

Fish Population Survey
Isle of Wight Catchments
August 1997.

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Introduction

The Environment Agency has a statutory obligation to maintain, develop and improve the fisheries resources of England and Wales. To this end the Hampshire and Isle of Wight fisheries department has undertaken a pentennial monitoring programme of the fish populations in the major catchments of its' area.

The aim of this study was to investigate the fish populations of the major catchments of the Isle of Wight, with species of angling and conservation interest being targeted. The Caul Bourne, in the West of the Island, was also investigated at the request of another Agency function. The Island catchments were previously surveyed in February 1993 by contract to the Institute of Freshwater Ecology, (IFE 1993 unpub.), when three sites on the River Medina and seven on the Eastern Yar were sampled by multiple catch depletion.

The major rivers of the Isle of Wight, the Medina and Eastern Yar, are each chalk streams which rise as springs from St. Catherines Down in the South of the Island. The Islands ground-water aquifers are abstracted for both public water and agricultural irrigation purposes and are regulated by Environment Agency licences.

The River Medina flows northwards through Newport collecting a number of smaller and minor tributaries and discharges to the sea at Cowes. The Medina is approximately 17 kilometres in length, falls some 90m from source to sea, is estuarine between Newport and Cowes and receives an average rainfall of 830mm per year in line with the rest of the Island. The Medina flows over deposits of Lower Greensand in its upper reaches, subsequently flowing over areas of Gault, Chalk and over Hastings beds in its lower estuarine reaches.

The fisheries of the Medina are for brown trout and coarse species, with characteristic chalk stream headwater populations of small wild brown trout. Occasional reports have also been made of sea trout in the Medina Estuary, but these have not extended above Newport. The Medina is designated as a Cyprinid Fishery between Chillerton and Newport under the EEC Freshwater Fisheries Directive.

The Eastern Yar flows North Eastward through Godshell, Alverstone and Brading collecting a number of smaller and minor tributaries and discharges to the sea at Bembridge. The Eastern Yar is approximately 27 kilometres in length and falls some 130m from source to sea. Salt water intrusion into the lower reaches of the river is restricted by a tidal defence sluice structure at its discharge point into Bembridge Harbour. Average rainfall is in line with the rest of the Island at 830mm per year. The Eastern Yar flows over deposits of Chalk and Gault in its upper reaches, subsequently flowing over an area of Lower Greensand and over Alluvium deposits in its lower reaches.

The fisheries of the Eastern Yar are predominantly for coarse species, with characteristic chalk stream headwater populations of small wild brown trout. The Eastern Yar is designated as a Cyprinid Fishery between Herringford and Bembridge under the EEC Freshwater Fisheries Directive.

Technique

A single anode electric fishing back pack, (Figure 2), was used to sample the fish populations in 28 x 300m unrestricted sections of the rivers Medina (12 sites), Eastern Yar (13 sites) and Caul Bourne (3 sites), including eight of the sites previously sampled in February 1993. The back pack was used in association with a dinghy for deeper stretches encountered during sampling. The rivers upstream of Sheat Manor (Medina), Horringford (E. Yar) and Newbridge (Caul Bourne) could not be sampled due to significant growth of aquatic and marginal vegetation obstructing the sampling technique.

The population's were sampled using a single shock continuous effort technique, to provide a relative index of the fish populations present within the sites. Measurements of length were recorded for each fish caught, with weights being recorded from a stratified sample of fish for the production of weight-length relationships. Scales were also removed from a stratified sample of fish for age assessment purposes. Measurements of river depth and width were also made.

The single shock technique was calibrated to absolute estimates obtained by a multiple shock catch depletion electric fishing technique applied at twelve 100m sites. For the calibration, the first catch of each depletion was related to its' resultant population estimate, with a linear relationship being obtained.

The absolute estimates were then categorised using the Environment Agency National Fisheries Classification System which was developed to enable cross watercourse and between watercourse comparison of fish populations. To obtain the classification requires that the biomass densities of coarse species are grouped according into Rheophillic species (species preferring faster flow conditions eg. dace), Limnophillic species (species preferring slower flow conditions eg. roach & carp), Predator species (eg. perch, pike) and Eels. For classification of salmonid species, age group population densities of each species are entered (eg. 0+ brown trout, >0+ brown trout).

Comparisons were then made to the results and classification of the previous 1993 survey.

Results

The technique was successfully applied with a total of 28x300m sites being sampled, (Figure 1), across the three rivers, (Tables 1), in accordance with the experimental design.

Dace and eel were the most abundant fish species caught in the river Medina, (Table 2), with roach and eel being the most abundant on the Eastern Yar and Caul Bourne respectively. Other species observed across the rivers included brown trout, stone loach, stickleback, common carp, perch, bream, gudgeon and mirror carp. Notably brown trout were not observed in the Medina but were present in the other two rivers. Bullhead and brook lamprey were also observed in both the Medina and the Eastern Yar. These two species along with dace are Nationally considered to be threatened species. Pike were not caught in any of the surveyed sites.

For the most abundant species, the numbers of dace and eels caught at each site of the River Medina (Table 3a), described significant variation in catch between sites throughout the reach, (Means: 13.3 +/- 4.98 dace/300m, t-stat 2.7; 12.1 +/- 2.68 eel/300m, t-stat 4.5). Similar significant variations were observed for the numbers of dace and roach caught at each site of the Eastern Yar (Table 3b), described significant variation in catch between sites throughout the reach, (Means: 9.7 +/- 4.25 roach/300m, t-stat 2.7; 4.8 +/- 1.18 dace/300m, t-stat 4.1).

Relative length frequencies of dace, roach, perch and brown trout caught in each river are given in Figures 2. For the dace caught in the Medina and Eastern Yar these described a disproportionate number of fish in excess of 14cm in length compared to smaller sizes. Whilst the catches of roach and brown trout respectively from the Eastern Yar and Caul Bourne described more expected length distributions.

The weight-length relationships could only be derived for dace caught in the Eastern Yar and Medina, (Figure 3), due to problems encountered with the weighing balance during the survey. These relationships compared favourably to those derived for the sites 1993 survey.

The calibration sites provided suitable estimates of first capture efficiency to calibrate the catches from the single catch technique to estimates of absolute site density for dace, roach and brown trout only (Table 4). The calibration described the single catch technique to be approximately 65.9, 61.5 and 75% efficient respectively in sampling the dace, roach and brown trout populations of an individual site.

Applying the calibrated catch efficiencies to the survey catch data provided population estimates for those species in each site. From these site population densities were then derived for each species on each river, (Tables 5). The biomass density of dace was estimated using the derived weight-length relationship, length frequencies and calibrated density information, (Table 5). Biomass density estimates were also calculated for the other species using weight length relationships derived from the previous 1993 survey, (which fitted with what data was available).

The coarse fish populations of the surveyed reaches were classified as categories D, E and E for the Medina, Eastern Yar and Caul Bourne respectively, (Tables 6), using the Environment Agency National Fisheries Classification system. The Eastern Yar and Caul Bourne were also category E for both 0+ and >0+ brown trout populations. Comparison of the classifications derived for each site found that the classifications for the Medina although predominantly category E did range between categories C and F, whilst all sites were category E for sites on the other rivers. As a species/grouping, eels were found to exhibit the greatest variation in category with biomass densities ranging from categories A to F.

The derived classification categories for the Medina and Eastern Yar differed slightly to those previously derived for the 1993 survey, (Tables 8). Notably lower densities of eel were observed overall on both rivers with the category reducing from A for each in 1993 to C and E for the Medina and Eastern Yar respectively. A similar reduction was observed in classification for the Limnophillic species on the Eastern Yar having reduced from Category A to D between the surveys. By comparison the diversity of fish species present had increased between the surveys with the notable additions of the Nationally threatened species of Brook Lamprey being observed on each river and Bullhead on the Eastern Yar, (Bullhead were present in the Medina in 1993). Brown trout were not caught on either river in 1993.

Discussion

The abundance of species, as reflected by the National classifications for the surveys, was less than that previously observed in 1993. This was suggested to be due to the different times of year that the surveys were undertaken. The spatial distributions of coarse fish generally become clustered early in the year in preparation for spawning, whereas the summer distributions are more even throughout the suitable habitats to maximise the use of available food resources. Therefore it suggested that a summer survey provides a better indication of the status of the fish stock, whereas the results of surveys conducted earlier in the year will be dependent upon the choice of site in relation to the locations of the fish population clusters. Furthermore, a site surveyed early in the year which corresponds with a cluster may give an indication of false density levels of fish in the river. Therefore, since the 1993 survey only sampled some 300m of the Medina and 700m of the Eastern Yar compared to the 3600m and 3900m bank lengths sampled by this study, it is considered that the results of the 1993 survey may be less representative of the rivers fish populations than the 1997 survey.

The perceived decline in the abundance of eels between the surveys, may be due to a sampling bias in the electric fishing technique employed and the known difficulties of attracting and catching eels by electric fishing. The downstream technique relies heavily upon catching a representative sample of the population in the first and only catch. By comparison the 1993 survey employed a multiple catch depletion technique, which is more suited to obtaining a representative sample and estimate of a fish species such as eel with a lower catchability.

The observed dis-proportionate size distribution of dace in excess of 14 cm length in the Medina and Eastern Yar may suggest a poor 1996 dace year class or could possibly be the result of stocking practices. However a gear selection bias towards larger dace might also have resulted in a similar size trend. The possibility of such gear selection could not be dis-proved, although such selectivity was not apparent in the size distributions of the other species sampled. Other unidentified factors may also acted to produce the observed size distribution for the dace.

The significant variations in density and biomass of the fish species between the sites were as expected. Variation in physical habitat characteristics along the river was suggested to explanation these variations.

The catches of brook lamprey, bullhead, dace and gudgeon are considered to be especially important given the threatened status of the latter locally and the nationally threatened status of the other species. Therefore given this, the preservation of these species in these rivers must be considered to be a high priority.

The absence of pike from the surveyed reaches may be a significant finding as it is unlikely that the species has been culled from the rivers, and therefore it is a matter of whether the species has ever been present or whether it has been wiped out by some natural phenomenon. Given the relative isolation of the fish populations on the Isle of Wight in recent Geological time it may indeed be that either of these possibilities could be real. Further surveys and research are required to gain confidence in this finding. In the mean time, it is important to preserve the apparent ecological balance, with the perceived absence of pike from the surveyed rivers, by preventing any introductions of pike to these waters.

Conclusions

- i. Dace and eel were the most abundant fish species caught in the river Medina. Roach and eel were the most abundant on the Eastern Yar and Caul Bourne respectively.
- ii. 1997 National Classifications are :
 - E for all rivers (level 4)
 - D for Medina coarse species (level 3)
 - E for East. Yar & Caul Bourne coarse sp. (level 3)
 - F for Medina salmonid sp. (level 3)
 - E for East. Yar & Caul Bourne salm. sp.(level 3)
- iii. A potential decline in the abundance of eel was identified which may require further investigation.
- iv. Suggested potential absence of pike from the survey reaches requires further investigation.
- v. Nationally threatened populations of brook lamprey, bullhead and dace were identified, with locally threatened populations of gudgeon also being present.
- vi. The technique was appropriate to achieve the survey objectives.

Recommendations

- a. The apparent decline in eel abundance be further investigated to take account of identified seasonal and sampling biases between the surveys.
- b. The apparent absence of pike from the rivers be further investigated and this investigation to be expanded to the other rivers of the Isle of Wight.
- c. The prevention, through Section 30 legislation, of pike introductions to the rivers of the Isle Wight, until such time as the above investigation is sufficiently concluded to enable further consideration.
- d. The identified populations of brook lamprey, bullhead, dace and gudgeon be preserved through species Bio-Diversity Action Plans and Local Environment Agency Plans.
- e. The weight-length relationships be accepted as standards for the river, and as such to be reconstructed after 10 years.
- f. The survey be repeated in 2002 using the same experimental design.

Reference

IFE 1993 - Fishery Survey of the Isle of Wight (unpublished)

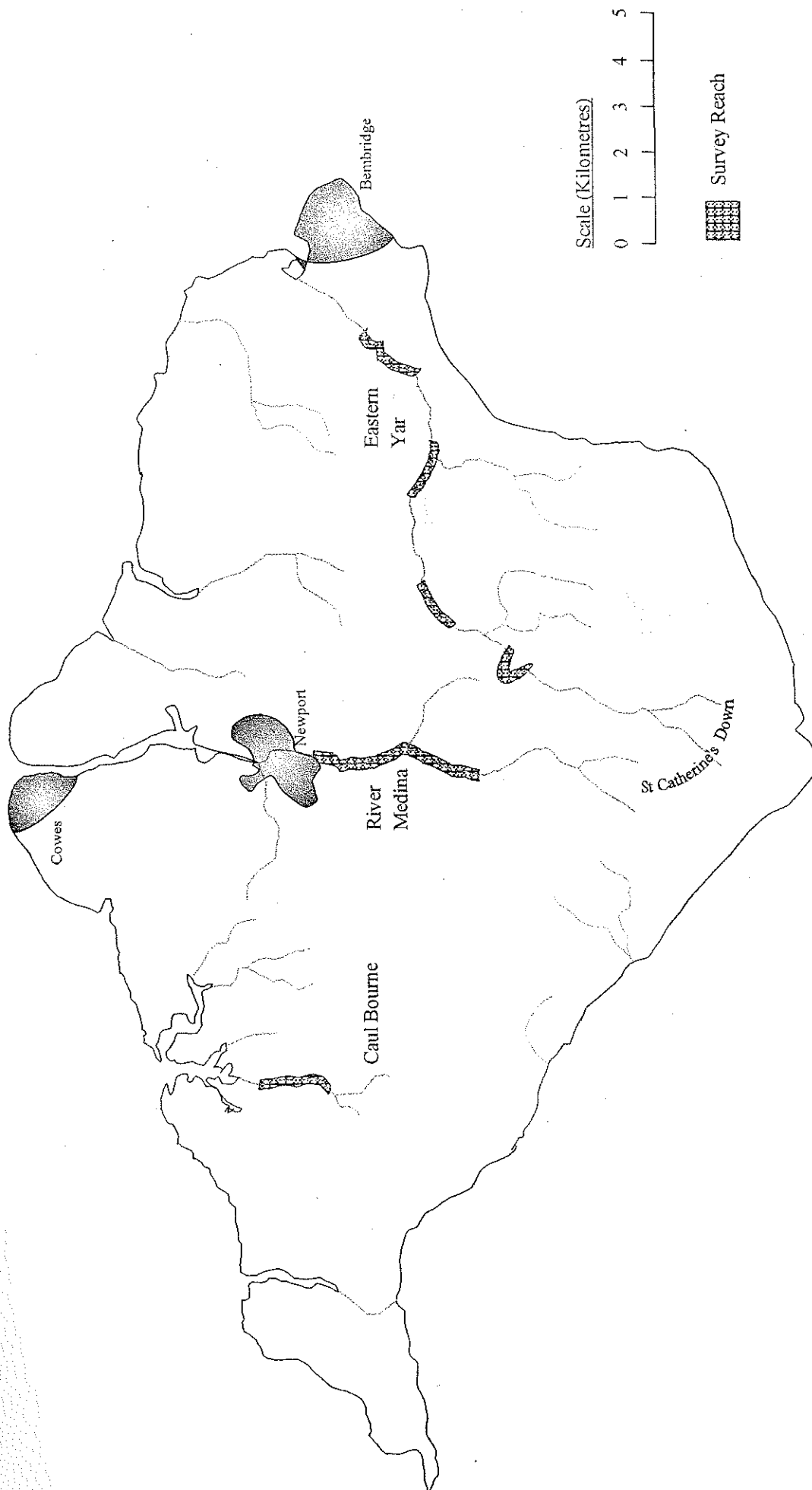


Figure One - Isle of Wight Survey Reaches, August 1997

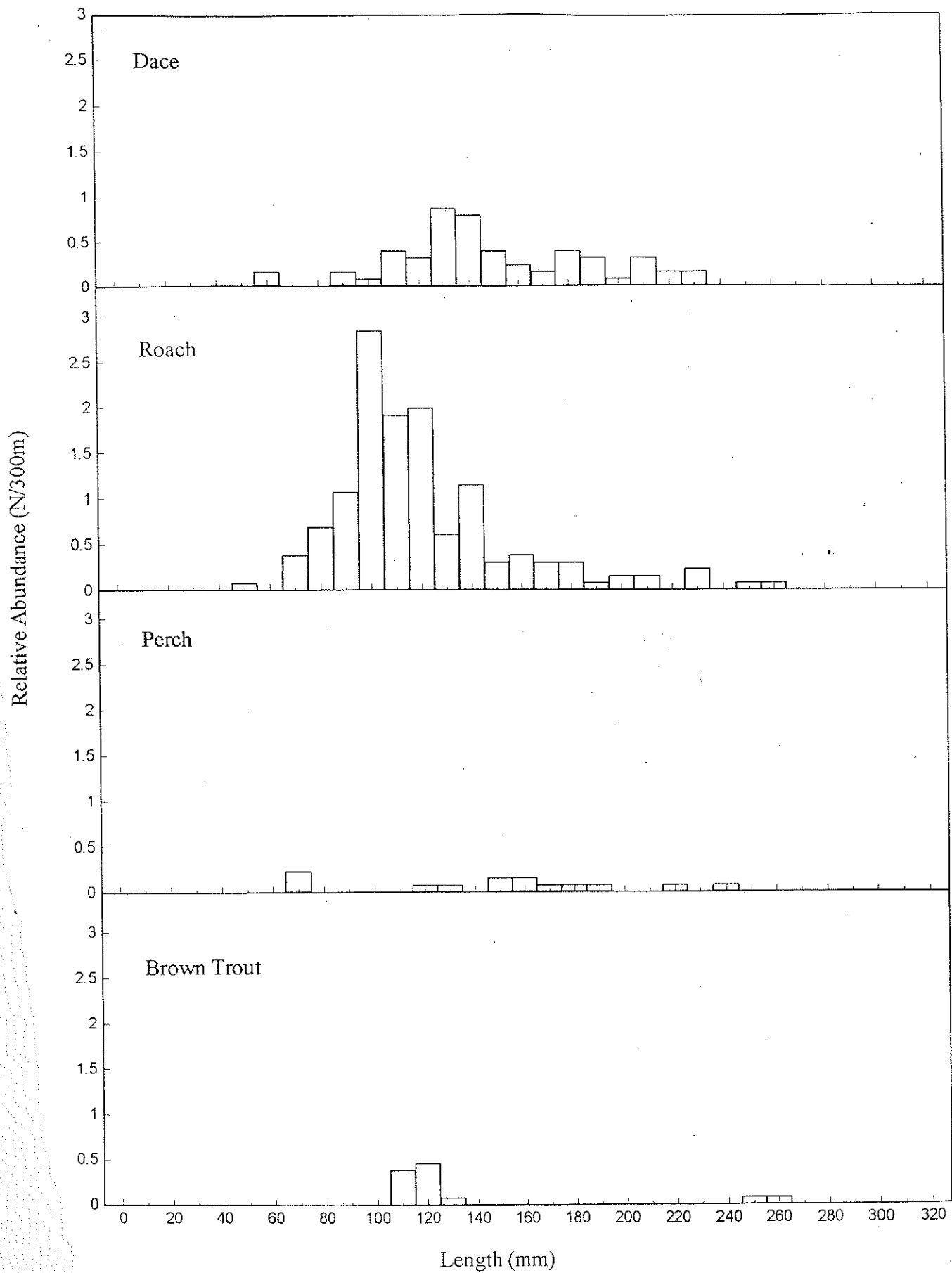


Figure 2a: Relative Length Frequencies of fish for the Eastern Yar
Isle of Wight Survey, August 1997.

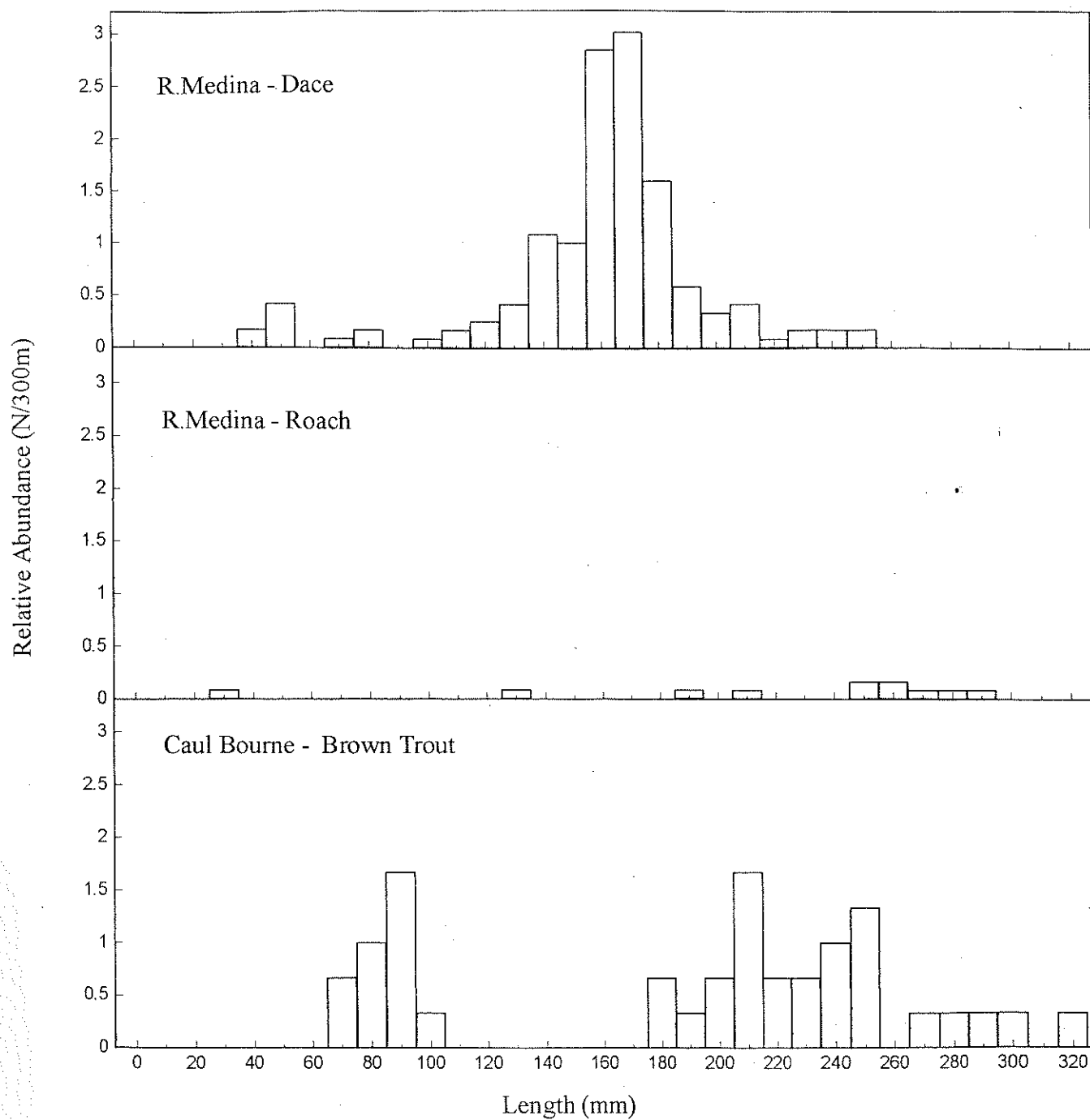


Figure 2b : Relative Length Frequencies of fish for River Medina and Caul Bourne, Isle of Wight Survey, August 1997.

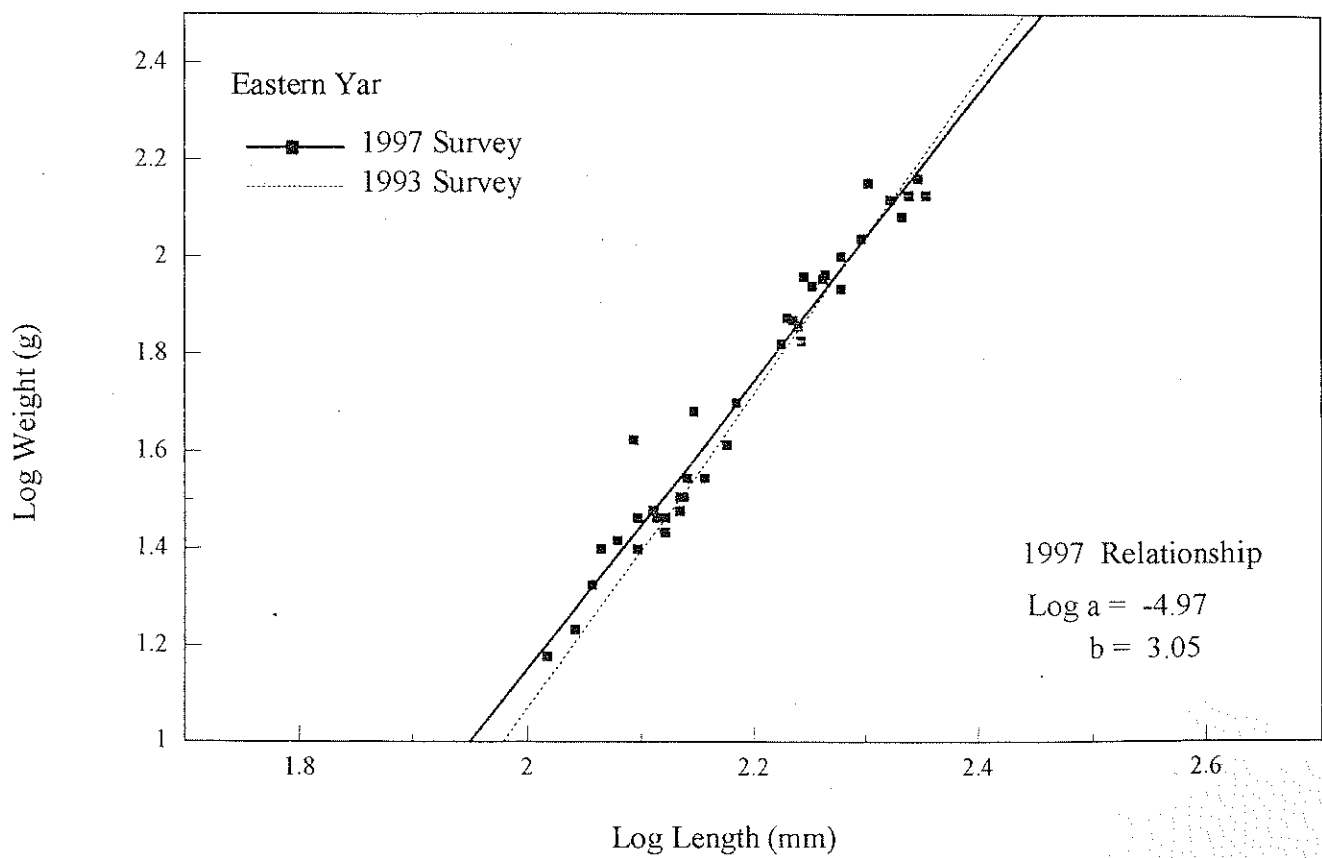
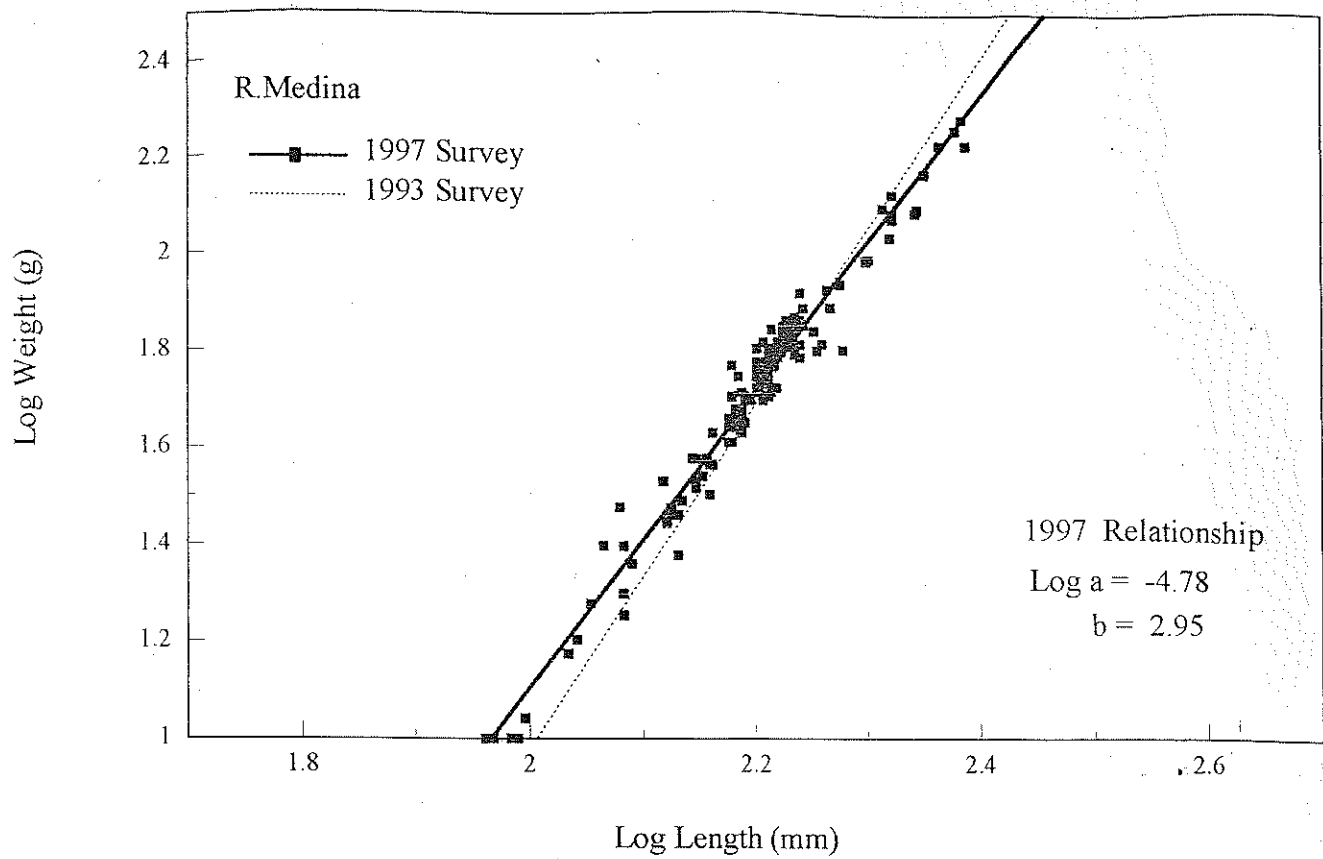


Figure 3 : Weight/Length Relationships for Dace in the Rivers Medina and Eastern Yar, Isle of Wight Survey, August 1997.

Table 1a : Dimensions for River Medina Sites, Isle of Wight Survey August 1997.

Site Number	NGR	Distance (km)	Mean Depth (cm)	Mean Width (cm)	Site Area (m ²)
1	SZ 498847	0.0	15	295	885
2	SZ 498850	0.3	22	200	600
3	SZ 501852	0.6	25	175	525
4	SZ 501855	0.9	38	290	870
5	SZ 503857	1.2	78	350	1,050
6	SZ 505860	1.5	165	265	795
7	SZ 506864	1.9	21	245	735
8	SZ 505866	2.2	11	245	735
9	SZ 503869	2.5	38	300	825
10	SZ 503872	2.8	27	400	1,200
11	SZ 503875	3.1	37	420	1,260
12	SZ 504877	3.4	39	500	1,500

Distance is measured downstream from top of site 1 at Highwood Lane.

Table 1b : Dimensions for Eastern Yar Sites, Isle of Wight Survey August 1997.

Site Number	NGR	Distance (km)	Mean Depth (cm)	Mean Width (cm)	Site Area (m ²)
1	SZ 544854	0.0	30	305	915
2	SZ 546855	0.3	35	335	1,005
3	SZ 549856	0.6	38	380	1,140
4	SZ 552856	0.9	43	395	1,185
5	SZ 583853	4.5	160	450	1,350
6	SZ 586852	4.8	126	350	1,050
7	SZ 607589	12.0	154	475	1,425
8	SZ 608592	12.3	176	555	1,665
9	SZ 607593	12.6	137	775	2,325
10	SZ 608596	12.9	147	600	1,800
11	SZ 610597	13.2	151	660	1,980
12	SZ 612596	13.5	178	605	1,815
13	SZ 613598	13.8	169	530	1,590

Distance is measured downstream from top of site 1 at Horringford Bridge.

Table 1c : Dimensions of Caul Bourne Sites, Isle of Wight Survey August 1997.

Site Number	NGR	Distance (km)	Mean Depth (cm)	Mean Width (cm)	Site Area m^2
1	SZ 414879	0.0	38	260	780
2	SZ 414882	0.3	40	235	705
3	SZ 415885	0.6	21	160	480

Distance is measured downstream from top of site 1 at Newbridge.

Table 2 : Diversity and Relative Abundance of species caught during the Isle of Wight Survey August 1997.

Fish Species	River Medina	Eastern Yar	Caul Bourne
Dace	159	63	
Roach	11	167	
Brown Trout		17	37
Common Carp	29		
Eel	145	53	66
Bream		6	
Skimmer Bream		6	
Perch		14	
Mirror Carp	1		
Bullhead	3	1	14
Stoneloach	49	12	
Brook Lamprey	2	1	
3-sp. Stickleback	46	1	
Gudgeon		19	
Roach/Bream Hyb.		1	
Total	446	361	117

Table 3a : Numbers of fish caught in the sites of the River Medina,
Isle of Wight Survey August 1997.

Site No.	Dace	Roach	Common Carp	Eel	Stoneloach	Mirror Carp	3-spined Stickleback	Bullhead	Brook Lamprey
1	0	0	2	1	26	1	35	0	0
2	20	0	0	17	2	0	1	0	0
3	64	2	0	13	5	0	5	0	0
4	19	0	0	18	0	0	9	0	0
5	3	0	0	1	0	0	0	0	0
6	7	4	7	24	4	0	0	0	0
7	9	3	6	17	0	0	6	2	0
8	5	0	0	13	0	0	0	0	2
9	0	0	0	16	1	0	0	0	0
10	13	1	3	25	11	0	0	1	0
11	12	1	8	0	0	0	0	0	0
12	7	0	3	0	0	0	0	0	0
Total	159	11	29	145	49	1	46	3	2

Table 3b : Numbers of fish caught in the sites of the Eastern Yar,
Isle of Wight Survey August 1997.

Site No.	Dace	Roach	Brown Trout	Eel	Stoneloach	Perch	3-Spined Stickleback	Bullhead	Brook Lamprey	Roach/Bream Hybrid	Skimmer Bream	Gudgeon	Bream
1	12	0	2	0	0	0	0	0	0	0	0	0	0
2	14	0	10	21	2	3	1	1	1	0	0	0	0
3	6	0	1	15	5	0	0	0	0	0	0	0	0
4	8	1	4	15	5	3	0	0	0	1	0	0	0
5	2	5	0	1	0	1	0	0	0	0	0	17	0
6	1	3	0	0	0	0	0	0	0	0	0	2	0
7	2	9	0	0	0	1	0	0	0	0	1	0	1
8	4	4	0	0	0	0	0	0	0	0	2	0	2
9	6	9	0	0	0	0	0	0	0	0	0	0	0
10	3	53	0	0	0	0	0	0	0	0	0	0	2
11	3	19	0	0	0	0	0	0	0	0	0	0	1
12	2	23	0	0	0	1	0	0	0	0	0	0	1
13	0	41	0	1	0	5	0	0	0	0	3	0	0
Total	63	167	17	53	12	14	1	1	1	1	6	19	6

Table 4: Calibration Site Estimates, Isle of Wight Survey August 1997.

Dace

	Run 1	Run 2	Run 3	Population Estimate	Capture Efficiency %
M1	7	5	1	13	65
M2	2	1	1	4	57
M5	2	3	1	6	63
M6	5	0	0	5	100
EY1	4	2	0	6	67
EY2	1	0	0	1	100
EY3	3	0	0	3	100
EY4	1	0	0	1	100
EY5	1	0	0	1	100
EY6	1	0	0	1	100
Total	27	11	3	41	65.9

Roach

	Run 1	Run 2	Run 3	Population Estimate	Capture Efficiency %
EY3	4	3	1	8	62
EY4	2	1	0	3	75
EY5	1	0	0	1	100
EY6	1	0	0	1	100
Total	8	4	1	13	61.5

Brown Trout

	Run 1	Run 2	Run 3	Population Estimate	Capture Efficiency %
EY1	1	0	1	2	50
EY2	2	0	0	2	100
Total	3	0	1	4	75

EY = Eastern Yar

M = Medina

Table 5a : Population estimates for the major fish species caught in the
River Medina, Isle of Wight Survey August 1997.

Site		Dace			Roach			Common Carp		
No.	Area (m ²)	Density (N/100m ²)	Mean Wt. (g)	Biomass (g)	Density (N/100m ²)	Mean Wt. (g)	Biomass (g)	Density (C/100m ²)	Mean Wt. (g)	Biomass (g)
1	885	0.00	0.00	0	0.00	0.0	0	0.23	55	111
2	600	5.00	38.8	1,164	0.00	0.0	0	0.00	0	0
3	525	18.48	35.7	3,462	0.63	23.9	79	0.00	0	0
4	870	3.33	44.1	1,279	0.00	0.0	0	0.00	0	0
5	1050	0.48	34.6	173	0.00	0.0	0	0.00	0	0
6	795	1.38	38.7	426	0.82	30.3	197	0.88	1088	7,617
7	735	1.90	78.5	1,009	0.67	11.4	56	0.82	1026	6,155
8	735	1.11	43.0	344	0.00	0.0	0	0.00	0	0
9	825	0.00	0.0	0	0.00	0.0	0	0.00	0	0
10	1200	1.66	18.9	378	0.14	11.8	20	0.25	830	2,490
11	1260	1.43	21.9	395	0.13	12.9	22	0.63	1024	8,182
12	1500	0.73	36.1	397	0.00	0.0	0	0.20	867	2,602

Density estimates derived using calibration relationship (Tables 4).

Table 5b : Density and Biomass estimates for the major fish species caught in the Eastern Yar, Isle of Wight Survey August 1997.

Site		Dace			Roach			Brown Trout		
No.	Area (m ²)	Density (N/100m ²)	Mean Wt. (g)	Biomass (g)	Density (N/100m ²)	Mean Wt. (g)	Biomass (g)	Density (C/100m ²)	Mean Wt. (g)	Biomass (g)
1	915	1.97	63.7	764	0.00	0.0	0	0.33	229.0	458
2	1005	2.09	55.3	774	0.00	0.0	0	1.29	19.8	198
3	1140	0.79	57.8	347	0.00	0.0	0	0.12	15.0	15
4	1185	1.01	86.7	694	0.17	95.0	95	0.42	21.0	84
5	1350	0.22	49.0	98	0.59	20.6	103	0.00	0.0	0
6	1050	0.19	18.0	18	0.48	37.3	112	0.00	0.0	0
7	1425	0.21	50.0	100	1.05	24.0	216	0.00	0.0	0
8	1665	0.36	31.0	124	0.42	205.3	821	0.00	0.0	0
9	2325	0.39	31.5	189	0.65	22.1	199	0.00	0.0	0
10	1800	0.28	28.0	84	4.78	28.4	1,507	0.00	0.0	0
11	1980	0.25	15.0	45	1.57	18.8	358	0.00	0.0	0
12	1815	0.17	28.0	56	2.04	48.0	1,103	0.00	0.0	0
13	1590	0.00	0.0	0	4.21	31.2	1,280	0.00	0.0	0

Density estimates derived using calibration relationship (Tables 4).

Table 5c: Relative Abundance and Density estimates for the fish species caught in the Caul Bourne, Isle of Wight Survey August 1997.

Site		Brown Trout		Eels	Bullheads
Number	Area (m)	Catch (C/300m)	Density (N/100m ²)	Catch (C/300m)	Catch (C/300m)
1	780	7	1.2	4	7
2	705	28	5.3	30	4
3	480	2	0.56	32	3
Total	1965	37	1.88	66	14

Trout, eels and bullheads were the only species caught.
Density estimates derived using calibration relationship (Tables 4).

Table 6a : Fisheries Classification, River Medina 1997.

Reach code	IW Med 97	Dates Fished		Sept 1997	
Catchment	Medina	Reach limits (min. and max. distance from confluence (km))		1.6	
River name	Medina	Reach gradient (m/km)		4.4	
Number of sites	12	Reach width (m)		3.07	
Upstream NGR	SZ 498 847	Downstream NGR		SZ 503 881	
Reach length (km)		3.4			

Species/age group	Density/ Biomass	Level 1			Level 2			Level 3			Level 4		
		A	R	N	P	A	R	N	P	A	R	N	P
0+ Salmon (no./100m sq)	0	F	e		0.0	F	e		0	F	e		0
0+ Trout (no./100m sq)	0	F	e		0.0	F	e		0	F	e		0
>0+ Salmon (no./100m sq)	0	F	e	-	0.0	F	e		0	F	e		0
>0+ Brown/sea trout (no./100m sq)	0	F	e	-	0.0	F	e		0	F	e		0
>0+ Rainbow trout (no./100m sq)	0	F	e	-	0.0	F	e		0	F	e		0
Salmon parr equiv. (no./100m sq)													
Trout parr equiv. (no./100m sq)													
Rheophilic species (g/100m sq)	78.93	D	b	3	8.871	D	a	3	55.84	D	a	3	132.9
Limnophilic species (g/100m sq)	234.099	C	a	3	460.31	C				C			
Predators (g/100m sq)	0	F	e	-	0.0	F	e		0	F	e		0
Eels (g/100m sq)	170.31	C			2326.5	C			2326.5	C			
Coarse fish fry	0	0				0				0			
Species richness	3.692	3.692				3.692				3.692			
Migratory trout	No	0				0				0			
Threat status	Bh;LB;	T	o			T	o			T	o		

Table 7a : National Classification of fish populations by survey sites for the
River Medina, Isle of Wight Survey August 1997.

Site Number	Level One Category							Level Four Overall Category
	Rheophillic Species	Limnophillic Species	Predator Species	Eel	0+ Trout	>0+ Trout	Species Richness	
1	F	E	F	E	F	F	5	E
2	D	E	F	B	F	F	4	E
3	B	E	F	C	F	F	5	D
4	D	E	F	C	F	F	3	E
5	E	F	F	E	F	F	2	E
6	E	B	F	B	F	F	5	C
7	D	B	F	C	F	F	6	D
8	E	F	F	C	F	F	3	E
9	F	F	F	C	F	F	2	F
10	E	C	F	C	F	F	6	E
11	E	B	F	F	F	F	3	D
12	E	C	F	F	F	F	2	E

Table 7b : National Classification of fish populations by survey sites for the Eastern Yar, Isle of Wight Survey August 1997.

Site Number	Level One Category							Level Four Overall Category
	Rheophillic Species	Limnophillic Species	Predator Species	Eel	0+ Trout	>0+ Trout	Species Richness	
1	D	F	F	F	E	E	2	E
2	D	F	E	C	E	F	8	E
3	E	F	F	D	E	F	4	E
4	E	E	E	D	F	F	6	E
5	E	E	E	E	F	F	5	E
6	E	E	F	F	F	F	3	E
7	E	E	F	F	F	F	4	E
8	E	D	F	F	F	F	4	E
9	E	E	F	F	F	F	2	E
10	E	D	F	F	F	F	3	E
11	E	E	F	F	F	F	3	E
12	E	D	E	F	F	F	4	E
13	F	D	E	E	F	F	5	E

Table 7c : National Classification of fish populations by survey sites for the
Caul Bourne, Isle of Wight Survey August 1997.

Site Number	Level One Category							Level Four Overall Category
	Rheophillic Species	Limnophillic Species	Predator Species	Eel	0+ Trout	>0+ Trout	Species Richness	
1	F	F	F	E	F	E	3	E
2	F	F	E	B	E	D	3	E
3	F	F	F	A	E	E	3	E

Table 8a : Fisheries Classification, River Medina 1993.

Reach code	zz_SZ 504 878 SZ 498 848 23/03/98 11:47:27	Dates Fished	
Catchment	Medina	Feb. 1993	
River name	Medina	Reach limits (min. and max. distance from confluence (km))	
Number of sites	3	Reach gradient (m/km)	
Upstream NGR	SZ 498 848	Reach width (m)	
	Downstream NGR SZ 504 878	Reach length (km)	

Species/age group	Density/ Biomass	Level 1			Level 2			Level 3			Level 4		
		A	R	N	P	A	R	N	P	A	R	N	P
0+ Salmon (no./100m sq)	0	F	e		0.0	F	e		0	F			
0+ Trout (no./100m sq)	0	F	e		0.0	F							
>0+ Salmon (no./100m sq)	0	F	e	-	0.0	F							
>0+ Brown/sea trout (no./100m sq)	0	F	e	-	0.0	F							
>0+ Rainbow trout (no./100m sq)	0	F		-	0.0	F							
Salmon parr equiv. (no./100m sq)													
Trout parr equiv. (no./100m sq)													
Rheophilic species (g/100m sq)	217.586	D	a	-	0.0	D	b		0	C			
Linnophilic species (g/100m sq)	74.483	D	a	-	0.0	D							
Predators (g/100m sq)	0	F	e	-	0.0	F							
Eels (g/100m sq)	1447.586	A			0.0	A							
Coarse fish fry	0	0				2.333				2.333			
Species richness	2.333	2.333				2.333				2.333			
Migratory trout	No	0				0							
Threat status	Bh.	T	o			T	o			T	o		

Table 8b : Fisheries Classification, Eastern Yarrow 1993.

Reach code	ZZ_SZ 613 599 SZ 544 855 23/03/98 11:44:23		Dates Fished		Feb. 1993
Catchment	Eastern Yarrow		Reach limits (min. and max. distance from confluence (km))		5.7
River name	Eastern Yarrow		Reach gradient (m/km)		0.72
Number of sites	5		Reach width (m)		4.93
Upstream NGR	SZ 544 855		Reach length (km)		13.8
	Downstream NGR SZ 613 599				

Species/age group	Density/ Biomass	Level 1			Level 2			Level 3			Level 4		
		A	R	P	A	R	P	A	R	P	A	R	P
0+ Salmon (no./100m sq)	0	F	e	0.0	F	e	0	F	e	0	C		0
0+ Trout (no./100m sq)	0	F	e	0.0	F	e	0	F	e	0			
>0+ Salmon (no./100m sq)	0	F	e	0.0	F	e	0	F	e	0			
>0+ Brown/sea trout (no./100m sq)	0	F	e	0.0	F	e	0	F	e	0			
>0+ Rainbow trout (no./100m sq)	0	F	e	0.0	F	e	0	F	e	0			
Salmon parr equiv. (no./100m sq)	0	F	e	0.0	F	e	0	F	e	0			
Trout parr equiv. (no./100m sq)													
Rhithronic species (g/100m sq)	253.538	D	c	0.0	D	c	0	D	c	0			
Linnethentic species (g/100m sq)	1310.094	A	a	0.0	A	a	0	A	a	0			
Predators (g/100m sq)	84.057	D	c	0.0	D	c	0	D	c	0			
Eels (g/100m sq)	981.226	A	c	0.0	A	c	0	A	c	0			
Coarse fish fry	0	0			0			0					
Species richness	2.75	2.75			2.75			2.75			2.75		
Migratory trout	No	0			0			0			0		
Threat status	Gu;				0	t		0	t		0	t	

APPENDIX

National Fisheries Classification Outputs

**Site Comparisons
River Medina & Eastern Yar
1993 & 1997 Surveys**

Fisheries classification system Site classification - all levels

Catchment
River name
Site name
Site code
Site grid reference

Medina

Medina

Site 1

Site code

SZ 498 848

Reach code

JW Med 93

Date fished

Feb 93

Distance from confluence (km)

5

Gradient (m/km)

5

River width (m)

2.2

Site area (m sq.)

220

Species/age group

0+ Salmon (no./100m sq)

0+ Trout (no./100m sq)

>0+ Salmon (no./100m sq)

>0+ Brown/sea trout (no./100m sq)

>0+ Rainbow trout (no./100m sq)

Salmon parr equiv. (no./100m sq)

Trout parr equiv. (no./100m sq)

Rheophilic species (g/100m sq)

Limnophilic species (g/100m sq)

Predators (g/100m sq)

Eels (g/100m sq)

Coarse fish fry

Species richness

Migratory trout

Threat status

Density/
Biomass

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

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0

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0

0

0

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0

Level 1

A R N P

F e 0

F e 0

F e 0

F e 0

F e 0

F e 0

F e 0

F e 0

F e 0

F e 0

F e 0

F e 0

F e 0

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F e 0

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F e 0

F e 0

Level 2

A R N P

F e 0

F e 0

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Level 3

A R N P

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Level 4

A R N P

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Site classification - all levels

Catchment
River name
Site name
Site code
Site grid reference

Medina
Medina
Site 1
Reach code IW Med 97
SZ 498 847

Date fished
Distance from confluence (km)
Gradient (m/km)
River width (m)
Site area (m sq.)

Sept 97
5
5
2.95
885

Species/age group

Density/
Biomass

Level 1

Level 2

Level 3

Level 4

P

0+ Salmon (no./100m sq)

0+ Trout (no./100m sq)

>0+ Salmon (no./100m sq)

>0+ Brown/sea trout (no./100m sq)

>0+ Rainbow trout (no./100m sq)

Salmon parr equiv. (no./100m sq)

Trout parr equiv. (no./100m sq)

Rheophilic species (g/100m sq)

Limnophilic species (g/100m sq)

Predators (g/100m sq)

Eels (g/100m sq)

Coarse fish fry

Species richness

Migratory trout

Threat status

0

0

0

0

0

0

0

13

0

12

0

5

No

0

0

F e 0

F e 0

F e 0

F e 0

F e 0

F e 0

F e 0

F e 0

F e 0

F e 0

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Fisheries classification system

Site classification - all levels

Catchment
River name
Site name
Site code
Site grid reference

Medina
Medina
site 6
Reach code JVV Med 93
SZ 505 861

Date fished Feb 93
Distance from confluence (km) 3.4
Gradient (m/km) 5
River width (m) 3.2
Site area (m sq.) 320

Species/age group

0+ Salmon (no./100m sq)
0+ Trout (no./100m sq)
>0+ Salmon (no./100m sq)
>0+ Brown/sea trout (no./100m sq)
>0+ Rainbow trout (no./100m sq)
Salmon parr equiv. (no./100m sq)
Trout parr equiv. (no./100m sq)
Rheophilic species (g/100m sq)
Limnophilic species (g/100m sq)
Predators (g/100m sq)
Eels (g/100m sq)
Coarse fish fry
Species richness
Migratory trout
Threat status

Density/ Biomass

0
0
0
0
0

Level 1

A	R	N	P
F	e		0
F	e		0
F	e	-	0
F	e	-	0
F		-	0

Level 2

A	R	N	P
F	e		0
F		-	0
F	e	-	0
F	e	-	0
C	a		0
A			0

Level 3

A	R	N	P
F	e		0
B	a		0

Level 4

A	R	N	P

750
270
0
2290
0
4
No
Bh;

4 c
0
T o

4 c
T o

T o

Fisheries classification system

Catchment	Medina	Reach code	JW Med 97
River name	Medina		
Site name	site 6		
Site code			
Site grid reference			SZ 505 860

Date	Sept 97
Distance from confluence (km)	3.4
Gradient (m/km)	5
River width (m)	2.65
Site area (m sq.)	735

[illegible]

Fisheries classification system

Catchment	Medina	Date fished	Feb 93
River name	Medina	Distance from confluence (km)	1.6
Site name	Site 12	Gradient (m/km)	5
Site code		River width (m)	6.2
Site grid reference	SZ 504 878	Site area (m sq.)	620
		Reach code	IW Med 93

Species/age group	Density/ Biomass	Level 1				Level 2				Level 3				Level 4			
		A	R	N	P	A	R	N	P	A	R	N	P	A	R	N	P
0+ Salmon (no./100m sq)	0	F	e	-	0	F	e	-	0	F	e	-	0	F	e	-	0
0+ Trout (no./100m sq)	0	F	e	-	0	F	e	-	0	F	e	-	0	F	e	-	0
>0+ Salmon (no./100m sq)	0	F	e	-	0	F	e	-	0	F	e	-	0	F	e	-	0
>0+ Brown/sea trout (no./100m sq)	0	F	e	-	0	F	e	-	0	F	e	-	0	F	e	-	0
>0+ Rainbow trout (no./100m sq)	0	F	e	-	0	F	e	-	0	F	e	-	0	F	e	-	0
Salmon parr equiv. (no./100m sq)	0	F	e	-	0	F	e	-	0	F	e	-	0	F	e	-	0
Trout parr equiv. (no./100m sq)	0	F	e	-	0	F	e	-	0	F	e	-	0	F	e	-	0
Rheophilic species (g/100m sq)	20	E	d	-	0	E	d	-	0	E	d	-	0	E	d	-	0
Limnophilic species (g/100m sq)	0	F	e	-	0	F	e	-	0	F	e	-	0	F	e	-	0
Predators (g/100m sq)	0	F	e	-	0	F	e	-	0	F	e	-	0	F	e	-	0
Eels (g/100m sq)	760	A	e	-	0	A	e	-	0	A	e	-	0	A	e	-	0
Coarse fish fry	0	0	e	-	0	0	e	-	0	0	e	-	0	0	e	-	0
Species richness	2	2	e	-	0	2	e	-	0	2	e	-	0	2	e	-	0
Migratory trout	No	0	e	-	0	0	e	-	0	0	e	-	0	0	e	-	0
Threat status			e	-	0		e	-	0		e	-	0		e	-	0

Site classification - all levels

[illegible]

Fisheries classification system

[illegible][illegible]

Fisheries classification system

[illegible]

Date fished	Sept 97
Distance from confluence (km)	18
Gradient (m/km)	0.72
River width (m)	3.05
Site area (m sq.)	915

[illegible]

Fisheries classification system

[illegible]

Site classification - all levels

Catchment	Eastern Yar	Date fished	Sept 97
River name	Eastern Yar	Distance from confluence (km)	17.1
Site name	Site 4	Gradient (m/km)	0.72
Site code	EY4	River width (m)	3.95
Site grid reference	SZ 552 856	Site area (m sq.)	1185

[illegible]

Catchment	Eastern Yar	Date fished	Feb 93
River name	Eastern Yar	Distance from confluence (km)	13.5
Site name	site 5	Gradient (m/km)	0.72
Site code	EY5	Reach code	IWEASTYA
Site grid reference	SZ 583 854	River width (m)	4.6
		Site area (m sq.)	460

[illegible]

Fisheries classification system

Site classification - all levels

Catchment	Eastern Yar	Date fished	Sept 97
River name	Eastern Yar	Distance from confluence (km)	13.5
Site name	site 5	Gradient (m/km)	0.72
Site code	EY5	River width (m)	4.5
Site grid reference	SZ 583 853	Site area (m sq.)	1350

Species/age group	Density/ Biomass	Level 1			Level 2			Level 3			Level 4		
		A	R	N	P	A	R	N	P	A	R	N	P
0+ Salmon (no./100m sq)	0	F	e		0	F	e						
0+ Trout (no./100m sq)	0	F	e		0	F	e						
>0+ Salmon (no./100m sq)	0	F	e	-	0	F	e						
>0+ Brown/sea trout (no./100m sq)	0	F	e	-	0	F	e						
>0+ Rainbow trout (no./100m sq)	0	F	e	-	0	F	e						
Salmon parr equiv. (no./100m sq)	0	F		-	0	F							
Trout parr equiv. (no./100m sq)													
Rheophilic species (g/100m sq)	7.3	E	d	2	0	E							
Limnophilic species (g/100m sq)	7.6	E	d	2	0	E							
Predators (g/100m sq)	9	E	c	1	0	E							
Eels (g/100m sq)	11	E			0	E							
Coarse fish fry	0	0				0							
Species richness	5	5	d			5	d						
Migratory trout	No	0				0							
Threat status	Gu.	0	t			0	t						

Fisheries classification system

Catchment	Eastern Yar
River name	Eastern Yar
Site name	Site 8
Site code	EY8
Site grid reference	W8EASTYA SZ 608 593

Date	Feb 93
Distance from confluence (km)	5.7
Gradient (m/km)	0.72
River width (m)	9.9
Site area (m sq.)	990

[illegible]

Fisheries classification system

[illegible]

Site classification - all levels

Catchment	Eastern Yar	Reach code	IWEAST YA
River name	Eastern Yar		
Site name	site 13		
Site code	EY13		
Site grid reference	SZ 613 598		

Date fished	Feb 93
Distance from confluence (km)	4.2
Gradient (m/km)	0.72
River width (m)	12.4
Site area (m sq.)	1240

Species/age group	Density/ Biomass	Level 1						Level 2						Level 3						Level 4					
		A	R	N	P	A	R	N	P	A	R	N	P	A	R	N	P	A	R	N	P				
0+ Salmon (no./100m sq)		F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O				
0+ Trout (no./100m sq)		F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O				
>0+ Salmon (no./100m sq)		F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O				
>0+ Brown/sea trout (no./100m sq)		F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O				
>0+ Rainbow trout (no./100m sq)		F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O				
Salmon parr equiv. (no./100m sq)		F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O				
Trout parr equiv. (no./100m sq)		F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O				
Rheophilic species (g/100m sq)		F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O				
Limnophilic species (g/100m sq)		F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O				
Predators (g/100m sq)		D	c	-	O	D	c	-	O	D	c	-	O	D	c	-	O	D	c	-	O				
Eels (g/100m sq)		F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O				
Coarse fish fry		F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O	F	e	-	O				
Species richness		1	e	-	O	1	e	-	O	1	e	-	O	1	e	-	O	1	e	-	O				
Migratory trout	No	1	e	-	O	1	e	-	O	1	e	-	O	1	e	-	O	1	e	-	O				
Threat status		1	e	-	O	1	e	-	O	1	e	-	O	1	e	-	O	1	e	-	O				

Site classification - all levels

Catchment	Eastern Yar	Date fished	Sept 97.
River name	Eastern Yar	Distance from confluence (km)	4.2
Site name	site 13	Gradient (m/km)	0.72
Site code	EY13	Reach code	IWEAST YA
Site grid reference	SZ 613 598	River width (m)	5.3
		Site area (m sq.)	1590

[illegible]