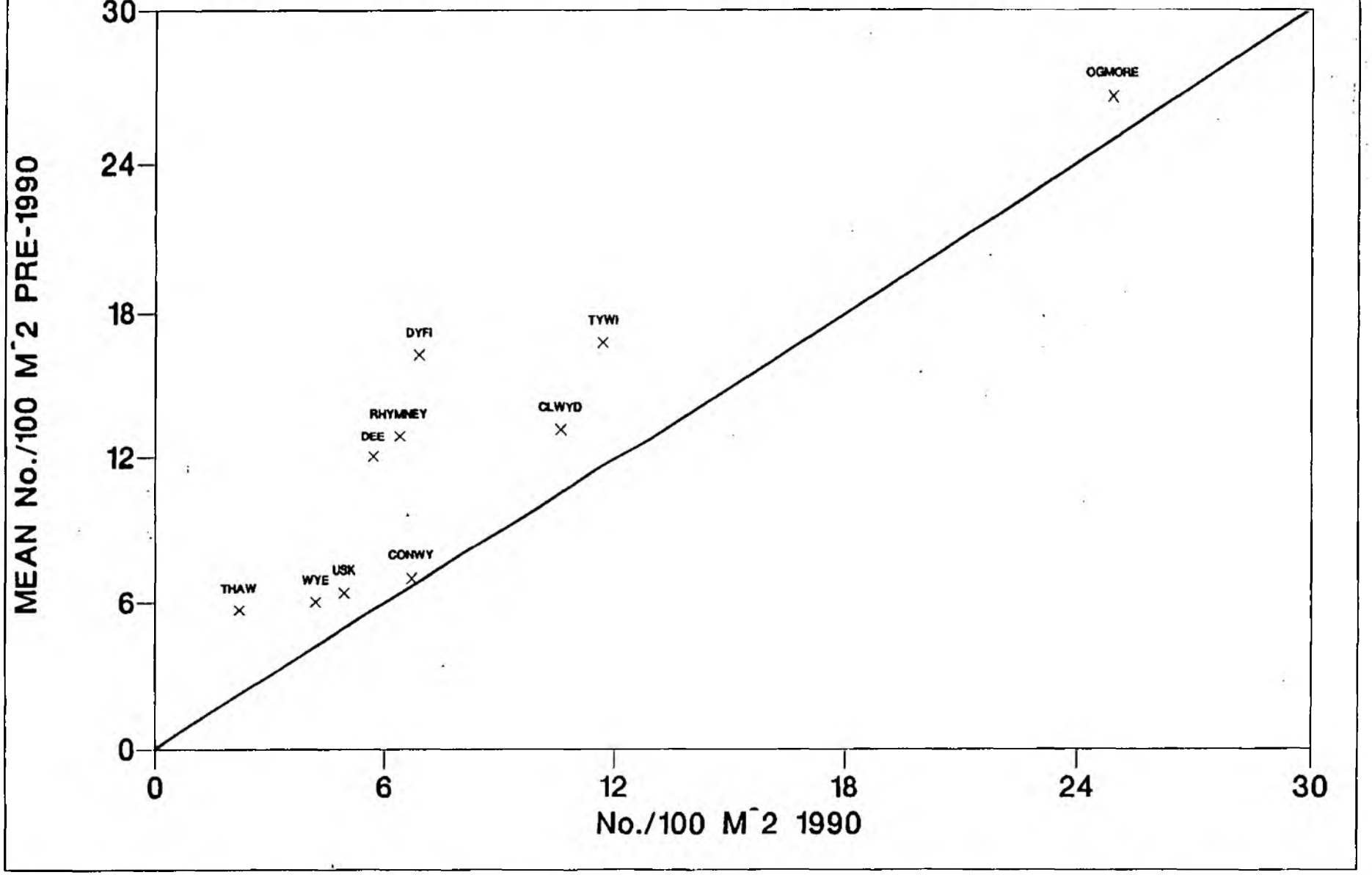

MEAN 0+ TROUT DENSITIES IN
SEMI-QUANTITATIVE SITES IN 1990 AND PREVIOUS YEAR
MEAN No./100 M^2 PRE-1990
No./100 M^2 In 1990
0
6
12
18
24
30
TYWI
TAWE
CONWY
DEE
DYFI
CLWYD
TEIFI
OGMORE
USK
WYE

FIGURE 8

MEAN >0+ TROUT DENSITIES IN SEMI-QUANTITATIVE SITES IN 1990 AND PREVIOUS YEAR



APPENDIX 1

Abundance categories (numbers 100 m^2) for juvenile salmonids.

	Quantitative		Semi-Quantitative	
	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

		Fry (0)+				
		Excellent	Good	Moderate	Poor	Absent
Parr (>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

Colour Code For Maps

Colour	Class
	A
	B
	C
	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.

RIVER ARTRO SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Upland sheep pasture and moorland, deciduous woodland borders most of river length

Water Quality - 1A

Fishery Status - Average Catch: Rods: 8 Salmon 187 Sea Trout (1984-1989)

2. Sampling Programme.

1990 - Baseline survey of 11 semi-quantitative and 4x5 minute fry sites.

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	0 (0)	1 (1)	4 (35)	3 (27)	3 (27)
Trout	0 (0)	0 (0)	8 (73)	3 (27)	0 (0)

4. Key Points.

4.1 Salmon were confined to the lower reaches of the river and one tributary (Tanws) with moderate to poor densities at all sites except one (A2).

4.2 Trout were found at all sites, generally at moderate densities. Only one site was sampled on the main spawning stream (Tanws) when water levels were very low.

4.3 Abstraction in the upper catchment (Llyn Eiddew Mawr) is suspected to cause dewatering in drought conditions which may have had some infuence on juvenile numbers.

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ARTRO 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	ARTRO	10.3	SH 588269	3.3	5.1	0	C	1.8	1.0	0.3	D	E
2	ARTRO	7.3	SH 601273	7.9	11.9	0	B	2.4	2.4	1.2	C	E
3	ARTRO	8.1	SH 605279	4.9	0.6	0	D	1.1	1.4	2.2	C	E
4	TANWS	4.6	SH 609284	13.0	1.5	0	C	8.0	0	1.5	D	E
8	ARTRO	5.5	SH 616289	7.4	3.5	0	C	8.2	3.9	0.4	C	E
11	ARTRO	6.5	SH 622299	0.8	2.3	0	C	1.5	4.6	0.4	C	E
12	ARTRO	6.5	SH 625304	0.4	1.1	0	D	0.7	3.9	0	C	E
13	ARTRO	4.0	SH 629313	0	0.6	0	D	0	3.3	0	D	E
14	EIDDEW MAWR	4.1	SH 633313	0	0	0	E	5.0	3.8	0	C	E
15	ARTRO	2.8	SH 636313	0	0	0	E	0.8	4.0	0.8	C	E
16	ARTRO	4.7	SH 646314	0	0	0	E	9.0	7.6	1.0	C	E
			MEAN	3.4	2.4	0	C	3.5	3.3	0.7	C	

\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

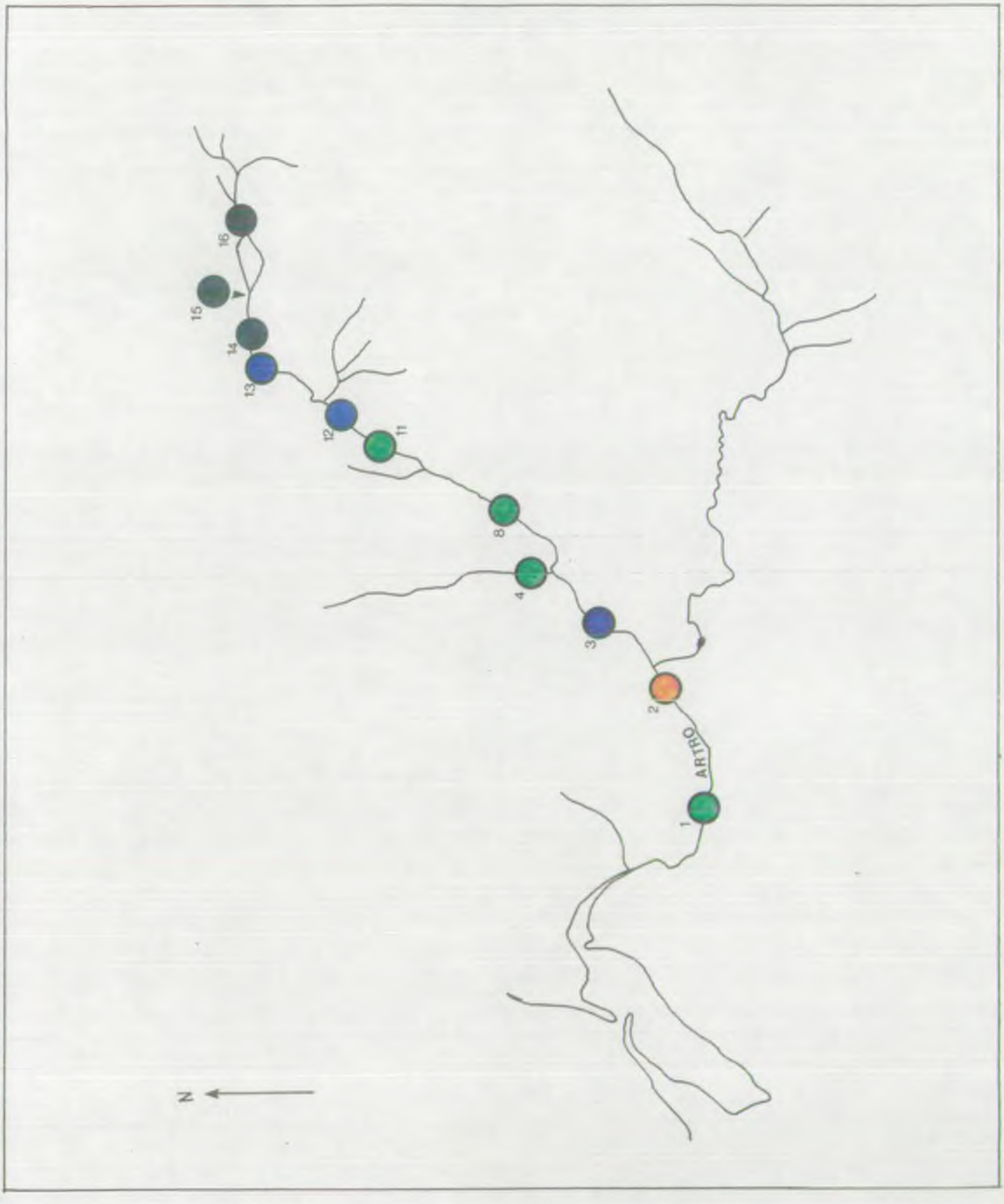
ARTRO CATCHMENT SUMMARY — 5 MINUTE FRY SITES

NUMBER OF FISH PER 100M 2

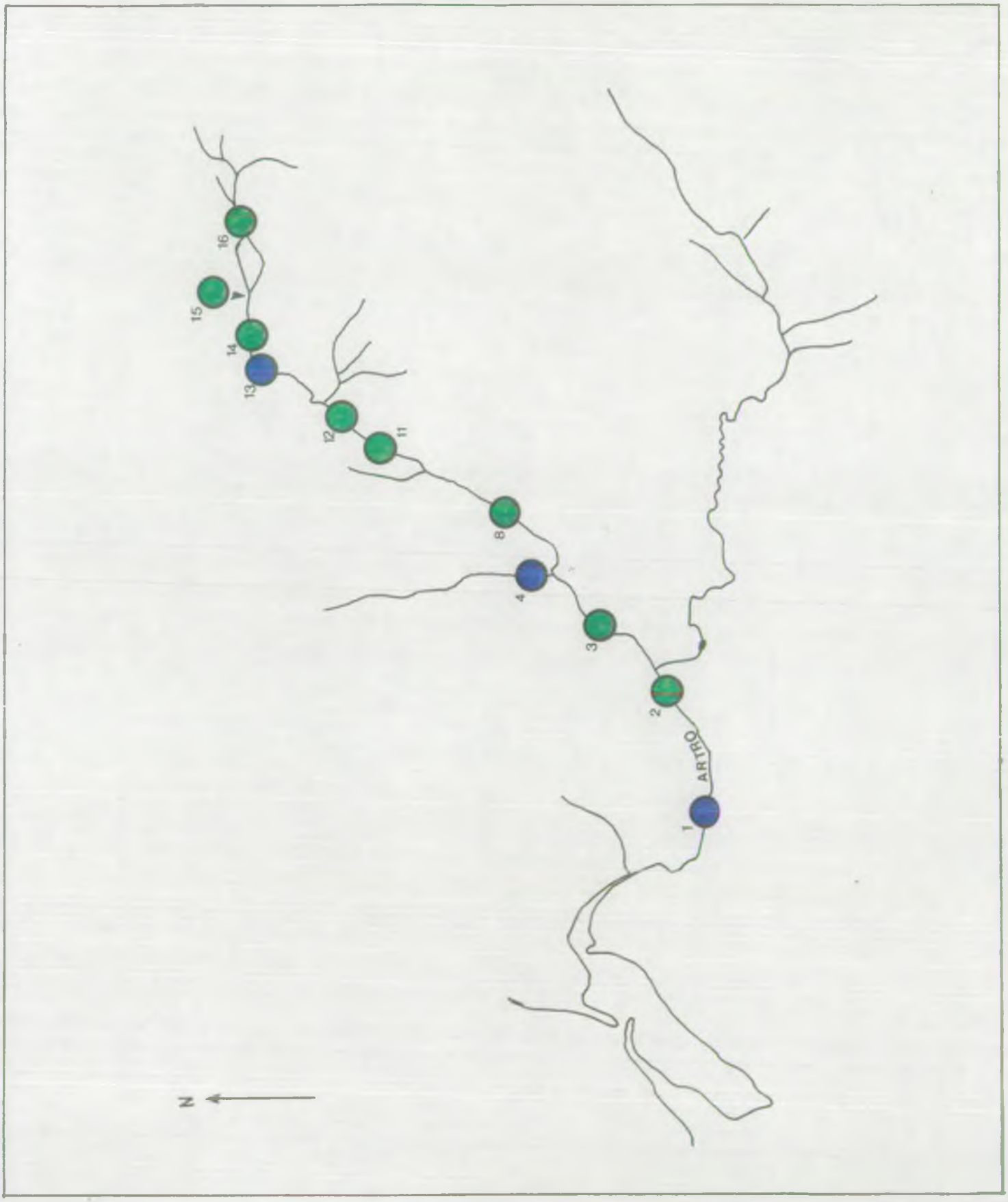
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
5	ARTRO		SH 612282	4	0	0		5	3	0		E
6	ARTRO		SH 613283	9	0	0		2	1	0		E
7	ARTRO		SH 615287	8	2	0		5	1	0		E
9	ARTRO		SH 617290	5	6	0		3	1	1		E
			MEAN	6.5	2.0	0		3.75	1.5	0.25		

\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

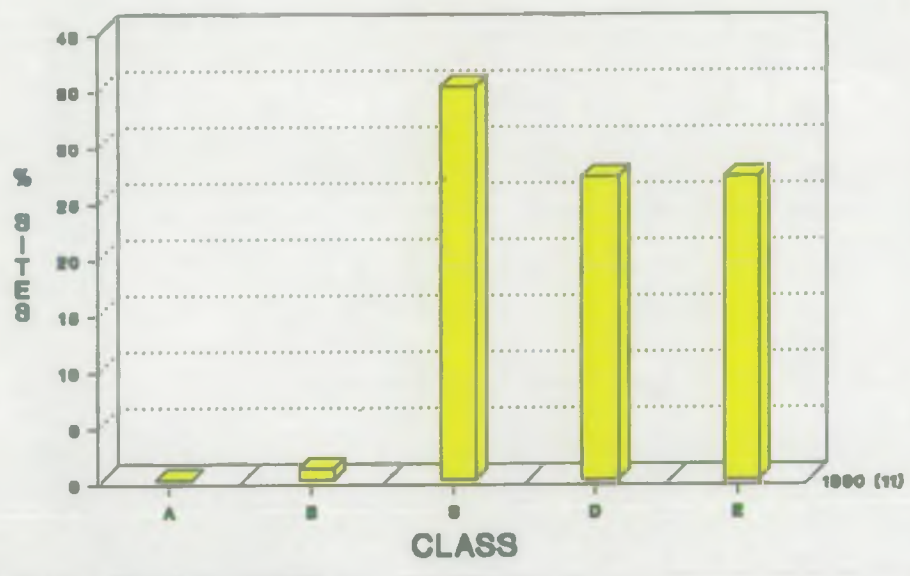
1990 SURVEY
RIVER ARTRO - SALMON DENSITIES.



1990 SURVEY
RIVER ARTRO - TROUT DENSITIES.

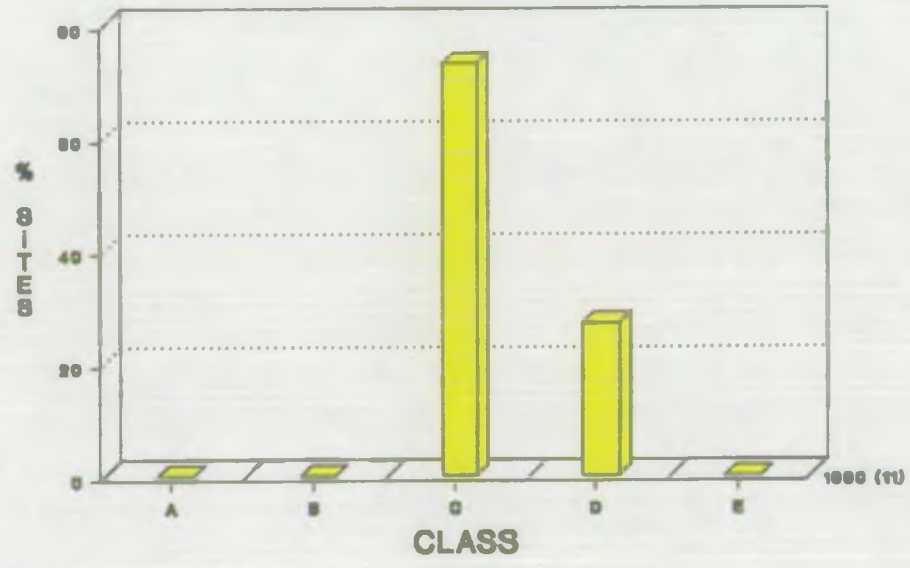


RIVER ARTRO - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER ARTRO - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER CLWYD SUMMARY.

1. Catchment and Fishery Characteristics.

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

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

Fishery Status - Average Catch (1984 - 1989) : Rods: 165 Salmon 1343 Sea Trout
Nets: 257 Salmon 857 Sea Trout

2. Sampling Programme.

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

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	0 (0)	1 (6)	2 (12)	7 (41)	7 (41)
Trout	2 (12)	2 (12)	6 (35)	7 (41)	0 (0)

4. Key Points.

4.1 A decline in salmon fry densities reduced the proportion of class A-C sites from 38% in 1989 to 15% in 1990. Salmon were also absent from 7 unstocked sites in 1990 compared to 4 in 1989.

4.2 Fry densities in the main spawning areas declined by up to 72% (CL14), whereas parr numbers remained relatively unchanged.

4.3 Trout fry densities both above and below impassable falls were severely depleted with class A sites reduced by a third and class B sites by a half. Many sites showed a decline in numbers of greater than 75%, whereas parr numbers were only slightly reduced.

4.4 5 minute fry sampling at 5 main river Elwys and 4 Clwyd sites gave poor to moderate salmon and poor trout densities.

4.5 Unusually high flows in February causing washout of redds was the suspected cause of the decline in salmonid fry numbers.

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CLWYD CATCHMENT SUMMARY — QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
4	DEUNANT	4.2	SH 957671	0	2.8	0	D	8.2	12.6	1.8	C	E,B,L
5	DEUNANT	3.0	SH 957671	0	0	0	E	12.8	78.1	13.4	B	
6	ELWY	7.0	SH 878673	2.3	1.1	0	D	0.8	0	0.3	D	E,B,L,M
9	CLWYD	5.9	SJ 122548	0	2.4	0.3	D	17.1	0.7	0	D	E,B
14	CLYWEDOG	5.7	SJ 108602	27.3	5.0	0	B	21.7	5.4	0.8	C	E,B,L
			MEAN	5.9	2.3	0.1	D	12.1	19.4	3.3	A	

\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

CLWYD 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	ALED	8.5	SH 955705	18.0	1.3	0	C	0.5	0	0	D	E,B
2	ALED	5.5	SH 956674	7.7	1.2	0	D	1.2	0.8	0	D	E,B
3	ALED	7.0	SH 938644	4.2	2.8	0	C	0.6	0.6	0.3	D	E,B
7	ELWY	5.5	SH 878617	0	0	0	E	3.9	0.6	0	D	E,B
7A	ELWY	4.2	SH 874604	0.5	0	0	D	13.2	1.5	0	C	E,B
10	CLWYD	4.4	SJ 096509	0	0	0	E	3.4	2.8	1.7	C	E,B,L
11	CLWYD	3.8	SJ 040490	0	0	0	E	3.0	6.6	2.5	C	E,B
12	YSTRAD	5.7	SJ 068657	0	0.7	0	D	2.9	1.1	1.4	C	E,B
13	YSTRAD	3.5	SJ 008618	0	0	0	E	0.3	7.0	2.7	D	E,B,L
15	CLYWEDOG	2.0	SJ 083568	0	2.2	0	D	54.4	23.9	6.5	A	E
16	CLYWEDOG #	3.3	SJ 057580	0	0	0	E	2.2	14.3	13.2	B	E
17	CLYWEDOG #	2.2	SJ 044581	0	0	0	E	11.8	20.0	19.1	A	E
			MEAN	3.0	0.8	0	D	8.1	6.6	4.0	B	

\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

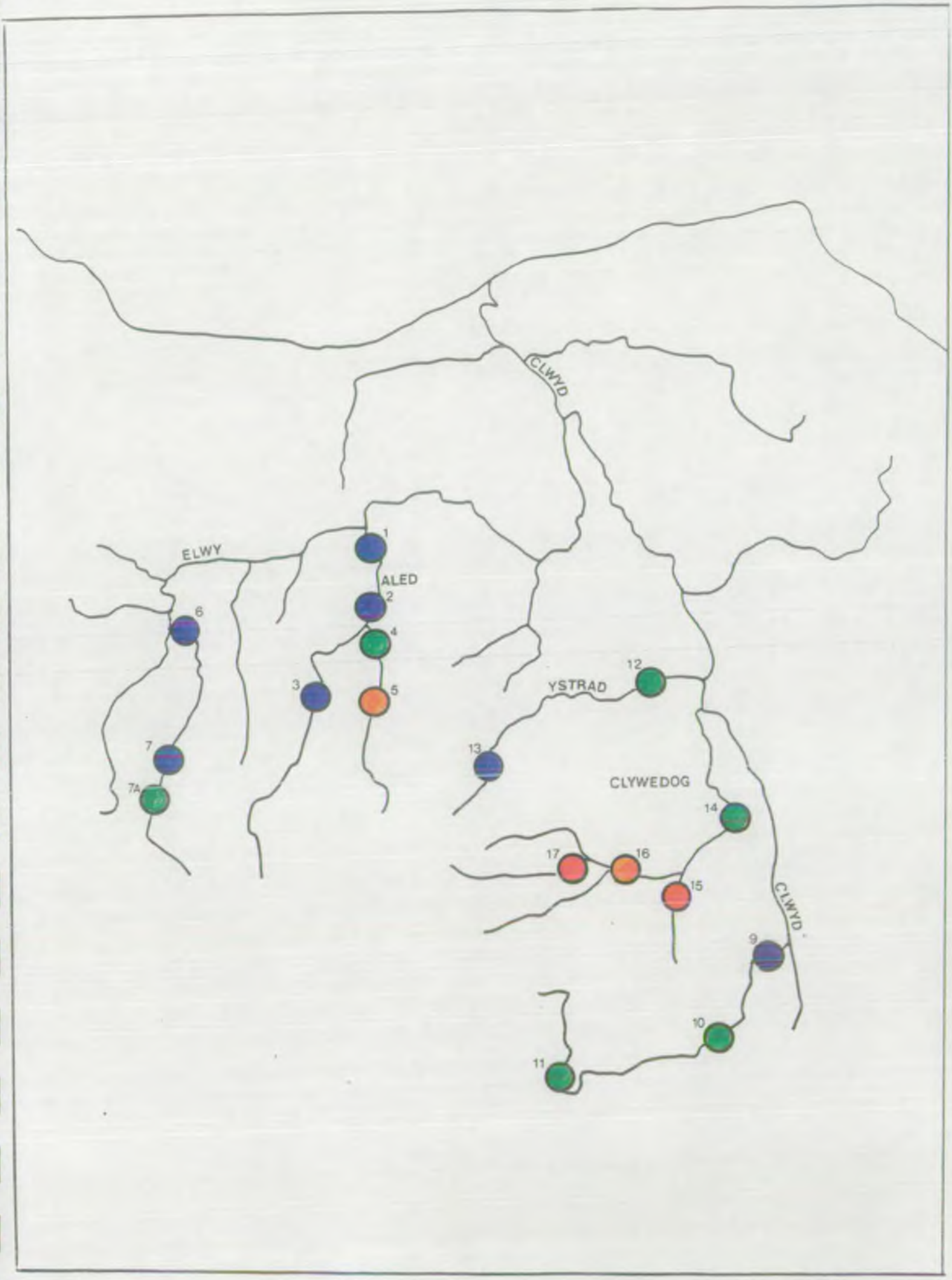
FISHERIES MONITORING PROGRAMME

CLWYD CATCHMENT SUMMARY — 5 MINUTE FRY SITES

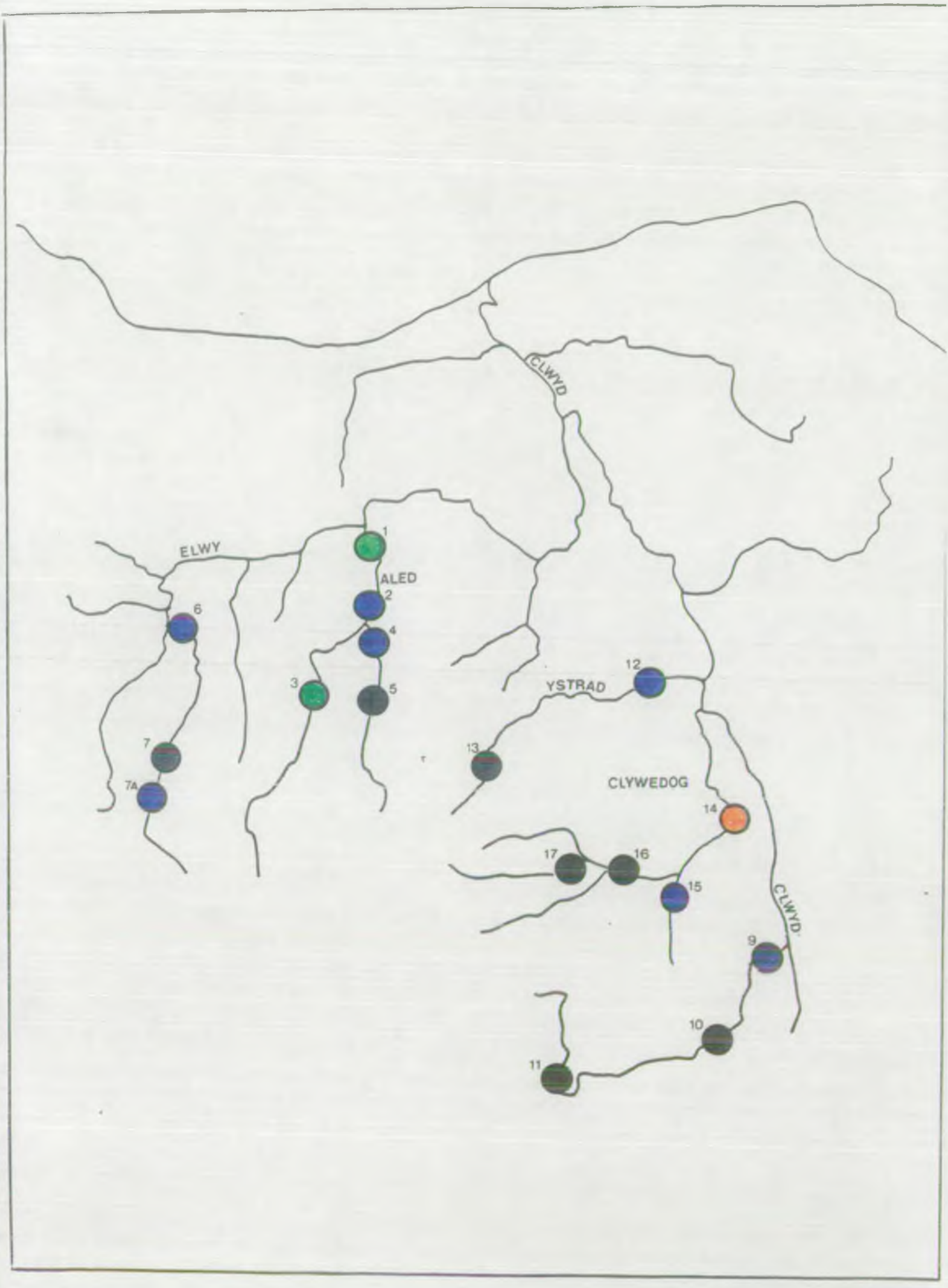
NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
9A	CLWYD		SJ 128554	7	0	0		11	0	0		E,B
9B	CLWYD		SJ 122593	0	0	0		0	0	0		
9C	CLWYD		SJ 104632	0	0	0		7	0	0		
9D	CLWYD		SJ 091659	20	0	0		0	0	0		
21	ELWY		SJ 929703	5	0	0		0	0	0	E,B,L,M	
27	ELWY		SJ 041729	1	0	0		1	0	0	E,B	
28	ELWY		SJ 032710	24	0	0		4	0	0	E,B,L	
29	ELWY		SH 996725	4	3	0		2	0	0		
30	ELWY		SH 953720	14	0	0		2	0	0	E,B,L	
44	CLYWEDOG		SJ 095634	17	0	0		1	0	0		
45	CLYWEDOG		SJ 104632	0	2	0		7	0	0		
			MEAN	8.36	0.45	0		3.18	0	0		

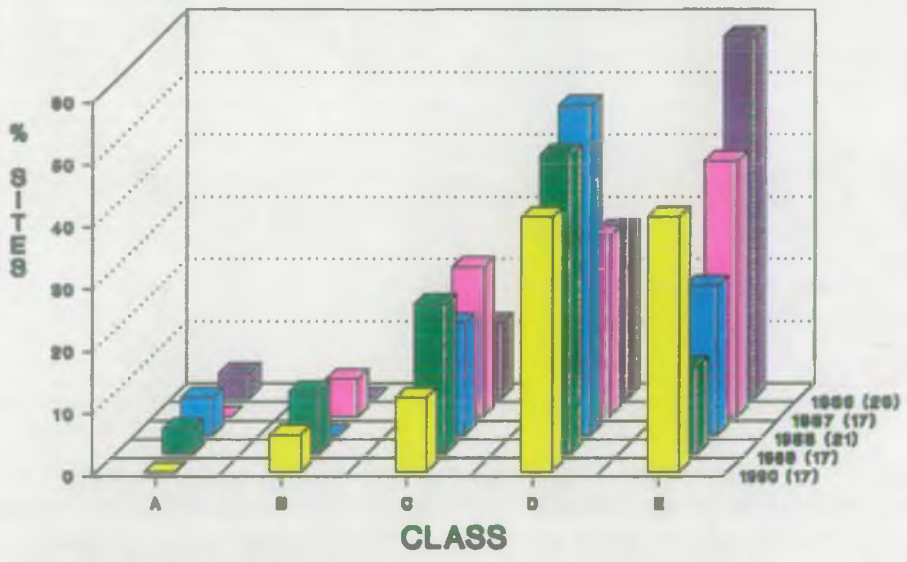
1990 SURVEY
RIVER CLWYD - TROUT DENSITIES.



1990 SURVEY
RIVER CLWYD - SALMON DENSITIES.

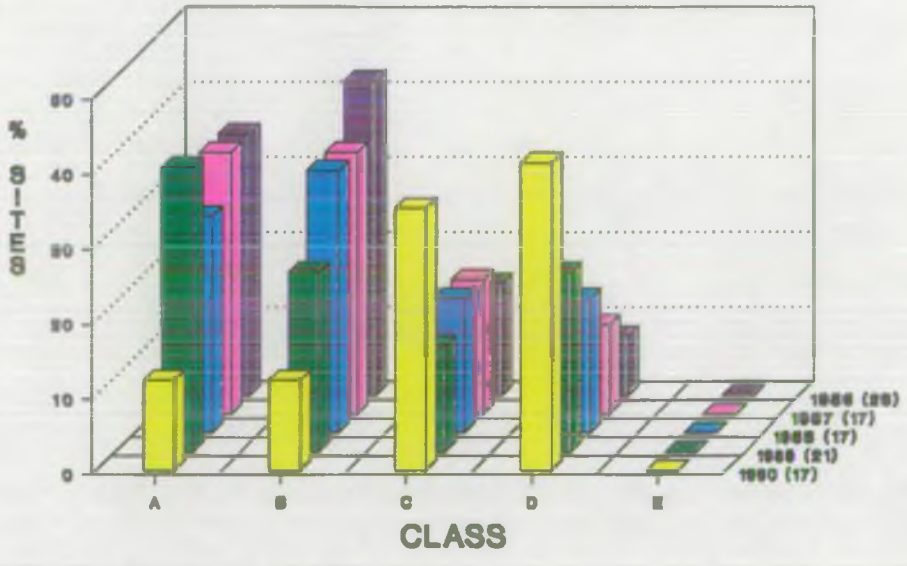


RIVER CLWYD - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER CLWYD - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER CONWY SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Predominately 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: 446 Salmon 454 Sea Trout
(1984 - 1989) Nets: 175 Salmon 107 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.

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	3 (9)	7 (22)	6 (19)	7 (22)	9 (28)
Trout	3 (9)	7 (22)	6 (19)	16 (50)	0 (0)

4. Key Points.

4.1 0+ trout densities were generally within the range of densities seen in previous years (in comparison with 5 to 8 years data for most sites) except for the Nant y Goron where populations were severely reduced, with lowest ever densities at 5 out of 8 sites. >0+ densities were low at virtually all sites compared to previous years'data. The Nant y Goron and Roe had particularly low >0+ densities.

4.2 0+ salmon densities remained generally high except for the Nant y Goron which had its lowest ever mean density (compared to 5 years'previous data). >0+ salmon densities were below running means at most sites with the Nant y Goron and Roe again especially poor.

4.3 The severe drought during 1990 may have affected salmonid populations in some parts of the Conwy catchment. (The Nant y Goron in particular experienced prolonged periods of very low water levels).

4.4 Salmon and Sea Trout were stocked in the main A.Conwy and in tributaries above and below the Conwy Falls during 1990 and previous years.

4.5 1991 is the last full year for which the Welsh Office is due to fund the Conwy Fisheries Monitoring Programme.

4.6 The proposed Conwy estuary barrage scheme will clearly require monitoring of any impact upon fish stocks in the river and estuary, although the responsibility for such monitoring has not yet been resolved.

FISHERIES MONITORING PROGRAMME

CONWY 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	
1	NANT Y GORON	2.32	SH 803609	25.95	2.16	0	C	9.48	0	0	D	E,St
2	NANT Y GORON	2.97	SH 806608	25.59	3.37	0	C	5.39	2.02	1.35	D	E
3	NANT Y GORON	4.67	SH 809609	11.13	3.43	0	D	9.42	3.0	0.43	D	E
4	NANT Y GORON	2.97	SH 813607	4.71	0	0	D	14.14	2.02	0	D	E
5	NANT Y GORON	2.57	SH 814606	16.34	0	0	D	17.12	6.23	0	C	
6	NANT Y GORON	1.85	SH 817602	0	0	0	E	98.38	10.81	0	B	E
7	NANT Y GORON	2.1	SH 817598	0	0	0	E	31.43	16.19	0.95	B	
8	NANT Y GORON	1.65	SH 818595	0	0	0	E	23.03	16.97	4.85	B	E
9	ROE	3.78	SH 771697	23.28	2.65	0	D	37.57	3.7	0	C	E
10	ROE	3.33	SH 768699	52.85	6.01	0	B	37.84	0	0	D	E
11	ROE	3.72	SH 767702	171.5	17.74	0	A	79.03	0.54	1.1	B	
12	ROE	4.43	SH 767703	90.74	5.42	0	B	29.8	1.35	0	C	E
13	ROE	4.98	SH 768708	193.6	22.89	0	A	82.73	2.01	0	B	E,Fl
14	LLEDR	4.93	SH 792539	27.99	19.47	0	B	6.90	2.43	0	D	
15	LLEDR	5.57	SH 744524	191.7	12.57	0	A	22.62	1.08	0.72	D	E,M
16	LLEDR	6.00	SH 725521	93.0	4.0	0	B	6.33	0.33	0.33	D	E,M
17	LLEDR	7.20	SH 710517	39.72	1.94		C	8.89	2.78	0	D	E,M
18	LLEDR	5.37	SH 699516	17.13	12.66	0	C	7.82	3.35	0.75	D	E,M
19	LLEDR	6.00	SH 697513	79.67	14.0	0	B	13.33	1.67	0	D	
20	GWYBRNANT	2.28	SH 781535	5.26	1.75	0	D	20.18	13.16	7.02	C	E
21	NANT Y FOEL #	1.52	SH 872519	0	0	0	E	3.95	44.74	9.21	B	
22	NANT Y FOEL #	1.50	SH 869528	0	0	0	E	29.33	40.0	8.0	A	
23	NANT Y FOEL #	2.40	SH 870528	0	0	0	E	20.83	40.0	2.5	B	
			MEAN	46.53	5.65	0	B	25.55	9.32	1.61	B	

\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

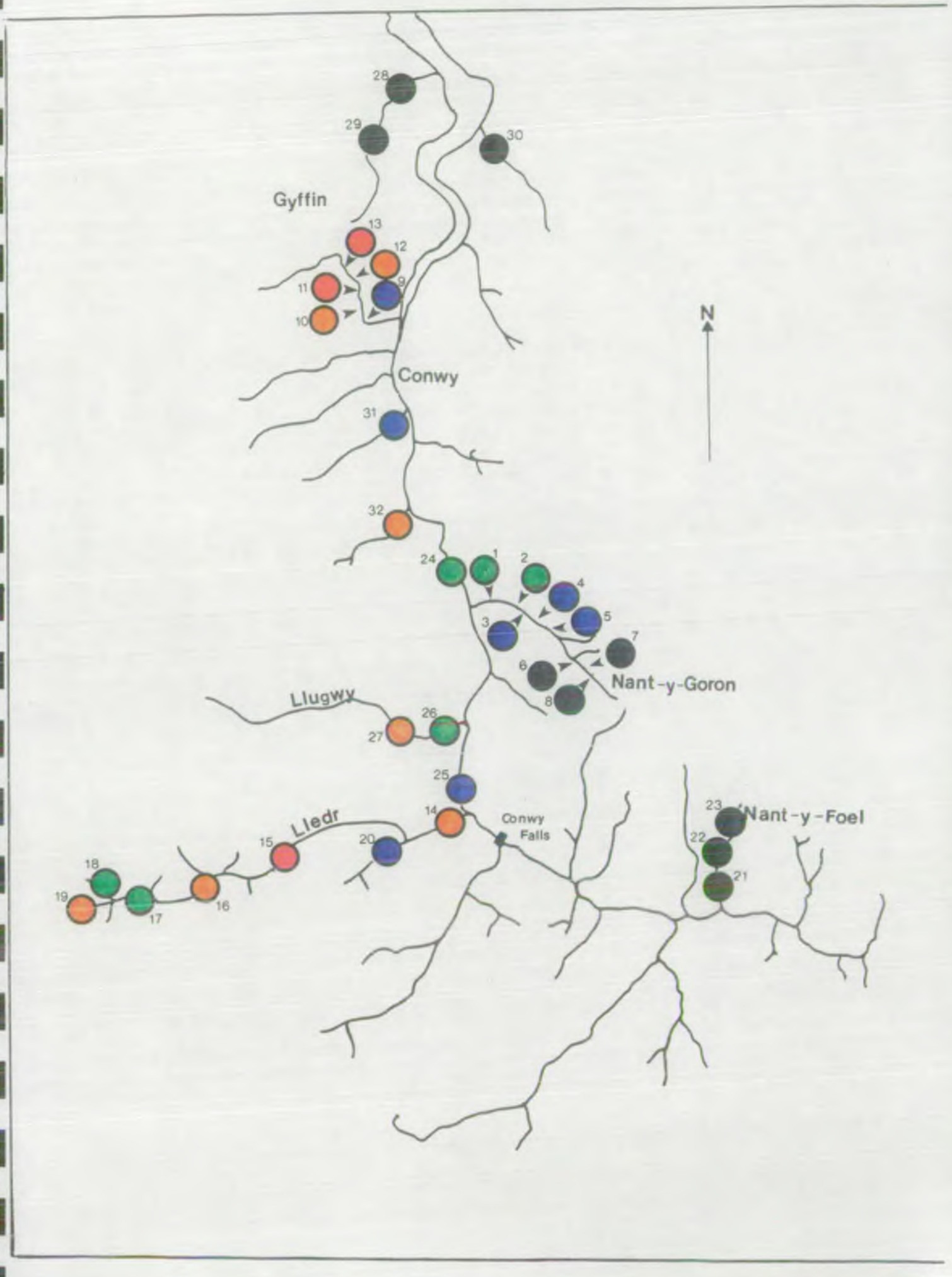
CONWY CATCHMENT SUMMARY — SEMI-QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

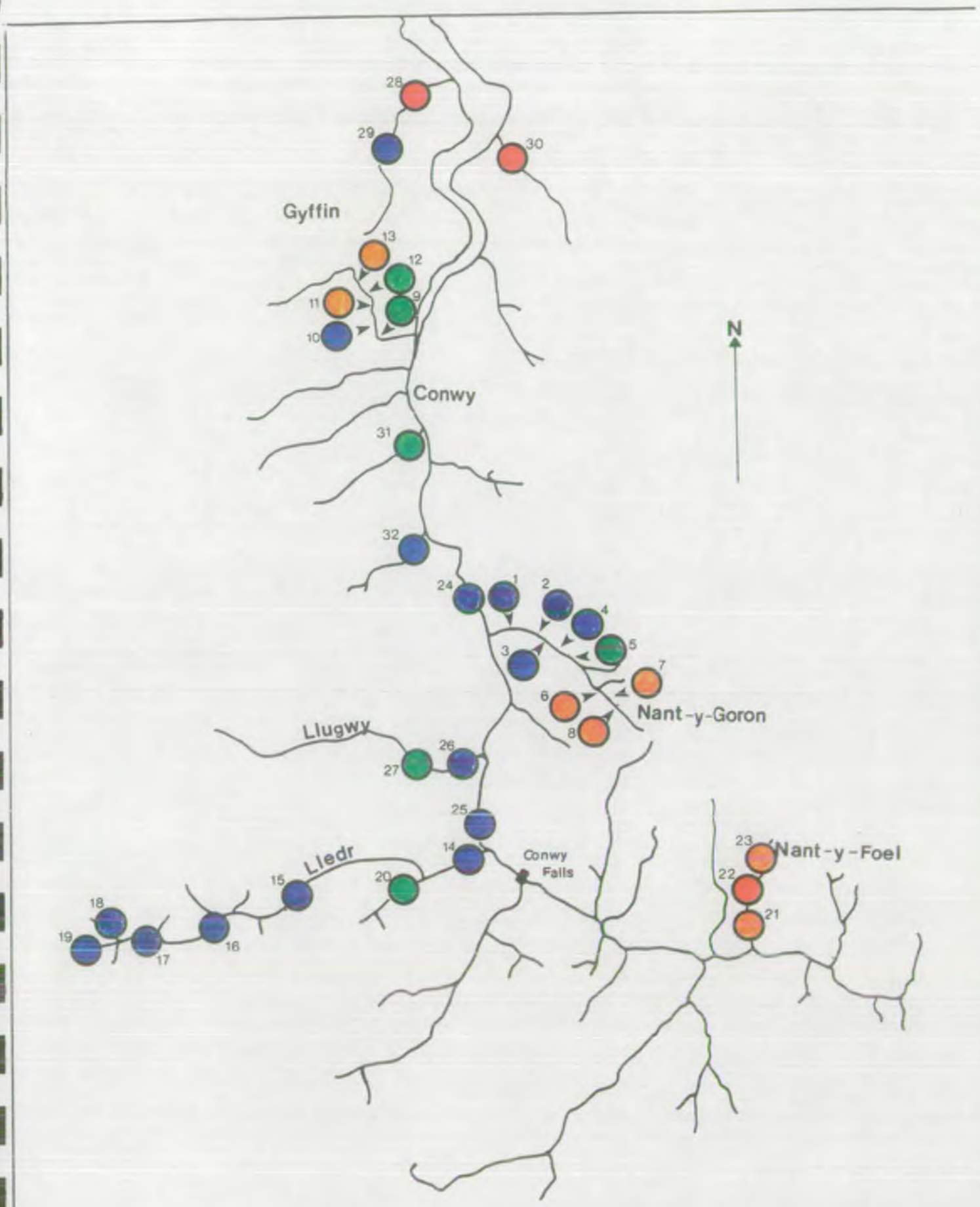
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
24	CONWY	34.6	SH 799614	12.14	0.14	0	C	0.29	0.29	0.14	D	
25	CONWY	13.2	SH 798549	4.55	1.06	0	D	0.3	0	0	D	E,St,S
26	LLUGWY	10.1	SH 795569	4.36	2.57	0	C	0.2	0	0	D	
27	LLUGWY	15.5	SH 787567	19.23	3.23	0	B	11.35	0.9	0.13	C	E
28	GYFFIN	2.8	SH 801754	0	0	0	E	44.29	15.0	6.43	A	E,S
29	GYFFIN	2.7	SH 770757	0	0	0	E	2.96	0	0	D	E,S
30	N.Y.G.DDU	2.6	SH 775663	0	0	0	E	53.85	19.23	1.54	A	
31	DU	3.4	SH 775663	22.94	4.71	0	D	10.59	14.12	0.59	C	
32	CRAFNANT	4.8	SH 782634	12.5	2.92	0	B	1.67	1.25	0.83	D	
			MEAN	8.41	1.63	0	C	13.94	5.64	1.07	B	

PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

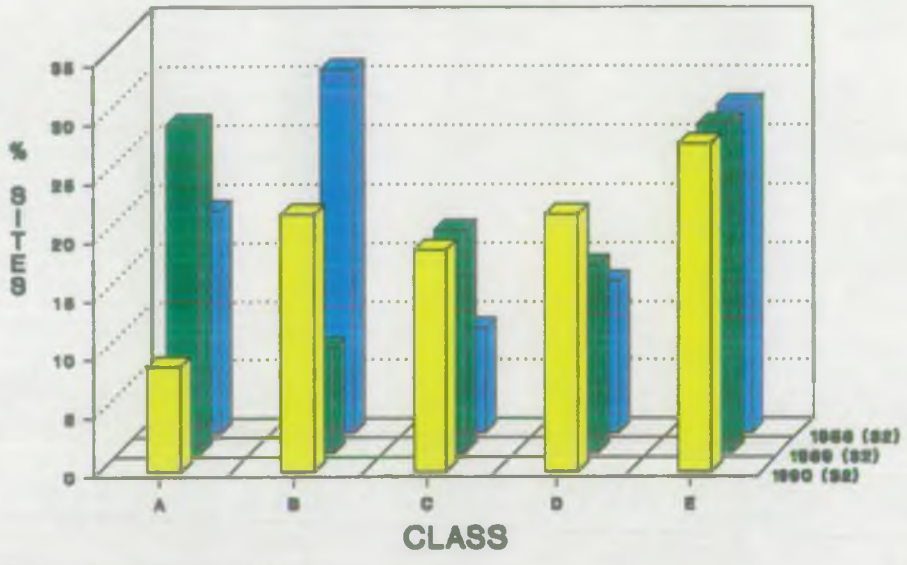
1990 SURVEY
RIVER CONWY - SALMON DENSITIES.



1990 SURVEY
RIVER CONWY - TROUT DENSITIES.

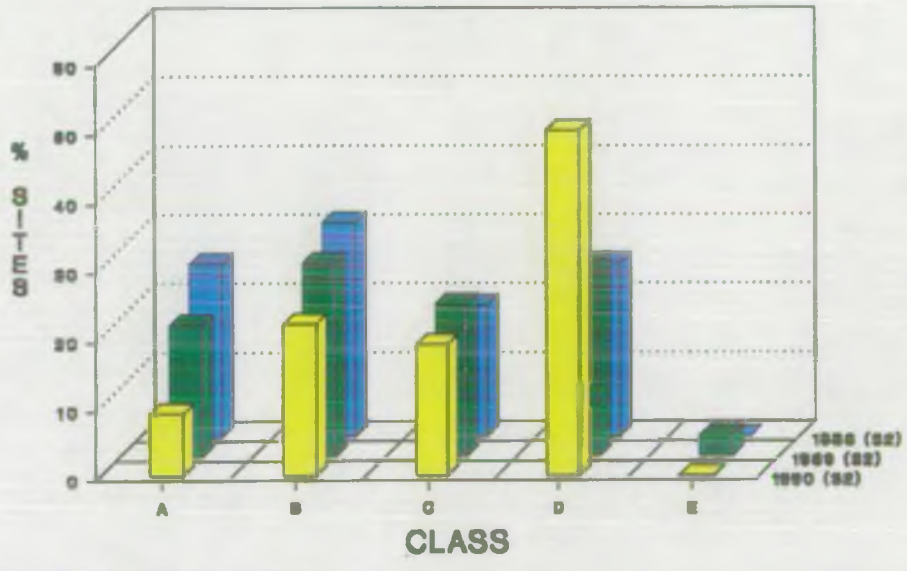


RIVER CONWY - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER CONWY - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER DEE SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Hill sheep pasture, localised forestry.

Water Quality - 1A at all sites

Fishery Status - Average Catch: Rods: 571 Salmon 122 Sea Trout
(1984 - 1989) Nets: 741 Salmon 141 Sea Trout

2. Sampling Programme.

1989 - 9 quantitative sites (5 from 1988, 4 from 1987). 26 semi-quantitative sites including 5 Hirnant sites surveyed to establish population levels in relation to potential barrier removal and 15 upper Dee sites sampled to investigate low 1985 densities.
Baseline survey still incomplete, data required for main river and A.Tryweryn.

1990 - 12 semi-quantitative sites, 6 quantitative, 4x5 min fry sites. Further sampling on main river, Alwen and Tryweryn prevented by high river levels.

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	4 (22)	7 (39)	3 (17)	3 (17)	1 (5)
Trout	2 (11)	3 (17)	8 (44)	5 (28)	0 (0)

4. Key Points.

4.1 Average densities of salmon fry and parr were very similar to those sampled in 1989, although the occurrence of four class'A' sites reversed the trend established in that year.

4.2 Increases in Salmon fry densities were observed on the Ceidiog (x11), Meloch (x2) and Abbey Brook (x2) although a 50% reduction was recorded on the Ceiriog.

4.3 Salmon fry densities at a major spawning site on the Alwen (DE9) were very low. Habitat (substrate size) may have been a limiting factor, but further sites are required on this catchment.

4.4 5 minute fry sampling on the lower Ceiriog indicated moderate salmon densities.

4.5 Mean trout fry and parr densities were unchanged from 1989.

FISHERIES MONITORING PROGRAMME

DEE CATCHMENT SUMMARY — QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
11	NANT FFRAVER	2.0	SJ 043433	55.5	2.4	0	B	24.5	2.4	0	D	E,B
17	CEIDIOG	3.9	SJ 026352	3.4	0	0	D	7.4	3.6	2.1	C	B
33	MELOCH	2.4	SH 964384	118.2	11.7	1.7	A	33.3	1.8	0.8	C	
34	ABBEY BROOK	3.2	SJ 205457	74.7	14.0	0	B	8.0	10.4	5.7	B	
40	MYNACH	4.0	SH 909415	59.8	16.9	0.4	A	8.2	5.8	0.4	C	SL
57	CEIRIOG	5.8	SJ 196357	30.7	36.8	0	A	23.9	14.6	2.0	B	E,B
			MEAN	57.1	13.6	0.4	B	17.6	6.4	1.8	B	

PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

DEE 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	LITTLE DEE	3.4	SH 857286	2.9	5.3	0	C	2.9	2.4	0.6	C	E,B,SL
9	ALWEN	15.5	SH 997487	2.3	0.5	0	D	0.8	0	0	D	E,B
13	MERRDWR	2.0	SJ 000426	61.5	2.9	0	A	24.0	5.8	4.8	A	E,B
15	CEIDIOG	5.3	SJ 031356	27.6	2.6	0.8	B	8.7	5.3	1.9	C	
32	HIRNANT #	4.4	SH 957232	0	0	0	E	4.1	5.4	0.8	C	
35	HIRNANT	7.0	SH 949362	22.5	5.7	0	B	5.4	1.9	0.3	D	E,B
44	MYNACH	5.0	SH 906392	17.7	1.9	0	C	0.4	0	0	D	
54	MORWYNION	1.6	SJ 145475	1.4	0	0	D	44.4	18.1	5.6	A	E,B,SL
56	MORWYNION	2.5	SJ 112434	17.3	7.1	0	B	3.1	0.8	2.4	C	E,B,SL
60	CEIRIOG	4.6	SJ 158328	21.7	8.7	0	B	9.7	1.9	0.5	C	E,B,SL
64	CEIRIOG	2.6	SJ 136346	6.3	16.5	0	B	18.8	7.1	1.6	B	E,B
65	CEIRW	15.0	SJ 015446	10.7	0.5	0.1	C	1.0	0.1	0.1	D	E,B,SL
			MEAN	17.5	4.7	0.1	B	10.3	4.1	1.6	B	

\# PROBABLY INACCESIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

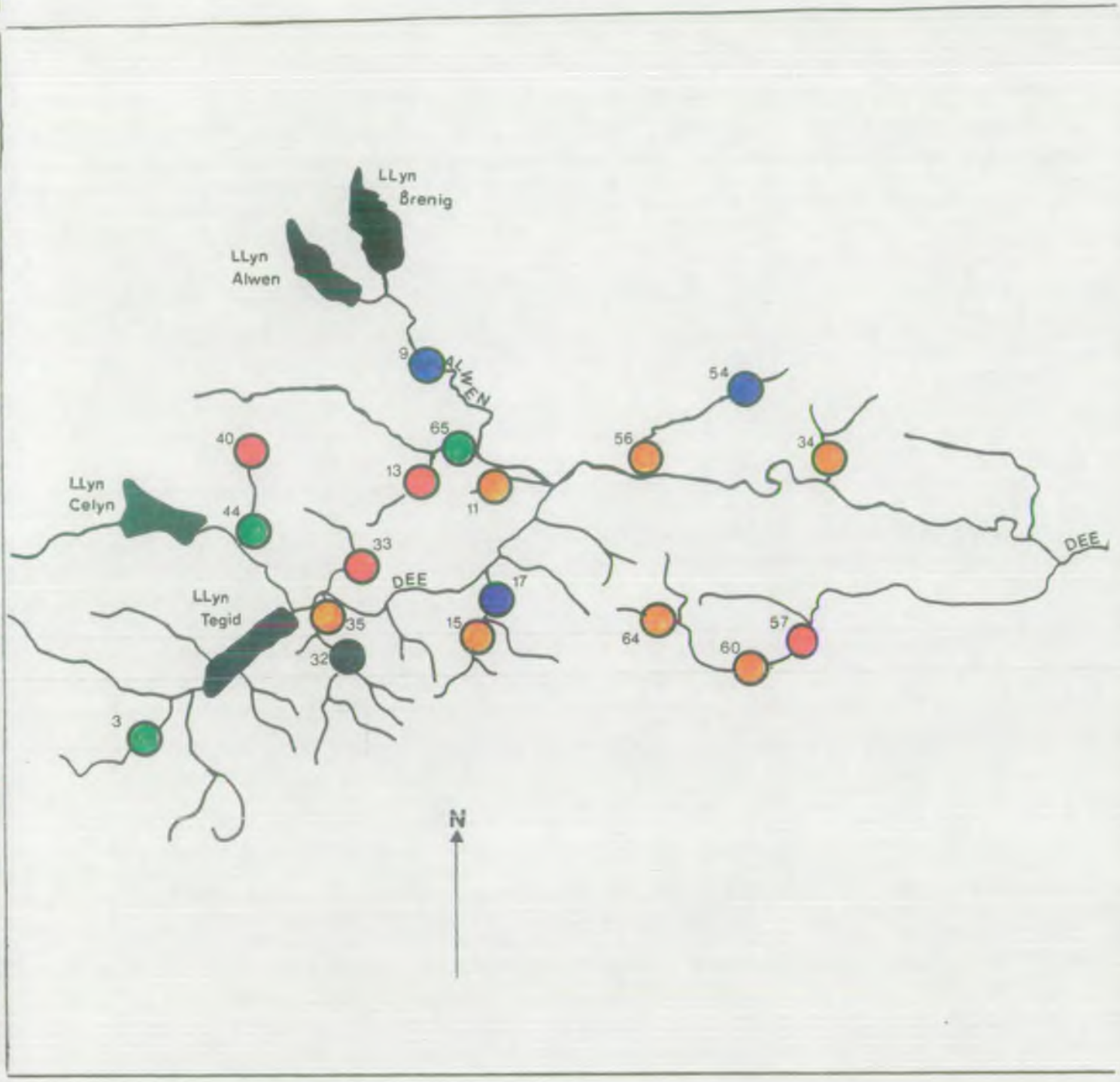
DEE CATCHMENT SUMMARY

5 MINUTE FRY 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	
67	CEIRIOG		SJ 310382	0	21	0		0	0	3		
68	CEIRIOG		SJ 279373	23	3	0		0	0	0		
69	CEIRIOG		SJ 260379	15	7	0		0	1	0		
70	CEIRIOG		SJ 208379	11	7	0		0	0	0		
			MEAN	12.25	9.5	0		0	0.25	0.75		

1990 SURVEY
UPPER DEE - SALMON DENSITIES.



1990 SURVEY
UPPER DEE - TROUT DENSITIES.

RIVER DEE - SALMON
% OF SITES IN EACH CATEGORY.

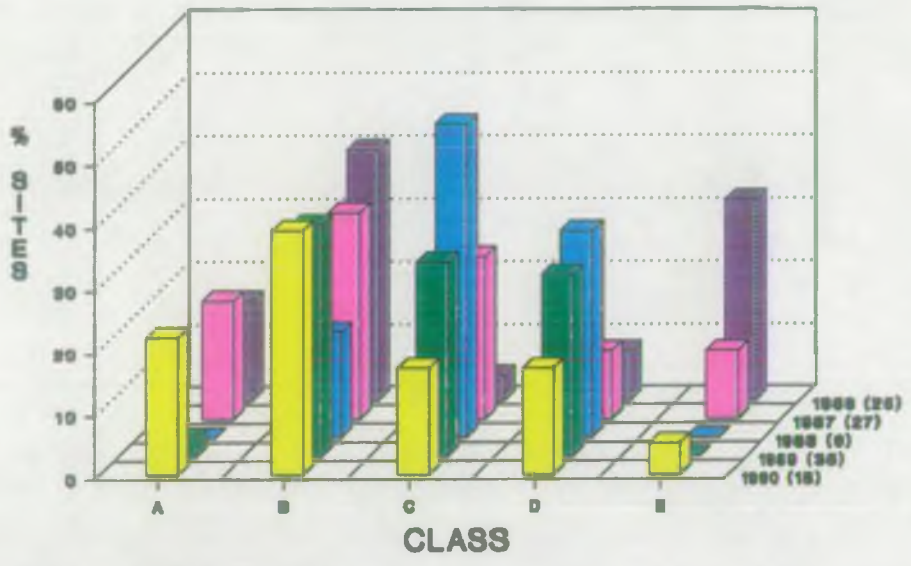
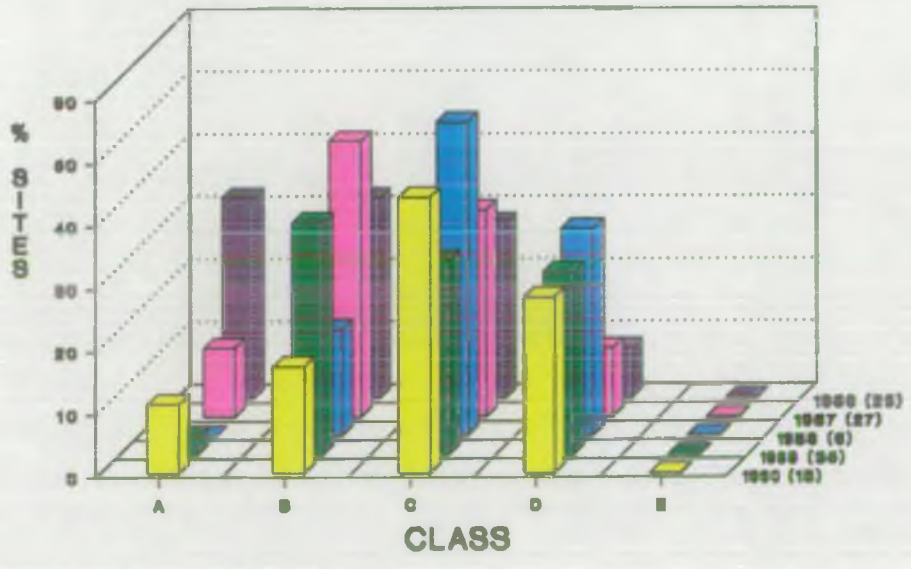


FIGURE IN () INDICATES NO. OF SITES.

RIVER DEE - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER DYFI SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Hill sheep pasture with expanding forestry.

Water Quality - All 1A except Dulas North,1B.

Fishery Status - Average Catch: Rods: 368 Salmon 1676 Sea Trout
(1984 - 1989) Nets: 76 Salmon 1432 Sea Trout

2. Sampling Programme.

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

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	0 (0)	2 (11)	7 (39)	3 (17)	6 (33)
Trout	2 (11)	6 (33)	4 (23)	6 (33)	0 (0)

4. Key Points.

4.1 No major changes in salmon abundance were observed, although high densities were recorded on a tributory of the Dulas South (DY2) where salmon had previously been unrecorded.

4.2 Seven 5-minute fry sites were fished along the length of the main river. Fry were recorded in moderate to good densities throughout the system, with highest numbers found in the lower reaches below Llanwrin.

4.3 Trout fry numbers remained stable, although mean parr densities declined by 50% resulting in a reduction in class A or B sites from 71% in 1989 to 44% in 1990. Low water conditions were the suspected cause of reduction in parr densities.

4.4 Sea trout fry densities on the Crewi (DY5) which had declined in 1989,regained their normal levels (92/100m^2).

FISHERIES MONITORING PROGRAMME

DYFI CATCHMENT SUMMARY — QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
2	DULAS.S	3.0	SH 765983	96.8	0	0	C	28.5	20.1	4.2	B	
5	CREWI	4.5	SH 768008	17.4	0.9	0	D	92.4	7.6	1.4	B	
10	CLEIFION	4.0	SH 913128	0.5	6.0	0	C	19.3	7.6	1.0	C	
12	DYFI	5.5	SH 904203	13.6	8.0	0	C	14.8	5.6	1.1	C	
13	CYWARCH	3.5	SH 856178	1.3	0	0.6	D	87.1	5.0	1.2	B	
14	CERIST	4.0	SH 824164	40.5	12.7	0	B	41.6	24.8	1.5	A	
			MEAN	28.4	4.6	0.1	C	47.3	11.8	1.7	B	

\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

DYFI 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	LLYFNANT	4.5	SH 740975	0	0	0	E	4.4	11.4	0.5	B	
3	DULAS.S	7.0	SH 796983	4.3	2.6	0.6	C	5.1	1.7	0	D	
4	DULAS.S	3.5	SH 776946	0	0	0	E	0	15.9	6.4	C	
6	GWYDOL	4.0	SH 799027	0	0	0	E	8.0	2.5	1.5	C	
7	IAUN	3.5	SH 911018	0.6	0.6	0	D	33.1	0.6	0	B	
8	CLEGIR	4.0	SH 904058	0.6	2.8	0	C	4.4	3.3	0	D	
9	CLEGIR	5.2	SH 893076	8.6	4.3	0	C	9.4	0.4	0	D	
11	CLEIFION	3.0	SH 893107	3.0	4.4	1.5	C	34.8	14.1	1.5	A	
15	ANGELL	7.2	SH 833104	0	0	0	E	4.2	1.4	0.6	D	
16	CEIRIG	3.5	SH 812053	25.4	1.3	0	B	3.2	1.3	0	D	
17	DULAS.N	8.0	SH 757059	0	0	0	E	3.1	2.2	0	D	
18	DULAS.N	3.0	SH 775108	0	0	0	E	8.0	12.7	4.7	B	
			MEAN	3.5	1.3	0.2	D	9.8	5.6	1.3	C	

PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

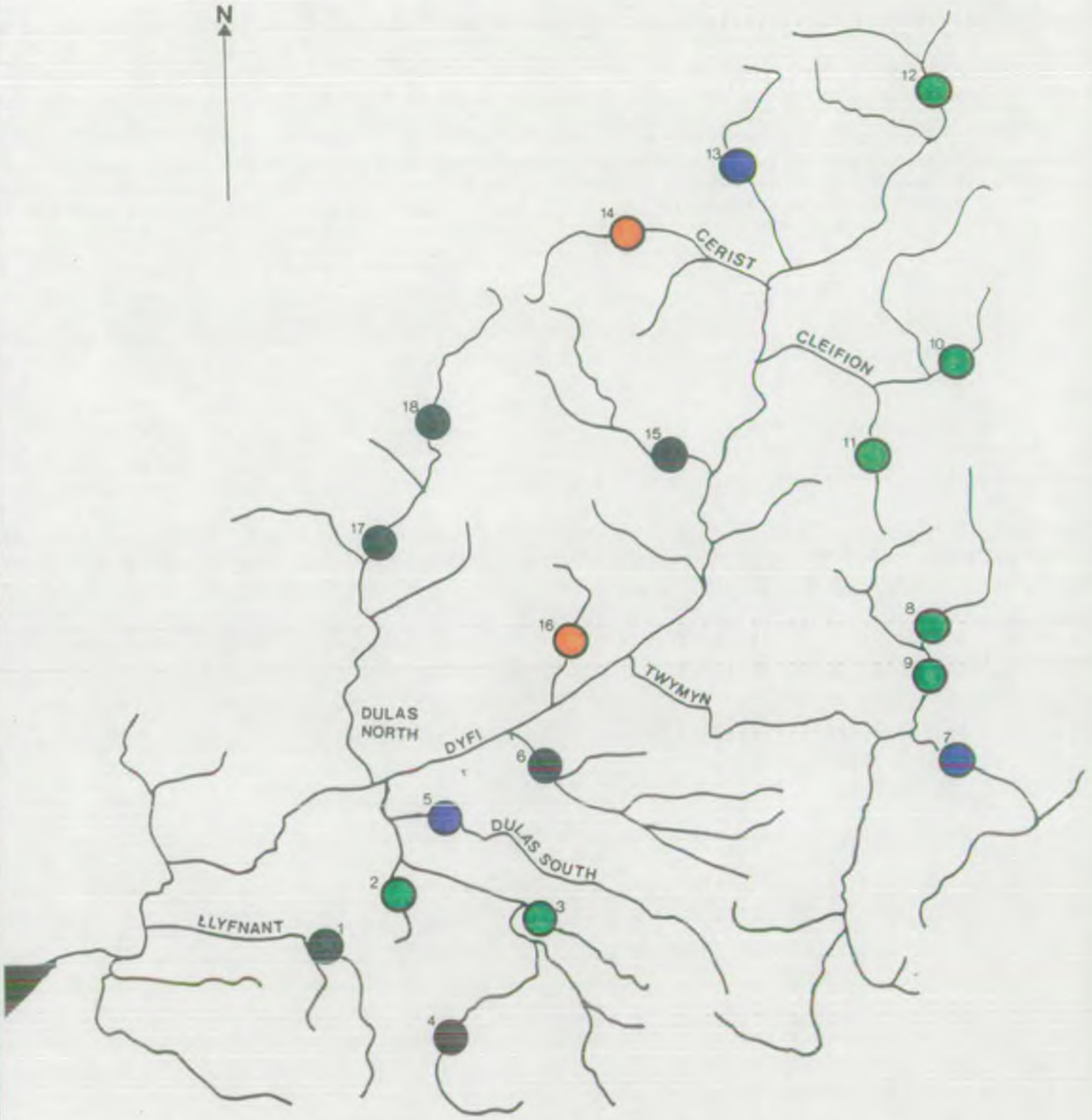
DYFI CATCHMENT SUMMARY

5 MINUTE FRY SITES

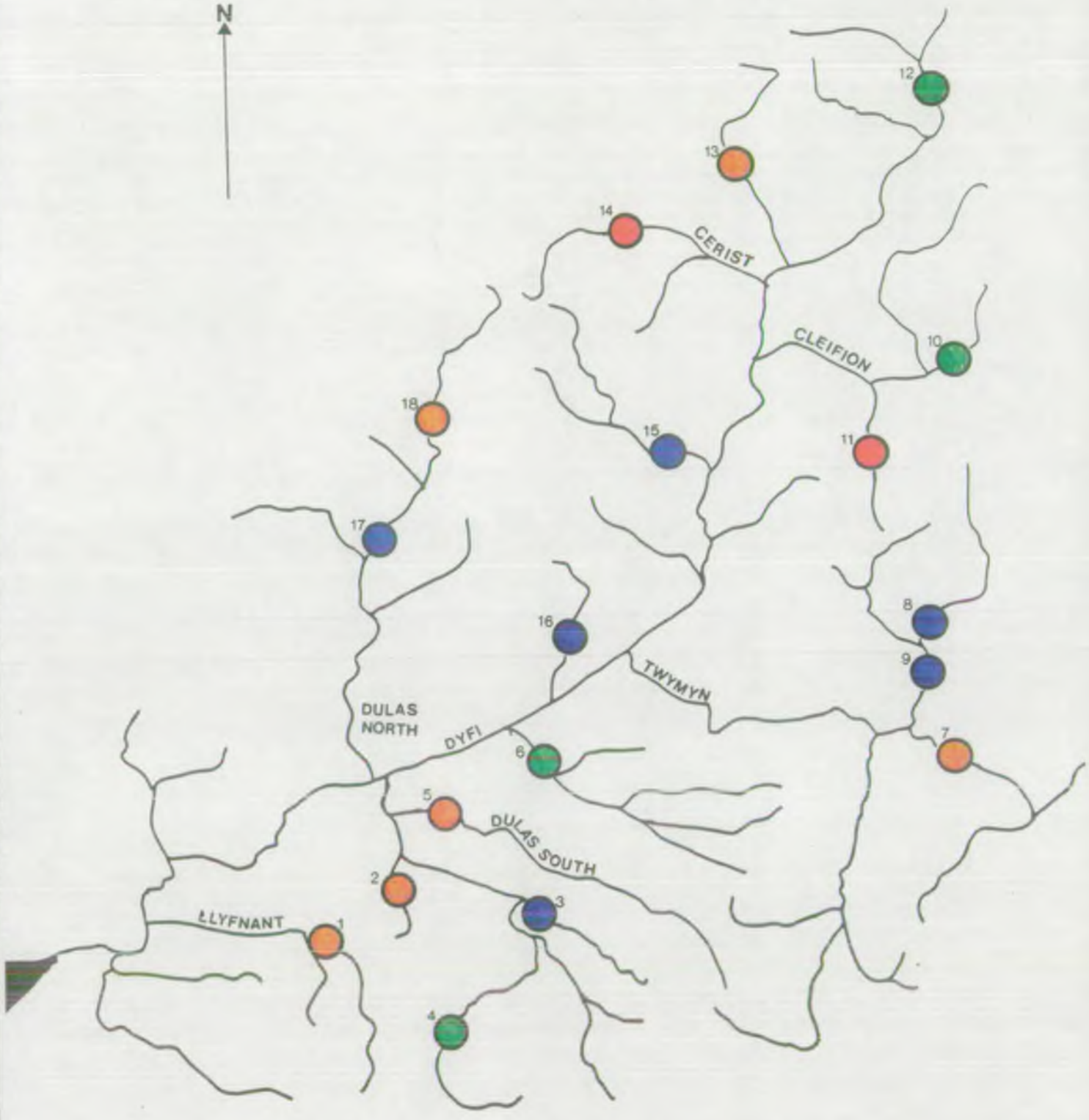
NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
20	DYFI		SH 732011	13	0	0		0	0	0		
21	DYFI		SH 780027	47	2	0		0	0	0		
21A	DYFI		SH 757017	8	1	0		0	0	0		
22	DULAS.N		SH 752023	17	1	0		0	0	0		
23	DYFI		SH 808042	10	0	0		0	0	0		
24	DYFI		SH 833060	25	0	0		0	0	0		
25	DYFI		SH 849101	14	0	0		0	0	0		
			MEAN	19.14	0.57	0		0	0	0		

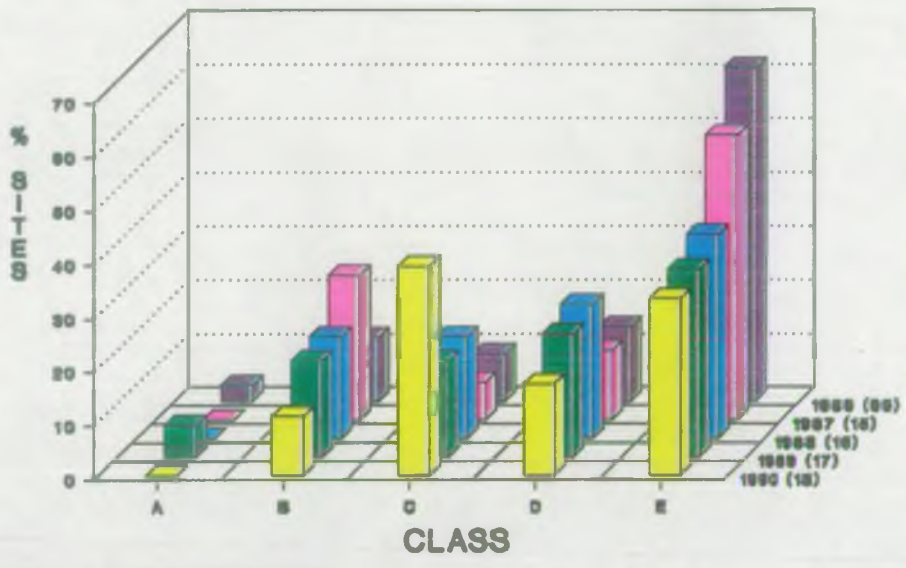
1990 SURVEY
RIVER DYFI - SALMON DENSITIES.



1990 SURVEY
RIVER DYFI - TROUT DENSITIES.

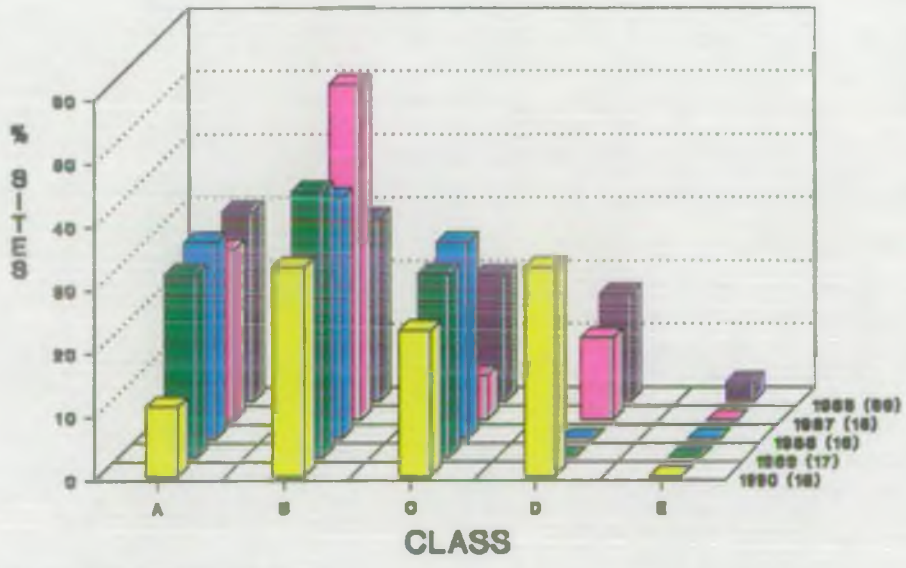


RIVER DYFI - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTES NO. OF SITES.

RIVER DYFI - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER MAWDDACH SUMMARY.

1. Catchment and Fishery Characteristics.

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

Water Quality - All 1A
Metal pollution from ammunition dump on A.Gain, and from non-working gold mine on mid reaches of Mawddach.

Fishery Status - Average Catch: Rods: 242 Salmon 1047 Sea Trout
(1984 - 1989) Nets: 13 Salmon 10 Sea Trout

2. Sampling Programme.

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

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	2 (4)	9 (20)	6 (13)	8 (17)	21 (46)
Trout	2 (4)	10 (22)	18 (39)	16 (35)	0(0)

4. Key Points.

4.1 Salmon were distrubuted throughout the main river Mawddach, Eden and Wnion but absent from the Wen. Minor tributaries throughout the catchment were generally steep sided and inaccessible to migratory fish

4.2 Salmon abundance was moderate to poor (93%<sites class C) throughout the Mawddach and Eden catchments. Poor water quality downstream of Gwynfynydd mine is likely to have impacted on salmonid populations (Thomas 1990).
Eden densities appeared to have declined with 4 out of 7 (57%) sites class D in comparison to 2 out of 7 (29%) in 1986.
Wnion numbers were considerably better (30%<class C) with fry densities particularly high at the top of the catchment.

4.3 Densities of stocked salmon in the Clywedog and upper Mawddach were good to excellent, although more than one year class was represented at M7 and M44.

4.4 Trout densities were generally moderate to poor both above and below migratory barriers. Exceptions were the upper Wen, Aran, Las and upper Wnion.

4.5 Numbers of trout fry on the Wen were low in relation to the numbers stocked (46000).

4.6 Acidic rainfall events recorded in several left bank Wnion tributories do not appear to have severely impacted on salmonid populations as two sites (M41,M42) were moderate for trout.

4.7 10% of 1+trout parr at Mawddach site 12 and 25% of parr at Eden site 23 were adipose fin clipped.

4.8 BMWP invertebrate scores (1990) indicated poor-moderate water quality on the Mawddach with good water quality on the Wnion, Eden and Wen.

FISHERIES MONITORING PROGRAMME

MAWDDACH 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	GAIN #	7.0	SH 755335	0	0	0	E	1.0	3.0	0	C	
2	GAIN #	9.1	SH 742322	0	0	0	E	0	3.3	0.5	D	E
3	GAIN #	8.4	SH 734313	0	0	0	E	0	2.4	0.5	D	
5	GAIN #	6.8	SH 733275	0	0	0	E	0	5.6	1.3	D	
6	MAWDDACH #+	7.5	SH 786294	31.1	3.8	0	B	2.7	1.0	0	D	
7	MAWDDACH #+	6.9	SH 767291	26.0	16.5	0	A	5.0	1.5	1.0	C	
8	MAWDDACH #+	6.3	SH 743282	0	0	0	E	2.4	3.2	1.6	C	E
9	MAWDDACH #+	5.6	SH 795288	0.4	0.8	0	D	2.1	13.7	3.3	B	
10	MAWDDACH	8.3	SH 737272	0	0	0	E	1.8	1.8	0.9	C	E
11	MAWDDACH	9.9	SH 734251	0	1.7	0	D	8.1	2.0	0	D	E
12	MAWDDACH +	14.4	SH 729234	3.1	6.9	0	C	2.2	2.7	0	C	E
16	LAS +	4.0	SH 736224	0	0	0	E	12.8	6.7	1.1	B	
17	LAS #+	4.1	SH 748222	0	0	0	E	28.2	23.9	1.1	B	
18	EDEN	3.5	SH 697329	0	1.9	0	D	5.1	0	0	D	E
19	EDEN	5.7	SH 702323	5.9	4.7	0	C	1.6	0.8	0	D	E

MAWDDACH 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	
20	EDEN	3.5	SH 707305	1.3	1.0	0	D	0.3	0	0	D	E
21	EDEN *	7.1	SH 712286	7.8	2.2	0	D	5.6	0	0	D	E
22	ABER	1.0	SH 705322	17.8	6.7	0	B	44.4	0	0	C	
23	EDEN *	15.8	SH 718273	2.8	2.5	0	C	2.8	3.0	0.4	C	E
24	EDEN *	14.7	SH 725254	0.9	0.9	0	D	0.9	0.9	0.2	D	E
25	WEN	3.4	SH 759263	0	0	0	E	18.5	17.1	8.9	A	E
26	WEN *	4.7	SH 751258	0	0	0	E	6.1	6.1	1.2	C	
27	WEN +	7.6	SH 746245	0	0	0	E	9.0	6.9	1.8	C	E
28	WEN +	6.9	SH 742234	0	0	0	E	8.1	1.0	0.3	D	E
29	GAMLAN #	8.2	SH 712249	0	0	0	E	0.6	1.8	0	D	
30	WNION	3.9	SH 839253	23.4	1.5	0.8	B	18.1	3.8	1.5	B	
31	WNION	4.3	SH 829242	94.3	10.4	0	A	19.0	0.6	0	C	E
32	WNION	4.7	SH 815228	15.0	8.2	0	B	1.9	1.9	0	D	E
33	WNION	6.8	SH 801216	13.4	15.6	0	B	13.8	7.6	0	B	E
34	WNION	14.1	SH 772202	20.1	14.6	0	B	7.1	1.2	0	D	E
35	WNION	7.2	SH 756193	19.1	4.6	0	B	2.8	0.9	0	D	E
37	EIDDON	5.5	SH 804223	0	0	0	E	16.2	9.7	2.0	B	
38	EIDDON #	5.3		0	0	0	E	1.8	2.2	3.5	C	
39	MELAU	3.1	SH 797217	10.0	6.5	0	B	10.8	10.8	1.4	B	E

MAWDDACH CATCHMENT SUMMARY SEMI-QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
40	GELE	2.1	SH 755197	27.5	0	0	C	22.2	2.1	0	C	
41	HARNOG #	5.7	SH 815223	1.6	0	0	D	6.2	2.3	2.0	C	
42	CELYNOG #	3.4	SH 799200	0	0	0	E	0	7.8	3.3	C	
43	NANT HELYGOG	4.6	SH 789199	0	0	0	E	0.5	10.6	6.3	B	
44	CLYWEDOG	7.3	SH 761180	7.6	11.0	0	B	0	6.7	2.4	D	E
45	CLYWEDOG	6.9	SH 767166	1.8	2.2	0	D	1.1	13.0	2.5	B	E
46	CLYWEDOG	5.4	SH 763158	0	0	0	E	0.8	2.9	0.4	C	E
47	ARAN	3.5	SH 737169	0	0	0	E	4.4	9.5	5.1	B	
48	TY GWYN	10.0	SH 678172	0.5	4.7	0	C	1.9	2.1	3.0	C	E
49	CWM MYNACH	6.1	SH 689192	2.5	4.1	0	C	11.5	2.5	0.4	B	E
50	CWM LLECHEN	5.5	SH 669188	0	0	0	E	15.4	0.5	0.5	C	
51	DWYNANT	4.8	SH 634174	0	0	0	E	8.3	2.8	0.5	C	E
			MEAN	8.6	3.5	0	C	7.2	4.6	1.5	C	

PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE
+ STOCKED SITE

FISHERIES MONITORING PROGRAMME

MAWDDACH CATCHMENT SUMMARY

5 MINUTE FRY SITES

NUMBER OF FISH PER 100M 2

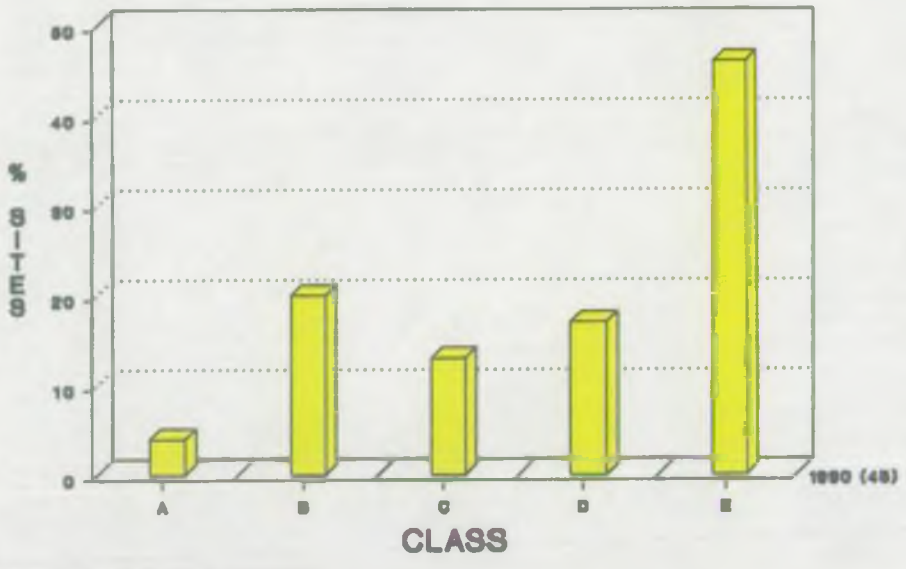
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
13	MAWDDACH		SH 733221	18	0	0		0	0	0		
14	MAWDDACH		SH 729211	30	9	0		0	0	0		
15	MAWDDACH		SH 719193	10	5	0		0	0	0		
36	MAWDDACH		SH 725180	12	4	0		3	0	0		
			MEAN	17.5	4.5	0		0.75	0	0		

\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

1990 SURVEY
RIVER MAWDDACH - SALMON DENSITIES.

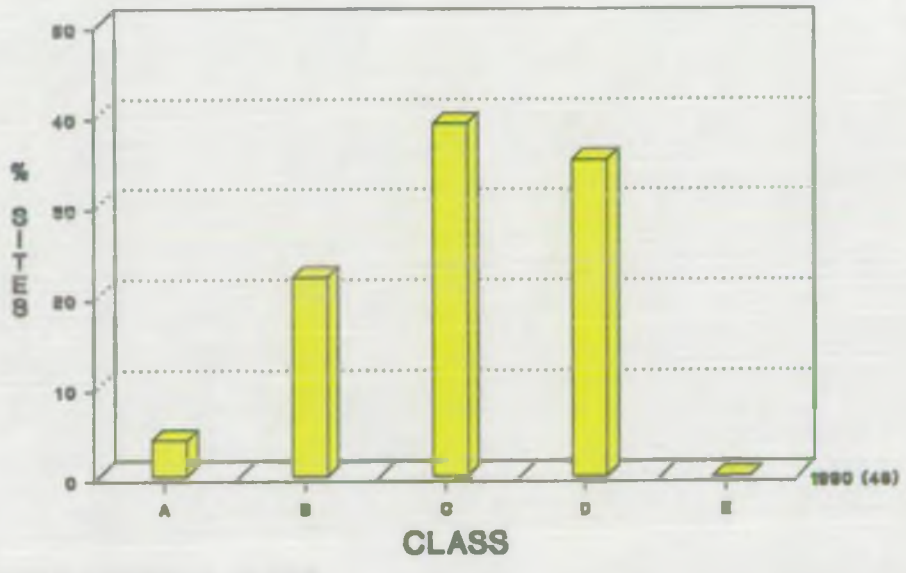
1990 SURVEY
RIVER MAWDDACH - TROUT DENSITIES.

RIVER MAWDDACH - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER MAWDDACH - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER OGWEN SUMMARY.

1. Catchment and Fishery Characteristics.

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

Water Quality - All main rivers and tributaries 1A.

Fishery Status - Average Catch: Rods: 129 Salmon 159 Sea Trout
(1984 - 1989) Nets: 180 Salmon 154 Sea Trout

2. Sampling Programme.

1989 - Baseline survey of 16 semi-quantitative sites.
1990 - Routine sampling of 9 semi-quantitative and 2 quantitative sites.

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	1 (10)	2 (18)	4 (36)	4 (36)	0 (0)
Trout	1 (10)	1 (10)	0 (0)	9 (80)	0 (0)

4. Key Points.

4.1 Of 6 sites fished consecutively in 1989 and 1990, four showed a drop in at least one grade, although overall catchment densities were unchanged.

4.2 Salmon densities at three additional sites fished in the lower reaches of the catchment were moderate to poor.

4.3 Trout densities were poor at all sites except at two sea trout spawning sites, 20A and 17. Fewer tributary sites were fished then in 1989 so that inter-year comparison was confounded.

4.4 A slight reduction in salmonid numbers or dispersal following drought conditions may have occurred similar to that observed on other catchments. However fry numbers on a small tributary (Llan) were considerably increased on 1989.

FISHERIES MONITORING PROGRAMME

OGWEN CATCHMENT SUMMARY — QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
7	OGWEN	14.9	SH 625659	31.9	26.5	0	A	4.1	5.4	0.2	D	
17	LLAN	2.4	SH 608690	0	11.7	0	D	90.3	6.8	0	B	
			MEAN	16.0	19.1	0	B	47.2	6.1	0.1	B	

\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

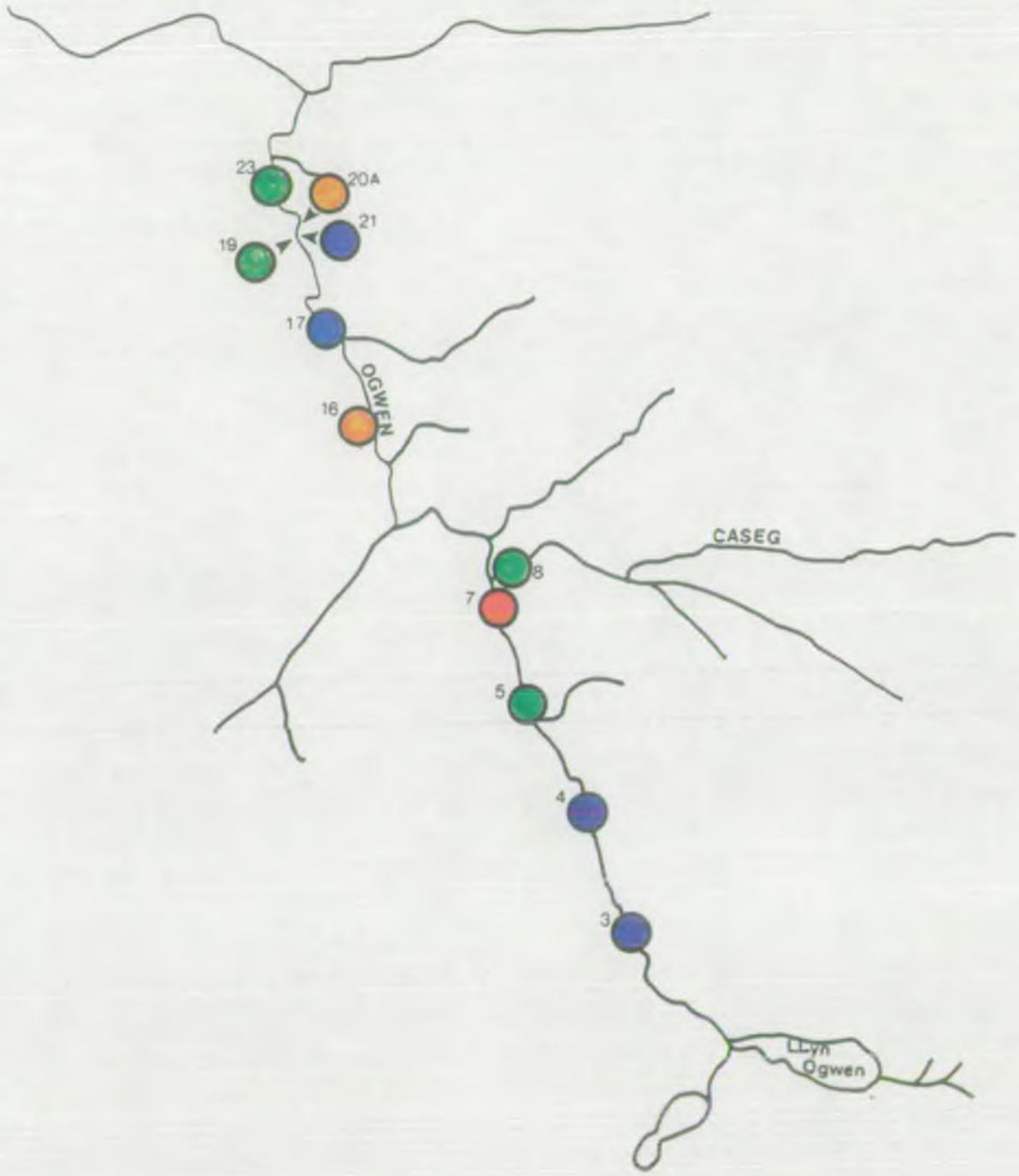
OGWEN CATCHMENT SUMMARY SEMI-QUANTITATIVE SITES

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	6.9	SH 642616	5.2	1.2	0	D	3.2	0	0	D	
4	OGWEN	10.4	SH 638627	6.7	0	0	D	0.4	0	0	D	
5	OGWEN	13.6	SH 632642	1.6	2.9	0	C	0.9	0	0.5	D	
8	CASEG	7.1	SH 626663	8.9	8.0	0	C	2.8	1.4	0	D	E
16	OGWEN	11.8	SH 611677	18.6	6.8	0	B	0.8	0	0	D	
19	OGWEN	15.3	SH 601699	4.8	2.8	0	C	0	1.5	1.1	D	
20A	MILLSTREAM	2.2	SH 602700	14.1	3.0	0	B	26.3	22.2	0	A	
21	OGWEN	12.1	SH 602699	0.3	0	0	D	2.8	0	0	D	
23	OGWEN	14.0	SH 602707	9.9	3.9	0	C	1.3	0	0.4	D	
			MEAN	7.8	3.2	0	C	4.3	2.8	0.2	C	

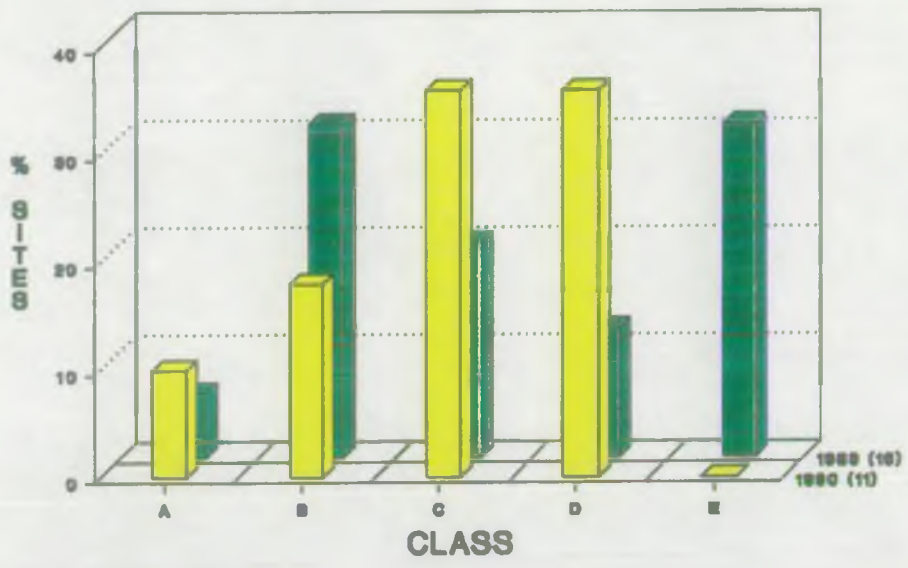
PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

1990 SURVEY
RIVER OGWEN - SALMON DENSITIES.



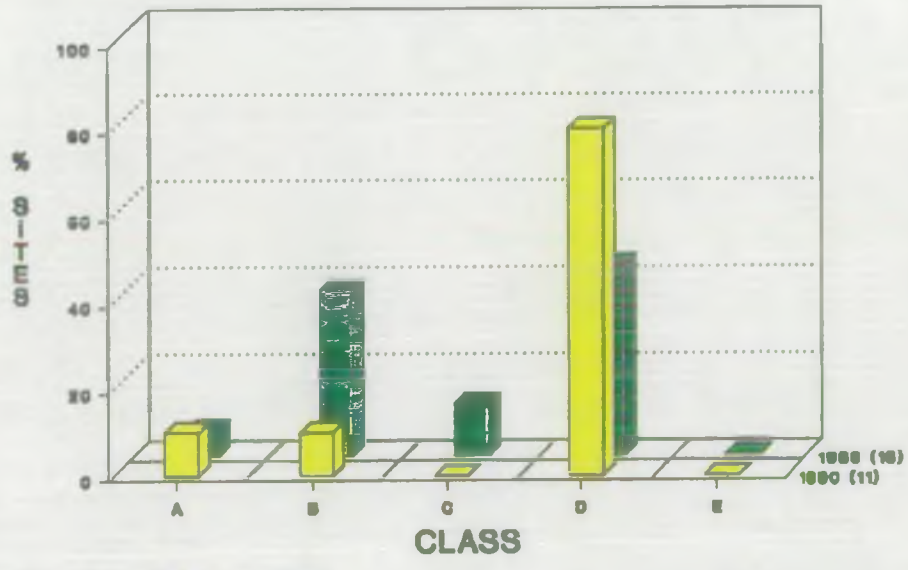
1990 SURVEY
RIVER OGWEN - TROUT DENSITIES.

RIVER OGWEN - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER OGWEN - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER SEIONT SUMMARY.

1. Catchment and Fishery Characteristics.

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

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

Fishery Status - Average Catch: Rods: 104 Salmon 318 Sea Trout
(1984 - 1989) Nets: 195 Salmon 196 Sea Trout

2. Sampling Programme.

1989 - baseline survey of 19 semi-quantitative sites
1990 - 8 semi-quantitative, 3 quantitative sites.

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	1 (9)	4 (36)	4 (36)	2 (19)	0 (0)
Trout	1 (9)	1 (9)	2 (19)	7 (63)	0 (0)

4. Key Points.

4.1 Although mean salmon class declined from B to C, several sites sampled in 1989 were not sampled in 1990 and two tributaries (S9 &S7) were sampled at different locations. Little change in distribution of classes was observed.

4.2 At least 2 age classes of salmon were present at two main river sites (S15, S16) affected by a major pollution in 1989. Very high fry numbers on the Caledffrwd (S11) also affected by pollution were partially attributable to stocking.

4.3 Trout classification at 5 sites sampled in consecutive years was unchanged although site 17 declined from A to C, probably as a result of dewatering. High fry densities were again recorded on the Caledffrwd following the fish kill 0f 1989.

4.4 Reports of coarse fish in the main river were not confirmed from surveys at two sites in the lower reaches.

FISHERIES MONITORING PROGRAMME

SEIONT CATCHMENT SUMMARY — QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
5	GAFR	5.1	SH 605584	54.4	20.8	0	A	103.7	11.3	0	A	
7	HWCH	11.0	SH 584599	34.5	4.5	0.5	C	23.1	0.6	0.2	D	
11	CALEDFFRWD	3.1	SH 560629	176.6	4.9	0	B	59.6	0	3.0	B	
			MEAN	88.5	10.1	0.2	B	62.1	4.0	1.1	B	

\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

SEIONT CATCHMENT SUMMARY

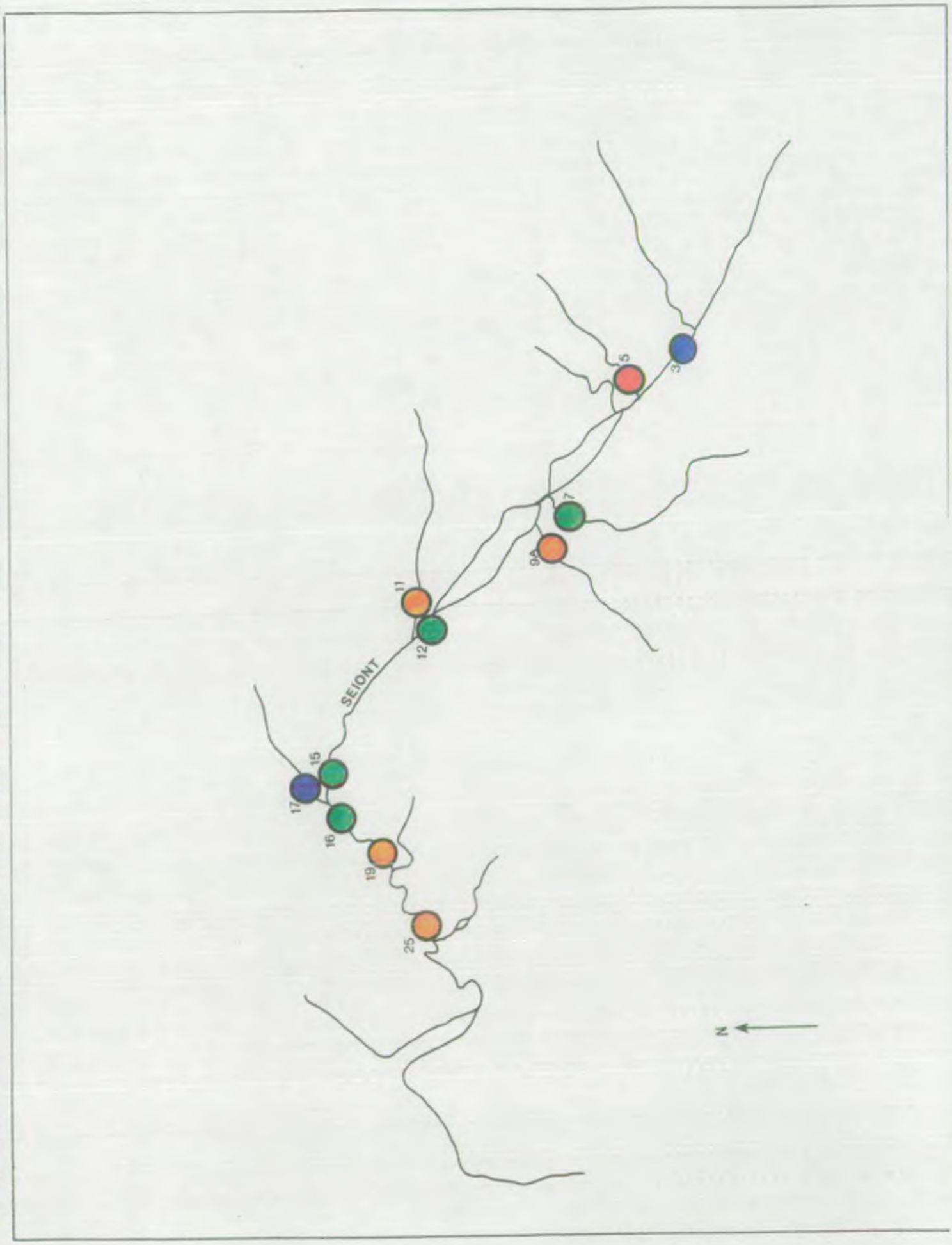
SEMI-QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

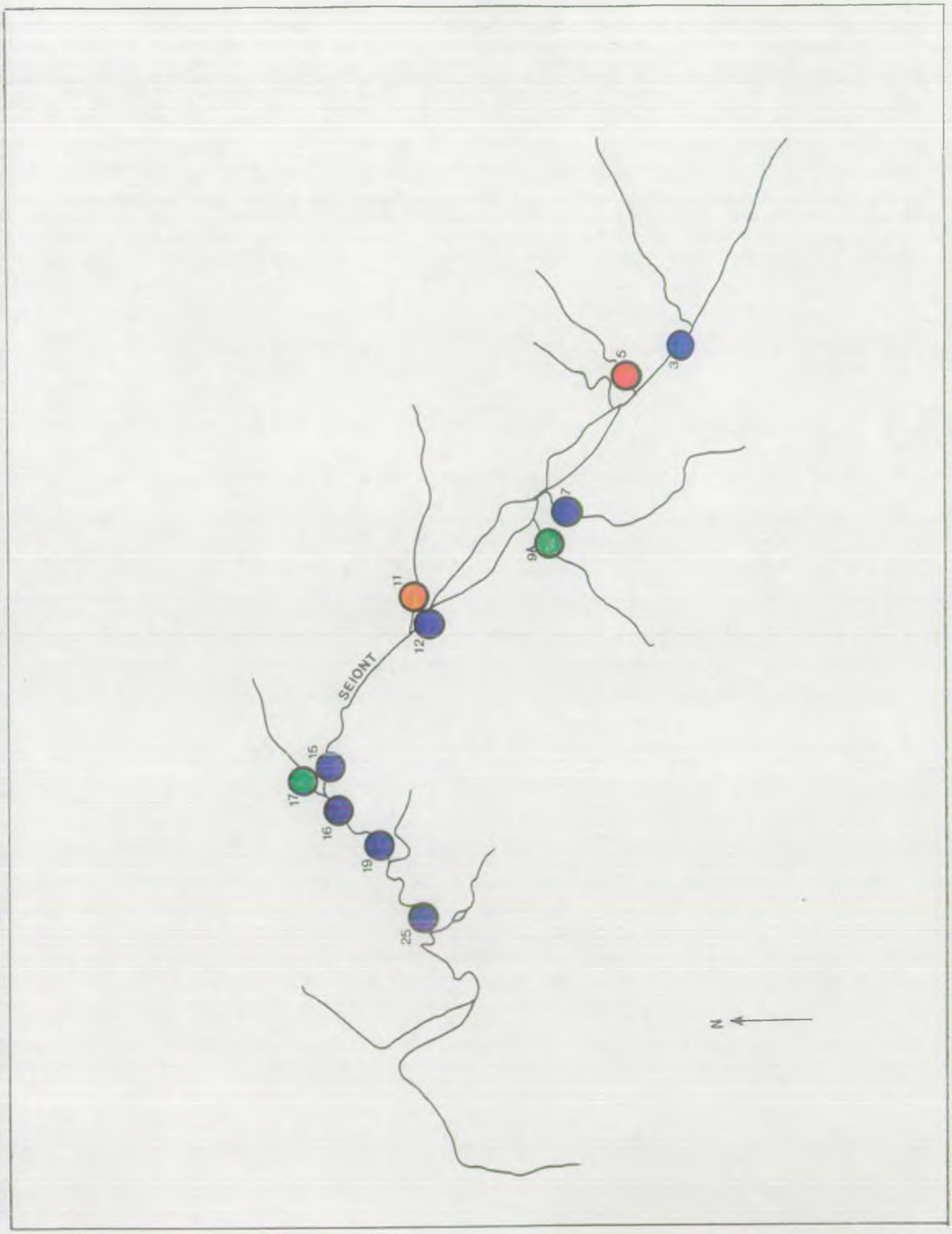
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
3	NANT PERIS	6.9	SH 610578	6.6	0.9	0	D	2.8	0	0	D	
9A	GOCH	3.0	SH 577600	14.8	13.6	0	B	2.5	2.5	0	C	
12	SEIONT	8.1	SH 558624	21.9	1.1	0	C	3.4	0.6	0	D	
15	SEIONT	20.2	SH 533643	6.3	4.1	0.7	C	0.2	1.3	0	D	
16	SEIONT	7.6	SH 525642	3.5	9.5	0	C	0	2.1	0	D	
17	GLYN	1.1	SH 524642	0	2.4	0	D	9.6	7.2	2.4	C	
19	SEIONT	9.3	SH 513632	6.6	11.1	0.4	B	0.4	0.7	0	D	
25	SEIONT	14.7	SH 502624	10.3	6.4	0	B	3.1	1.2	0	D	
			MEAN	8.8	6.1	0.1	C	2.8	2.0	0.3	C	

\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

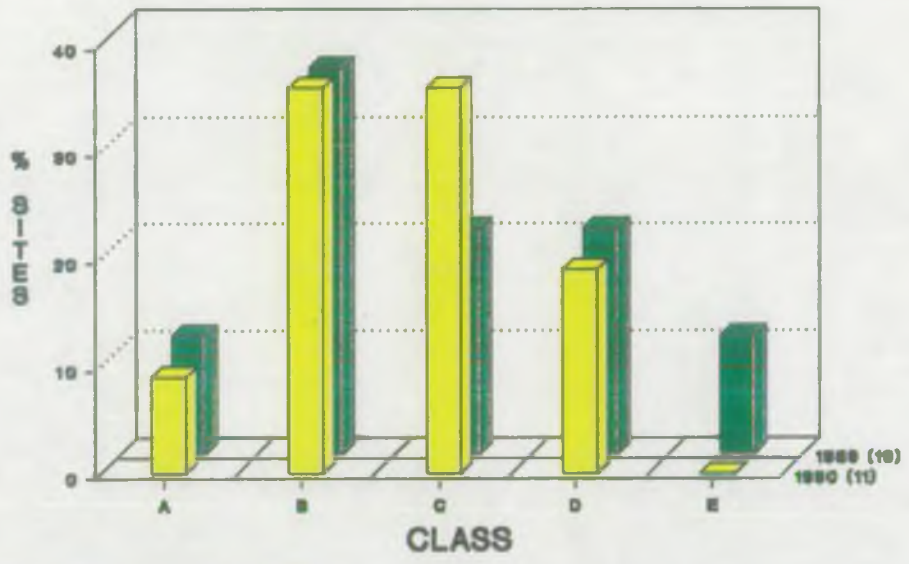
1990 SURVEY
RIVER SEIONT - SALMON DENSITIES.



1990 SURVEY
RIVER SEIONT - TROUT DENSITIES.

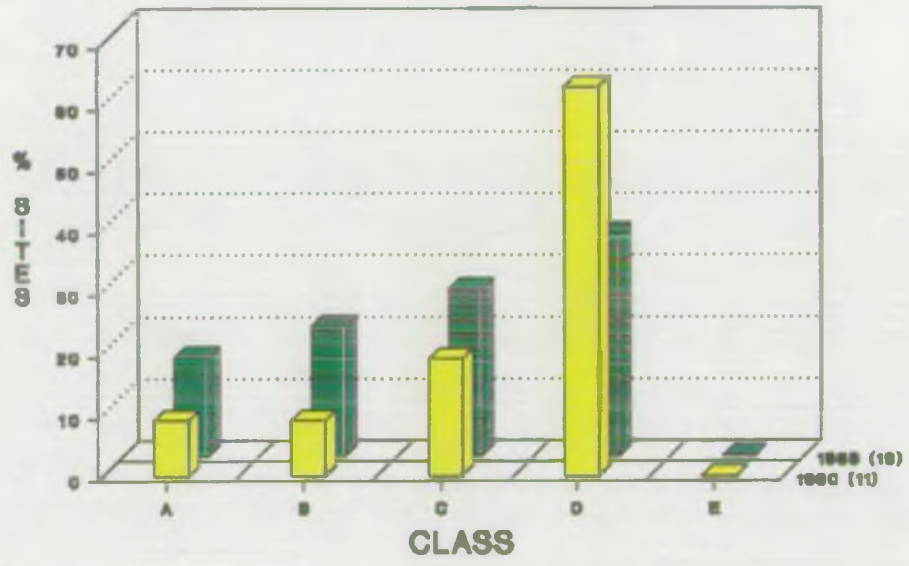


RIVER SEIONT - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER SEIONT - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

APPENDIX 4

SOUTH EASTERN DIVISION

CATCHMENT SUMMARIES.

RIVER RHYMNEY SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use — Primarily urban and industrial with sheep farming in the upper and middle reaches and mixed pastoral/arable farming in the lower reaches. The City of Cardiff is on the estuary.

Water Quality — Water quality is in NWC class 1 in some tributaries and throughout the main river , but some tributaries are prone to pollution from industry.

Fishery Status — Parts of the river support a moderate trout fishery, supported to some extent by stocking. A mixed fishery exists in the lower reaches and migratory salmonids are occasionally found.

2. Sampling Programme.

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

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	0 (0)	0 (0)	0 (0)	0 (0)	14(100)
Trout	0 (0)	2 (14)	3 (21)	4 (29)	5(36)

4. Key Points.

4.1 No salmon were found.

4.2 Trout were rare in the main river sites. In comparison with the survey of 1986 there was a reduction in trout density at three out of the four sites. Lack of fry was particularly notable.

4.3 In several of the small tributaries which were in class A or B in 1987 there was a reduction in density, particularly of fry, which resulted in a down-grading. The Nant Fawr was the only exception with a small increase in trout density.

FISHERIES MONITORING PROGRAMME

RHYMNEY CATCHMENT SUMMARY — SEMI-QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

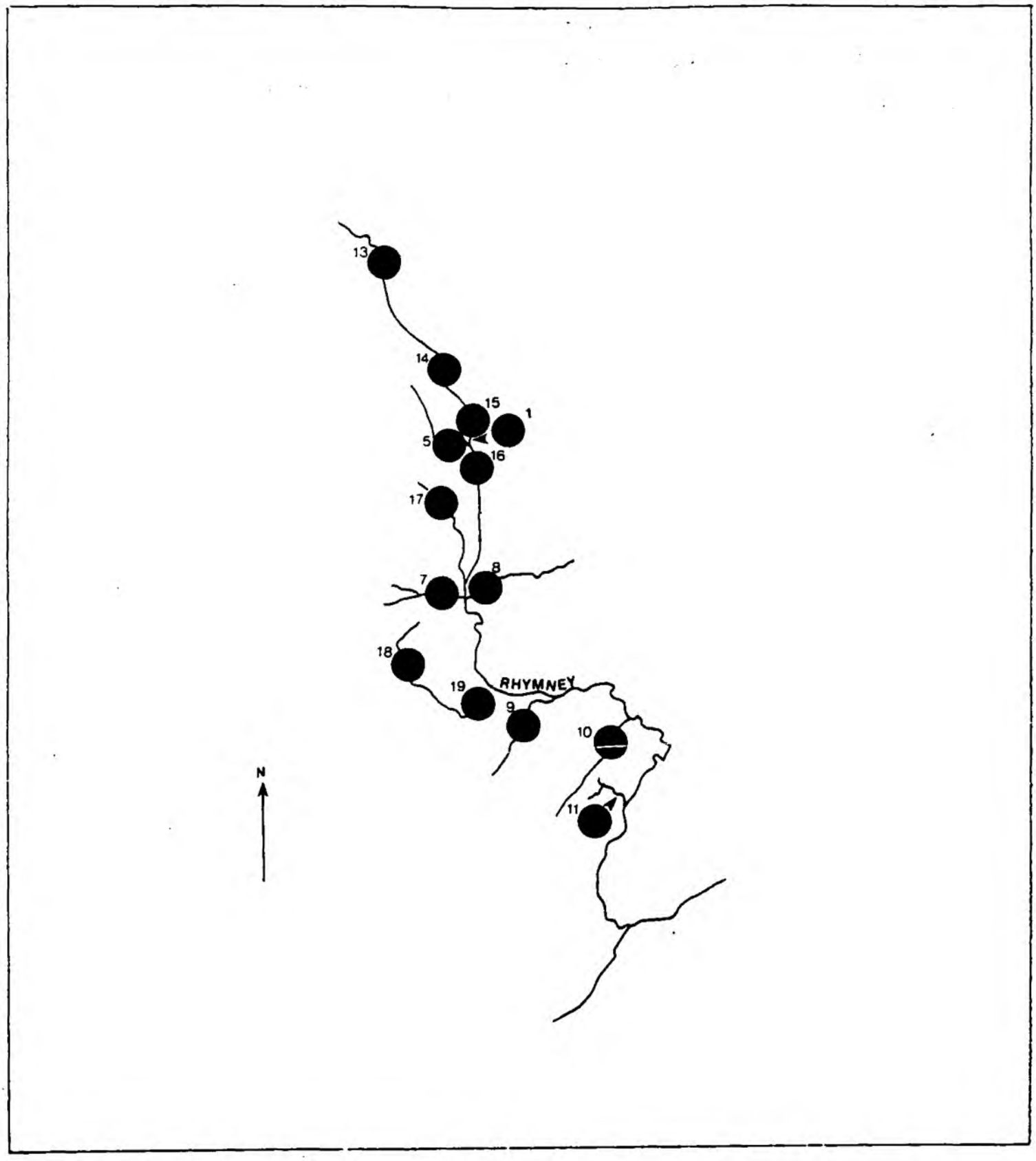
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
13	RHYMNEY	6.1	SO 118064	0	0	0	E	0	0	0	E	M St
14	RHYMNEY	6.0	SO 138038	0	0	0	E	0.3	0	0.7	D	E M St
15	RHYMNEY	7.0	SO 153019	0	0	0	E	0	0	2.2	D	E M St
16	RHYMNEY	13.2	SO 156977	0	0	0	E	0	0	0	E	
5	BARGOED RHYMNEY	6.8	SO 144007	0	0	0	E	0	0.3	0.9	D	E M St
17	CYLLA	6.4	SO 143964	0	0	0	E	0	0	0	E	
7	TWYN-YR-HARRIS	1.7m	ST 142934	0	0	0	E	8.2	7.1	5.9	B	
8	NANT-Y-TWYN	1.5m	ST 152933	0	0	0	E	0	20.0	4.0	C	E
9	NANT GWAUNYBARA	2.4m	ST 182878	0	0	0	E	0	3.3	2.5	D	B E St
18	NANT-YR-ABER	4.3m	ST 126891	0	0	0	E	0.5	1.9	2.3	C	B E St
19	NANT-YR-ABER	3.7m	ST 157886	0	0	0	E	0	0	0	E	M E St
10	NANT DRAETHEN	2.0m	ST 221873	0	0	0	E	2.0	4.9	0	C	B E
11	NANT FAWR	3.2	ST 225844	0	0	0	E	1.3	28.1	0	B	B M
	MEAN			0	0	0	E	0.9	5.0	1.4	C	

RHYMNEY CATCHMENT SUMMARY — QUANTITATIVE SITES

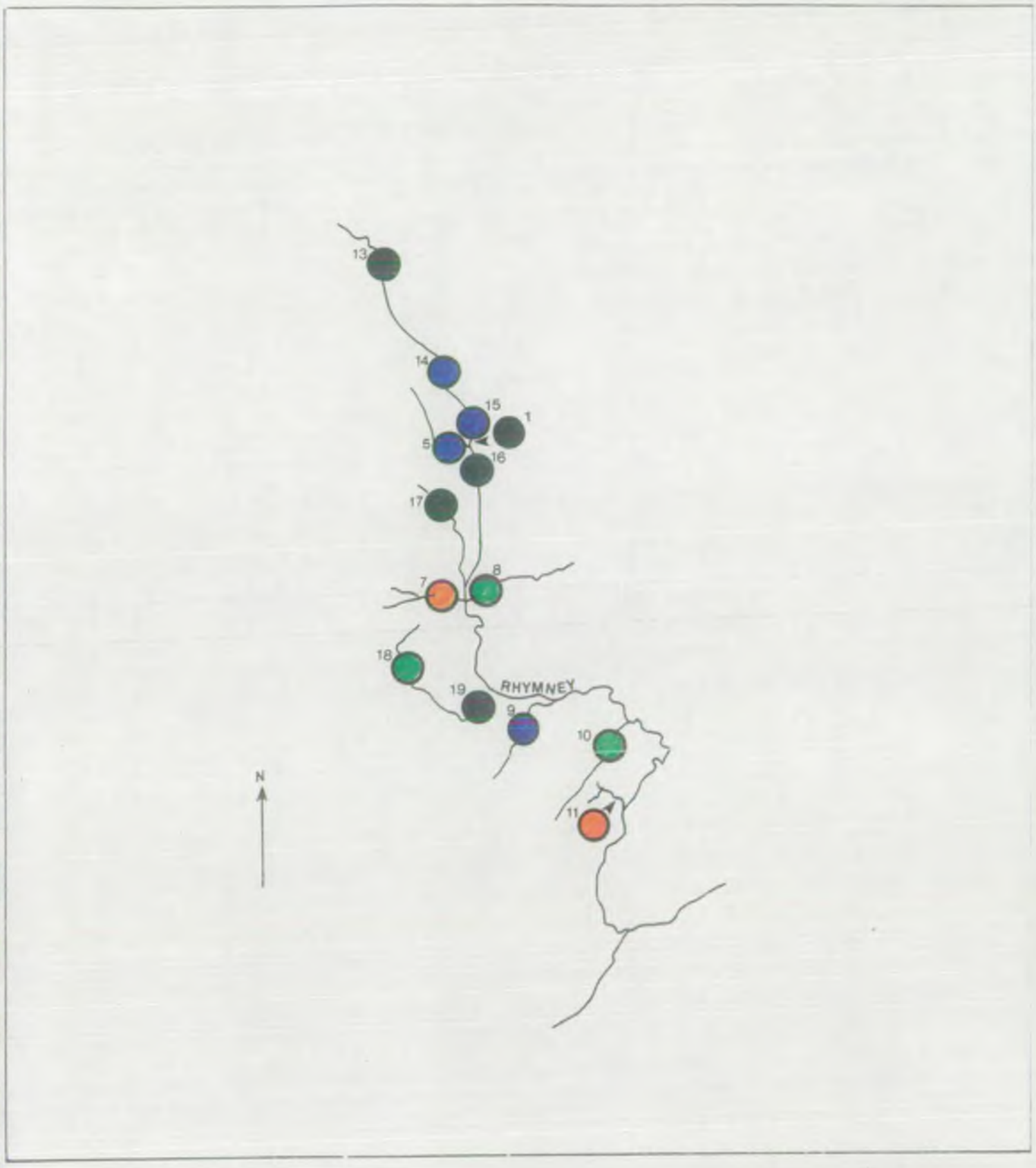
NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
1	Rhymney	8.4	SO 151004	0	0	0	E	0	0	0	E	St,M

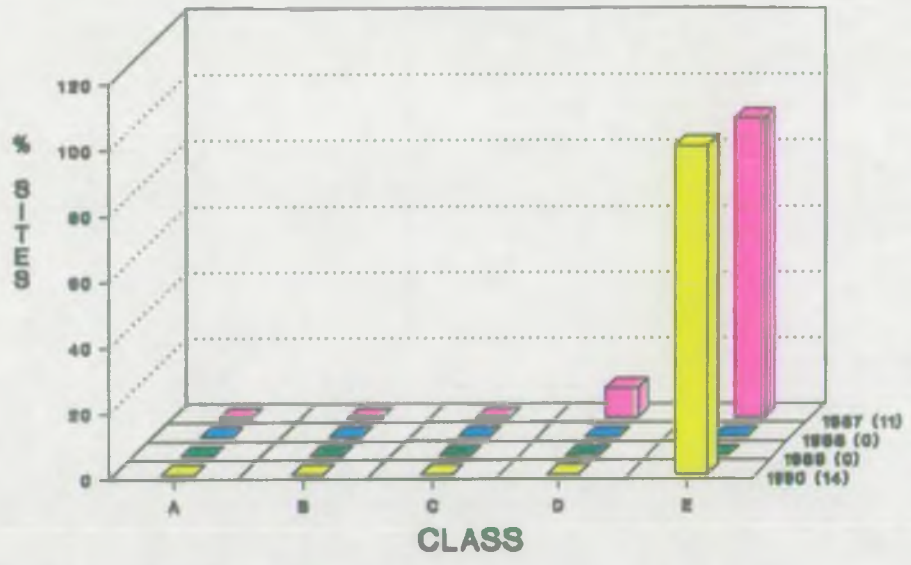
1990 SURVEY
RIVER RHYMNEY - SALMON DENSITIES.



1990 SURVEY
RIVER RHYMNEY - TROUT DENSITIES.

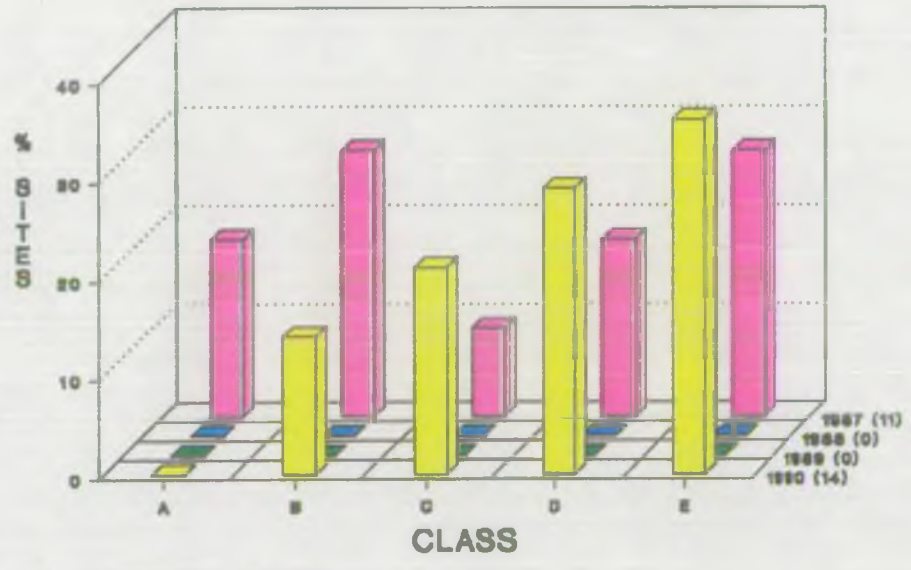


RIVER RHYMNEY - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER RHYMNEY - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER THAW SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use — Principally pastoral farming with some arable with industrial and urban development limited. Generally of a lowland nature.

Water Quality — Whole catchment is in NWC class 1B but incidences of agricultural pollution occur.

Fishery Status — A small brown trout fishery, supported by stocking. A small run of sea trout and possibly occasional salmon.

2. Sampling Programme.

1984 -1986	Various surveys undertaken in connection with possible water quality programmes.
1987 -	9 semi-quantitative sites
1990 -	8 semi-quantitative sites.

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	0 (0)	0 (0)	0 (0)	2 (25)	6 (75)
Trout	0 (0)	0 (0)	1 (12)	4 (50)	3 (38)

4. Key Points.

4.1 The Thaw does not support a good trout population with densities generally decreased in comparison with 1987.The best sites were in the middle reaches where reasonable numbers of larger fish were found.

4.2 No trout were found in the Waycock or Llancarfan Brook.

4.3 Salmon fry which were absent in 1987 were present in low densities on the Nant Tregof and LLancarfan Brook.

FISHERIES MONITORING PROGRAMME

THAW CATCHMENT SUMMARY

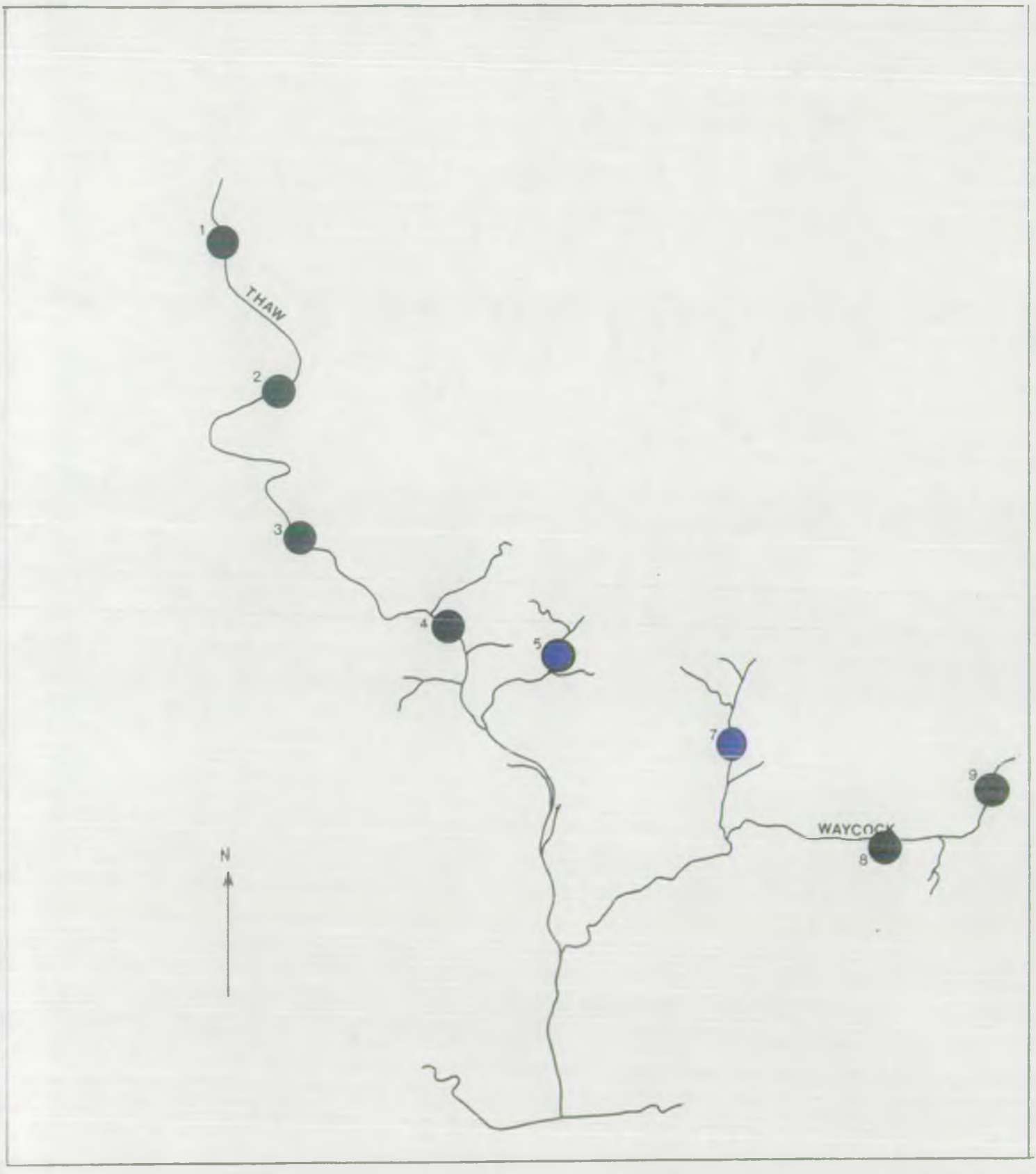
SEMI QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

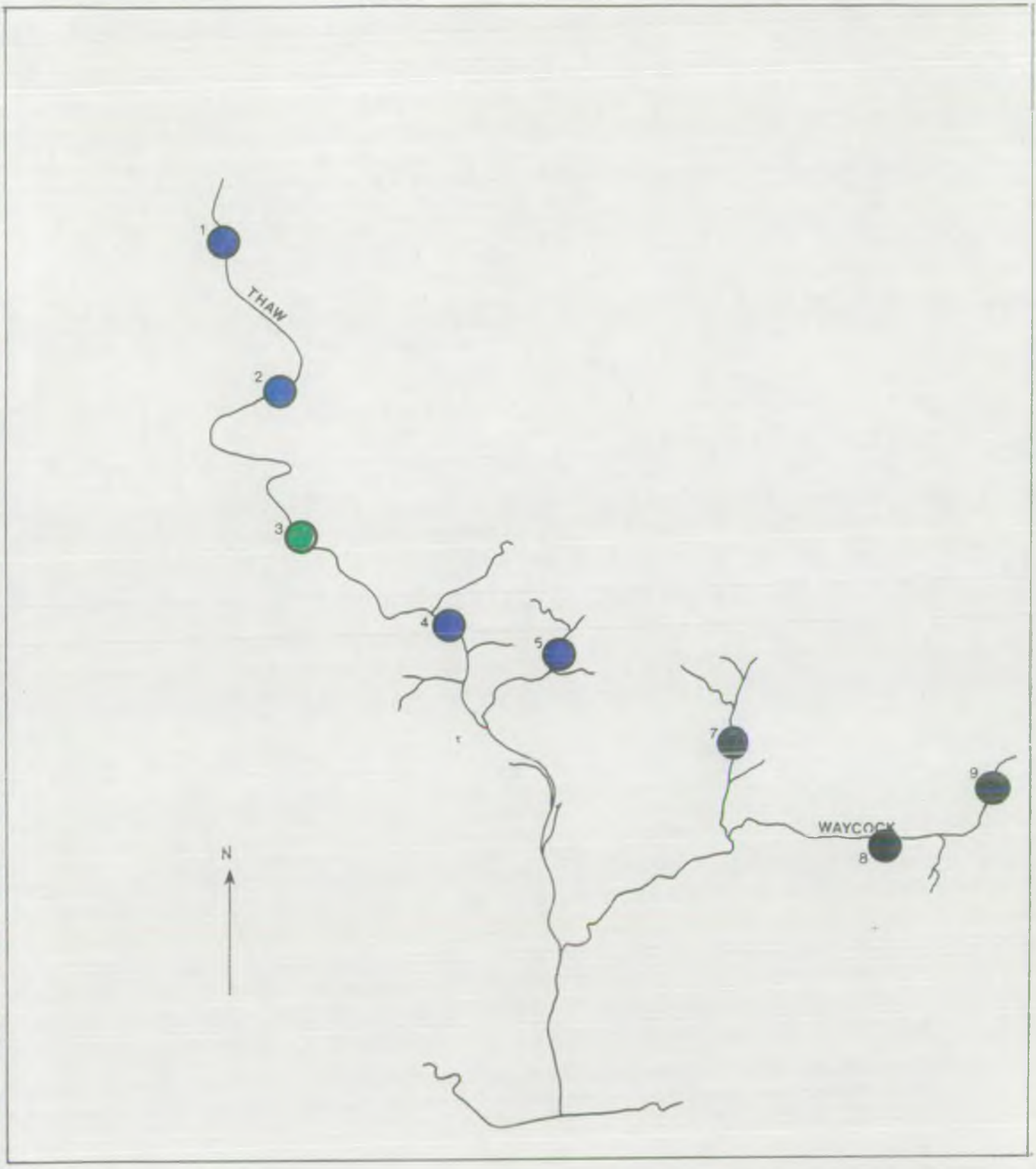
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	THAW	2.3m	SS990761	0	0	0	E	4.0	0	0.7	D	B E S st
2	THAW	5.7m	SS997747	0	0	0	E	1.1	0	0.4	D	B E st
3	THAW	5.2m	ST003724	0	0	0	E	1.2	0	7.7	C	B E M
4	THAW	4.8m	ST016717	0	0	0	E	0	0	8.3	D	B E M
5	NANT TREGOF	3.3m	ST030712	1.8	0	0	D	1.2	0	0.6	D	B E
7	LLANCARFAN BRK	2.7m	ST052705	0.7	0	0	D	0	0	0	E	E M S st
8	WAYCOCK	2.7m	ST088696	0	0	0	E	0	0	0	E	E M S st
9	WAYCOCK	5.2m	ST065687	0	0	0	E	0	0	0	E	E S st
			MEAN	0.3	0	0	D	0.9	0	2.2	D	

\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

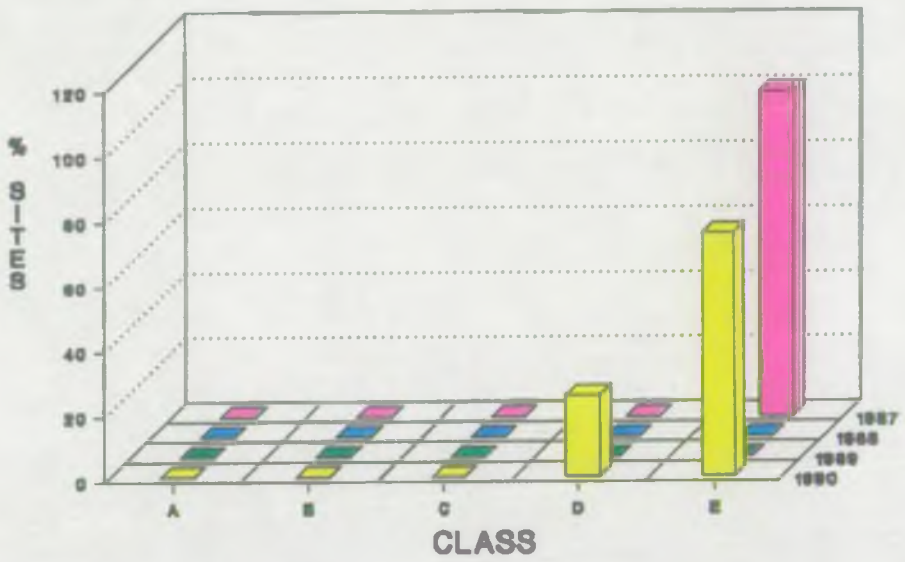
1990 SURVEY
RIVER THAW - SALMON DENSITIES.



1990 SURVEY
RIVER THAW - TROUT DENSITIES.

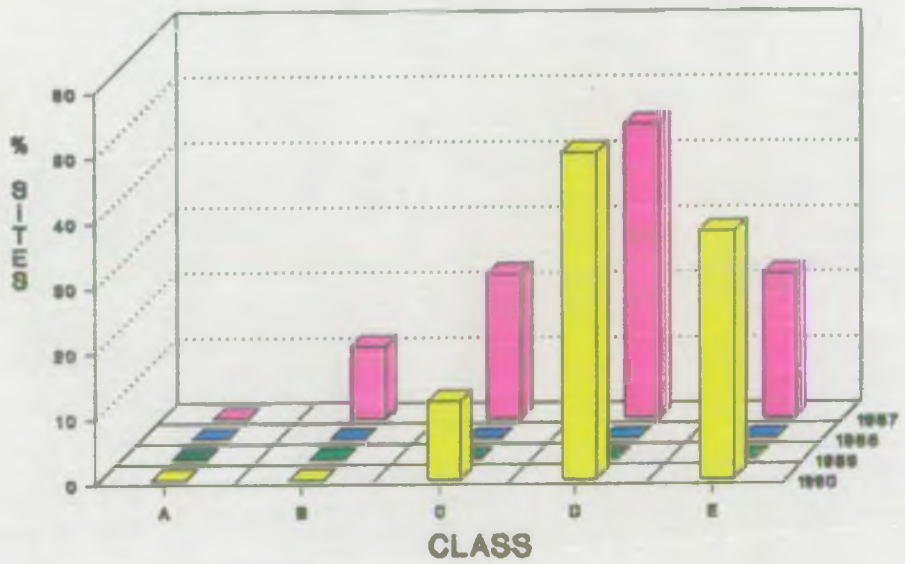


RIVER THAW - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER THAW - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER USK SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Principally pastoral farming with some arable. Several small market towns, but very little industry.

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

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

Average catch 1984-1989 Rods: 652 Salmon 56 Sea Trout
Nets: 1496 Salmon 46 Sea Trout

2. Sampling Programme.

1986- 40 semi-quantitative sites
1987- 13 quantitative and 23 semi-quantitative sites
1988- 13 quantitative and 19 semi-quantitative sites
1989- 12 quantitative and 27 semi-quantitative sites plus 12 5 min samples
1990- 14 quantitative and 20 semi-quantitative sites plus 8 5 min samples.

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	4 (12)	10 (29)	2 (6)	11(32)	7 (21)
Trout	2 (6)	5 (15)	10 (29)	17(50)	0 (0)

4. Key Points.

4.1 Mean class for salmon remained as B for quantitative sites but improved from C to B for semi-quantitative sites, compared to 1989. Mean fry densities were slightly increased with mean parr densities were slightly reduced.

4.2 Although most sites change class from year to year, for the period 1986 to 1990, 24 sites (73%) remained at the same level overall, 2 sites (6%) showed an overall improvement which 7 sites (21%) showed a general decline.

4.3 Good salmon fry densities were recorded in 5 minute samples between Sennybridge and Talybont-on-Usk with smaller numbers as far down as Chain Bridge.

4.4 Mean class for trout changed from B in 1989 to C for both quantitative and semi-quantitative surveys, a return to the 1988 situation. Mean densities were probably not significantly different to previous years, falling between 1988 and 1989 values for fry and being very similar to 1988 values for older fish. There is considerable variation in class from year to year at many sites but 21 sites (64%) were overall at the same level between 1986 and 1990, while 2 sites (6%) showed a general improvement and 10 sites (30%) showed a general decline.

4.5 For salmon, slightly more than half the sites had equal to or better than expected densities on the basis of habitat characteristics. Trout fry densities were poorer than expected at most sites while larger trout were equal to or greater than expected densities at just over half the sites.

4.6 Additional surveys undertaken as part of the Usk Brown Trout Project demonstrated a clear distinction in the distribution of salmon and trout, particularly fry, between the main tributaries, which supported good populations of salmon but few trout, and sidestreams which supported poor salmon populations but good trout populations. This distinction was very clear on the Ysgir but less so on the Senni due to generally poor fish populations. This suggests that the Monitoring Programme sites tend to be biased salmon dominated areas.

FISHERIES MONITORING PROGRAMME

USK CATCHMENT SUMMARY — QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
1	USK	5.7	SN 855282	4.7	0.9	0.0	D	30.3	11.0	9.7	B	
2	HYDFER	6.1	SN 861276	24.7	3.2	0.0	D	20.3	6.4	2.0	C	B E
3	CRAI	7.1	SN 894273	47.6	3.6	0.0	C	3.9	0.0	0.0*	D	
4	SENNI	5.7	SN 930268	51.7	7.8	0.0	B	1.3	1.3	3.5	D	B
5	CILIENI	5.2	SN 909324	229.8	22.0	0.0	A	61.4	6.2	0.9	A	B E
6	BRAN	5.9	SN 965322	63.3	8.2	0.0	B	7.3	5.5	3.1	C	B
7	YSGIR	6.5	SO 004306	126.8	18.0	0.0	A	1.00*	4.9	0.8	D	
8	TARRELL	6.3	SO 011269	1.7	0.3	0.0	D.	0.0	1.2	2.1	D	B
9	HONDDU	6.5	SO 013378	3.5	1.5	0.0	D	8.5	1.2	3.9	C	
10	MENASCIN	3.7	SO 076257	96.6	2.4	0.0	B	25.6	21.7	14.6	A.	
11	RHIANGOLL	4.8	SO 178232	0	0	0	E	6.8	0.9	5.8	C	
12	GRWYNE FAWR	6.8	SO 284226	1.8	14.5	0	C	1.1	7.0	2.9	C	B
13	GRWYNE FECHAN	5.8	SO 245199	7.4	28.5	0.4	B	2.0	9.2	2.4	C	
25	CAERFANELL	4.9	SO 118229	30.4	5.8		B	2.0	8.5	0	C	
			MEAN	49.3	9.3	0.03	B	12.3	6.1	3.7	C	

PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

USK 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	
14	USK	8.3	SN 883287	5.0	0.8	0	D	0.8	0.5	0	D	B
15	HYDFER	3.9	SN 845258	9.1	10.1	0	B	6.4	9.6	4.8	B	
16	CRAI	5.0	SN 881235	26.5	2.6	0	B	0.9	0	0	D	B M
17	SENNI	6.4	SN 925234	1.2	0.3	0	D	0.3	6.3	2.4	C	B E
18	CILIENI	4.8	SN 913357	38.3	2.9	0	B	11.1	4.8	0	B	B E St
19	BRAN	6.8	SN 943343	57.4	13.7	0	A	13.3	5.3	0	B	B E
20	YSGIR FAWR	5.8	SN 995365	35.5	4.5	0	B	1.7	0	0	D	B E St
21	YSGIR FECHAN	5.5	SN 989357	24.2	14.0	0	A	3.4	3.0	0	C	B E
22	TARRELL	12.5	SO 035285	15.8	5.2	0	B	0	0.7	0.5	D	B E M St G
23	HONDDU	5.8	SO 034324	3.6	0	0	D	8.6	2.3	2.3	C	B E M St
24	CRAWNON	5.8	SO 145200	4.8	0	0	D	0	4.2	3.0	D	E St
26	RHIANGOLL	2.8	SO 184263	0	0	0	E	4.9	0	19.7	B	B E
26A	RHIANGOLL	3.5	SO 185212	0	0	0	E	0	0	6.8	D	B E
27	GRWYNE	11.7	SO 239172	0	0.7	8.0	D	0	1.0	1.9	D	B E
28	CLYDACH	6.2	SO 246151	0	0	0	E	0	0	5.8	D	B E St
30	BERTHIN BROOK	4.8	SO 365019	0	0	2.9	D	0	0.8	3.3	D	B E M St
30A	BERTHIN BROOK	3.2	SO 352018	0	0	0	E	0	0	2.4	D	B E
37	OLWAY BROOK	2.9	SO 407023	0	0	0	E	0	0	5.9	D	E M St
39	OLWAY BROOK	6.1	SO 392985	0	2.8	0	D	0	0.3	1.4	D	E F St
31	SOR BROOK	4.3	SO 338957	0	0	0	E	0.7	0	0.7	D	B E
			MEAN	11.1	2.88	0.55	B	2.61	1.94	3.01	C	

PROBABLY INACCESIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

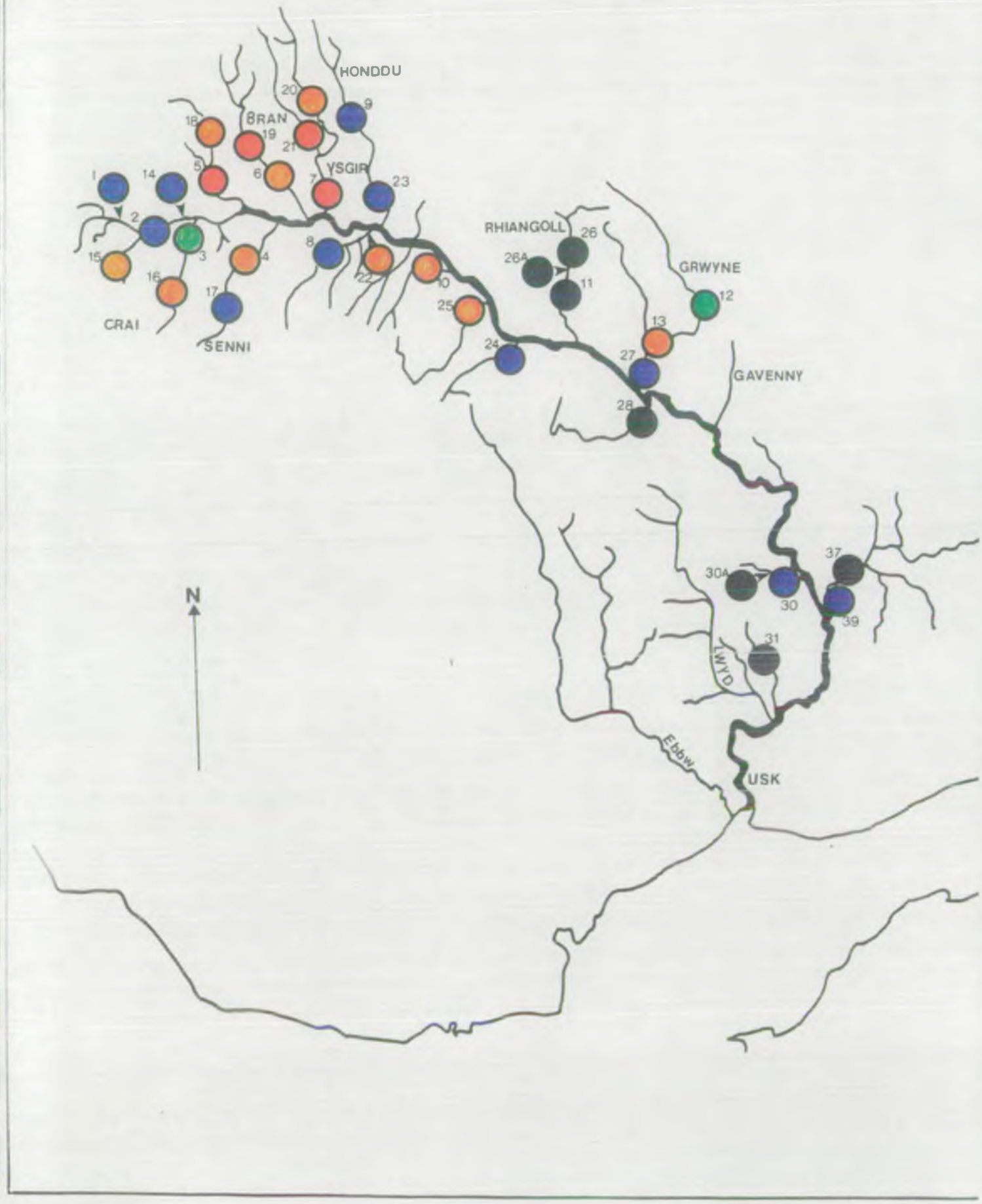
USK CATCHMENT SUMMARY

5-MINUTE CATCHES

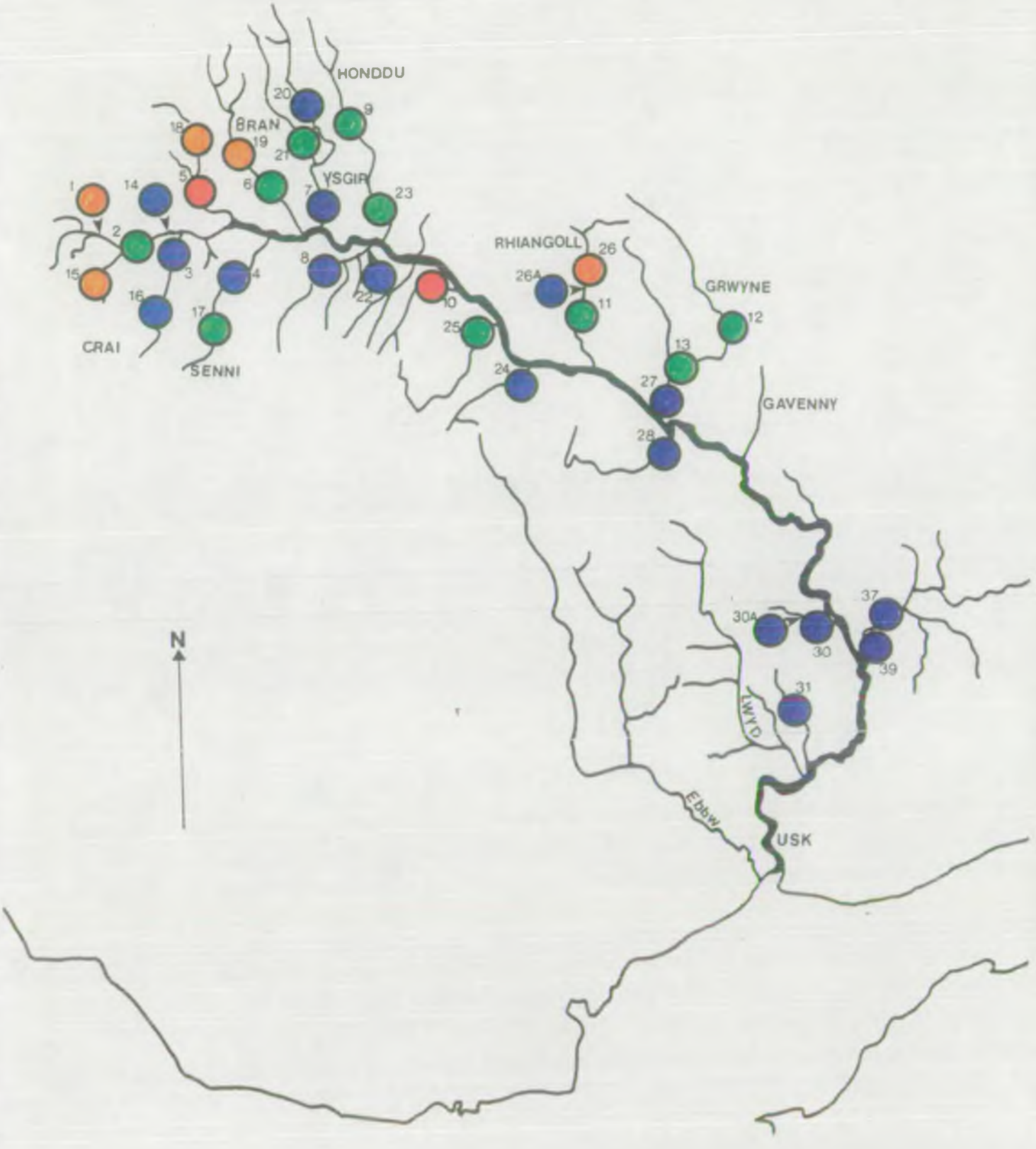
NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
40	USK		SN 920288	47				0				
41	USK		SN 984290	50				0				
42	USK		SO 042287	12				0				
43	USK		SO 123234	23				1				
44	USK		SO 193199	2				0				
45	USK		SO 229170	7				0				
46	USK		SO 342090	6				0				
47	USK		SO 349059	2				0				
			MEAN	18.63				0.13				

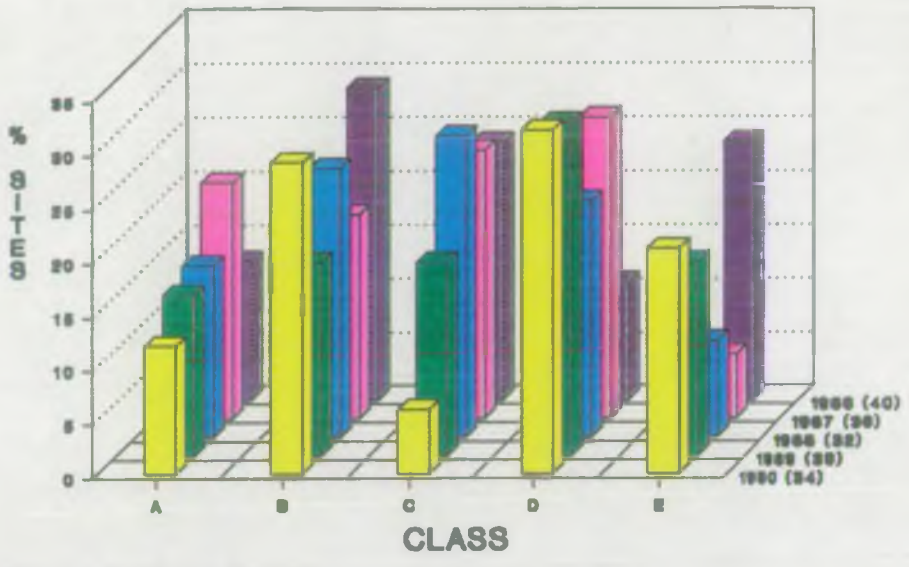
1990 SURVEY
RIVER USK - SALMON DENSITIES.



1990 SURVEY
RIVER USK - TROUT DENSITIES.

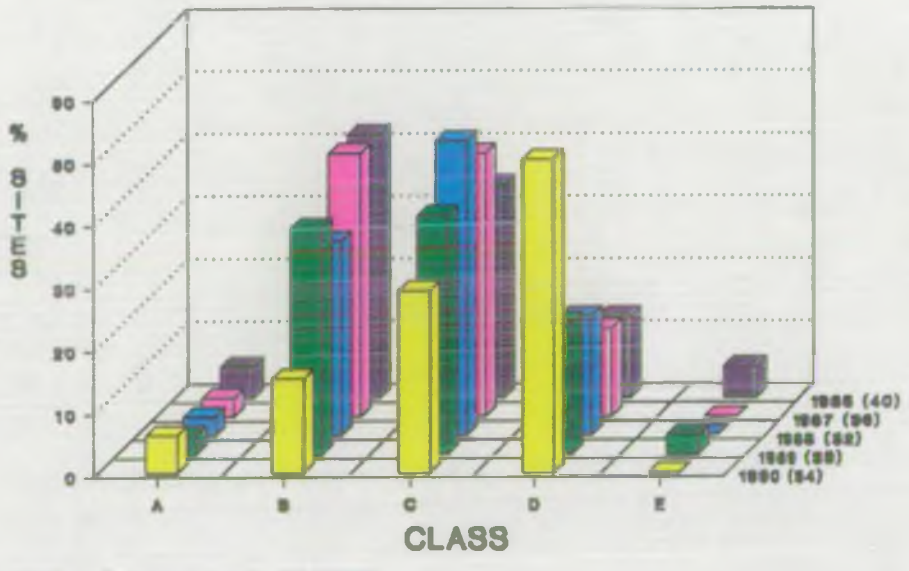


RIVER USK - SALMON
% OF SITES IN EACH CATEGORY



FIGURES IN () DENOTE NO. OF SITES

RIVER USK - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER 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.
Mean rod catch 1984-1988. 3,666 Salmon 46 Sea Trout

2. Sampling Programme.

1986 - 15 quantitative and 102 semi-quantitative sites
1987 - 23 quantitative and 46 semi-quantitative sites
1988 - 23 quantitative and 41 semi-quantitative sites
1989 - 16 quantitative and 52 semi-quantitative sites plus 8 5min samples
1990 - 14 quantitative and 52 semi-quantitative sites plus 13 5min samples

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	9 (17)	10 (15)	6 (9)	14(21)	27(41)
Trout	0 (0)	7 (11)	18 (27)	32(48)	9(14)

* 22(33%) inaccessible to migratory fish except under exceptional conditions.

4. Key Points.

4.1 Salmon densities were lower than in 1989 with fewer sites in classes A and B and more in C and D. Overall the results were similar to those of 1988.

4.2 Results from 5 minute-samples in the main river between Argoed and Whitney were similar to 1989, indicating good salmon fry densities as far downstream as Hay-on-Wye.

4.3 Salmon were rare in the Lugg sub-catchment sites but 5-minute samples in the Lugg demonstrated that a degree of succesful spawning was taking place in the main river downstream of Leominster, although at only one site were densities reasonably high. Except for exceptional years it is likely that salmon populations will remain relatively small on the Lugg until physical obstructions are removed or amended.

4.4 Average trout densities , particularly fry, remain low with the majority of sites in classes C or D, and showing little difference to previous years. Habscores suggested that habitat was suitable for trout fry at some of the sites recording poor densities, notably Clywedog, South Dulas, Garth Dulas and Honddu. There must therefore be some other explanation for the low densities. An additional survey was undertaken on the Chwefru in order to establish whether the lack of

trout fry reflected site selection with a bias towards salmon spawning areas. The monitoring Programme sites are located on the middle and lower reaches of the Chwefru itself and consisently fall into classes A and B for salmon but usually C and D for trout. Of the 7 sites sampled on the headwaters or tributaries of the Chwefru however the results were different. For salmon only,1 site fell into class B while 6 were in class E. For trout , 2 sites were in class C and D. It appears therefore that the trout are spawning higher up the system than salmon and are therefore not so well represented in the Monitoring Programme.

4.5 In the case of salmon the majority of sites support densities of fish equal to or greater than would be expected on the basis of habitat characteristics. In the case of trout fry and >0 and most of >20cm the majority of sites do not attain the expected densities.

FISHERIES MONITORING PROGRAMME

WYE CATCHMENT SUMMARY — QUANTITATIVE SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
1.	DERNOL	2.5	SN 904752	102.5	22.5	0	A	14.2	5.4	0	C	B E M St
3	LLANWRTHWL BK	3.3	SN 974637	34.8	4.8*	0	D	40.5	7.4	1.8	B	B L
4	ITHON	8.7	SO 105681	41.5	0.9	0	C	0	0	0	E	B M St
5	CLYWEDOG	6.3	SO 085651	81.2	3.7	0	B	0	0	0	E	B M ST
7	SOUTH DULAS	6.8	SN 918468	68.3	0.7	0	B	0	0.7	0.7	D	B E M St
8	GARTH DULAS	6.3	SN 947497	319.6	12.8	0.4	A	0	0.4	0.8	D	B L M St
10	DUHONN	6.2	SO 063509	107.2	3.5	0.2	B	2.1	0.5	3.4	D	B E G M St
11	EDW	11.0	SO 110487	146.6	8.0	0	A	1.7	1.6*	0	D	B G
13	LLYNFI	7.9	SO 163364	46.2	1.8	0	C	0	0	0	E	
14	LUGG	3.8	SO 237685	0	0	0	E	19.8	8.5	8.5	B	
16	HINDWELL #	4.8	SO 280607	0	0	0	E	5.6	5.5	3.5	C	
17	ARROW #	5.8	SO 334587	0	0	0	E	8.1	1.8	6.7	C	B E M St
19	MONNOW #	3.8	SO 310317	0	0	0	E	1.0	3.9	6.4	C	B G E
20	HONDDU #	7.4	SO 289273	0	0	0	E	1.7	5.0	5.9	C	
			MEAN	67.70	4.19	0.01	B	6.76	2.9	2.69	C	

\# PROBABLY INACCESIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

WYE CATCHMENT SUMMARY

SEMI-QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON <1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT <1+	TROUT CLASS	OTHER
24	WYE	4.1	SN 842826	0	1.7	0	D	3.4	0.4		D	M
24A	WYE	7.9	SN 853820	2.5	0	0	D	0.7	0.4		D	
25	WYE	9.7	SN 879804	5.5	0	0	D	0	0		E	M
26	WYE	11.9	SN 909797	20.3	0.2	0	C	0	0.2		D	M
27	WYE	15.4	SN 921738	26.9	3.2	0	B	0.2	0		D	E M St
27A	WYE	9.4	SN 965685	36.2	2.3	0	B	0.3	0		D	B M St
27B	WYE	18.9	SN 969677	59.1	2.6	0	A	0.3	0		D	B M St
28	BIDNO	3.7	SN 873823	1.1	0	0	D	1.1	2.1		D	M
29	BIDNO	3.1	SN 891808	4.4	3.7	0	C	8.8	3.7		C	E M
2	MARTEG	6.8	SN 957714	33.4	9.9	0	B	0.4	0		D	B St
30	MARTEG	4.1	SO 003755	8.0	0.9	0	D	2.3	2.3		C	B L M St
31	HIRIN #	4.3	SN 888723	0	0	0	E	0	0.6		D	M
65	ELAN	29.4	SN 956668	4.7	0.2	0	D	0.	1.1		D	B
32	ITHON	10.1	SO 098776	118.8	1.9	0	B	0	0		E	B M St
33	AVON	2.6	SO 156710	23.1	0.	0	C	0.7	7.7		C	B M St
34	CLYWEDOG	3.1	SO 069710	13.8	0.	0	D	11.1	5.5		B	B
35	DULAS	3.7	SO 033661	12.0	0	0	D	0	3.8		D	M
36	HIRNAUT	2.3	SN 999569	78.3	5.8	0	A	8.7	1.4		D	B
37	IRFON	7.3	SN 853526	0	0	0	E	0	1.3		D	
37A	IRFON	15.0	SN 892460	8.6	0	0	D	0	0.5		D	B L M St
38	NANT GWESYN	2.8	SN 855526	0.	0	0	E	22.6	9.5		B	
39	IRFON	11.6	SN 872469	10.0	0.5	0	D	0.5	1.8		D	B St
40	IRFON	18.5	SN 920476	110.5	4.7	0	A	0	0		E	B St
41	CLEDAN	5.7	SN 881456	32.5	4.4	0	B	0.4	0.4		D	B L St
43	CWYFFIAD	2.9	SN 907523	79.1	5.0	0	A	5.0	1.7		D	B St
43B	CAMMARCH	9.6	SN 919515	65.7	3.2	0	A	0	0		E	B M St

\# PROBABLY INACCESIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

WYE 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	
44	GARTH DULAS	4.9	SN 946514	109.9	2.1		B	0	0		E	B M St
9	CHWERFRU	5.2	SN 976552	17.3	8.7	0	B	10.6	0	0	D	B St
9A	CHWEFRU HEAD	2.0	SN 947593	0	0		E	10.0	12.5		B	
9B	CHWEFRU HEAD	4.2	SN 950586	4.8	11.6		B	10.9	5.4		B	
9C	CHWEFRU TRIB		SN 955584	0	0		E	2.0*	7.0			
9D	CHWEFRU TRIB	0.6	SN 970560	0	0		E	0	0		E	
9E	CHWEFRU TRIB	1.9	SN 975550	0	0		E	63.2	7.0		A	B St
9F	CHWEFRU TRIB	1.6	SN 981541	0	0		E	105.0	7.8		A	B
9G	CHWEFRU TRIB	2.3	SN 982531	0	0		E	21.1	0		D	B
46	EDW	5.4	SO 124532	58.6	0	0	C	4.9	0.6	2.3	D	B G M St
12	SCITHWEN	4.8	SO 113414	104.6	11.5	0	A	0	0.9	4.6	D	B G St
47	LLYNFI	3.7	SO 133305	0	0		E	0	0		D	B G E M
48	TRIFFWD	3.4	SO 126345	9.2	0.8		D	0.8	1.3		C	B G E L MSt
49	LUGG #	4.8	SO 309651	0	0		E	6.7	7.8		C	B E M
49C	LUGG #	5.3	SO 426655	0	0		E	0.4	2.1		D	B G E L M
16A	HINDWELL #	6.1	SO 320629	0	0		E	1.3	5.2		C	B
51	LINGEN #	2.9	SO 374660	0	0		E	2.5	9.9		C	B
52	ARROW #	3.4	SO 217507	0	0		E	1.8	33.1		B	B
53	ARROW #	7.0	SO 392584	0	0		E	1.8	4.4		C	B G E M St
53A	ARROW #	7.4	SO 374596	0	0		E	0	0.3		D	B G E G M St

PROBABLY INACCESIBLE TO MIGRATORY FISH

* MINIMUM ESTIMATE

WYE CATCHMENT SUMMARY SEMI QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (M)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
53B	PINSLEY BROOK	4.1	SO 451605	1.8	0	0	D	3.7	2.8	13.0	C	B E L
64	FROME	6.5	SO 600421	0	0	0	E	0	0	0	E	B CH D L M P SST
55	MONNOW #	3.6	SO 295343	0	0	0	E	3.7	2.8	13.0	B	B G E
56	MONNOW #	9.6	SO 326274	0	0	0	E	0.6	0.6	6.2	C	CR E G M St
57	HONDDU #	6.2	SO 277295	0	0	0	E	5.1	3.9	4.3	C	B E St
58	HONDDU #	10.0	SO 312211	0	0	0	E	0	1.8	2.4	D	B E
21	HONDDU #	6.2	SO 335227	0	0	0	E	0	0.9	9.1	D	B E G
59	OLCHON #	5.6	SO 312297	0	0	0	E	6.5	3.6	7.1	B	B
60	DORE #	4.3	SO 341390	0	0	0	E	0.8	1.5	0.8	C	B E
61	DORE #	5.8	SO 397285	0	0	0	E	1.5	0	3.5	C	B E G M
22	DORE #	4.6	SO 354371	0	0	0	E	0	1.1	6.3	D	B E G
62	TROTHY	5.6	SO 399146	0	0	0	E	0	0	6.0	D	B E M St
63	TROTHY	9.3	SO 507116	0	1.8	0	D	0	0.3	0	D	B CH E G GU L
			MEAN	18.0	1.47	0	C	5.6	2.86	1.33	C	

PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

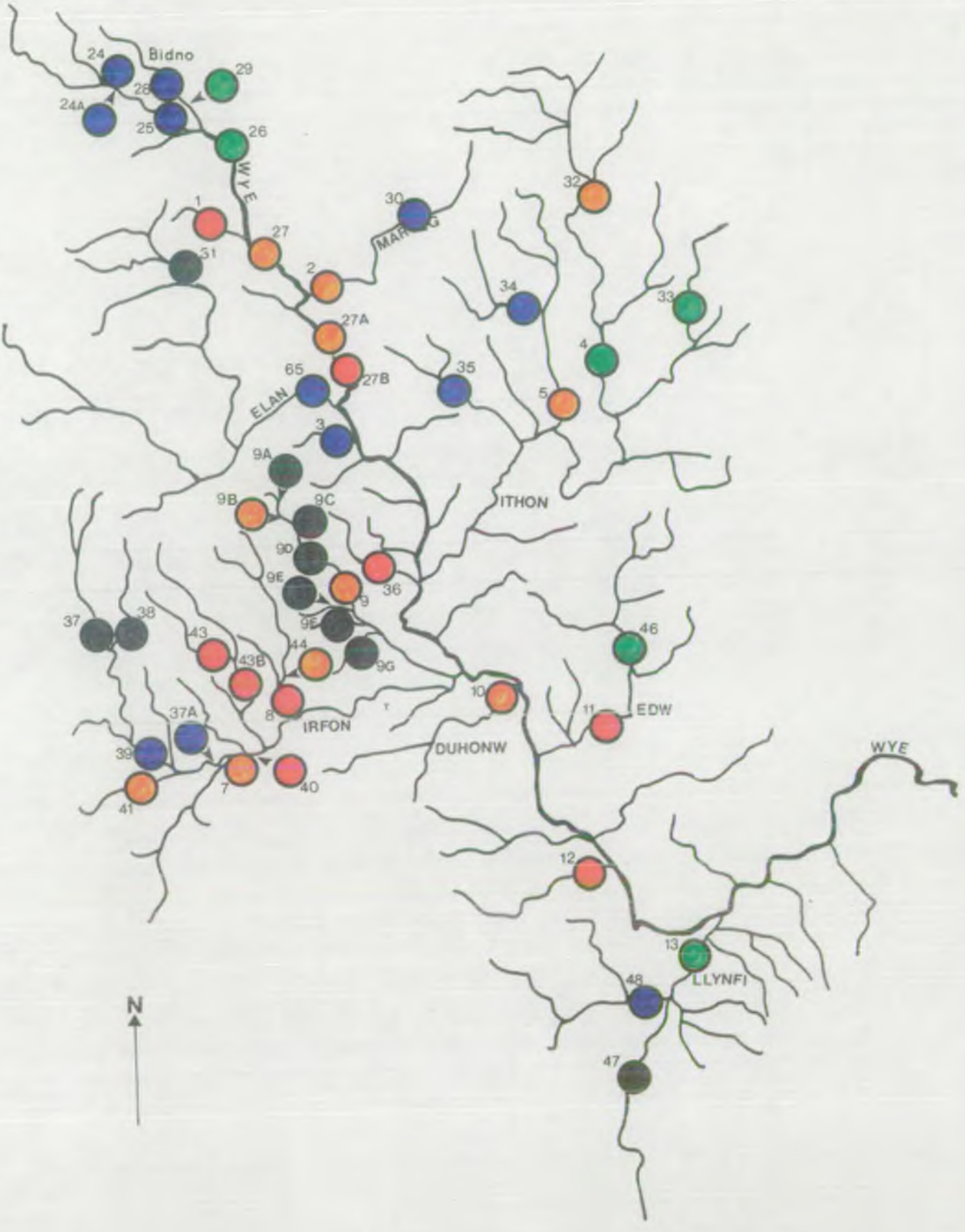
WYE CATCHMENT SUMMARY — 5 - MINUTE CATCHES

NUMBER OF FISH PER 100M 2

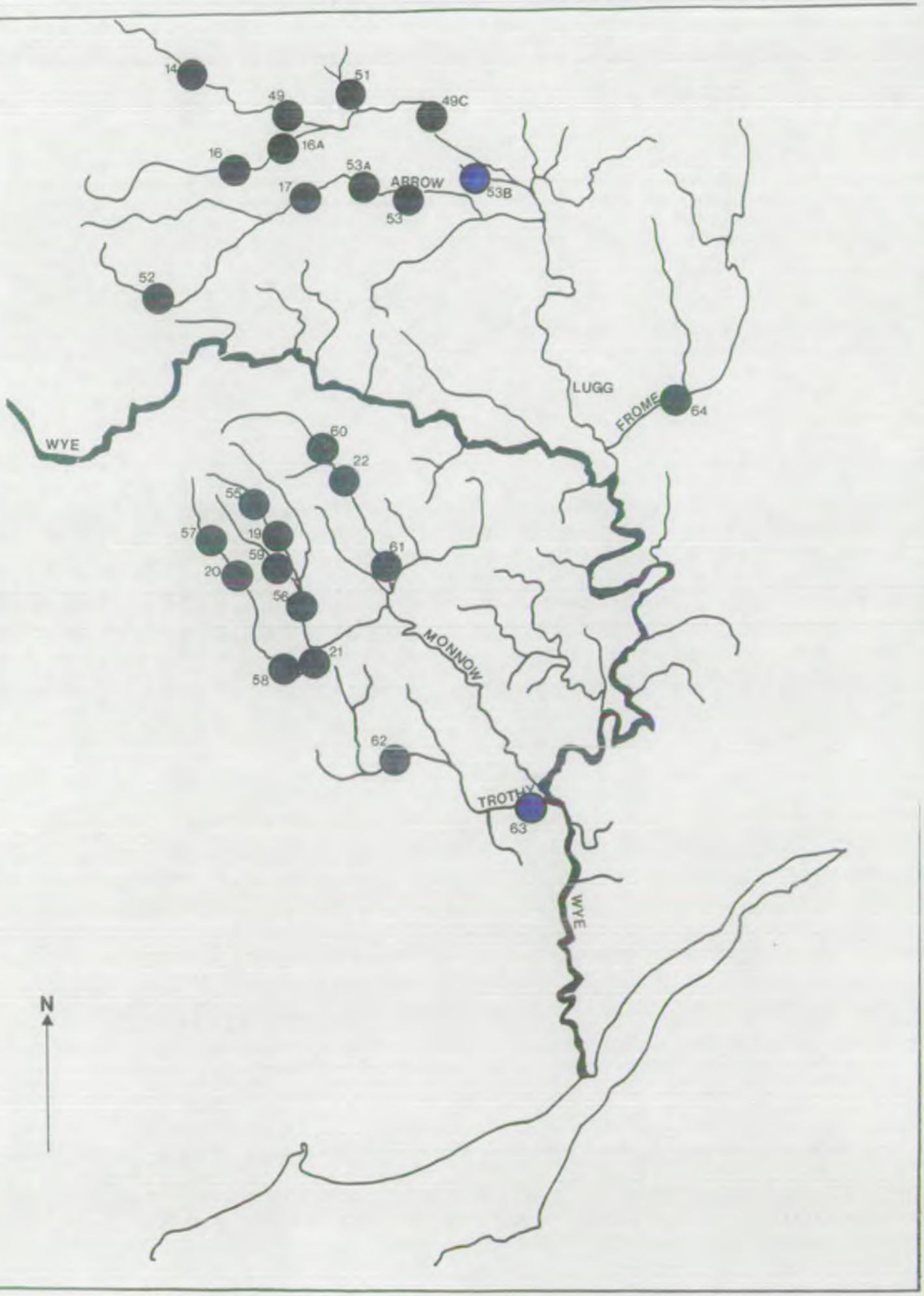
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
71	WYE		SN 991628	32				0				
72	WYE		SO 014583	153				0				
73	WYE		SO 048518	40				0				
74	WYE		SO 074449	11				0				
75	WYE		SO 170389	23				0				
76	WYE		SO 228427	10				0				
77	WYE		SO 269465	2				0				
78	WYE		SO 318463	1				0				
79	LUGG		SO 494599	2				0				
80	LUGG		SO 501506	2				0				
81	LUGG		SO 535512	18				0				
82	LUGG		SO 529447	3				0				
83	LUGG		SO 547407	2				0				
			MEAN	23				0				

PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

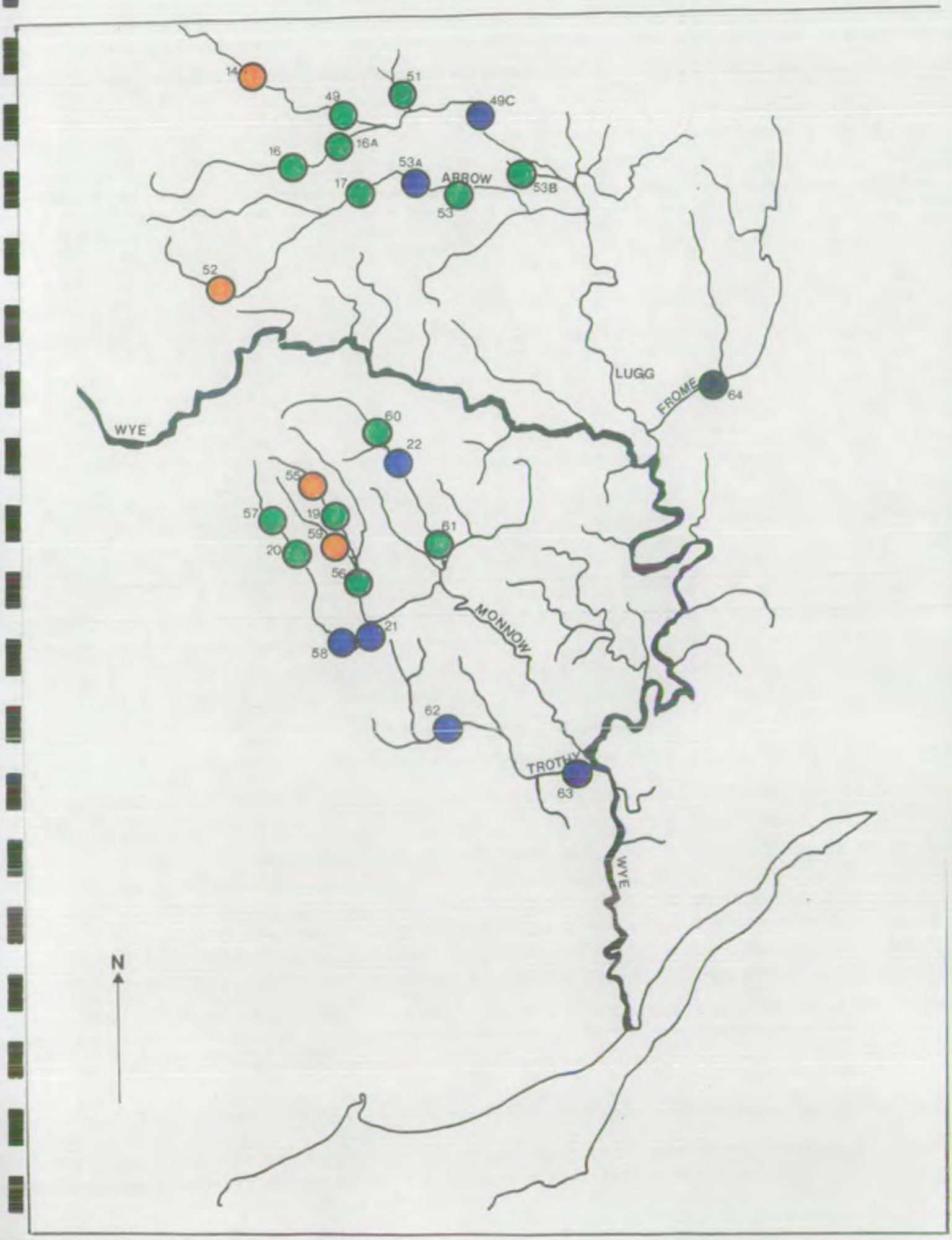
1990 SURVEY
UPPER RIVER WYE - SALMON DENSITIES.



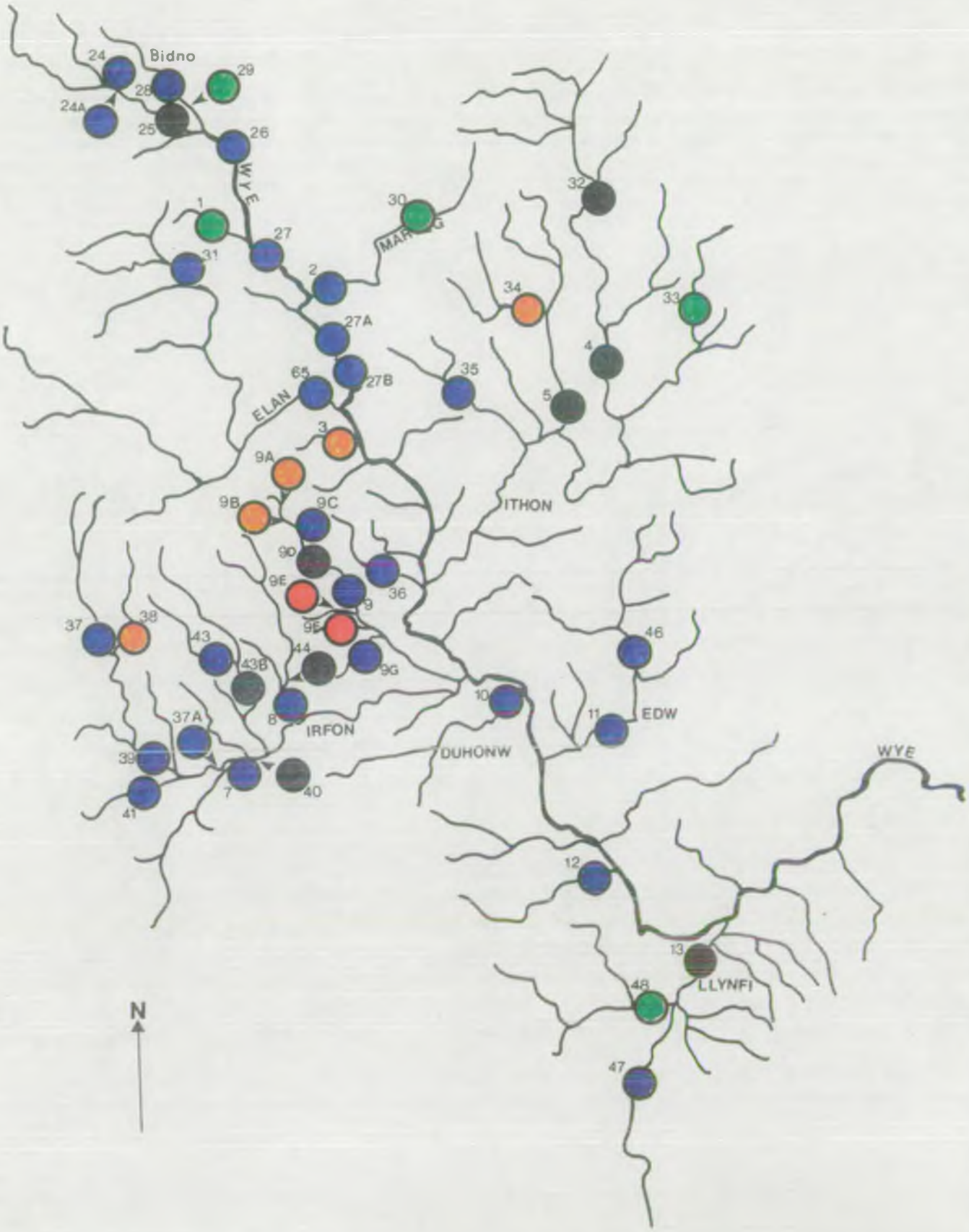
1990 SURVEY
LOWER RIVER WYE - SALMON DENSITIES.



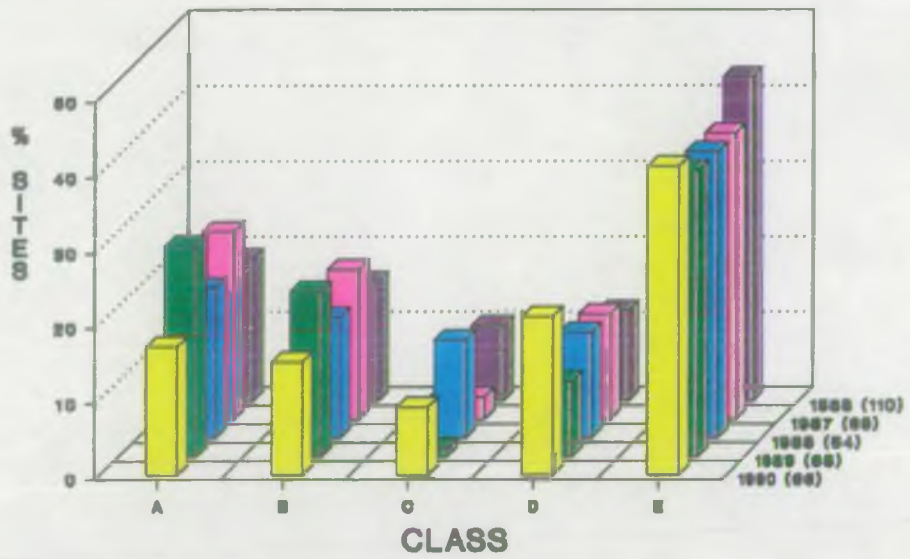
1990 SURVEY
LOWER RIVER WYE - TROUT DENSITIES.



1990 SURVEY
UPPER RIVER WYE - TROUT DENSITIES.

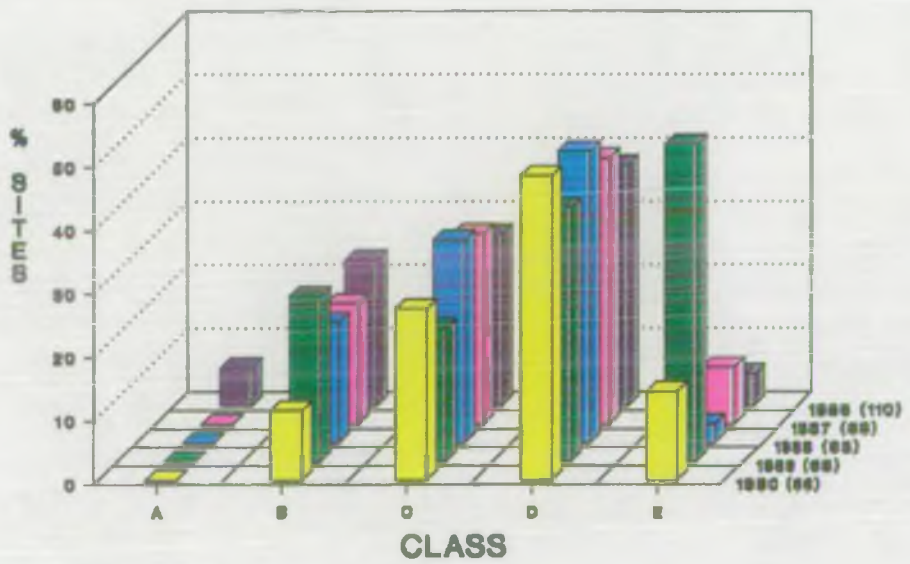


RIVER WYE - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER WYE - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

APPENDIX 5

SOUTH WESTERN DIVISION

CATCHMENT SUMMARIES.

RIVER NEATH SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use — Headwater tributaries drain sheep grazed moorland and forestry within the Brecon Beacons National Park. Main river flows through steep sided coal mined valleys in the middle and upper reaches with urbanisation dominating the lower reaches.

Water Quality — Upper reaches of main river is class 1A with the lower reaches and Dulais falling to class 2. Pollution in the Cwm Gwrelych has reduced this tributary to class 2

Fishery Status — Supports an improving salmon fishery with significant runs of sea trout. Coarse fish (roach and chub) have been reported in the lower reaches.

Average catch: (1984 - 1989) Rods 20 Salmon; 199 Sea Trout

2. Sampling Programme.

1986 - 8 semiquantitative sites
1990 - 14 semiquantitative sites

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	0 ( )	0 ( )	0 ( )	2 (14)	12(86)
Trout	1 (7)	5 (36)	3 (21)	4 (29)	1(7)

4. Key Points.

4.1 Salmon were absent from the majority of sites,being present only in low numbers in the Rheola and Dulais tributaries.The paucity of salmon is consistent with the previous survey.

4.2 Trout were recorded from all sites except the Nant Clydach where heavy deposits of ferric oxide precluded salmonids.

4.3 Trout fry densities were low throughout with the exception of the Clwyd, a minor tributary in the middle reaches.

4.4 Trout parr densities were moderate to good and classification of sites was generally similar to that in 1986.

4.5 Construction of the A465 Trunk Road during the 1990s will directly affect 60,000m of main river bed when river diversions are carried out between Aberdulais and Maesgwyn. Fishery protection measures will minimise the impact on the fishery.

4.6 Proposals to provide a fish pass on the Dulais at Aberdulais will increase spawning potential in this major tributary.

FISHERIES MONITORING PROGRAMME

NEATH CATCHMENT SUMMARY

SEMIQUANTITATIVE SITE

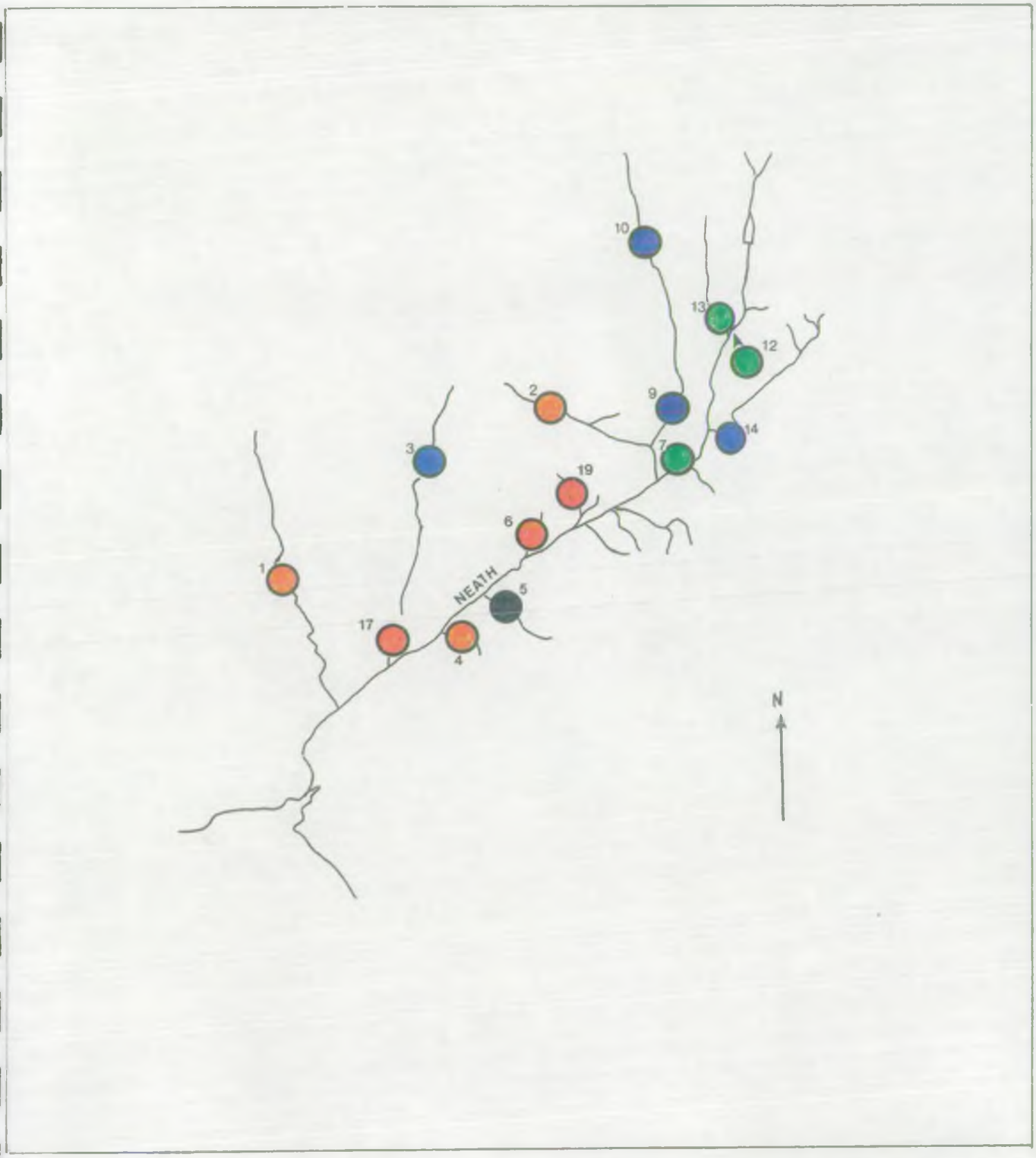
NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
1	CLYDACH BROOK	4.2	SN 743011	0	0	0	E	8.1	6.7	7.6	B	E,M,St
2	PYRDDIN	5.4	SN 869104	0	0	0	E	9.3	13.3	3.3	B	St
3	DULAIS	7.2	SN 809079	0	0	0	E	0.3	0.8	1.1	D	St
4	MELIN COURT	3.4	SN 822021	0	0	0	E	8.8	10.0	3.5	B	B,E,St
5	NANT CLYDACH		SN 833026	0	0	0	E	0	0	0	E	E
6	RHEOLA	4.7	SN 843039	0.4	0.4	0	D	11.5	1.3	1.3	B	B,E,M,St
7	SYCHRYD	5.7	SN 915080	0	0	0	E	0	19.0	10.0	C	E
9	NEDD FECHAN	13.2	SN 907105	0	0	0	E	1.7	1.8	0.5	D	B,St
10	NEDD FECHAN	5.5	SN 915148	0	0	0	E	0	1.1	0	D	
12	DRINGARTH	5.7	SN 936145	0	0	0	E	0	1.4	4.6	C	B
13	LLIA	5.9	SN 935145	0	0	0	E	0.7	2.7	2.0	C	B
14	HEPSTE	3.5	SN 941098	0	0	0	E	0	0.6	5.7	D	
17	DULAIS	8.9	SN 772994	0	0.2	0	D	0.2	12.8	2.3	B	E,M,St
19	CLWYD	2.2	SN 850049	0	0	0	E	63.7	6.4	0.9	A	B,E
			MEAN	<0.1	<0.1	0	D	7.5	5.6	3.1	C	

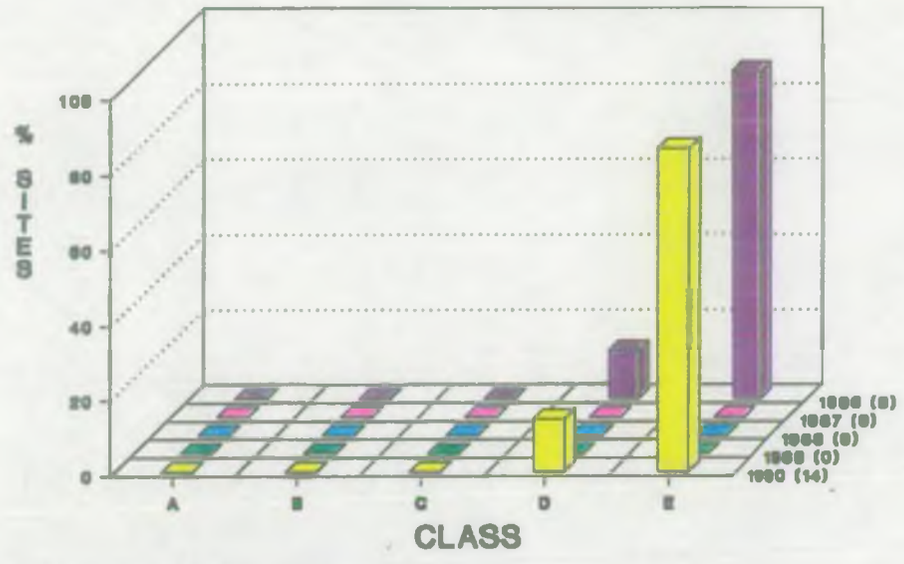
PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

1990 SURVEY
RIVER NEATH - SALMON DENSITIES.

1990 SURVEY
RIVER NEATH - TROUT DENSITIES.

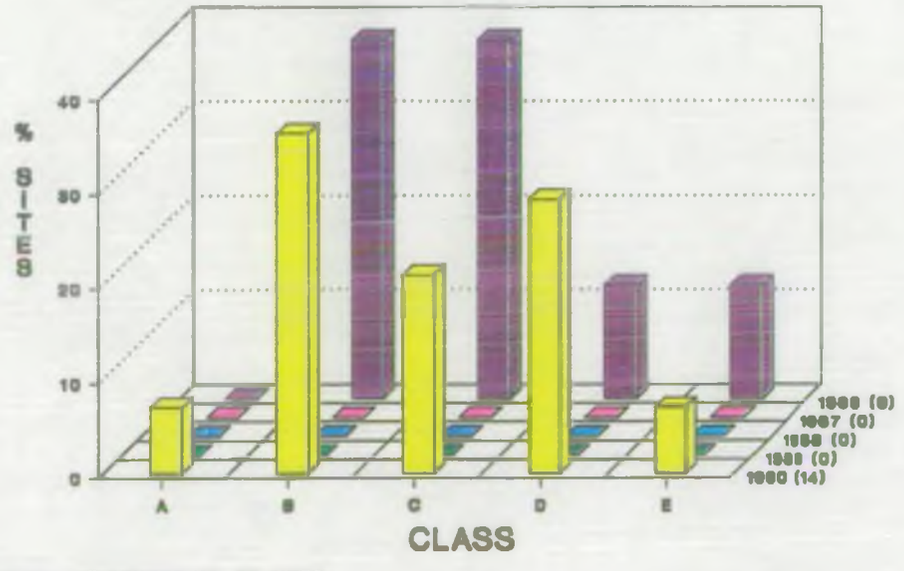


RIVER NEATH - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER NEATH - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER OGMORE SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use — Coalmined valleys with forestry giving way to industrialised and urbanised middle reaches.

Water Quality — Upper reaches class 1A to 2 with pollution along LLynfi tributary reducing to class 3 and 4. Mid and lower reaches class 1B.

Fishery Status — Average catch - (1984 - 1989) Rods; 18 Salmon 466 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 semiquantitative sites

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	0 ( )	0 ( )	0 ( )	2 (17)	10(83)
Trout	4 (33)	4 (33)	3 (25)	1 (9)	0 ( )

4. Key Points.

4.1 Salmon were only recorded in low numbers in the Ewenny (sites 4 and 6) and, as in previous years, were absent from the rest of the Ogmore catchment.

4.2 Trout fry densities were similar to those of the previous years although a marked increase was recorded in the upper reaches at site 19 (Nant Iechyd).

4.3 Additional sites sampled on the Garw (sites 15a and 15) prior to a land reclamation scheme in the upper reaches at Blaengam, identified productive trout spawning gravels. These will be retained for introduction into the proposed new river channels.

4.4 As part of the Llynfi/Ogmore Fishery Restoration a total of 7,677 S1 Salmon smolts and 19,991 salmon parr were microtagged and introduced into the Ogmore catchment between April to August.

FISHERIES MONITORING PROGRAMME

OGMORE CATCHMENT SUMMARY — QUANTITATIVE SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
4	NANT CRYMLYN	3.2	SS 958834	3.8	0	0	D	20.7	1.9	3.8	C	B,E,L,St
6	NANT CIWC	3.3	SS 984835	0	1.2	0	D	27.4	9.9	1.8	B	B,E
9	NANT GADLYS	4.3	SS 871879	0	0	0	E	29.9	8.4	0.5	B	B,E,L
10	NANT CWMDU	3.6	SS 874894	0	0	0	E	31.4	16.7	15.6	A	B,E,St
11	SYCHBANT	3.9	SS 859899	0	0	0	E	10.5	21.3	12.4	B	B,E,L,St
13	GARW	5.2	SS 914876	0	0	0	E	22.7	4.8	8.3	C	B,E
15A	GARW	2.2	SS 898933	0	0	0	E	98.7	30.9	3.3	A	E
15	GARW	3.6	SS 902927	0	0	0	E	3.5	38.0	40.4	B	B,E,St
19	NANT IECHYD	3.1	SS 944874	0	0	0	E	113.4	24.3	12.7	A	B,E
			MEAN	0.4	0.1	0	D	39.8	17.4	11.0	A	

\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

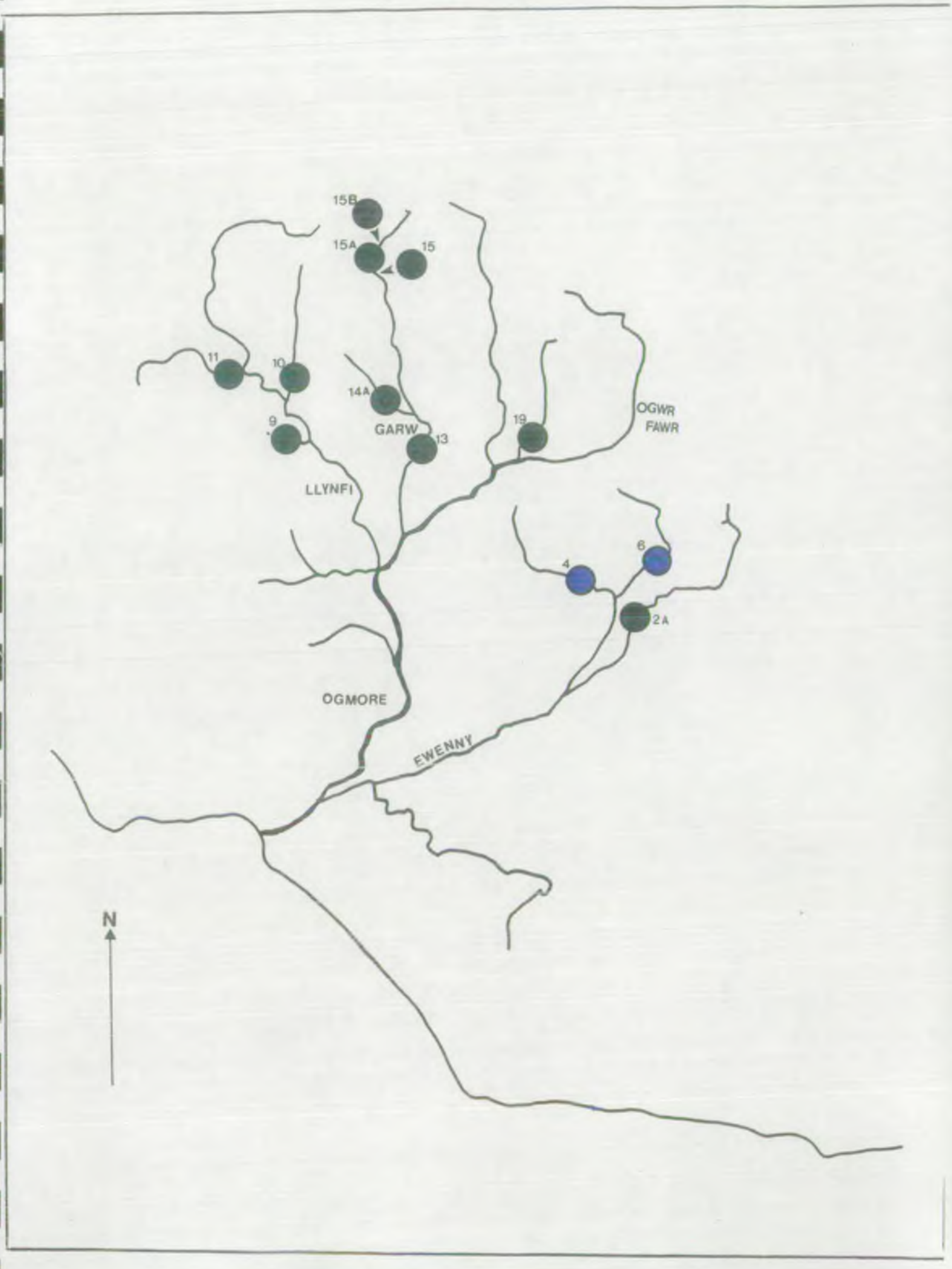
OGMORE CATCHMENT SUMMARY — SEMIQUANTITATIVE SITE

NUMBER OF FISH PER 100M 2

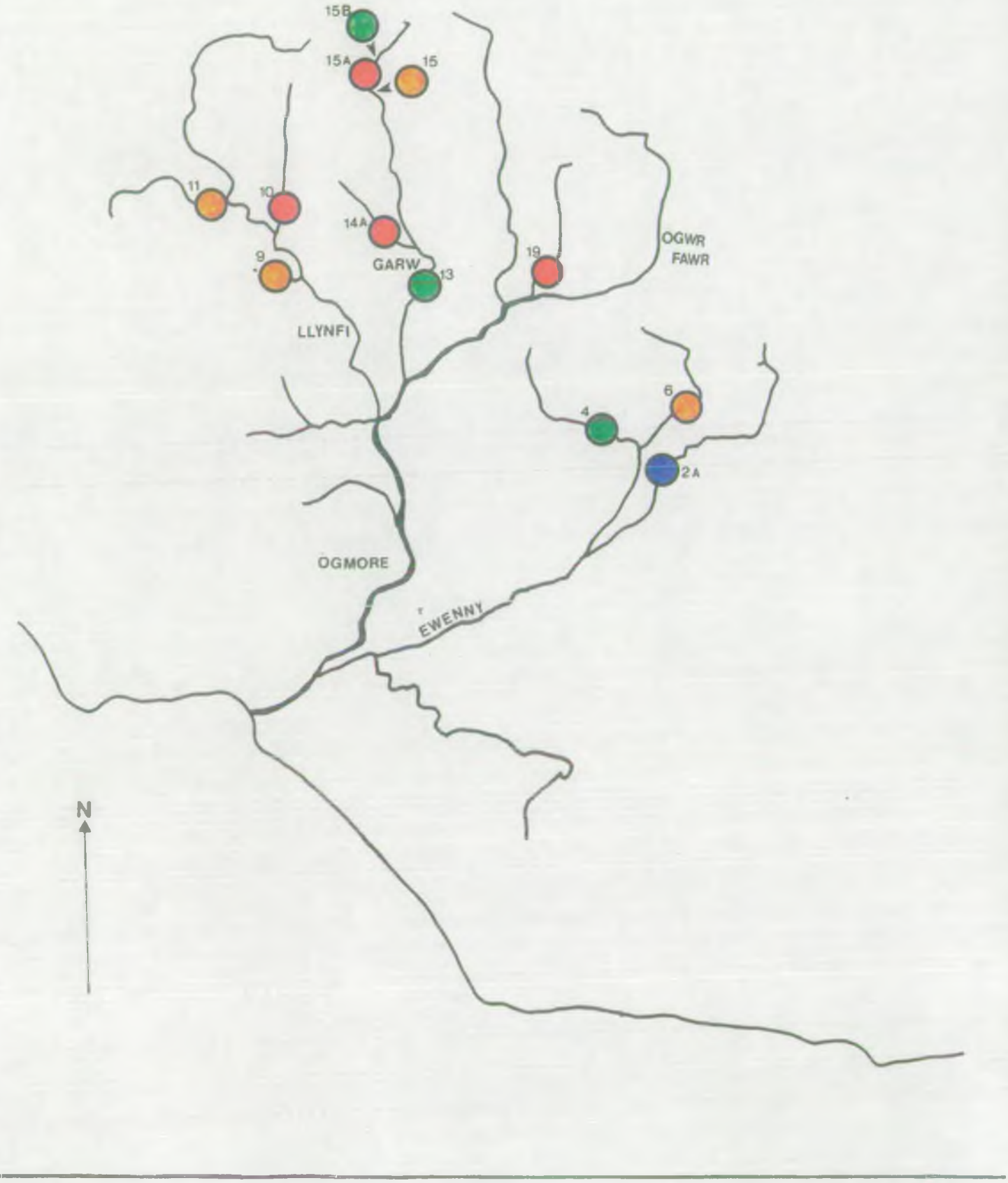
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
2A	EWENNY FACH	3.5	SS 982827	0	0	0	E	0	2.9	1.1	D	B,E
14A	GARW FECHAN	2.4	SS 899905	0	0	0	E	16.7	23.3	8.3	A	B,St
15B	GARW	3.0	SS 902934	0	0	0	E	0	16.0	13.2	C	B,E,St
			MEAN	0	0	0	E	5.6	14.1	10.8	B	

\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

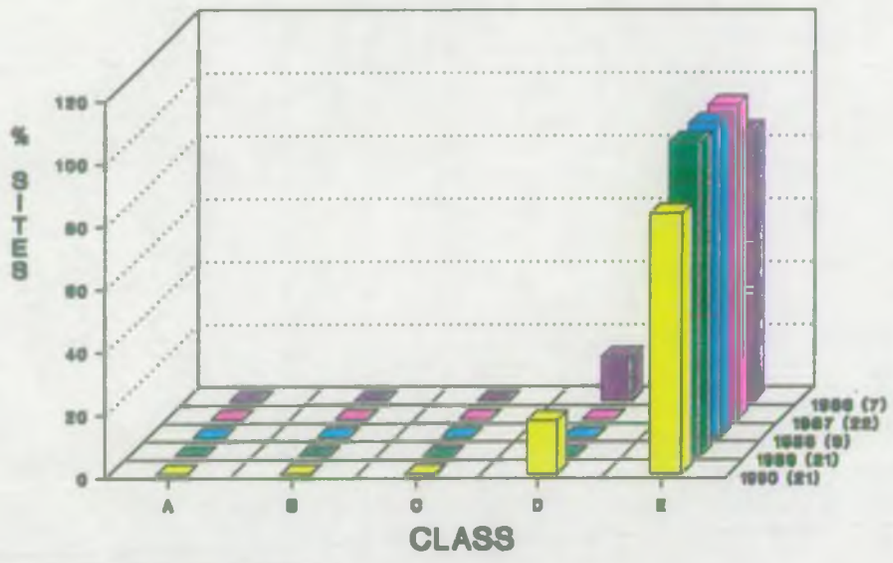
1990 SURVEY
OGMORE - SALMON DENSITIES.



1990 SURVEY
OGMORE - TROUT DENSITIES.

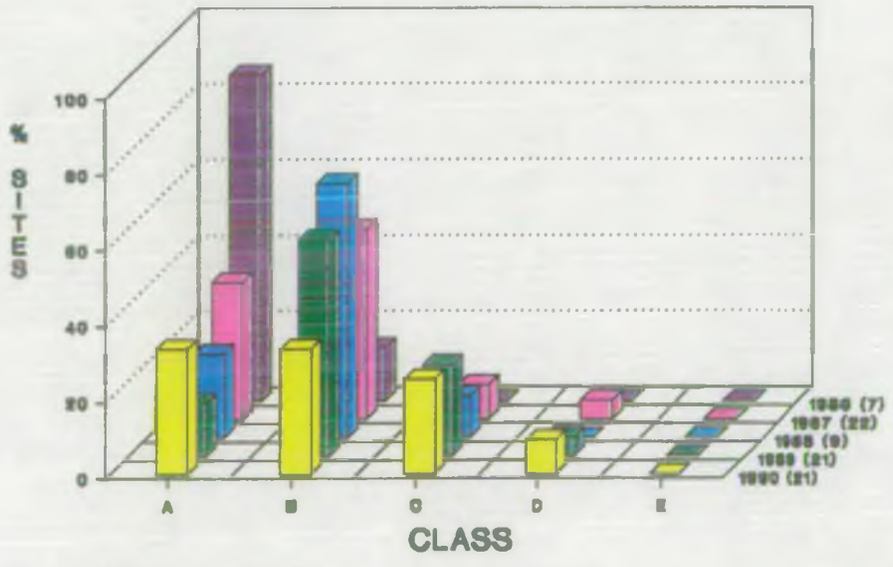


RIVER OGMORE - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER OGMORE - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER SOLFACH SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Principally livestock rearing

Water Quality - Class 1A

Fishery Status -Average catch: 2 Salmon; 17 Sea Trout
(1986-1988)

2. Sampling Programme.

1986 - 1 quantitative site
1987 - 2 quantitative sites
1989 - 2 quantitative sites and 1 semi-quantitative site
1990 - 1 quantitative and 1 semiquantitative site

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	0 ( )	1 (50)	1 (50)	0 ( )	0 ( )
Trout	0 ( )	2 (100)	0 ( )	0 ( )	0 ( )

4. Key Points

4.1 Two key sites were chosen in this small catchment to assess the impact of the Solfach Flood Storage Scheme, 1989.

4.2 Salmon fry densities had substantially decreased downstream of the scheme at site 2A where an increase in macrophyte growth and sedimentation were recorded.

4.3 Trout density had also declined and both sites were class B compared with class A of previous years.

4.4 Additional sites will be sampled in 1991 to identify the extent of the decline in the salmonid population.

FISHERIES MONITORING PROGRAMME

SOLFACH CATCHMENT SUMMARY — SEMIQUANTITATIVE SITE

NUMBER OF FISH PER 100M 2

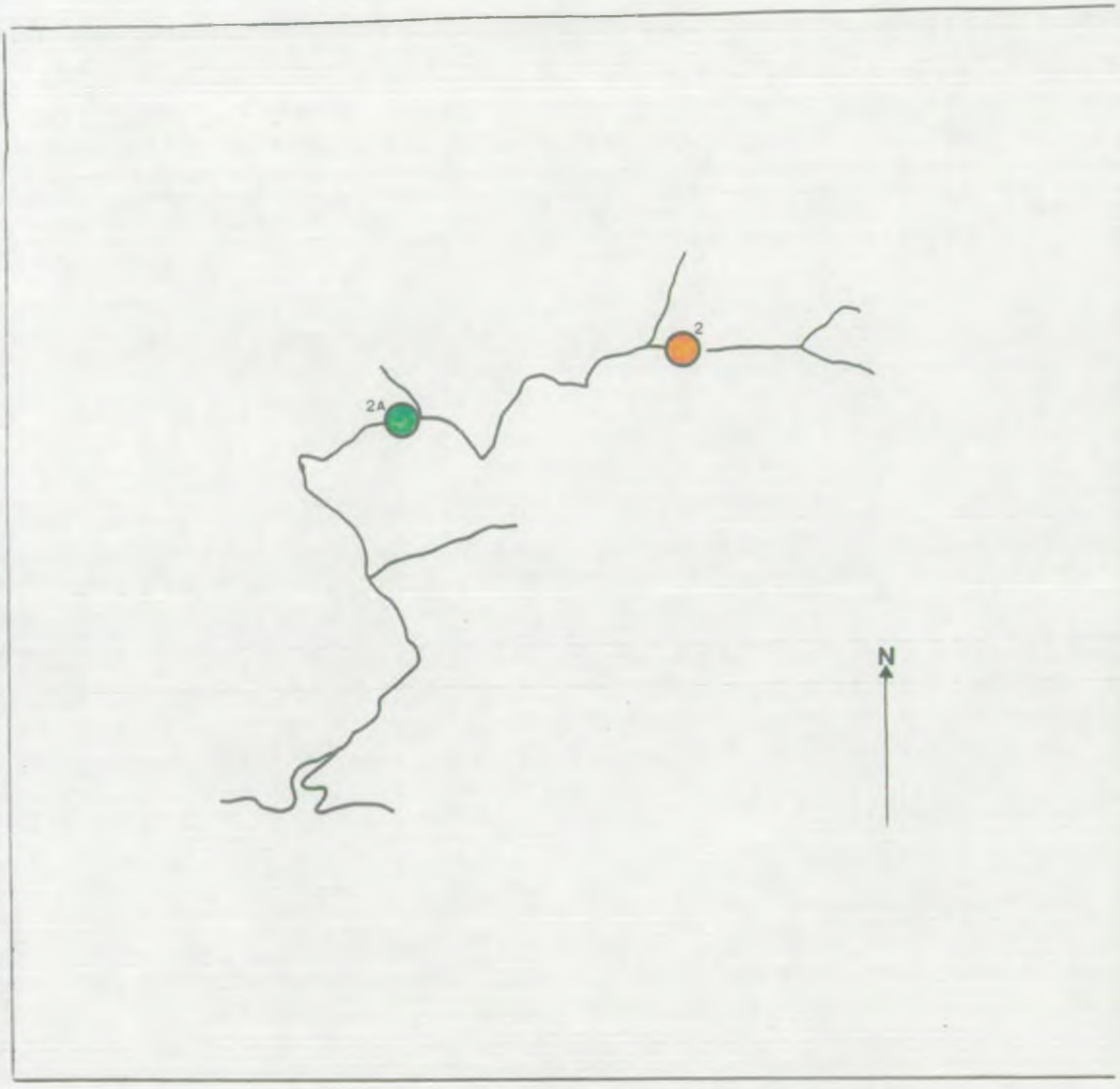
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
2	SOLFACH	3.8	SN 835275	57.8	5.1	0	B	29.5	14.8	6.4	B	E,L,S,St

SOLFACH CATCHMENT SUMMARY — QUANTITATIVE SITE

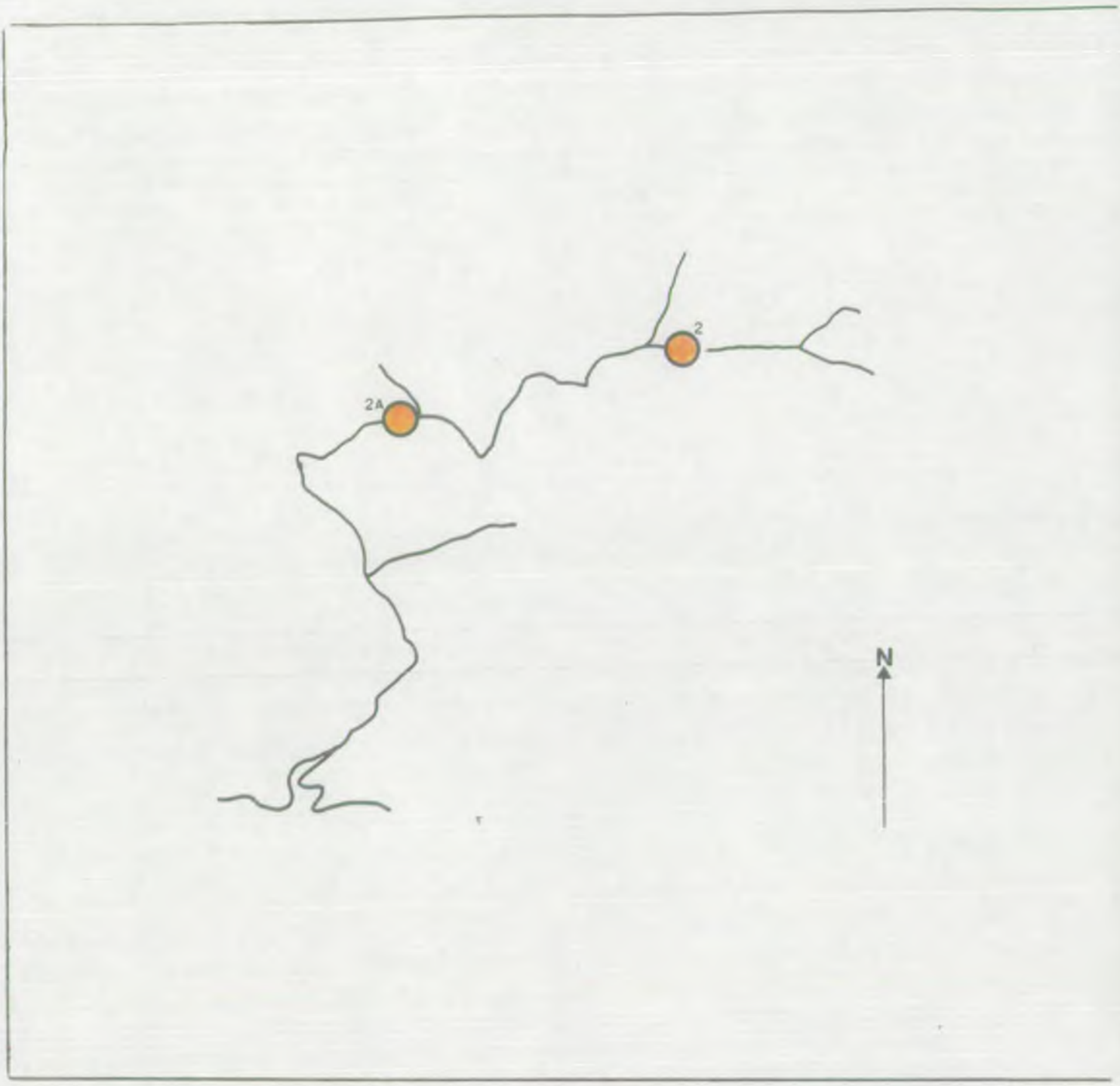
NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
2A	SOLFACH	4.2	SN 810268	0.5	9.6	0	C	17.7	13.9	7.7	B	E,L,S,St

1990 SURVEY
RIVER SOLFACH - SALMON DENSITIES.



1990 SURVEY
RIVER SOLFACH - TROUT DENSITIES.



RIVER TAF SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Principally crop production (early potatoes) in the upper catchment with mixed livestock rearing throughout the catchment.

Water Quality - Class 2 throughout the main river

Fishery Status - Average catch (1986 - 1989) Rods: 113 Salmon 240 Sea Trout
Nets: 4 Salmon 100 Sea Trout

2. Sampling Programme.

1986 - 2 quantitative sites and 9 semi-quantitative sites.
1987 - 10 quantitative sites and 30 semi-quantitative sites.
1988 - 3 quantitative sites-high river flows prevented further sampling.
1989 - 8 quantitative sites and 16 semi-quantitative sites.
1990 - 7 quantitative, 1 semi-quantitative and 15 riffle sites.

3. Assessment of Status.

Number (%) sites in each category in 1990.

	A	B	C	D	E
Salmon	0 ( )	1 (13)	1 (13)	4 (50)	2 (24)
Trout	3 (38)	3 (38)	2 (24)	0 ( )	0 ( )

4. Key Points.

4.1 Salmon fry present at all sites considered accessible to migratory fish with highest densities recorded in the upper reaches (32 and 38)

4.2 There was a decline in salmon parr throughout key sites in 1989.

4.3 Little change in trout densities, although increase in the density of brown trout fry was recorded in the Sien(11).

4.4 Riffle sites sampled thoughout the main river supported satisfactory numbers of salmon fry. Trout fry were only recorded in low numbers at these sites. These results are comparable with those observed in the River Teifi.

FISHERIES MONITORING PROGRAMME

TAF CATCHMENT SUMMARY — QUANTITATIVE SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
6	DEWI FAWR	5.4	SN 291209	4.5	0	0	D	3.0	5.6	4.5	C	B,E,M,St
10	CYNIN	5.7	SN 267215	17.8	1.9	0	D	18.2	9.1	13.1	B	B,E,M,St
11	SIEN #	1.7	SN 254258	0	0	0	E	119.0	23.6	18.8	A	B,E
22	GRONW	3.8	SN 203168	8.6	0	0	D	11.3	10.9	8.6	B	B,E,M,St
28	MARLAIS TRIB	2.5	SN 141141	0	0	0	E	59.4	13.2	9.5	A	B,E
32	TRIB.AT LOGIN	1.6	SN 165233	47.5	0	0	D	92.4	24.7	10.2	A	B,E,M,St
38	TAF	4.2	SN 221312	54.4	0.5	0	B	40.0	4.0	9.9	B	B,E
			MEAN	19.0	0.3	0	D	49.0	13.0	10.7	B	

TAF CATCHMENT SUMMARY — SEMI-QUANTITATIVE SITES

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
2	CYWYN	5.5	SN 332215	19.9	2.2	0	C	2.6	2.6	1.3	C	
			MEAN	19.9	2.2	0	C	2.6	2.6	1.3	C	

PROBABLY INACCESIBLE TO MIGRATORY FISH

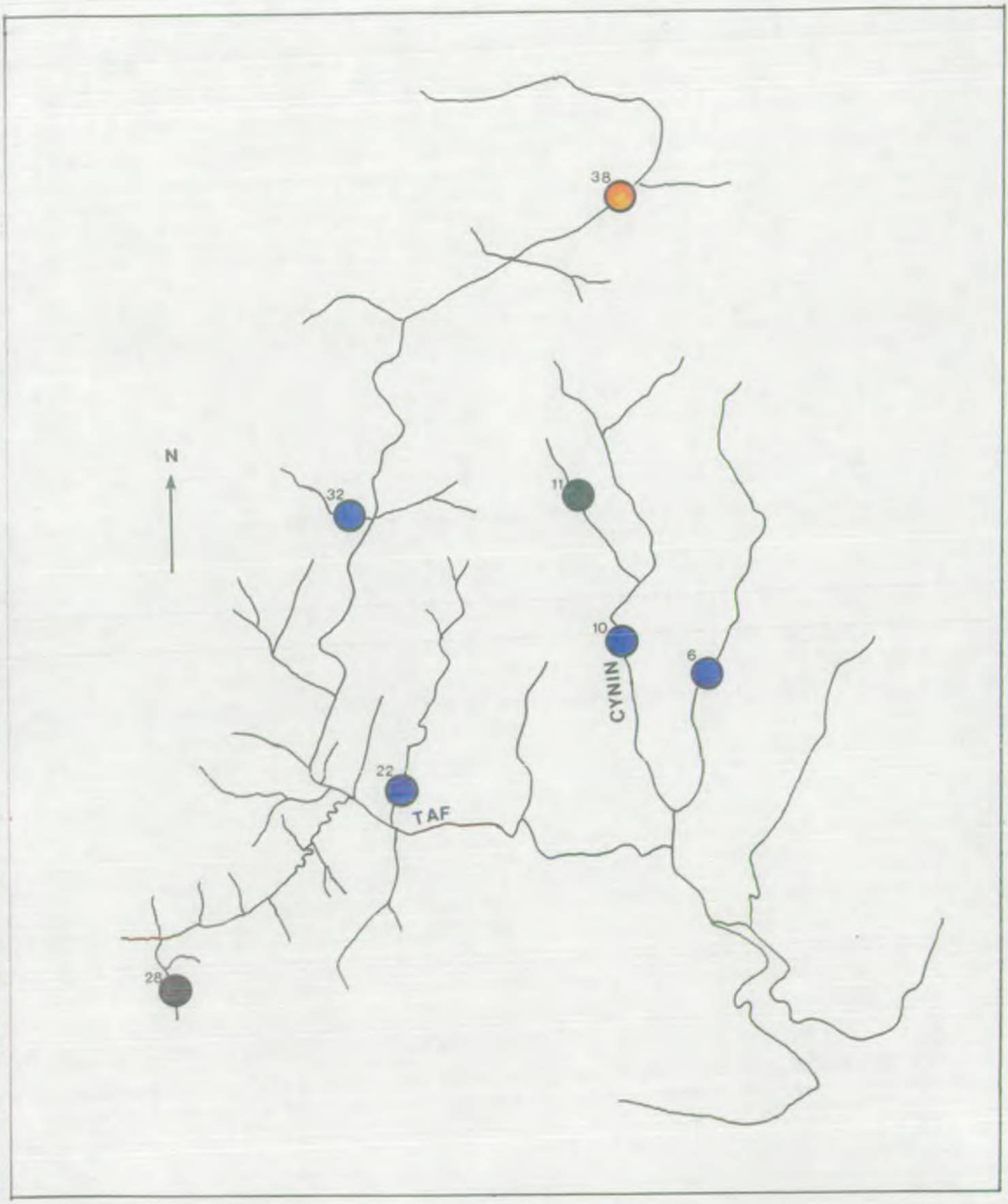
FISHERIES MONITORING PROGRAMME

TAF CATCHMENT SUMMARY — 5 MINUTE FRY SITES

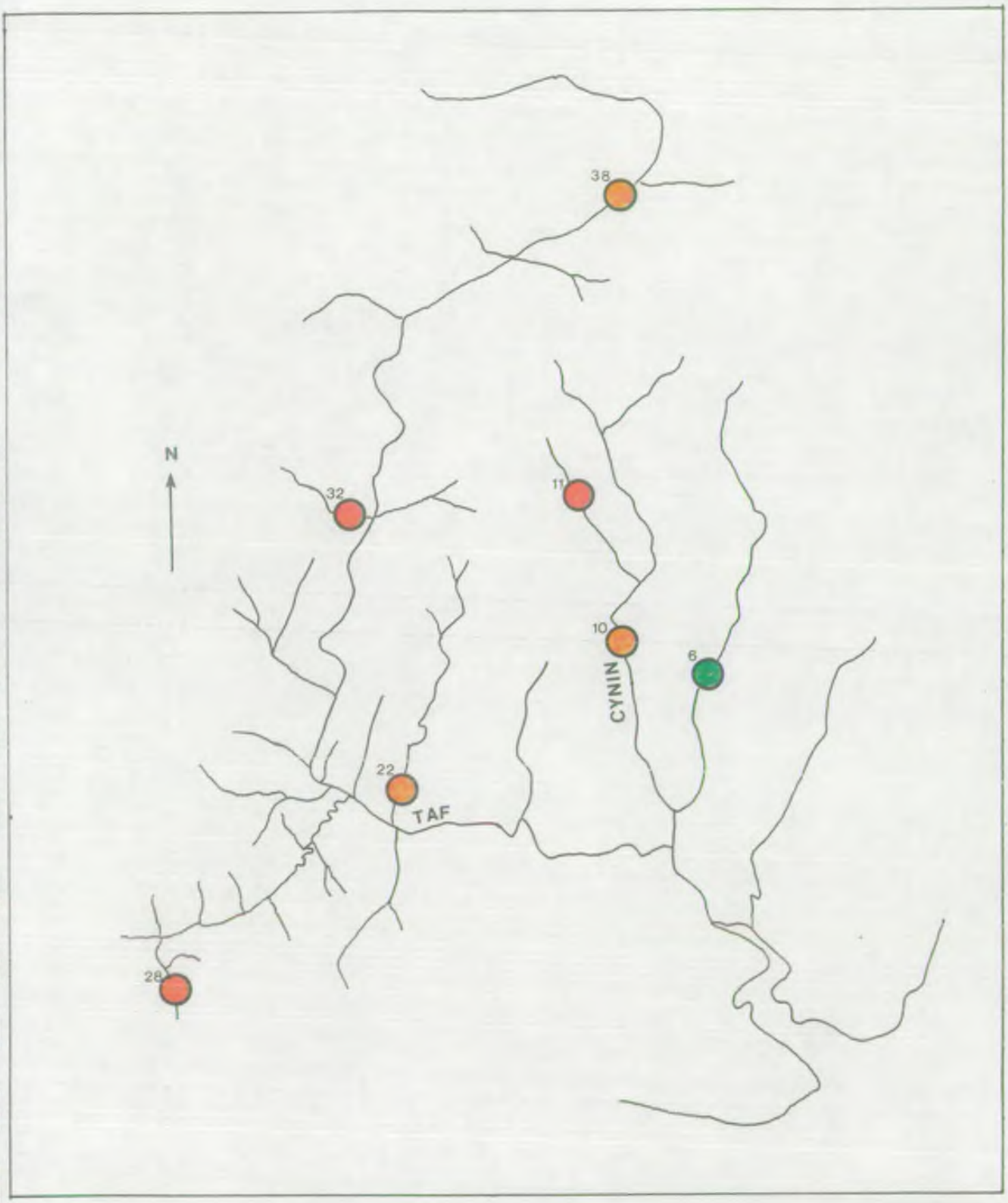
NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	O.S. MAP REFERENCE	SALMON		TROUT	
			0+	>0+	0+	>0+
1	TAF	SN 202161	7	0	12	0
2	TAF	SN 186169	9	0	9	0
3	TAF	SN 157192	54	0	8	0
4	TAF	SN 155201	60	0	12	0
5	TAF	SN 165223	54	0	6	0
6	TAF	SN 166235	33	0	3	0
7	TAF	SN 171259	62	0	8	0
8	TAF	SN 178265	58	0	5	0
9	TAF	SN 183270	137	0	12	0
10	TAF	SN 193287	60	0	6	0
11	TAF	SN 208295	40	0	5	0
12	TAF	SN 221310	53	0	8	0
13	TAF	SN 227318	56	0	9	0
14	TAF	SN 222305	40	0	5	0
15	TAF	SN 152196	57	0	12	0
		MEAN	52	0	8	0

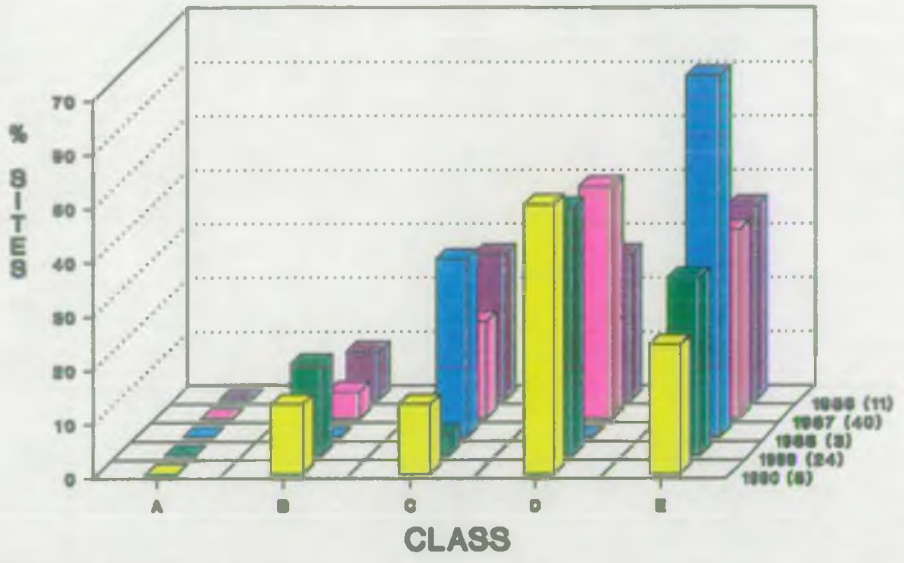
1990 SURVEY
RIVER TAF - SALMON DENSITIES.



1990 SURVEY
RIVER TAF - TROUT DENSITIES.

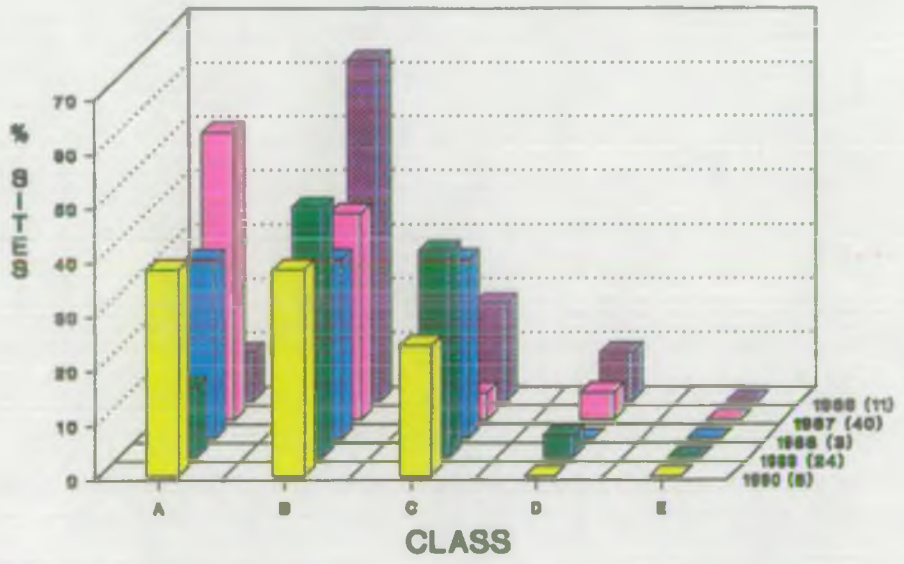


RIVER TAF - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER TAF - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER TAWE SUMMARY.

1. Catchment and Fishery Characteristics.

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

Water Quality — Class 1A in the upper reaches, 1B in the lower reaches. Short Stretch in the middles reaches class 3 due to localised pollution

Fishery Status — Average catch (1984 - 1989) Rods: 55 Salmon; 497 Sea Trout.

2. Sampling Programme.

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

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	0 ( )	0 ( )	0 ( )	2 (67)	1 (33)
Trout	0 ( )	2 (67)	0 ( )	1(33)	0 ( )

4. Key Points

4.1 Two key sites were not sampled due to a lack of resources.

4.2 Salmon were recorded in low numbers and were absent from site 7 in the upper reaches of the catchment. These results are consistant with previous years.

4.3 Trout densities remain stable, although a slight decrease in the number of trout parr reduced the classification of the Nant Ddu to Class D.

4.4 Microtagged S1 salmon smolts (6,000) were stocked in the Tawe catchment during 1990.

FISHERIES MONITORING PROGRAMME

TAWE CATCHMENT SUMMARY — QUANTITATIVE SITES

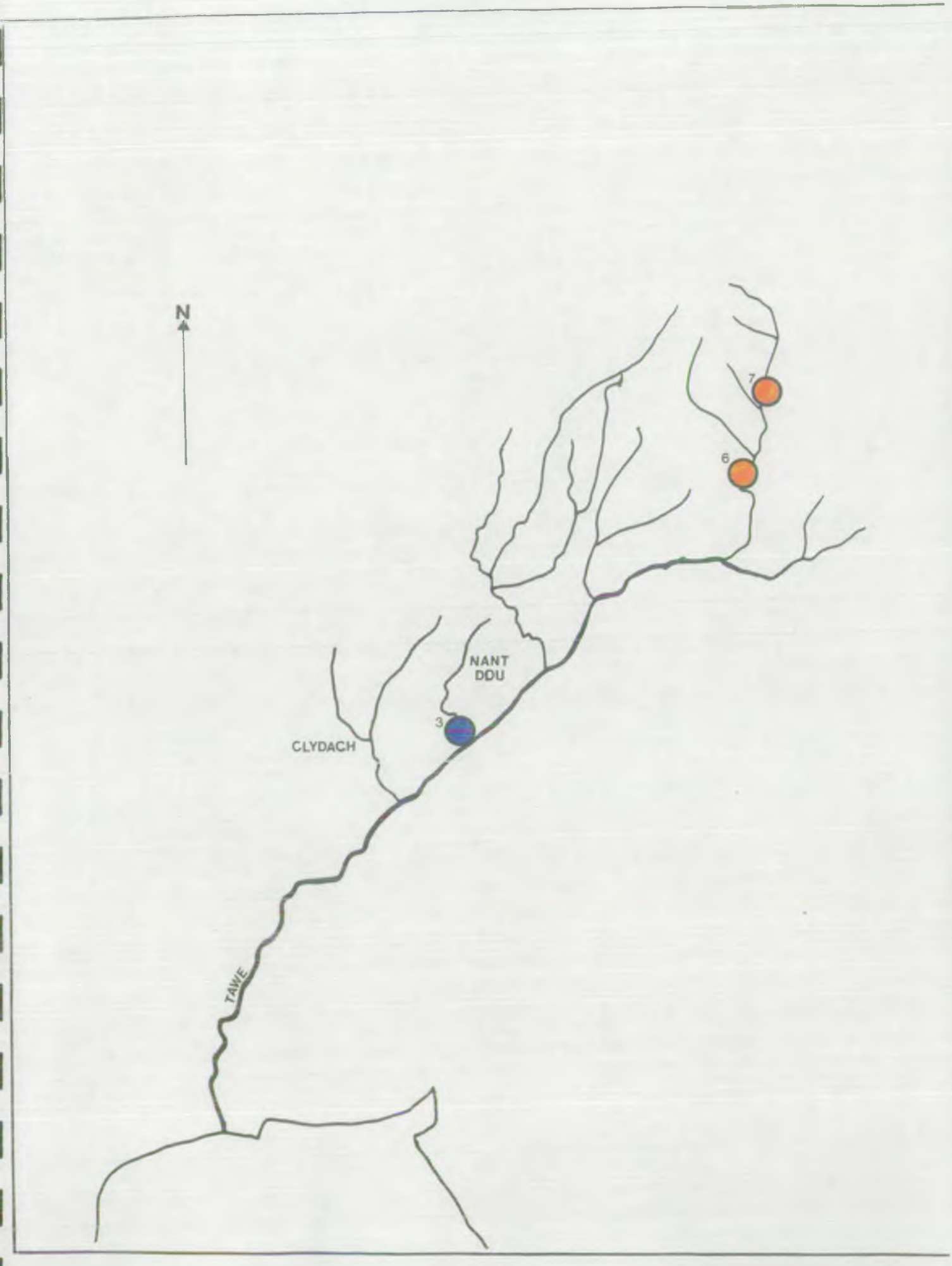
NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON >0+	SALMON CLASS	TROUT 0+	TROUT >0+	TROUT CLASS	OTHER SPECIES
3	NANT DDU	5.2	SN 741059	12.5	3.5	D	6.2	3.1	D	B,E,L,M,St
6	TAWE	7.1	SN 843156	0	0.8	D	10.6	16.3	B	B
7	TAWE	7.8	SN 849183	0	0	E	7.2	16.5	B	B
			MEAN	4.2	1.4	D	8.0	12.0	C	

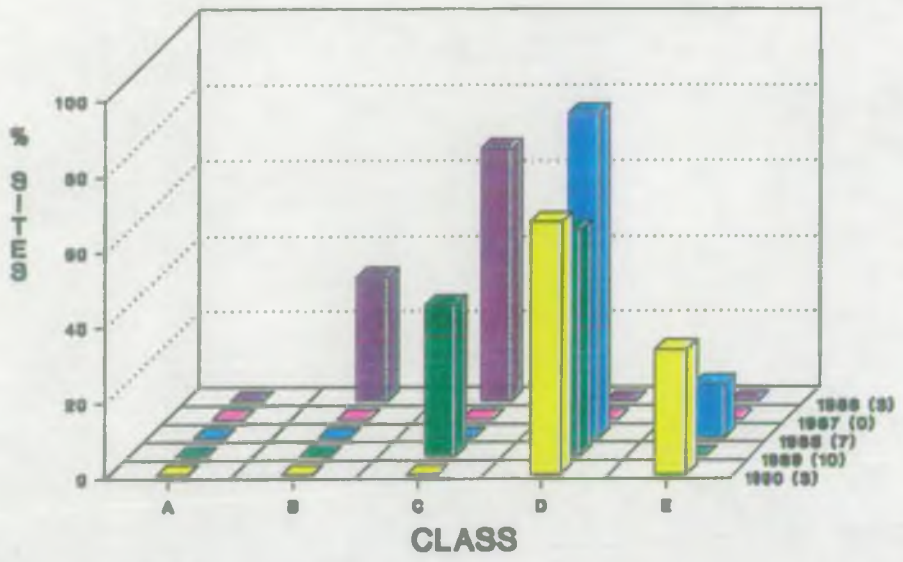
\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

1990 SURVEY
TAWE - SALMON DENSITIES.

1990 SURVEY
TAWE - TROUT DENSITIES.

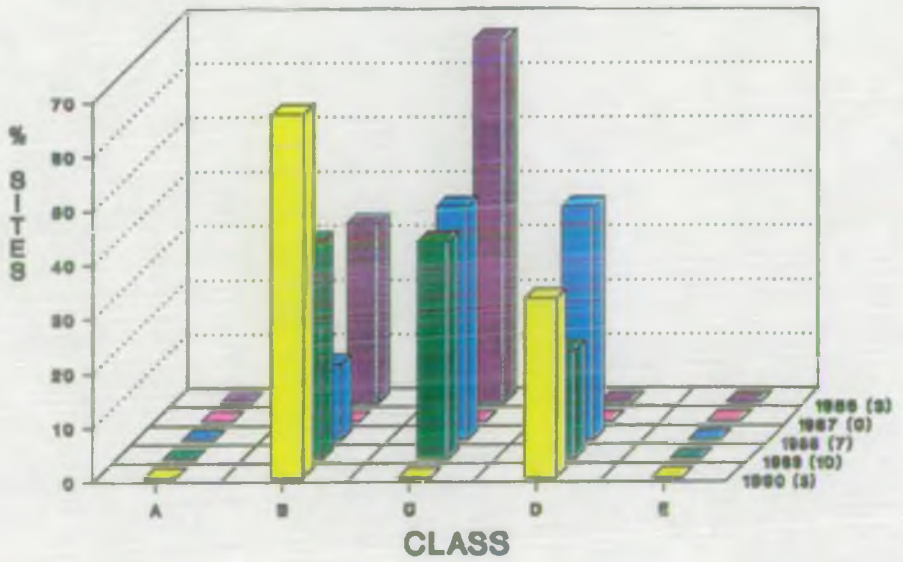


RIVER TAWE - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER TAWE - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER TEIFI SUMMARY.

1. Catchment and Fishery Characteristics.

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

Water Quality Class 1A throughout with the exception of the upper reaches which are class 2.

Fishery Status Average catch (Sea Trout - 1989)

Rods:	647 Salmon;	2244 Sea Trout
Nets:	188 Salmon;	647 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 and 12 semi-quantative sites.
1990 - 10 quantitative, 2 semi-quantitative and 15 riffle sites.

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	2 (17)	7 (58)	0 ( )	0 ( )	3 (25)
Trout	5 (42)	4 (33)	3 (25)	0 ( )	0 ( )

4. Key Points.

4.1 Density of salmon fry was satisfactory at all key sites accessible to migratory fish. Parr density however was low and had decreased at all sites except the Ceri(8),where exceptionally high fry density had beeen recorded in 1989.

4.2 There was a reduction in the density of trout fry at the majority of key sites, although densities had increased substantially in a lowland tributary, Sylgen (5).

4.3 Low density of brown trout fry at site 10 (Banc) inaccessible to migratory fish, was cause for concern.

4.4 Trout parr were also lower at the majority of key sites compared with previous years.

4.5 Trout densities in the Sylgen catchment (5C and 5D) where obstructions had been removed in the past 4 years were class A, although salmon were not recorded.

4.6 Riffle sites sampled throughout the main river supported satisfactory numbers of salmon fry. Trout fry were only recorded in low numbers at these sites. These results were comparable with those observed in the River Taf.

FISHERIES MONITORING PROGRAMME

TEIFI CATCHMENT SUMMARY — QUANTITATIVE SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
5	SYLGEN	3.5	SN 292346	88.0	1.5	0	B	134.9	34.1	6.9	A	E
8	CERI	4.0	SN 302424	64.9	19.0	0	A	14.5	10.7	1.4	C	E,M
10	BANC #	2.9	SN 355418	0	0	0	E	1.4	27.0	7.6	B	E,L
12	BARGOD	2.7	SN 358380	63.2	3.7	0	B	84.0	36.5	7.6	A	E,L,St
17	CLEDLYN	3.9	SN 502455	91.9	9.0	0	B	43.8	11.4	14.0	A	E,L,M,St
21	GRANNELL	4.0	SN 516509	42.9	7.9	0	B	25.5	6.8	15.0	B	B,E,L,M,St
28	BREFI	7.7	SN 681546	35.0	6.1	0.3	B	2.6	1.3	5.2	C	B,E,L,M,St
30	BRENIG	5.9	SN 674590	58.6	9.1	0	B	12.4	2.2	14.6	B	B,E,M,St
32	GROES	4.2	SN 702606	35.1	14.5	0	B	23.0	2.4	5.9	C	B,E
39	EGNANT	2.0	SN 769656	98.6	23.0	0	A	21.2	19.0	8.4	B	E
			MEAN	57.8	9.4	<0.1	B	36.3	15.1	8.7	B	

\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

TEIFI CATCHMENT SUMMARY SEMIQUANTITATIVE SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
5C	NANT CENIFA #	2.0	SN 244348	0	0	0	E	30.0	28.0	10.0	A	E
5D	SYLGEN #	2.8	SN 302332	0	0	0	E	70.1	12.9	7.9	A	E
			MEAN	0	0	0	E	50.1	20.5	9.0	A	

PROBABLY INACCESIBLE TO MIGRATORY FISH - OBSTRUCTIONS REMOVED WITHIN LAST FOUR YEARS

* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

TEIFI CATCHMENT SUMMARY

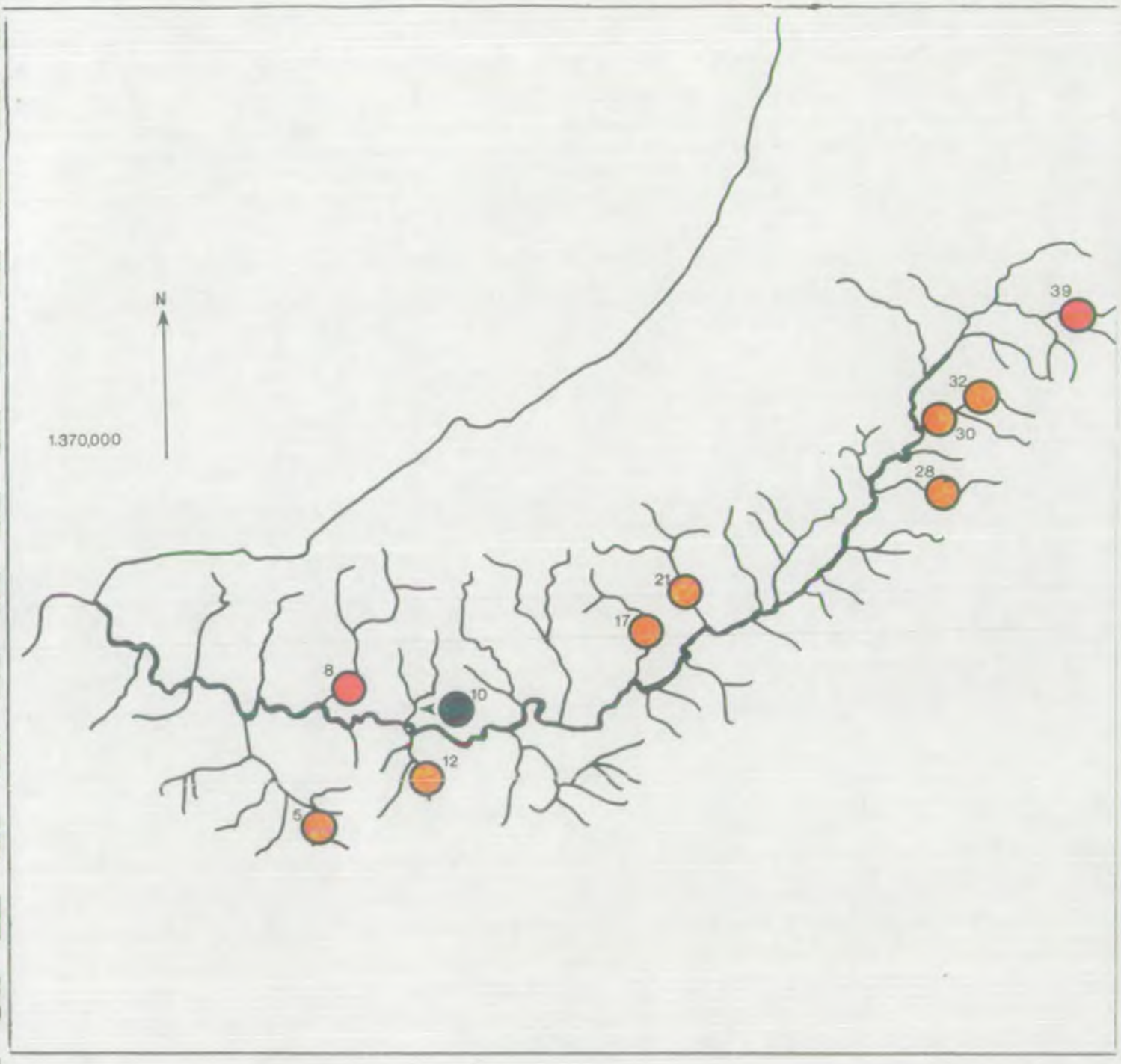
5 MINUTE FRY SITES

NUMBER OF FISH PER 100M 2

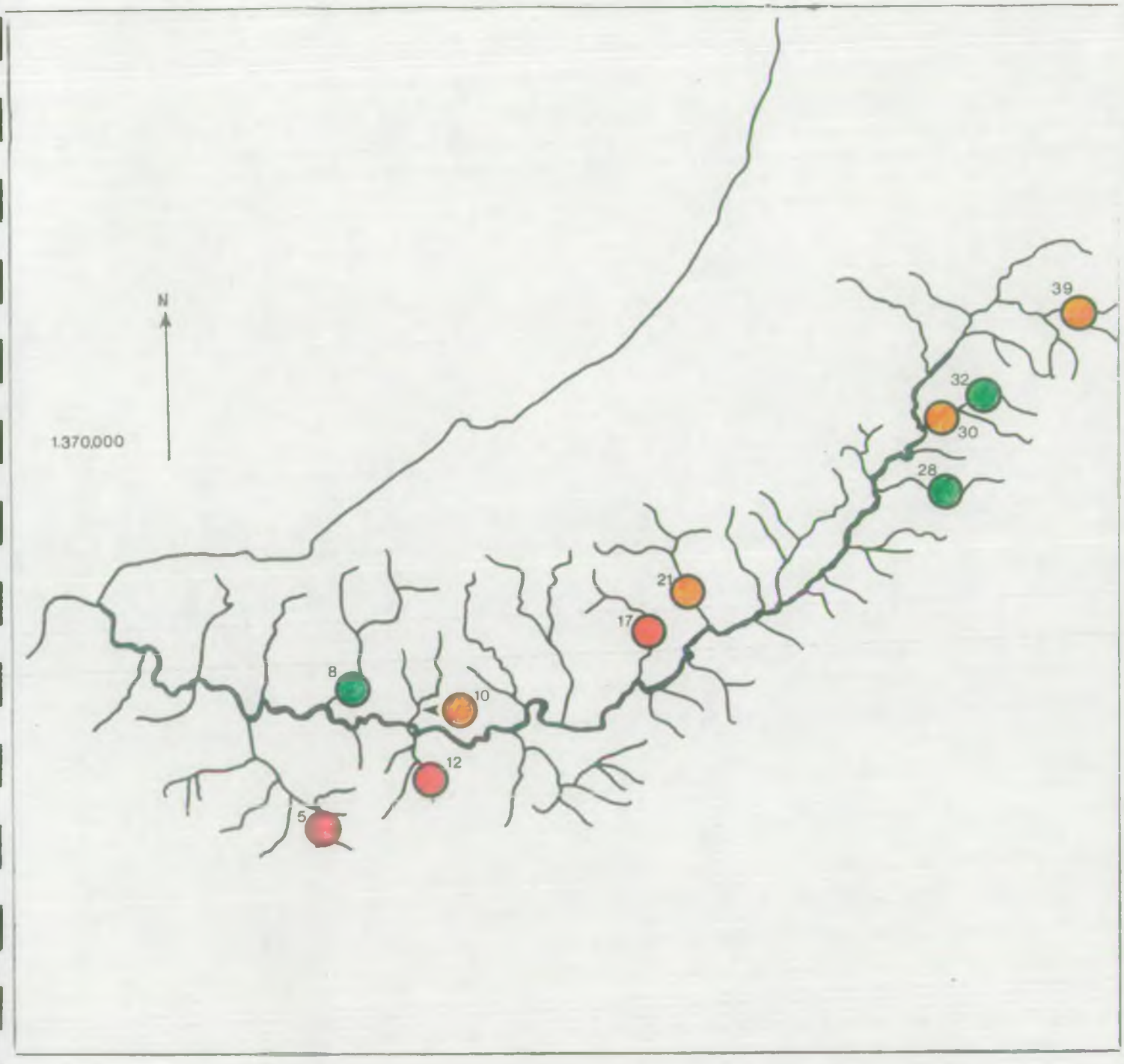
SITE NO.	RIVER	O.S. MAP REFERENCE	SALMON		TROUT	
			0+	>0+	0+	>0+
1	TEIFI	SN 218436	9	0	4	0
2	TEIFI	SN 256422	71	0	2	0
3	TEIFI	SN 314495	23	0	0	0
4	TEIFI	SN 367405	35	0	0	0
5	TEIFI	SN 419406	40	0	0	0
6	TEIFI	SN 456402	82	0	2	0
7	TEIFI	SN 472412	63	0	1	0
8	TEIFI	SN 521444	106	0	3	0
9	TEIFI	SN 583475	91	0	3	0
10	TEIFI	SN 615498	96	0	10	0
11	TEIFI	SN 621513	57	0	10	0
12	TEIFI	SN 642546	71	0	8	0
13	TEIFI	SN 646565	88	0	6	0
14	TEIFI	SN 675585	78	0	7	0
15	TEIFI	SN 730665	70	0	15	0
		MEAN	65	0	5	0

PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

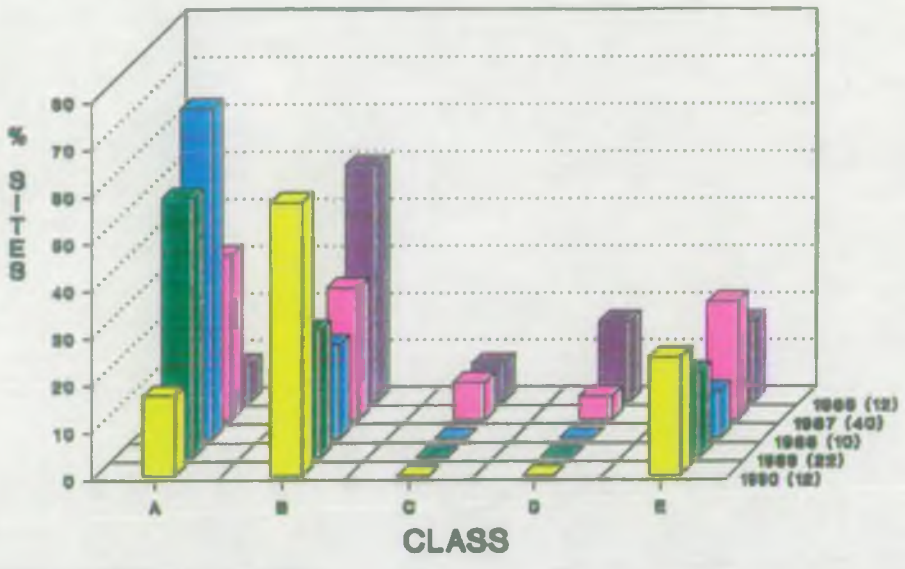
1990 SURVEY
TEIFI - SALMON DENSITIES.



1990 SURVEY
TEIFI - TROUT DENSITIES.

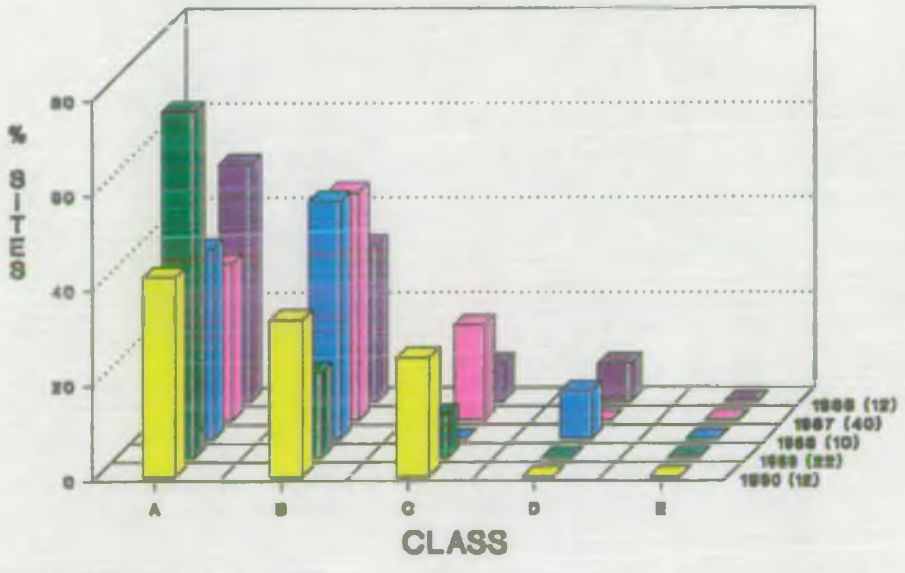


RIVER TEIFI - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER TEIFI - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER TYWI SUMMARY.

1. Catchment and Fishery Characteristics.

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

Water Quality- Upper reaches of main river and tributaries class 2- acidification and impoundment.
Middle reaches class 1A with short reaches in lower main river class 2.

Fishery Status - Average catch (1984 - 1989) Rods: 676 Salmon 4,888 Sea Trout
Nets: 231 Salmon 1,967 Sea Trout

2. Sampling Programme.

1985 - 16 quantitatives sites.
1986 - 40 quantitative sites with 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 riffles.

3. Assessment of Status.

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

	A	B	C	D	E
Salmon	1 (5)	2 (11)	5 (26)	10 (53)	1 (5)
Trout	3 (16)	14 (74)	0 ( )	2 (10)	0 ( )

4. Key Points.

4.1 One key site (5) not sampled due to lack of resources and second key site (20), although sampled in 1990, will be dropped from programme due to habitat changes following gravel removal by landowner

4.2 Salmon were present in low numbers throughout the catchment with the exception of a minor tributary(35) where they were not recorded. Lower numbers of salmon were recorded in the tributaries of the Cothi near Crugyber (20A), which was subsequently affected by a land drainage scheme, had the highest density of salmon parr.

4.3 Trout were recorded throughout with 90% of sites class A and B.Low number of trout in the Rhosmaen Dulais(26) however was cause for concern.

4.4 Low flows of 1989 do not appear to have had a significant effect on fish population and the 4 sites (13,19,22 and 37) not sampled last year due to low flows supported good trout numbers. Gwenlais (37) in particular had high densities of salmon and trout fry in 1990.

4.5 Very few salmonid fry were collected from main river riffle sites between the confluence with the Cothi and the Gwenffrwd in the upper reaches. The results were very disappointing compared with those on the main rivers, Teifi and Taf.

FISHERIES MONITORING PROGRAMME

TYWI CATCHMENT SUMMARY — QUANTITATIVE SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON				TROUT				OTHER SPECIES
				0+	1+	>1+	CLASS	0+	1+	>1+	CLASS	
11	BLOTWETH	3.9	SN 528345	0.5	6.3	0	C	16.7	31.5	4.1	B	B,E
17	MELINDWR	3.6	SN 611362	0	1.7	0	D	28.1	8.5	6.8	B	B,E
20	COTHI	6.1	SN 711457	4.5	0	0	D	6.8	0	0	D	E
22	DULAIS	2.4	SN 565239	0	8.3	0	D	70.5	8.3	7.2	A	B,E,L,Gu
25	CENNEN	3.9	SN 655188	8.8	1.1	0	D	70.2	4.6	5.2	B	B,E,L,M
28	SAWDDE	5.3	SN 757242	1.2	12.4	0	C	29.9	7.3	0.8	B	B,E
34	BRAN CYNGHORDY	3.4	SN 806400	13.3	1.5	0	D	37.5	24.7	9.4	A	B,E,M
37	GWENLAIS	4.4	SN 759390	65.4	11.7	0	B	68.7	11.4	1.4	B	B,E
38	GWENFFRWD	5.3	SN 763452	25.5	2.7	0	C	25.6	6.0	0.4	B	B,E
			MEAN	13.2	5.1	0	C	39.3	11.4	4.0	B	

PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

TYWI CATCHMENT SUMMARY — SEMIQUANTITATIVE SITE

NUMBER OF FISH PER 100M 2

SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
13	FFIN (COTHI)	3.9	SN 555338	8.2	0	0	D	8.7	13.9	11.3	B	B
19	TWRCH	1.5	SN 647447	9.0	9.0	0	C	13.5	2.3	2.3	B	B,E,St
20A	COTHI	1.5	SN 653392	22.7	45.5	0	A	9.1	6.1	10.6	B	B,E,St
26	DULAIS(RHOSMAEN)	6.8	SN 655280	0.4	0.7	0	D	0.4	0.7	0.7	D	B,E,L,M
35	GWYDDERIG	2.8	SN 833329	4.4	0.9	0	D	11.5	3.6	3.6	B	B,E
35E	GWYDDERIG	2.2	SN 794354	5.5	2.7	0	C	19.1	9.1	4.6	B	B,E,M
35G	GWENNOL	1.6	SN 839352	7.0	0	0	D	19.7	4.2	14.1	B	B,E,M
35H	TRESGLAN	1.0	SN 835330	18.1	3.0	0	B	27.1	9.0	6.0	A	
35J	CWM GWERNFELEN	1.5	SN 805343	0	0	0	E	15.8	10.5	2.6	B	E
38A	GWENFFRWD	2.2	SN 746466	0.9	0	0	D	37.6	1.8	0	B	B,E
			MEAN	7.6	6.2	0	C	16.3	6.1	5.6	B	

PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

TYWI CATCHMENT SUMMARY 5 MINUTE FRY SITES

NUMBER OF FISH PER 100M 2

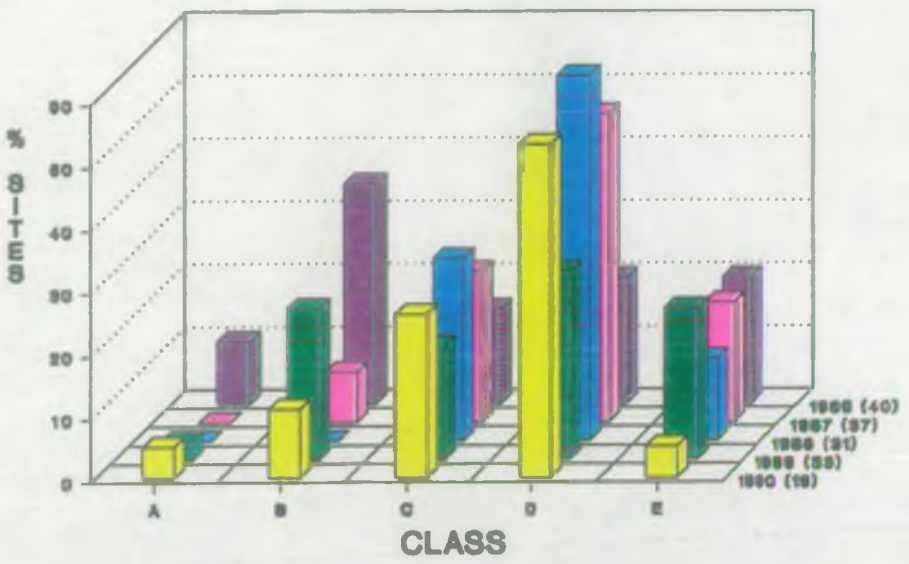
SITE NO.	RIVER	O.S. MAP REFERENCE	SALMON		TROUT	
			0+	>0+	0+	>0+
1	TYWI	SN 774459	0	0	5	0
2	TYWI	SN 777436	0	0	4	0
3	TYWI	SN 763362	3	0	7	0
4	TYWI	SN 755335	0	0	5	0
5	TYWI	SN 736319	3	0	3	0
6	TYWI	SN 466214	0	0	0	0
7	TYWI	SN 433207	15	0	33	0
8	TYWI	SN 436204	4	0	30	0
9	TYWI	SN 717310	14	0	1	0
9A	TYWI	SN 716308	4	0	4	0
10	TYWI	SN 688268	4	0	19	0
11	TYWI	SN 676255	2	0	4	0
12	TYWI	SN 644230	4	0	2	0
13	TYWI	SN 507201	13	0	6	0
14	TYWI	SN 592215	0	0	0	0
15	TYWI	SN 581215	44	0	5	0
16	TYWI	SN 507217	0	0	0	0
		MEAN	7	0	8	0

PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

1990 SURVEY
TYWI - SALMON DENSITIES.

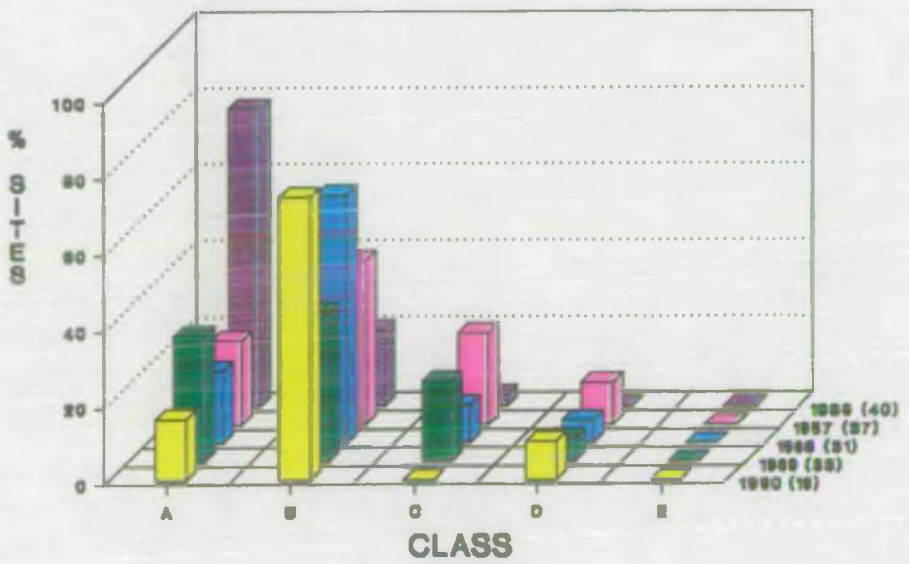
1990 SURVEY
TYWI - TROUT DENSITIES.

RIVER TYWI - SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER TYWI - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER W.CLEDDAU SUMMARY.

1. Catchment and Fishery Characteristics.

Land Use - Crop production (potatoes) and dairying

Water Quality- Upper reaches class 1A, middle 1B

Fishery Status - Average catch (1984-1989) Rods: 30 Salmon: 419 Sea Trout

2. Sampling Programme.

1985 - 5 quantitative.
1986 - 1 quantitative, 10 semi-quantitative sites.
1990 - 2 quantitative, 30 semi-quantitative sites.

3. Assessment of Status

	A	B	C	D	E
Salmon	0 ( )	1 (3)	2 (6)	5 (16)	24 (75)
Trout	5 (16)	10 (31)	7 (22)	8 (25)	2 (6)

4. Key Points.

4.1 Two sites (9C and 9D) in the upper reaches of the main river could not be sampled due to heavy growth of macrophytes.

4.2 Salmon were not recorded at 75% of sites and were present in low numbers where they occured. These results are comparable with previous surveys.

4.3 Trout were present from all sites except Pelcomb Brook and the Cleddau (sites 2 and 11) where a recent pollution and flood defence works had been carried out respectively.

4.4 Trout stocks were generally low throughout the catchment with only the Anghof and Spittal Brook class A.

4.5 Of the 32 sites sampled, 47% were reported to have been polluted in previous years.

4.6 There is concern for salmonid stocks in this catchment and a detailed study will be carried out by the EAU in 1991 to highlight factors affecting the fishery.

4.7 Consideration is being given to providing access for sea trout to the Rosemarket Stream which is currently inaccessible from Neyland marina.

FISHERIES MONITORING PROGRAMME

WESTERN CLEDDAU 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	
8A	CLEDDAU	3.5	SM 933314	0	0	0	E	25.2	3.4	2.8	B	B,L,M,S,St
10	NANTYBUGAIL	3.3	SM 935315	0	0	0	E	65.7	3.1	4.3	B	B,E,L,M,S,St
			MEAN	0	0	0	E	45.5	3.3	3.6	B	

\# PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

FISHERIES MONITORING PROGRAMME

WESTERN CLEDDAU 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	MERLINS BROOK	4.1	SM 924137	0	0	0	E	0.5	1.0	4.9	C	B,E,L,M,St,S
1A	MERLINS BROOK	3.2	SM 920125	0	0	0	E	0	1.2	2.5	C	B,E,L,St,S
2	PELCOMB BROOK	2.7	SM 930173	0	0	0	E	0	0	0	E	E,L,M,S
2A	PELCOMB BROOK	3.3	SM 951173	0	0	0	E	0	1.7	1.7	D	B,E,L,M,S,St
2B	PELCOMB BROOK	1.6	SM 910172	0	0	0	E	2.1	0	0	D	B,E,L,M,S,St
3	KNOCK BROOK	3.3	SM 925192	0	0	0	E	0.6	1.8	1.2	C	E,L,M,St
3A	KNOCK BROOK	4.4	SM 938191	0	5.9	0	D	0	3.2	14.6	B	B,E,L,M,S,St
3B	KNOCK BROOK	2.3	SM 908187	0	0	0	E	0	0.9	0	D	B,E,L,M,St
4	CAMROSE	3.8	SM 927199	0	0	0	E	0.8	7.8	6.6	B	B,E,L,M,S,St
4A	CAMROSE	3.1	SM 904205	0	0	0	E	17.0	4.5	2.7	B	B,E,L,St
5	SPITTAL BROOK	3.4	SM 978242	0	0.6	0	D	18.1	12.3	4.7	B	B,E,L,St
5A	SPITTAL BROOK	2.5	SN 011258	0	0	0	E	32.5	13.8	2.0	A	E,L
6	CARTLETT BROOK	3.5	SM 989195	0	0	0	E	0	3.5	2.3	D	B,E,S,St
6A	CARTLETT BROOK	3.3	SM 975176	0	0	0	E	0	4.3	4.3	D	B,E,L,St
6B	CARTLETT BROOK	2.0	SN 005220	0	0	0	E	15.2	11.7	9.3	A	B,E,L,St

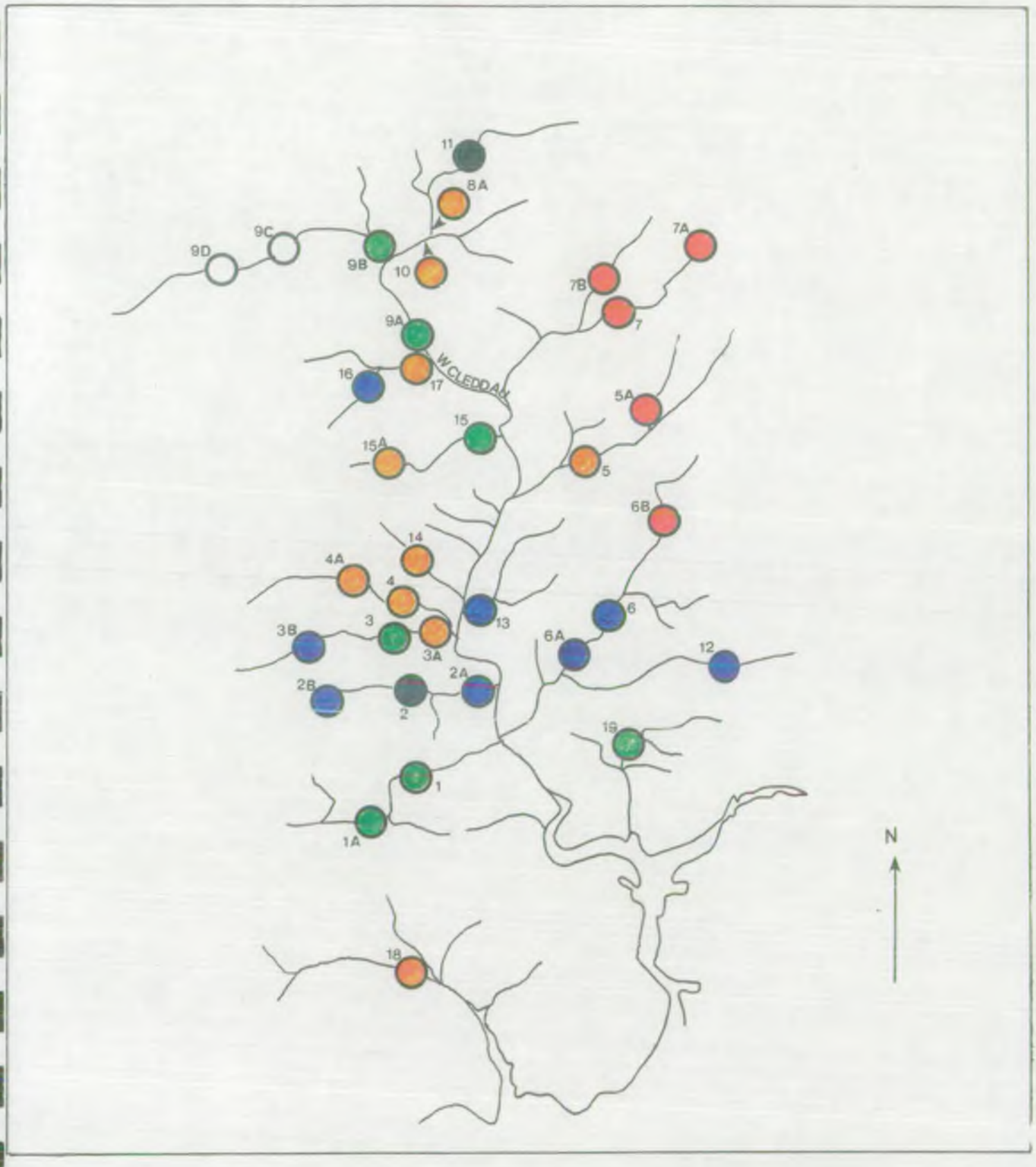
WESTERN CLEDDAU CATCHMENT SUMMARY SEMI QUANTITATIVE SITE

NUMBER OF FISH PER 100M 2

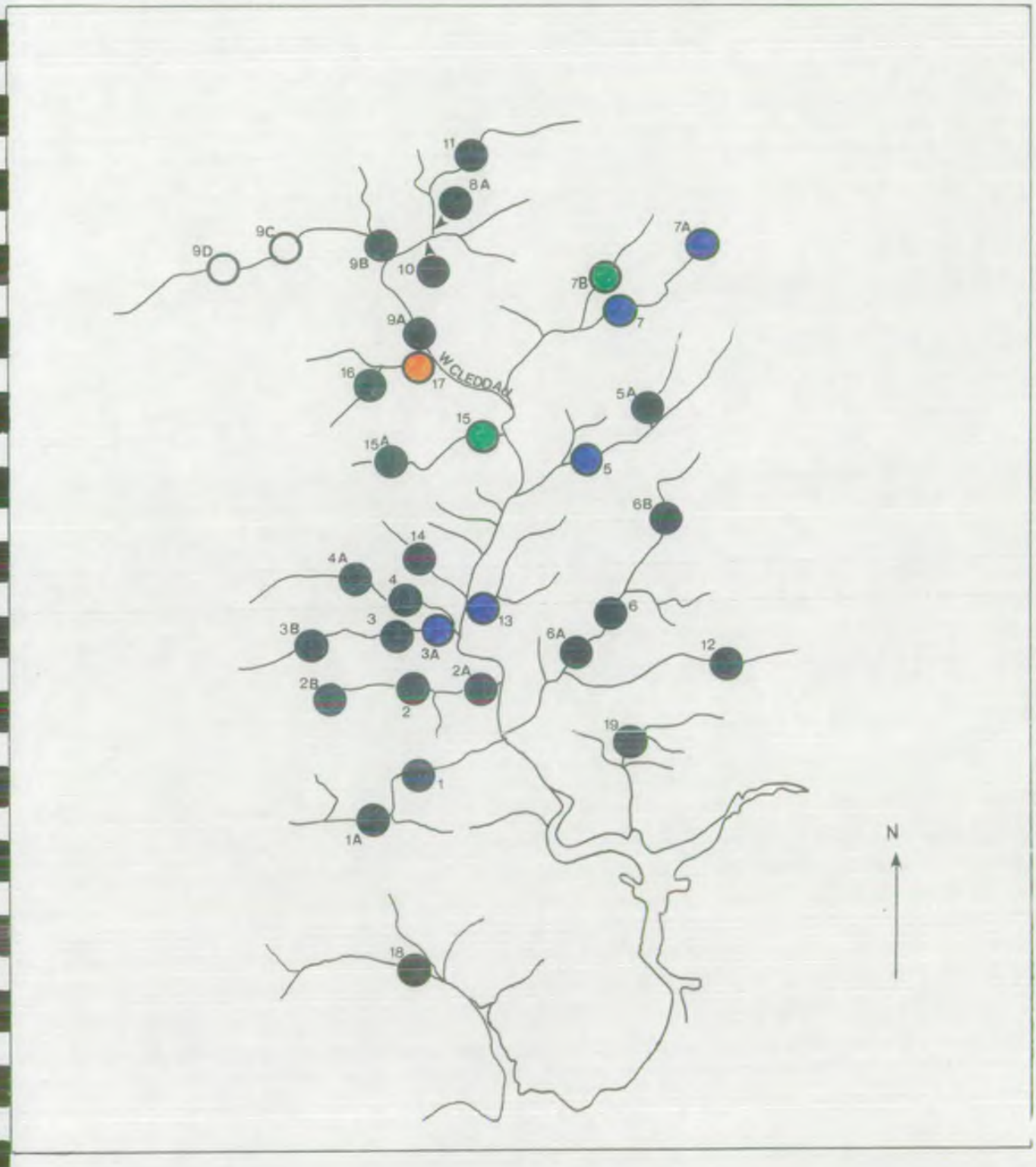
SITE NO.	RIVER	WIDTH (m)	O.S. MAP REFERENCE	SALMON 0+	SALMON 1+	SALMON >1+	SALMON CLASS	TROUT 0+	TROUT 1+	TROUT >1+	TROUT CLASS	OTHER SPECIES
7	ANGHOF	6.3	SM 995286	5.6	2.8	0	D	72.5	7.2	0.8	A	E,L
7A	ANGHOF	3.6	SN 017303	0	4.7	0	D	43.1	21.0	22.1	A	E,L
7B	ANGHOF TRIB	3.2	SM 986295	0.8	2.4	0	C	72.0	9.5	0	A	
9A	W.CLEDDAU	6.5	SM 934277	0	0	0	E	0.5	1.0	4.1	C	B,E,L
9B	W.CLEDDAU	5.2	SM 922308	0	0	0	E	0	5.0	8.4	C	B,E,L,S,St
9C	W.CLEDDAU	0	SM 892316									
9D	W.CLEDDAU	0	SM 872310									
11	CLEDDAU	3.0	SM 948337	0	0	0	E	0	0	0	E	B,E,L,St
12	FENTON BROOK	2.2	SN 018173	0	0	0	E	0	0	8.2	D	B,E,L,St
13	RUDBAXTON	2.6	SM 948198	0	0.8	0	D	0	2.4	3.2	D	B,E,L,M,St
14	WOLFSDALE TRIB	2.7	SM 932212	0	0	0	E	22.0	9.6	8.2	B	B,E,L,St
15	NANTYCOY	2.7	SM 956253	5.9	5.9	0	C	0.7	4.4	1.5	C	B,E,St
15A	NANTYCOY	2.4	SM 921242	0	0	0	E	13.0	3.9	1.3	B	B,E
16	TRIB,TRERHOS	3.2	SM 917270	0	0	0	E	0	0	2.2	D	B,E,S,St
17	TRIB,WELSH HOOK	2.8	SM 933277	16.6	5.5	0	B	6.3	6.3	2.4	B	B,E,L,St
18	ROSEMARKET	4.1	SM 948083	0	0	0	E	7.6	10.2	8.4	B	B,E,L,St
19	MILLINS BROOK	2.2	SM 999158	0	0	0	E	3.6	8.1	1.8	C	B,E,L,St
			MEAN	1.0	1.0	0	D	10.9	5.2	4.3	B	

PROBABLY INACCESIBLE TO MIGRATORY FISH
* MINIMUM ESTIMATE

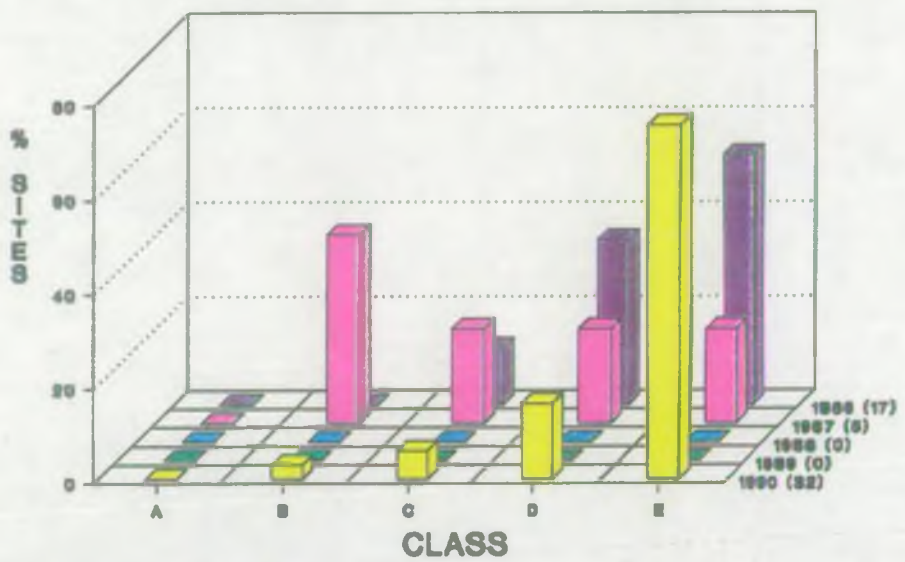
1990 SURVEY
W.CLEDDAU - TROUT DENSITIES.



1990 SURVEY
W.CLEDDAU - SALMON DENSITIES.

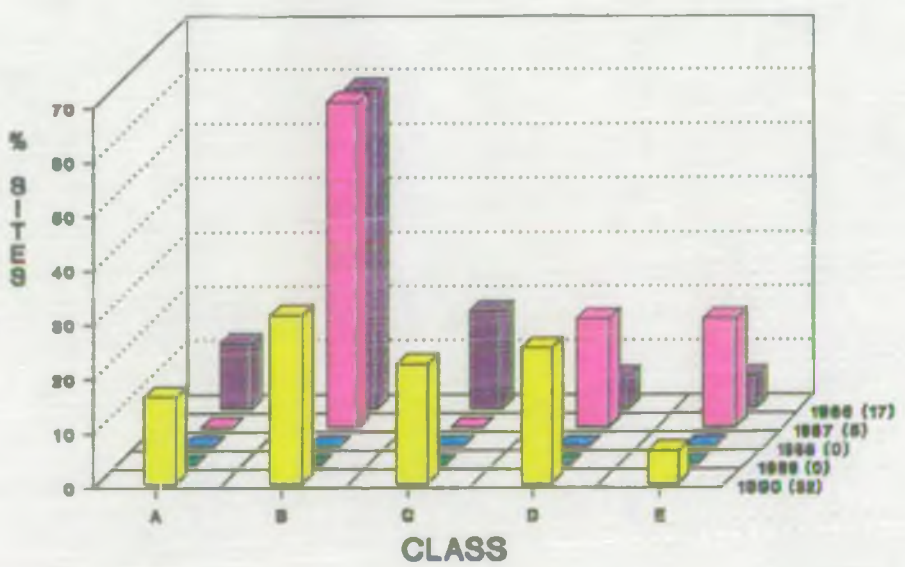


RIVER CLEDDAU SALMON
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.

RIVER CLEDDAU - TROUT
% OF SITES IN EACH CATEGORY.



FIGURES IN () DENOTE NO. OF SITES.