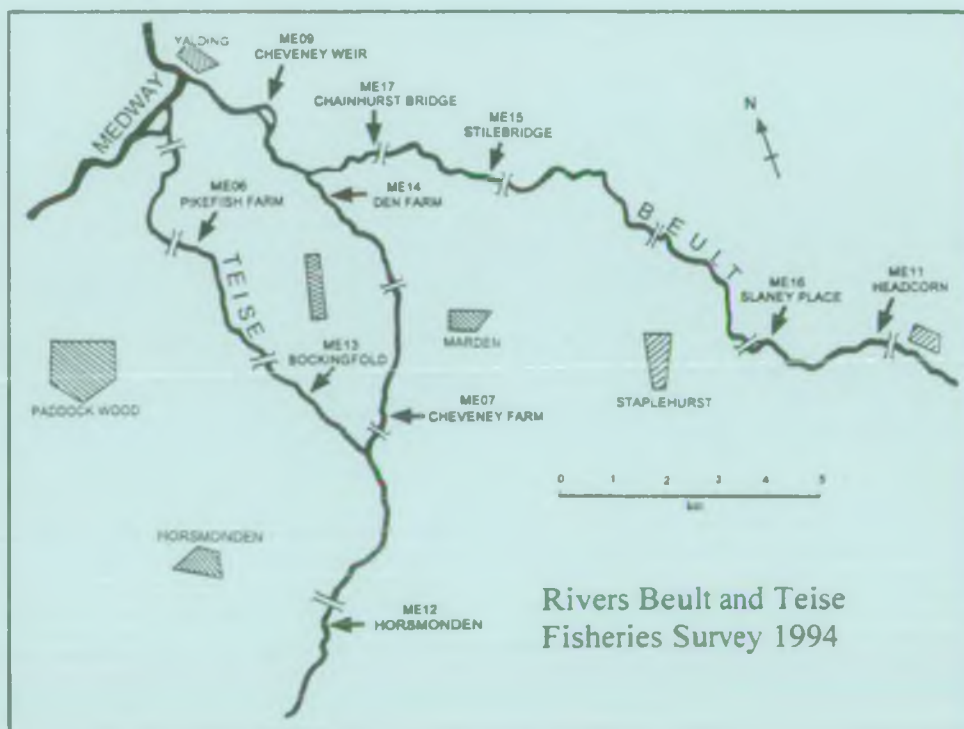


National Rivers Authority: Southern Region.

FISHERIES SURVEY RIVERS BEULT AND TEISE 1994



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FISHERIES SURVEY OF THE RIVERS BEULT AND TEISE 1994

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1. SECTION I : APPROACH

1.1 Background

- 1.1.1 The following report describes results of an electrofishing survey of the Rivers Beult and Teise in the Medway catchment. The survey was undertaken between 4th and 10th October 1994 and sampled five sites on the Beult and five sites on the Teise.

1.2 Survey Sites

- 1.2.1 The following named sites were surveyed:

Site code	Site name	NGR	Sample area
<hr/>			
<u>River Beult</u>			
ME 11	Headcorn	TQ826443	567 m ²
ME 16	Slaney Place	TQ798445	1330 m ²
ME 15	Stile Bridge Weir	TQ758474	1030 m ²
ME 17	Chainhurst Bridge	TQ728486	1370 m ²
ME 09	Cheveney Weir	TQ707495	747 m ²
 <u>River Teise</u>			
ME 12	Horsmonden	TQ717398	803 m ²
ME 14	Den Farm	TQ723474	540 m ²
ME07	Little Cheveney Farm	TQ727432	387 m ²
ME 13	Bockingfold	TQ707444	623 m ²
ME 06	Pikefish Farm	TQ695468	537 m ²
<hr/>			

1.3 Methods

- 1.3.1 Sites were electrofished using hand held anodes, powered by a 240 v, 2Kva pulsed DC generator running at 50 Hz. At each site, 100 metres of river length were stop netted using 25mm knotless mesh barrier nets upstream and downstream.
- 1.3.2 Populations were estimated by multiple shock catch depletion, using a minimum of three electrofishing runs. Populations were estimated from catch depletion data according to the methods of Zippin (1956, 1958) and Carl and Strube (1978).
- 1.3.3 The method described by Zippin (1956,1958) is a maximum likelihood model which uses a linear regression. The method requires a reasonable decline in numbers over consecutive runs to produce a meaningful population estimate. Where no reduction in numbers was evident or the pattern of fish captures was irregular, the maximum weighted likelihood method described by Carl and Strube (1978) was used.

- 1.3.4 Where very low numbers were recorded or no fish were caught on one or more runs, both Carl and Strube and Zippin methods generally failed to give meaningful estimates. In such cases the actual number of fish caught was then given as a minimum population estimate.
- 1.3.5 Biomass of each species was calculated from their respective population estimates, using sample length-weight regressions.
- 1.3.6 Length for age was assessed for those species caught in adequate numbers to provide meaningful data. Growth rates as indicated by length for age data were compared with standards reported by Hickley and Dexter (1979) for chub, roach, bream and dace and Hickley and Sutton (1984) for pike.
- 1.3.7 Weight for length parameters were derived by log linear regression to provide indices of condition. Wherever adequate data were available, simple comparisons were then made between sites, significance being assessed from 95% confidence limits of slope and intercept.

2 SECTION II : NATURE OF RIVERS

2.1 The River Beult

- 2.1.1 The river Beult flows from east to west entering the river Medway at Yalding (NGR 687 505). The river runs off a loam and clay catchment and has a shallow gradient of 1 in 1800 over the lower $\frac{2}{3}$ of its length. The river is generally slow flowing with velocities at the time of sampling ranging from zero to 15 cm/sec (mean 4 cm/sec).
- 2.1.2 Water levels on the Beult are controlled to some extent by a series of sluices and weirs. These cause ponding for the purpose of irrigation and are subject to periodic adjustment to prevent flooding during wet weather. As a result, parts of the river can be subject to abrupt and significant alterations in the water level (eg. see site report Slaney Place).
- 2.1.3 The catchment generally is characterised by mixed agriculture, including fruit, arable and pasture. Diffuse and point source pollution from agricultural runoff is likely to affect water quality. The area also has a relatively high density of rural population and the river is subject to discharges of treated effluent from both domestic and public sewage facilities.
- 2.1.4 Water quality in the Beult is variable. Upstream of Headcorn water quality is NWC class 2, improving to class 1B down to Stilebridge. Lower sections down to the Medway confluence are class 1B. During periods of low flow treated effluent may contribute a significant percentage of the total flow. Water quality of the river is considered to be improving.
- 2.1.5 Work is currently being undertaken both by the NRA and angling associations to improve angling status of the river. Steps have included the removal of pike to allow the development of other species.
- 2.1.6 The River Beult has been designate a site of Special Scientific Interest between Hadurrans Place and Yalding.

2.2 The River Teise

- 2.2.1 The River Teise rises south of Royal Tunbridge Wells and flows initially east and then north before dividing into two streams near Marden (NGR 725 427). The eastern arm of the river flows into the river Beult at Benover (NGR 716 413), the western arm joins the River Medway at Yalding (NGR 690 498).
- 2.2.2 The Teise flows initially over a slowly permeable sandstone catchment, then over areas of loam and eventually clay. Average gradient is higher than on the Beult, being 1 in 500 in the upstream sections from Lamberhurst to Marden, and 1 in 900 down to the Medway confluence. Typical velocities at the time of sampling were 10-40 cm/sec (mean 18 cm/sec).

2.2.3 The upper river is characterised by intermittent gravelly areas. Water levels in the lower river, particularly along the west arm, are impounded by sluices and weirs, producing stretches that are normally deeper and slower flowing in nature.

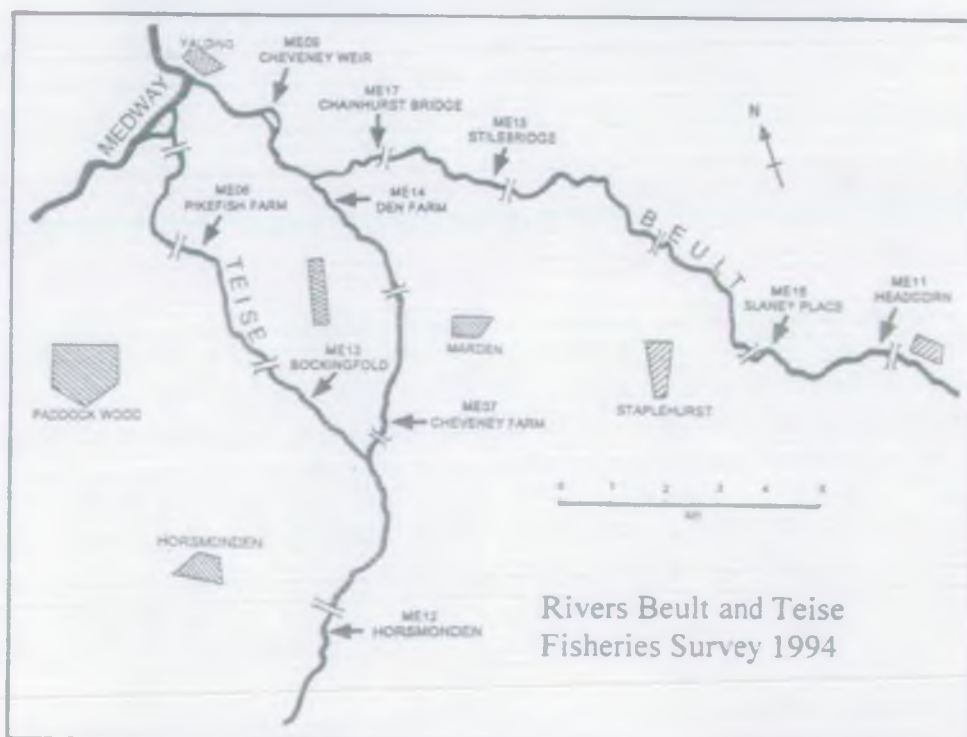
2.2.4 The Teise catchment is generally characterised by mixed agriculture, including fruit growing, arable and pasture. Rural population is comparatively high. Water quality in the upper sections is NWC class 1B from Goudhurst to where the river divides. Lower sections down to the Medway confluence are class 1A.

2.2.5 Angling is controlled by a number of local clubs, associations and private owners. Coarse fish species have been removed from parts of the upper river to allow the stocking of trout.

RIVER BEULT AT HEADCORN

FISHERIES SURVEY 1994

RIVER BEULT AT HEADCORN FISHERIES SURVEY 1994



Fisheries Survey : River Beult at Headcorn

1. A 100 metre reach was stop-netted and sampled immediately downstream of a road bridge at NGR TQ826443. The width of the fishable river channel was reduced to approximately 4 metres by in-stream marginal vegetation, allowing the site to be fished effectively with a single anode. Average water depth of 0.7 metres was considered suitable for electrofishing.
2. Of the total numbers of fish recorded (Fig 2), 66% were caught on the first electrofishing run, with 26% and 8% being recorded from the second and third runs respectively. Due to the consistent decline in numbers, the population estimate carries a relatively small error (89 ± 4 fish). Apparent capture efficiencies expressed as a percentage of the estimated population, allowing for fish removed, were 64%, 69% and 70% respectively.
3. Roach and pike were the numerically predominant species (Fig.2), with smaller numbers of gudgeon, minnows, perch, dace and bream. Individual chub, bleak and bullhead were also caught.
4. Species composition in terms of numbers and biomass is shown in figure 2. Population density of all species was calculated to be 0.16 fish/m², with biomass 21.98 gm⁻². These values are above the averages of 0.09 fish/m² and 14.23 gm⁻² respectively, for all five sites on the Beult. Whilst roach were the numerically predominant species, the greatest fraction of the biomass was contributed by pike.
5. Figure 1 shows lengths of all fish sampled. Roach ranged in length between 5.7 and 23.9cm (8 oz.). The largest fish being a pike of 63.9cm (4 lb 11 oz).
6. Table 1 shows fish ages as determined by scale reading. Roach were aged up to 9+ years. The 1993 year class was best represented, with the bulk of the population represented by fish in the 2+ to 4+ age groups (see figure 1). The 1993 and 1994 age classes were caught only in very low numbers. Pike were aged between 0+ years and 4+ years, with the strongest age group being the 1993 (1+ years) year class.
7. Lengths for age are shown in figure 3. These data would suggest that growth of roach compares well with standards reported by Hickley and Dexter (1979). The 1991 and 1992 age classes showed above average length for age. Lengths for age of pike suggest somewhat lower than average growth, as shown by the standard given by Hickley and Sutton (1984).
8. Weights for length are given in figure 4 as indices of condition. The data suggest that pike were not significantly different weight for length than those from other sites on the River Beult. Parameters for roach were slightly lower than at other sites.
9. Visual assessment of the captured fish indicated generally good health. A few fish indicated signs of angling damage and hooks were removed from two pike. A number of the fish (mainly roach) displayed an infection with the black spot parasite *Posthodiplostimum*.

Site Information: Headcorn

Watercourse: River Beult **National Grid Reference:** TQ 826 443

Site Code: ME11 **Survey Date:** 4/10/94

Sampling method: Single hand held anode, 240 v, 2 Kva, pulsed D.C, 50 Hz.

Site Length: 100 metres **Mean Width (range):** 5.67m (4.7-7.2)

Mean Depth (range): 0.74m (0.34-1.24)

Water Temperature (°C): 11 **Conductivity (μS):** 720

Weather Conditions: Clear and Sunny. Light Northerly breeze.

Habitat Details

Substrate Composition (%): Mud/Silt: 100 Gravel: 0 Cobbles: 0 Boulders: 0

Flow Characteristics (%): Pool: 0 Riffle: 0 Glide: 90 Slack: 10

Flow Velocity (cm/s): 15 **Water Level:** Moderate **Water Clarity:** Moderate visibility

Aquatic Vegetation: Submerged Type: Water lilies

% Cover: 3

Emergent Type: Reeds

% Cover: 70 (marginal)

Bankside Vegetation: Type (% Cover): 50 Nettles, 50 Grasses

Bank Nature: Steep banks with narrow path slightly above water level on right bank.

Adjacent Land Use: LHB: Pasture

RHB: Pasture

Fig. 1 Headcorn: length frequency

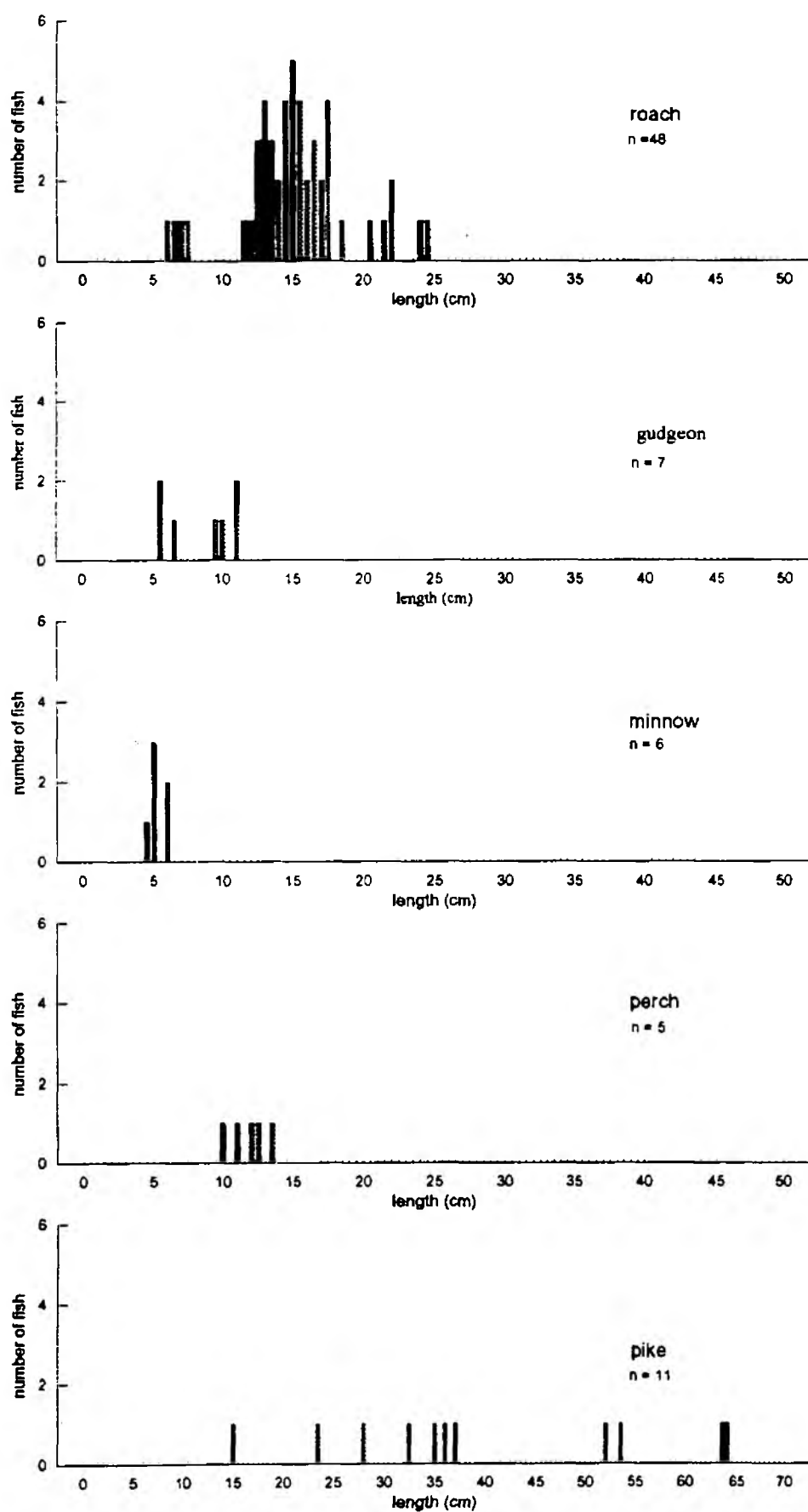


Fig. 1(cont) Headcorn: length frequency

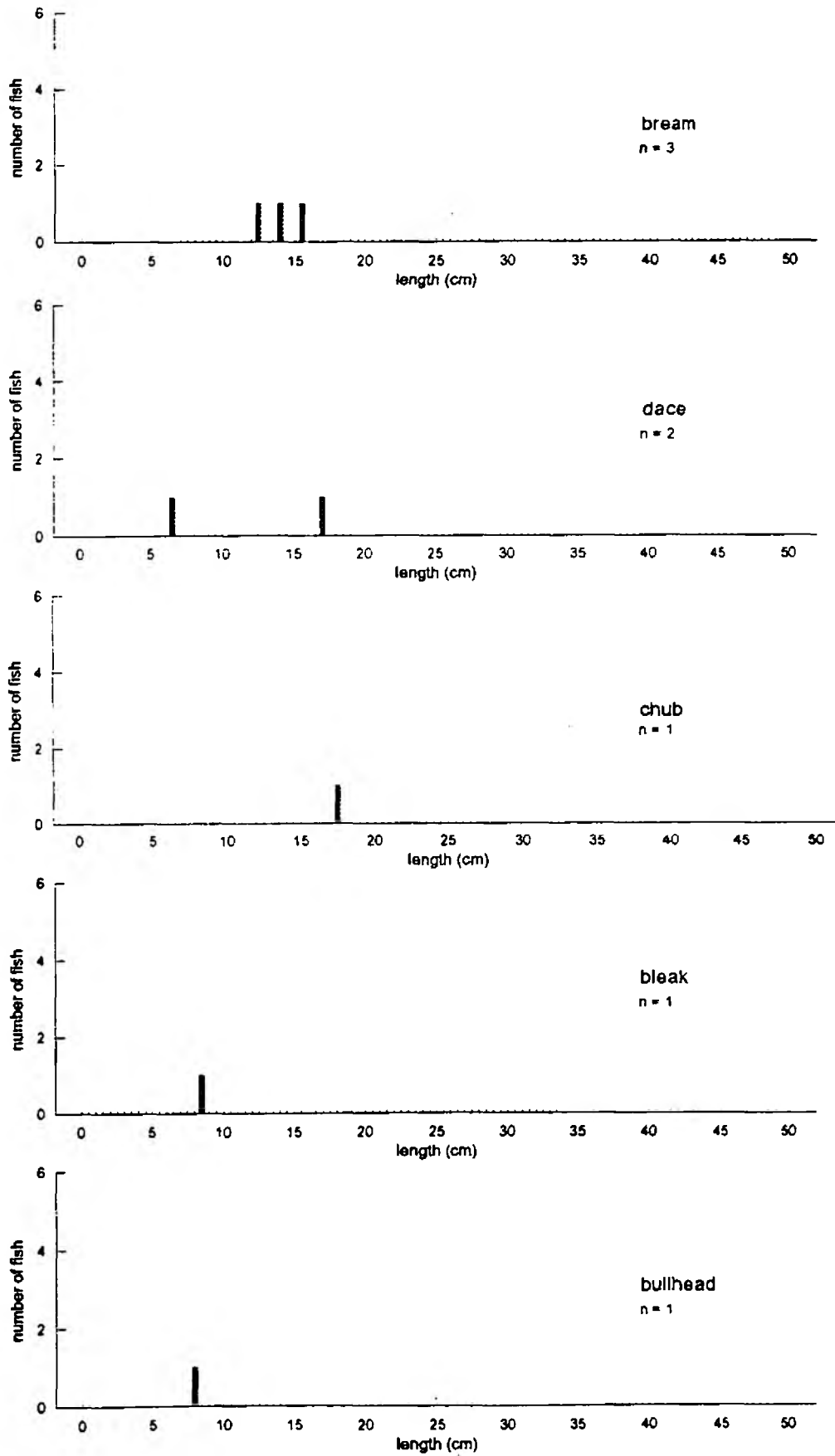
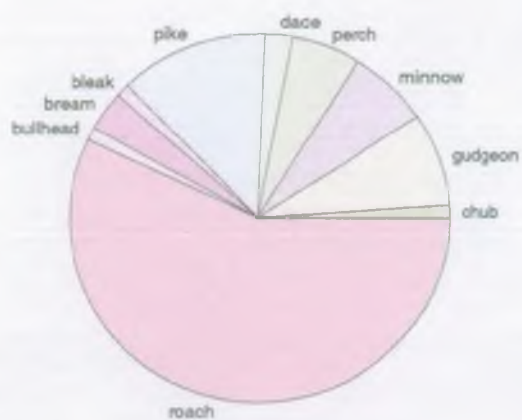
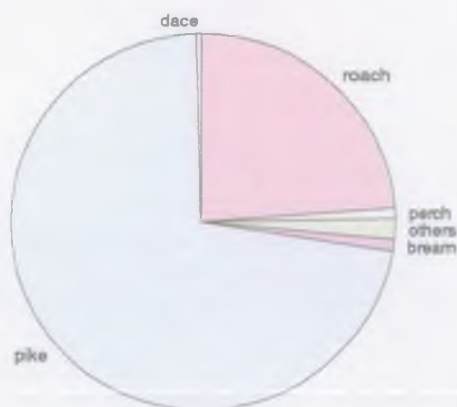


Fig. 2 Headcorn: Species composition

Number per m²



Biomass gm⁻²



	Number caught	Estimated total	Number m ²	Biomass gm ⁻²
1) Estimate based on total catch *				
	86	88.6	0.156	21.98
2) Estimates for individual species				
chub	1	1.0	0.002	0.11
gudgeon	7	7.7	0.014	0.12
minnow	6	6.0	0.011	0.11
perch	5	5.0	0.009	0.03
dace	2	2.0	0.004	0.21
pike	11	11.8	0.021	16.35
bleak	1	1.0	0.002	5.27
bream	3	3.0	0.005	0.01
bullhead	1	1.0	0.002	0.23
roach	49	50.3	0.089	0.01

The "total catch" population estimate is calculated from the depletion of all fish caught, regardless of species. That estimate is considered more reliable than the total of individual species estimates, some of which may have limited accuracy due to small sample size.

Table 1. Headcorn: Length for age

Species	Age (years)	Number aged	Mean length (cm)	min (cm)	max (cm)
bleak	1+	1	8.1		
bream	2+	3	13.7	12.4	15.0
chub	2+	1	17.0		
	12+	1	45.5		
dace	0+	1	6.4		
	3+	1	16.5		
gudgeon	0+	1	6.1		
	1+	2	9.5	9.4	9.6
	2+	2	10.6	10.5	10.6
perch	0+	3	10.8	9.6	12.3
	1+	1	11.8		
	2+	1	13.2		
pike	0+	1	14.8		
	1+	5	30.8	23.1	36.5
	2+	1	35.7		
	4+	2	52.5	51.8	53.2
roach	0+	3	6.2	5.7	6.8
	1+	1	7.0		
	2+	7	12.8	11.1	15.8
	3+	12	15.3	13.0	18.3
	4+	4	15.5	13.8	16.8
	5+	1	17.4		
	6+	2	20.9	20.4	21.4
	7+	1	24.3		
	9+	1	23.9		

Fig. 3 Headcorn: Length for age

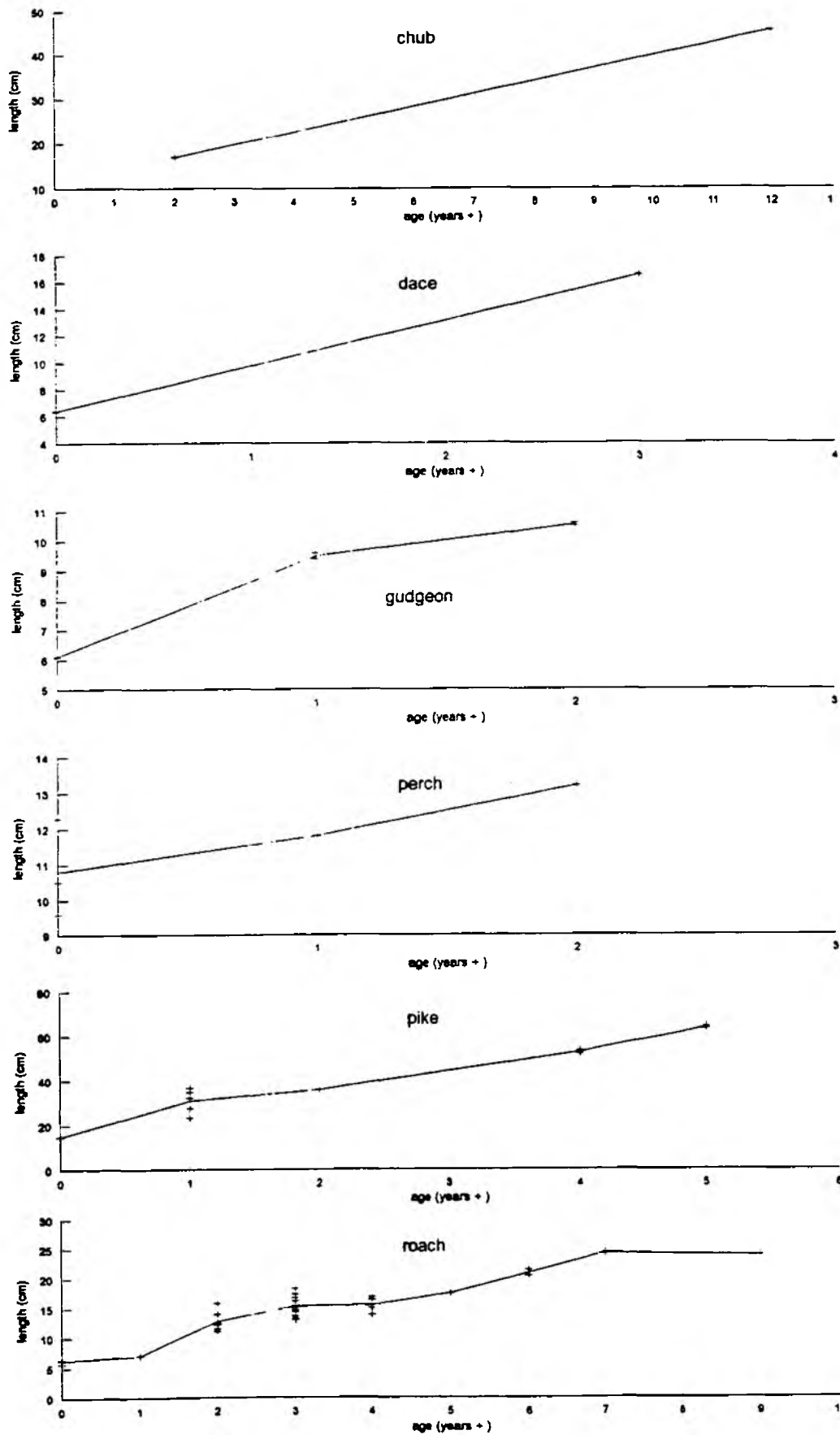
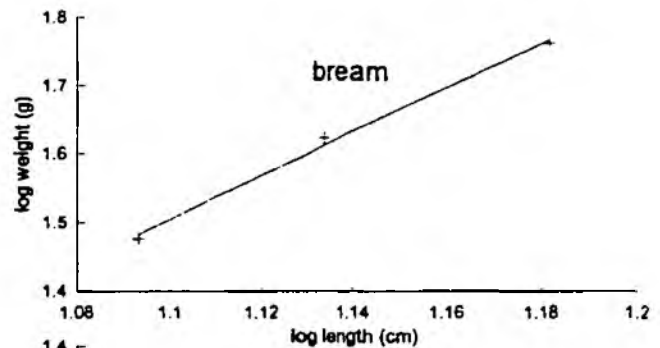


Fig. 4 Headcorn: Weight for length

Bream Regression Output:

Constant -2.04509
Std Err of Y Est 0.013233
R Squared 0.995728
No. of Observations 3
Degrees of Freedom 1

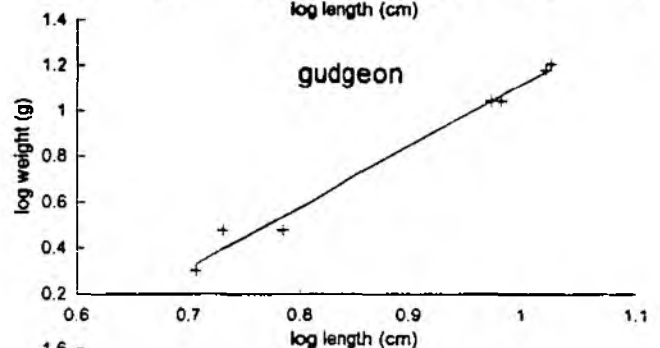
X Coefficient(s) 3.226663
Std Err of Coef. 0.211343



Gudgeon Regression Output:

Constant -1.57071
Std Err of Y Est 0.049474
R Squared 0.986042
No. of Observations 7
Degrees of Freedom 5

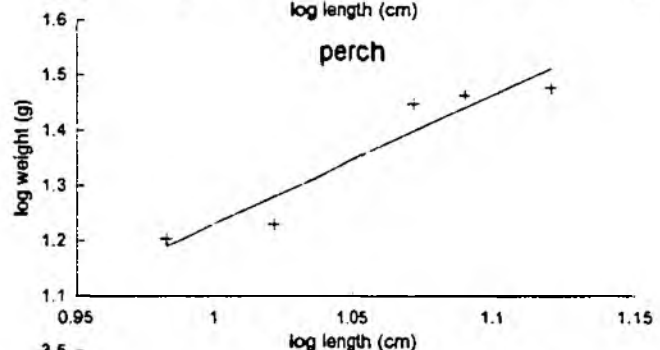
X Coefficient(s) 2.683914
Std Err of Coef. 0.142807



Perch Regression Output:

Constant -1.0939
Std Err of Y Est 0.047475
R Squared 0.907107
No. of Observations 5
Degrees of Freedom 3

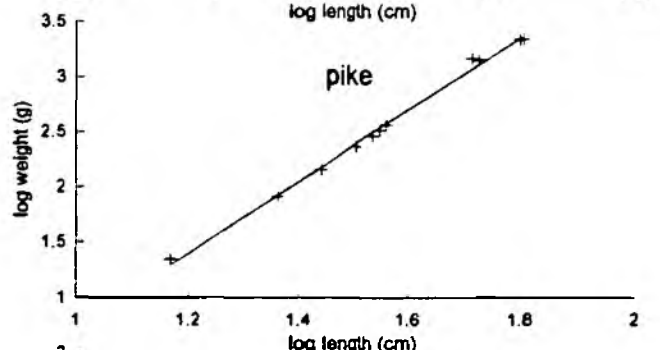
X Coefficient(s) 2.325228
Std Err of Coef. 0.429602



Pike Regression Output:

Constant -2.52439
Std Err of Y Est 0.045097
R Squared 0.995462
No. of Observations 11
Degrees of Freedom 9

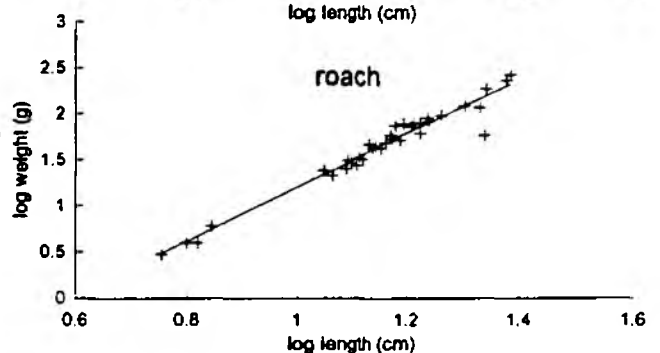
X Coefficient(s) 3.261632
Std Err of Coef. 0.073405



Roach Regression Output:

Constant -1.7269
Std Err of Y Est 0.094677
R Squared 0.958749
No. of Observations 35
Degrees of Freedom 33

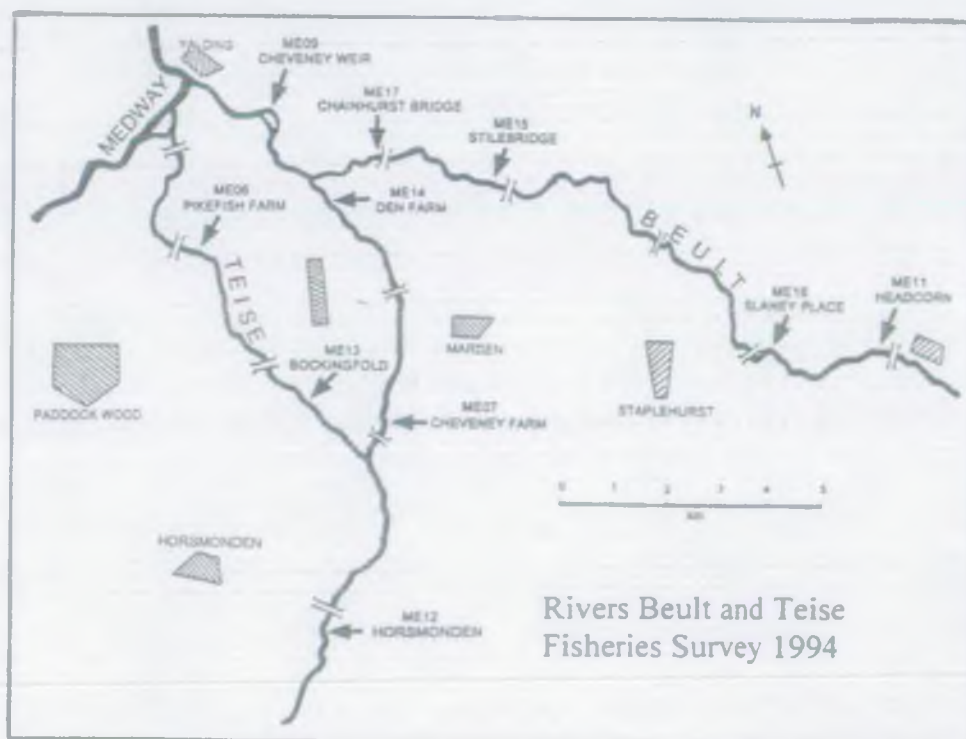
X Coefficient(s) 2.924978
Std Err of Coef. 0.105616



RIVER BEULT AT SLANEY PLACE

FISHERIES SURVEY 1994

RIVER BEULT AT SLANEY PLACE FISHERIES SURVEY 1994



Fisheries Survey : River Beult at Slaney Place

1. The sampling site at Slaney Place was located immediately upstream of the road bridge at NGR TQ798 445. The sample reach was electrofished three times from a boat using two anodes. Average water depth was 1.8 metres and in places may have been rather too deep for efficient electrofishing. Of the total numbers of fish caught (fig 2) 18% were caught on the first electrofishing run, with 33% and 48% being recorded from the second and third runs respectively. Due to the irregular pattern of catches, the analysis produced a population estimate with broad confidence limits (137 ± 155) fish. Apparent capture efficiencies expressed as a percentage of the estimated population, allowing for fish removed were 13%, 8% and 13% respectively.
2. The river depth in the sampled section is affected by a set of removable weir boards situated on the upstream side of the road bridge. It is understood that the weir boards had been removed during a period of wet weather and then replaced a few days prior to the survey. The survey team was advised that this had resulted in a marked increase from easily wadeable depth to around 2m depth shortly before sampling.
3. Five species were recorded (Fig.2), with roach and bleak numerically predominant. Smaller numbers of pike, perch and dace were also recorded. Figure 1 indicates lengths of all fish caught. Pike were recorded up to 59.5 cm in length (2100g = 4 lb 10 oz.) and roach to 20.3 cm (158g = 5 oz.).
4. Species composition in terms of numbers and biomass are shown in figure 2. Population density was estimated at 0.10 fish/m², with biomass 10.29 gm⁻². These values compare favourably with overall averages of 0.09 fish/m² and 14.23 gm⁻² respectively for all five sampled sites on the river Beult. Although roach and bleak were the most numerically abundant species, pike contributed the greatest fraction of biomass.
5. Table 1 shows fish ages as determined by scale reading. Roach ages ranged from 0+ to 5+ years, with the 1994 (0+ years) and the 1993 (1+ years) being well represented. Pike were aged between 0+ and 4+ years. Bleak were aged from 1+ to 3+ years.
6. Lengths for age are shown in figure 3. Values for roach and pike would indicate average growth rates as compared with standards reported by Hickley and Dexter (1979) and Hickley and Sutton (1984).
7. Weight for length parameters are given in figure 4 as indices of condition. Values are not significantly different from those obtained at other sites on the river Beult.
8. Visual assessment of the captured fish indicated generally good health, with no apparent damage or external parasites.

Site Information: Slaney Place

Watercourse: River Beult **National Grid Reference:** TQ 798 445

Site Code: ME16 **Survey Date:** 4/10/94

Sampling method: Double hand held anodes, 240 v, 2 Kva, pulsed D.C, 50 Hz.

Site Length: 100 metres **Mean Width (range):** 13.3m (12.4-14.8)

Mean Depth (range): 1.84m (1.59-2.16)

Water Temperature (°C): 11 **Conductivity (μS):** 710

Weather Conditions: Clear and Sunny. Northerly breeze.

Habitat Details

Substrate Composition (%): Mud/Silt: 100 Gravel: 0 Cobbles: 0 Boulders: 0

Flow Characteristics (%): Pool: 0 Riffle: 0 Glide: 0 Slack: 100

Flow Velocity (cm/s): Still **Water Level:** High **Water Clarity:** Moderate visibility

Aquatic Vegetation: Submerged **Type:** Water lilies

% Cover: 3

Emergent **Type:** Reeds

% Cover: 50 (marginal)

Bankside Vegetation: **Type (% Cover):** 100 Grasses

Bank Nature: Shallow slope to water level.

Adjacent Land Use: LHB: Pasture

RHB: Pasture

Fig. 1 Slaney Place: length frequency

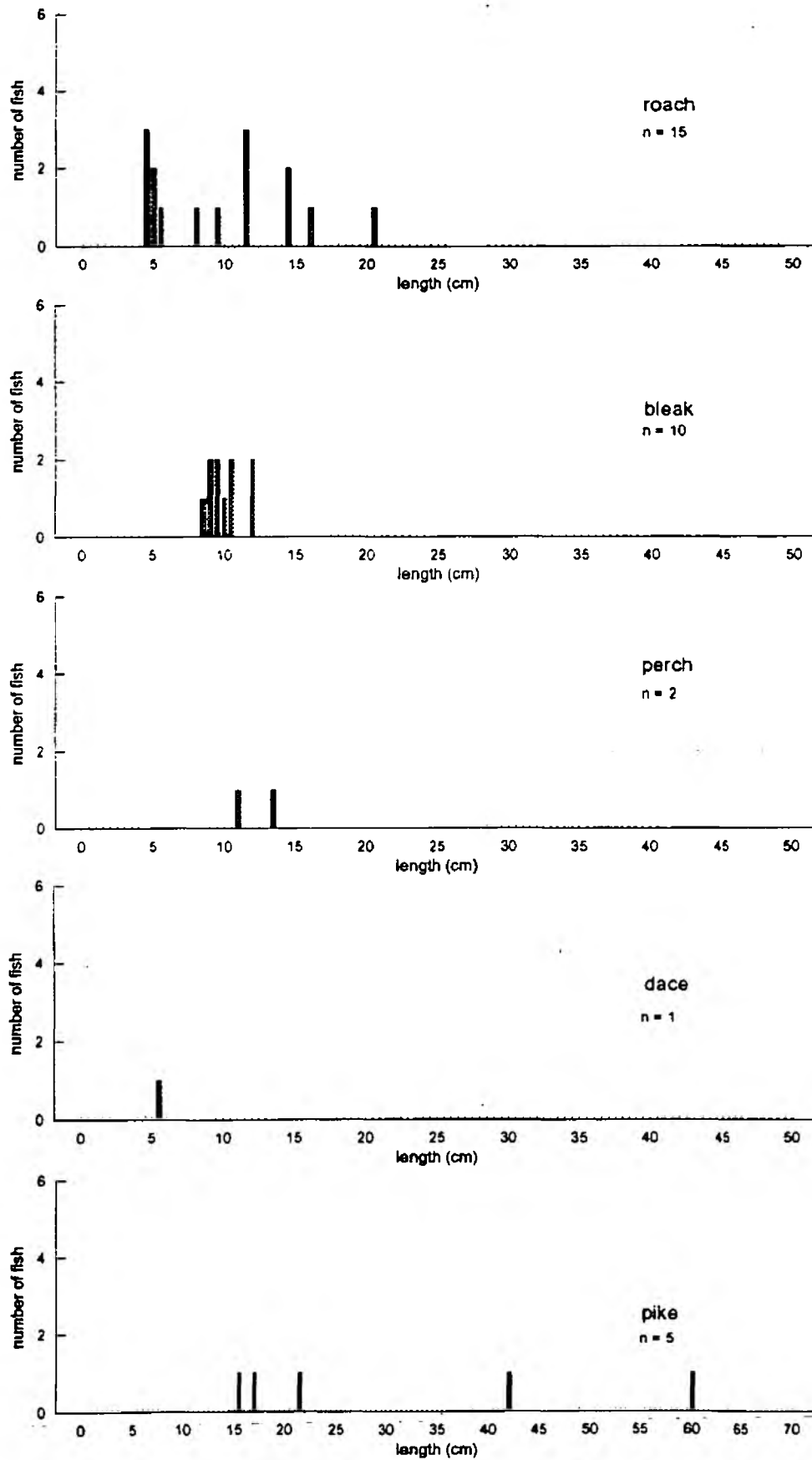


Fig. 2 Slaney Place: Species composition



	Number caught	Estimated total	Number m ²	Biomass gm ⁻²
1) Estimate based on total catch *				
	33	137.2	0.103	10.3
2) Estimates for individual species				
pike	5	5.2	0.004	2.1
bleak	10	11.1	0.008	0.1
dace	1	1.0	0.001	<0.01
roach	15	43.8	0.033	0.9
perch	2	2.0	0.002	0.0

The "total catch" population estimate is calculated from the depletion of all fish caught, regardless of species. That estimate is considered more reliable than the total of individual species estimates, some of which may have limited accuracy due to small sample size.

Table 1. Slaney place: length for age

species	age (years)	number aged	mean length (cm)	min (cm)	max (cm)
bleak	1+	5	8.8	8.4	9.4
	2+	4	10.3	9.5	11.5
	3+	1	11.6		
dace	0+	1	5.1		
perch	0+	1	10.8		
	1+	1	13.3		
pike	0+	3	17.6	10.8	21.0
	2+	1	41.8		
	4+	1	59.5		
roach	0+	5	4.5	4.2	5.2
	1+	4	9.8	7.6	11.4
	3+	1	14.0		
	4+	2	13.3	11.3	15.3
	5+	1	20.3		

Fig. 3 Slaney Place: Length for age

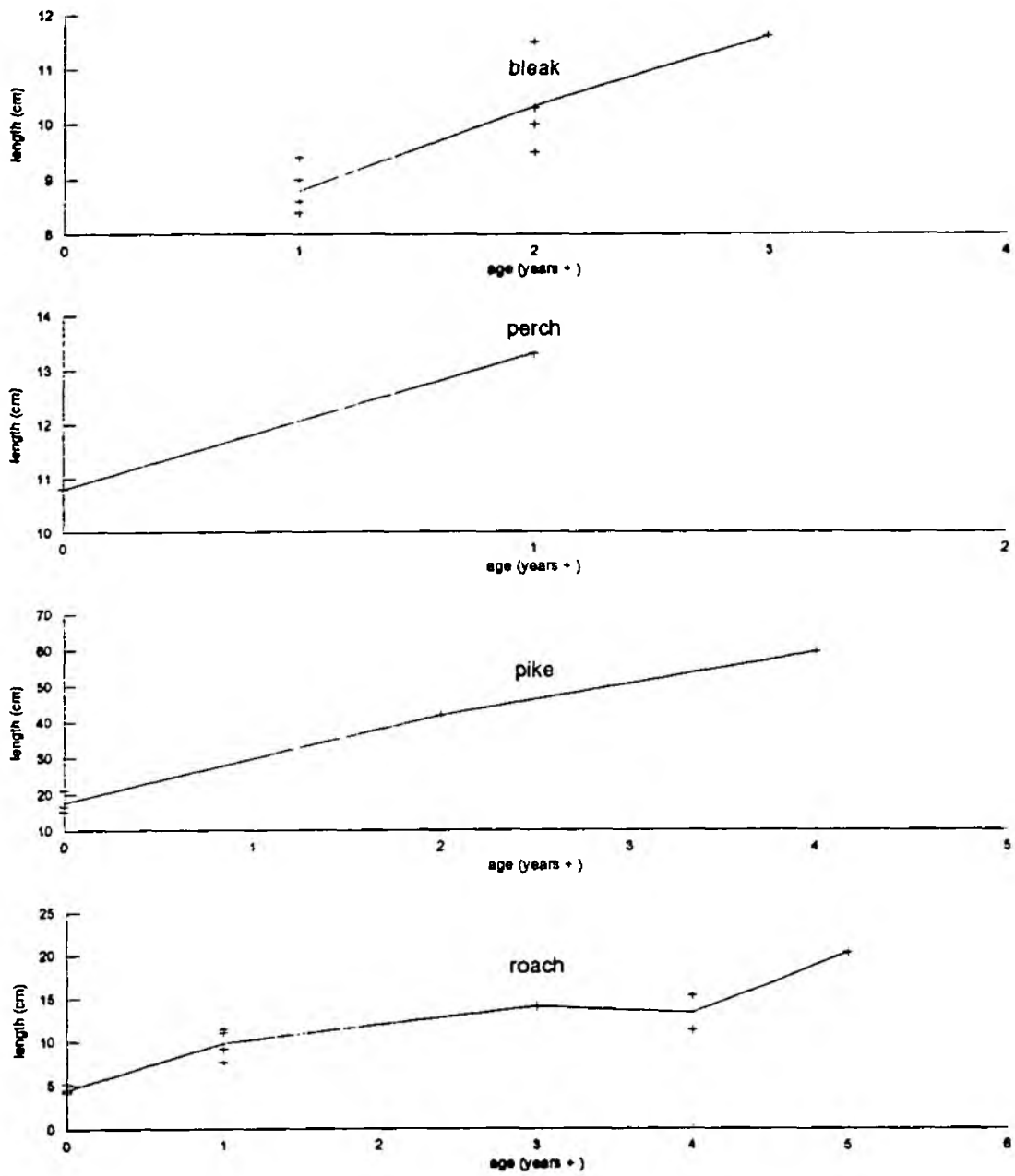
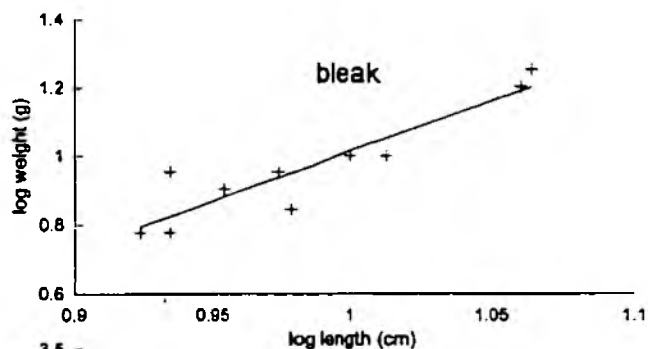


Fig. 4 Slaney Place: Weight for length

bleak Regression Output:

Constant -1.9008
 Std Err of Y Est 0.067977
 R Squared 0.840729
 No. of Observations 10
 Degrees of Freedom 8

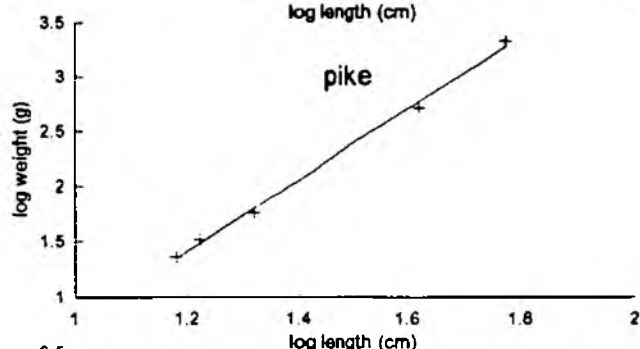
X Coefficient(s) 2.915747
 Std Err of Coef. 0.448689



pike Regression Output:

Constant -2.48142
 Std Err of Y Est 0.056409
 R Squared 0.996661
 No. of Observations 5
 Degrees of Freedom 3

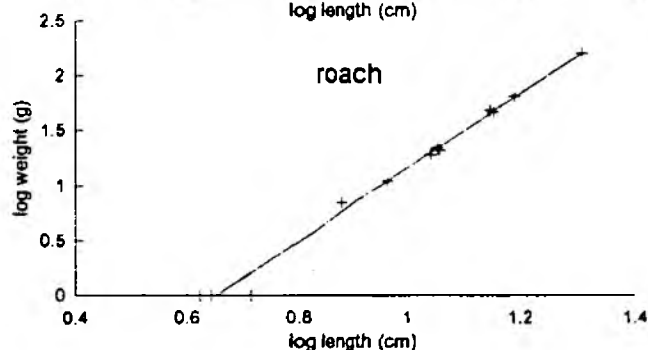
X Coefficient(s) 3.24124
 Std Err of Coef. 0.108309



roach Regression Output:

Constant -2.19642
 Std Err of Y Est 0.080402
 R Squared 0.989571
 No. of Observations 12
 Degrees of Freedom 10

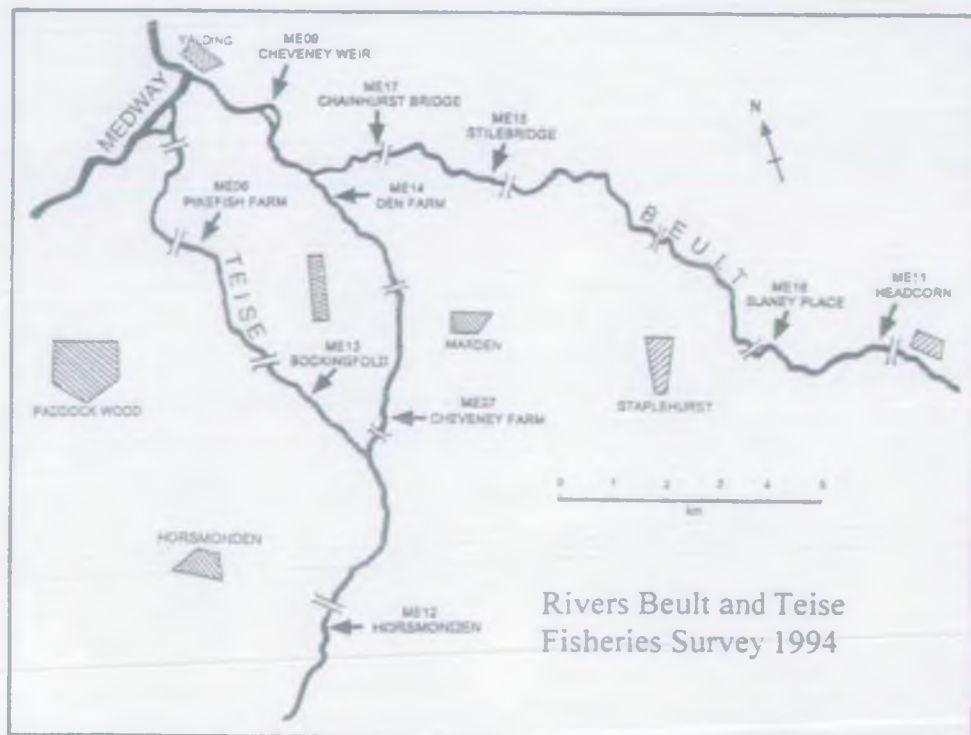
X Coefficient(s) 3.357625
 Std Err of Coef. 0.108999



RIVER BEULT AT STILEBRIDGE WEIR

FISHERIES SURVEY 1994

RIVER BEULT AT STILEBRIDGE WEIR
FISHERIES SURVEY 1994



Rivers Beult and Teise
Fisheries Survey 1994

Fisheries Survey : River Beult at Stilebridge Weir

1. The site at Stile Bridge was located downstream of the weir at NGR TQ758 474. The sample reach was electrofished three times from a boat using two anodes. Of the total numbers of fish caught (fig 2), 44% were caught on the first electrofishing run with 35% and 21% being recorded from the second and third runs respectively. The consistent decline in numbers on each consecutive run produced a total population estimate of 165 ± 55 fish. Apparent capture efficiencies expressed as a percentage of the estimated population, allowing for fish removed, were 30%, 35% and 30% respectively.
2. The site showed good species diversity (fig 2), with gudgeon, bleak, pike and roach being numerically predominant. Smaller numbers of chub, perch, minnows and a single eel were also caught.
3. Figure 1 indicates the length frequencies of all fish caught. Roach ranged from 4.9 to 19.3 cm with maximum weight 121g (5 oz.). Pike were recorded to 65.1 cm (2500g = 5 lb 8 oz).
4. Species composition in terms of numbers and biomass is shown in figure 2. Population density of all species was estimated to be 0.16 fish/m², with biomass of 11.07 gm⁻². These values compare favourably with mean values of 0.09 fish/m² and 14.23 gm⁻² respectively, for the River Beult as a whole. Whilst pike, roach, gudgeon and bleak were the numerically predominant species the greatest fraction of the biomass was contributed by pike.
5. Table 1 shows fish ages as determined by scale reading. Roach were aged from 0+ to 4+ years, the 1993 year class best represented. Pike ages ranged from 0+ to 5+ years, with good numbers of pike in their first year. Bleak and gudgeon were found up to their third year of age.
6. Lengths for age are shown in figure 3. Values for roach would suggest marginally above average growth as compared with standards as reported by Hickley and Dexter (1979). Values for pike would suggest comparable or slightly lower growth than the standards reported by Hickley and Sutton (1984).
7. Weight for length parameters are given in figure 4 as indices of condition. Values for roach and pike are not significantly different from those from other sites on the River Beult.
8. Visual assessment of the captured fish indicated generally good health, with no apparent damage or external parasites.

Site Information: Stilebridge weir

Watercourse: River Beult **National Grid Reference:** TQ 758 474

Site Code: ME15 **Survey Date:** 5/10/94

Sampling method: Double hand held anode, 240 v, 2 Kva, pulsed D.C, 50 Hz.

Site Length: 100 m **Mean Width (range):** 10.3 m (8.8-11.6)

Mean Depth (range): 1.47 m (1.21-1.84)

Water Temperature (°C): 10 **Conductivity (μS):** 720

Weather Conditions: Clear and sunny, slight south westerly breeze.

Habitat Details

Substrate Composition (%): Mud/Silt: 100 Gravel: 0 Cobbles: 0 Boulders: 0

Flow Characteristics (%): Pool: 0 Riffle: 0 Glide: 90 Slack: 10

Flow Velocity (cm/s): 10 - 15 **Water Level:** moderate **Water Clarity:** moderate visibility

Aquatic Vegetation: Submerged **Type:** none

% Cover: 0

Emergent Type: Reeds

% Cover: 10 (marginal)

Bankside Vegetation: Type (% Cover): Grasses (50) Nettles (50)

Bank Nature: Moderately steep indentation into adjoining meadows.

Adjacent Land Use: LHB: Arable

RHB: Pasture

Fig. 1 Stilebridge Weir: length frequency

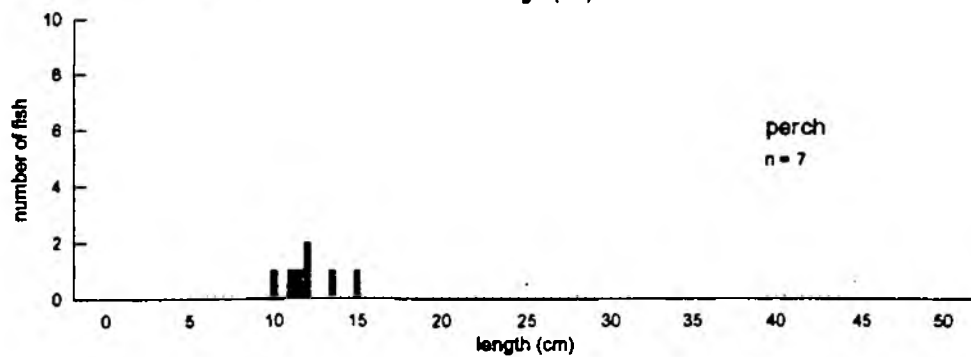
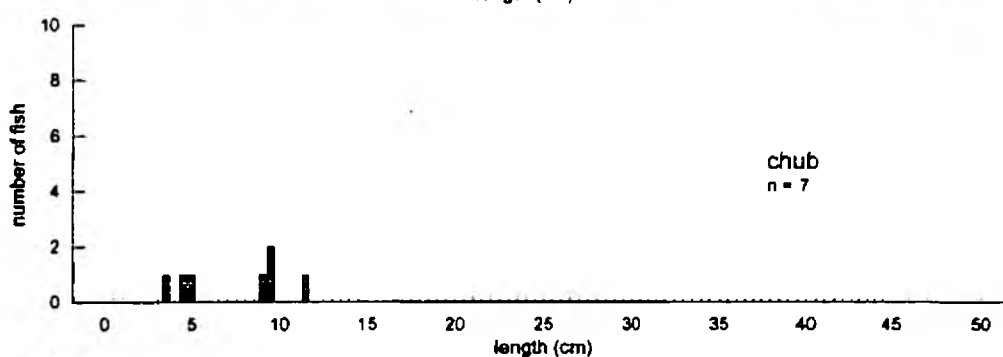
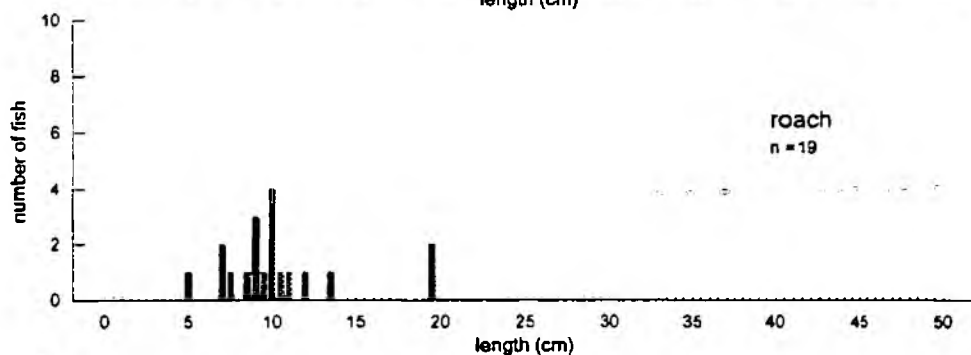
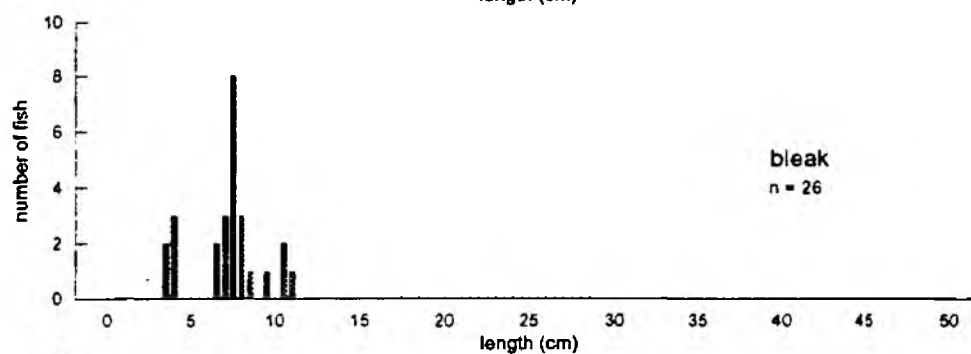
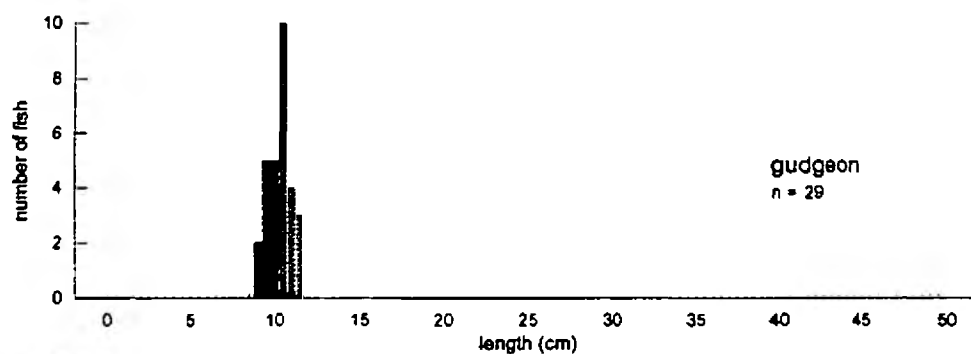


Fig. 1(cont) Stilebridge Weir: length frequency

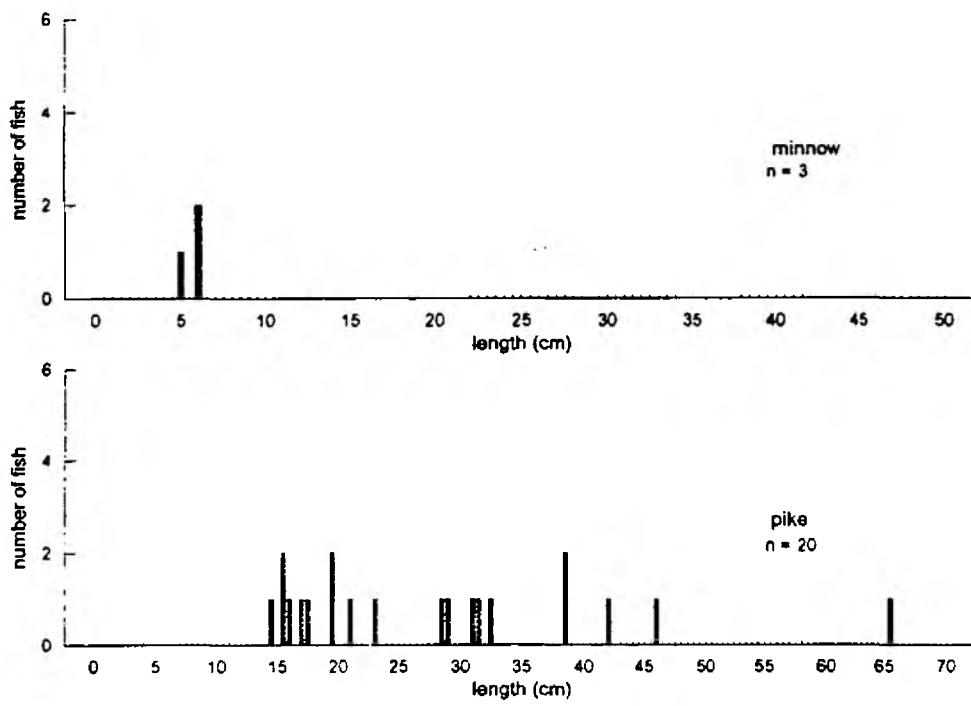
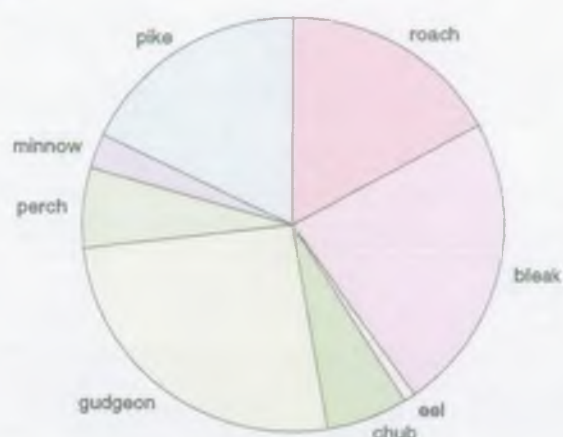
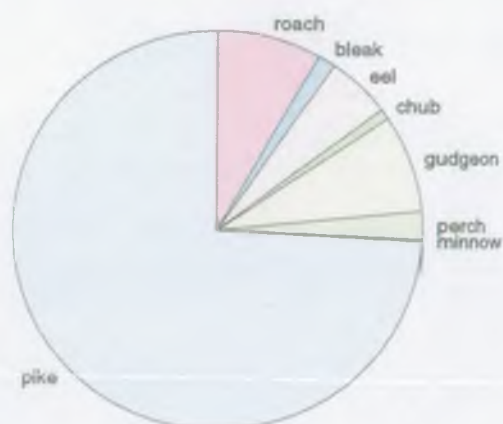


Fig. 2 Stilebridge Weir: Species composition

Number per m²



Biomass gm⁻²



	Number caught	Estimated total	Number m ²	Biomass gm ⁻²
1) Estimate based on total catch *				
	112	165.1	0.16	11.07
2) Estimates for individual species				
roach	19	29.4	0.03	0.70
bleak	26	27.9	0.03	0.12
eel	1	1.0	0.00	0.44
chub	7	10.9	0.01	0.07
gudgeon	29	57.4	0.06	0.68
perch	7	8.0	0.01	0.20
minnow	3	3.0	0.00	0.01
pike	20	21.3	0.02	6.32

The "total catch" population estimate is calculated from the depletion of all fish caught, regardless of species. That estimate is considered more reliable than the total of individual species estimates, some of which may have limited accuracy due to small sample size.

Table 1. Stilebridge Weir : Length for age

Species	Age (years)	Number aged	Mean length (cm)	min (cm)	max (cm)
bleak	1+	9	7.1	6.3	8.0
	2+	4	10.1	9.4	10.5
chub	1+	4	9.3	8.7	11.3
gudgeon	1+	2	8.7	8.6	8.7
	2+	10	10.2	9.1	11.2
perch	0+	3	10.5	9.7	11.3
	1+	3	12.2	11.7	13.0
	2+	1	14.8		
pike	0+	10	17.6	14.3	22.9
	1+	5	30.2	28.4	32.4
	2+	2	38.2	38.0	38.3
	3+	1	41.8		
	4+	1	45.8		
	5+	1	65.1		
roach	0+	3	6.2	4.9	6.9
	1+	9	9.0	7.1	10.6
	2+	2	12.4	11.7	13.1
	4+	2	19.2	19.0	19.3

Fig. 3 Stilebridge Weir : Length for age

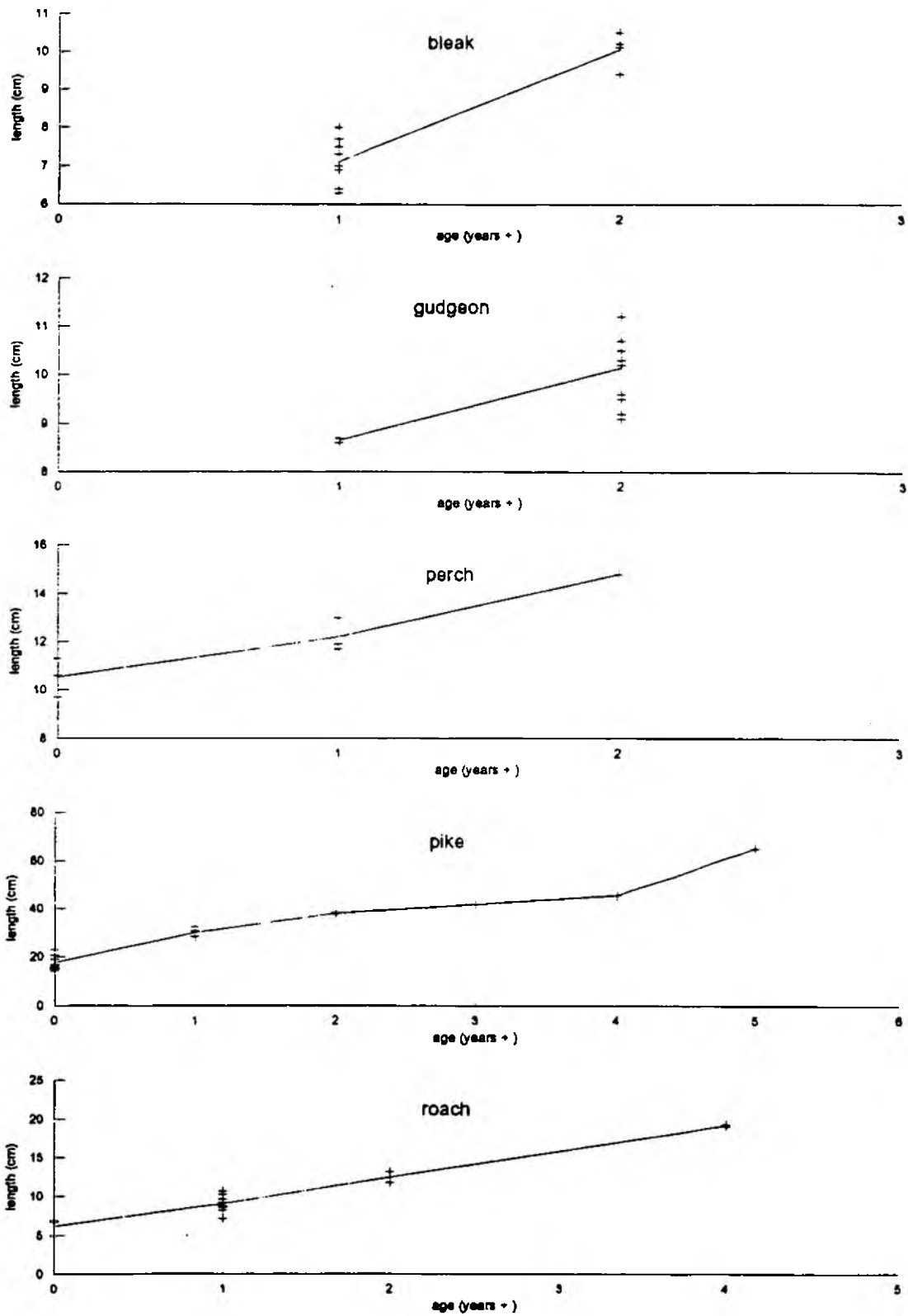
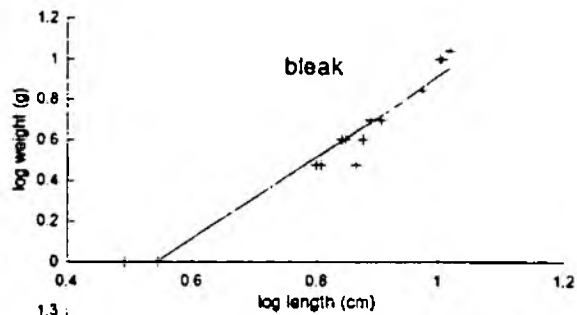


Fig. 4 Stilebridge Weir: Weight for length

bleak Regression Output:

Constant -1.08108
Std Err of Y Est 0.070118
R Squared 0.952961
No. of Observations 15
Degrees of Freedom 13

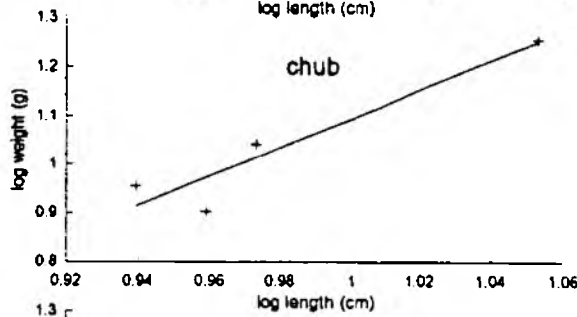
X Coefficient(s) 1.995455
Std Err of Coef. 0.122959



chub Regression Output:

Constant -1.86436
Std Err of Y Est 0.059744
R Squared 0.901446
No. of Observations 4
Degrees of Freedom 2

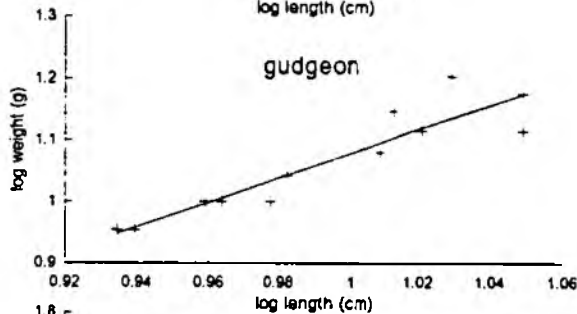
X Coefficient(s) 2.958506
Std Err of Coef. 0.691712



gudgeon Regression Output:

Constant -0.90096
Std Err of Y Est 0.034287
R Squared 0.854926
No. of Observations 12
Degrees of Freedom 10

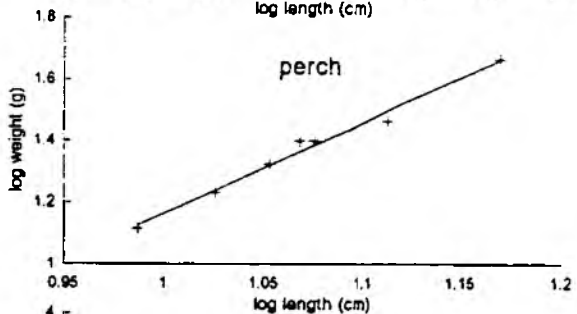
X Coefficient(s) 1.978221
Std Err of Coef. 0.257694



perch Regression Output:

Constant -1.75058
Std Err of Y Est 0.023528
R Squared 0.984886
No. of Observations 7
Degrees of Freedom 5

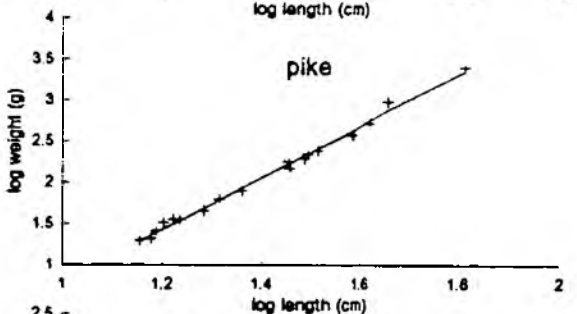
X Coefficient(s) 2.914914
Std Err of Coef. 0.161487



pike Regression Output:

Constant -2.31389
Std Err of Y Est 0.047672
R Squared 0.993852
No. of Observations 20
Degrees of Freedom 18

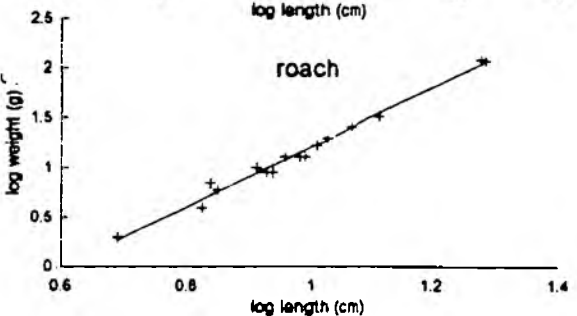
X Coefficient(s) 3.122438
Std Err of Coef. 0.057884



roach Regression Output:

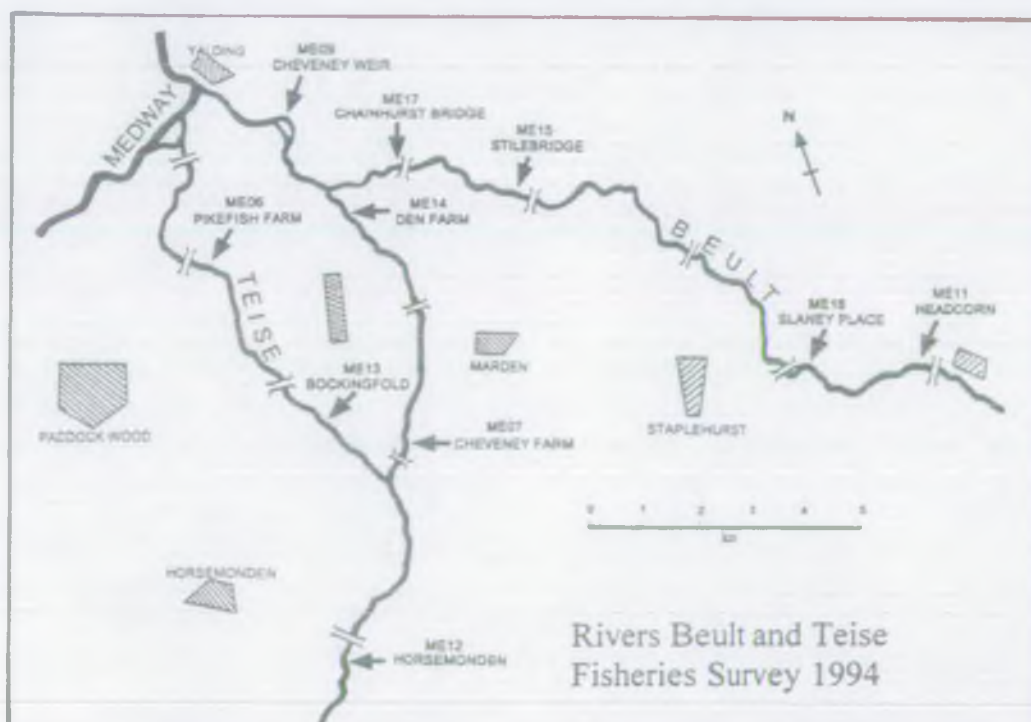
Constant -1.80186
Std Err of Y Est 0.055882
R Squared 0.986952
No. of Observations 16
Degrees of Freedom 14

X Coefficient(s) 3.008381
Std Err of Coef. 0.092447



RIVER BEULT AT CHAINHURST BRIDGE
FISHERIES SURVEY 1994

CHAINHURST BRIDGE: FISHERIES SURVEY 1994



Fisheries Survey : River Beult at Chainhurst Bridge

1. The sampled site was located immediately downstream of Chainhurst bridge, NGR TQ728486. The site was electrofished four times from a boat using two anodes. Average water depth of 2.4 metres was considered to be not entirely suitable for electrofishing. Of the total numbers of fish caught (Fig.2), 10% were caught on the first electrofishing run, with 38%, 38% and 14% on the second, third and fourth runs respectively. Due to the irregular pattern of catches, the analysis produced a population estimate with rather broad confidence limits (58 ± 44.3 fish). Capture efficiencies expressed as a percentage of the estimated population, allowing for fish removed, were 5%, 20%, 25% and 12% respectively.
2. The sample showed low numbers of roach, pike, perch and tench (Fig.2), a single common bream and a single eel. Large numbers of small fish (fry) were noted to be present.
3. Population density was estimated to be 0.02 fish/m^2 with biomass 2.99 gm^{-2} . These values fall substantially below the overall averages of 0.09 fish/m^2 and 14.23 gm^{-2} recorded over all five sample sites on the Beult. Due to the low number of fish captured and the lack of a significant decline between subsequent runs the confidence limits of the estimated totals are large. The depth of the river at this site may be considered too great for effective electrofishing with hand held equipment.
4. Figure 1 indicates the length frequencies of all fish caught. The composition of the species and biomass is represented in pie chart form in figure 2. Biomass estimates for individual species would indicate that, while roach were the dominant species in terms of number, pike contributed the greatest fraction of biomass.
5. Table 1 shows fish ages as determined by scale reading. Roach were aged between 0+ years to 5+, the strongest year classes being those of 1993 and 1994. Pike ranged between 0+ and 5+, with the largest fish recorded as 51.5 cm (1350g = 2 lb 3 oz).
6. The presence of tench is significant and may be associated with the ponded nature of the river at that point. The fish ranged between 17.9 and 27.5 cm (423g = 14 oz.).
7. Lengths for age of roach and pike are shown in figure 3. These suggest average growth rates as indicated by standards reported by Hickley and Dexter (1979) and Hickley and Sutton (1984).
8. Weight to length parameters are given in figure 4 as indices of condition. Values for pike were comparable with those from other sites on the Beult, values for roach would suggest that fish from Chainhurst were in slightly better condition weight for length than elsewhere on the Beult. However, given the small numbers in the sample it is not possible to draw firm conclusions.
9. Visual assessment of the captured fish indicated generally good health, with no apparent damage or external parasites.

Site Information: Chainhurst bridge

Watercourse: River Beult **National Grid Reference:** TQ 728 486

Site Code: ME17 **Survey Date:** 5/10/94

Sampling method: Double hand held anode, 240 v, 2 Kva, pulsed D.C, 50 Hz.

Site Length: 100 m **Mean Width (range):** 13.7 m (12.3-15.8)

Mean Depth (range): 2.4 m (2.3-2.5)

Water Temperature (°C): 11 **Conductivity (μS):** 660

Weather Conditions: Clear and sunny, south westerly breeze.

Habitat Details

Substrate Composition (%): Mud/Silt: 100 Gravel: 0 Cobbles: 0 Boulders: 0

Flow Characteristics (%): Pool: 0 Riffle: 0 Glide: 0 Slack: 100

Flow Velocity (cm/s): 1-2 **Water Level:** moderate **Water Clarity:** moderate

Aquatic Vegetation: Submerged Type: none

% Cover: 0

Emergent **Type: Reeds**

% Cover: 80 (marginal)

Bankside Vegetation: Type (% Cover)		Grasses (100)
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Bank Nature: Steep indent into meadows

Adjacent Land Use: LHB: Pasture

RHB: Arable

Fig. 1 Chainhurst Bridge: length frequency

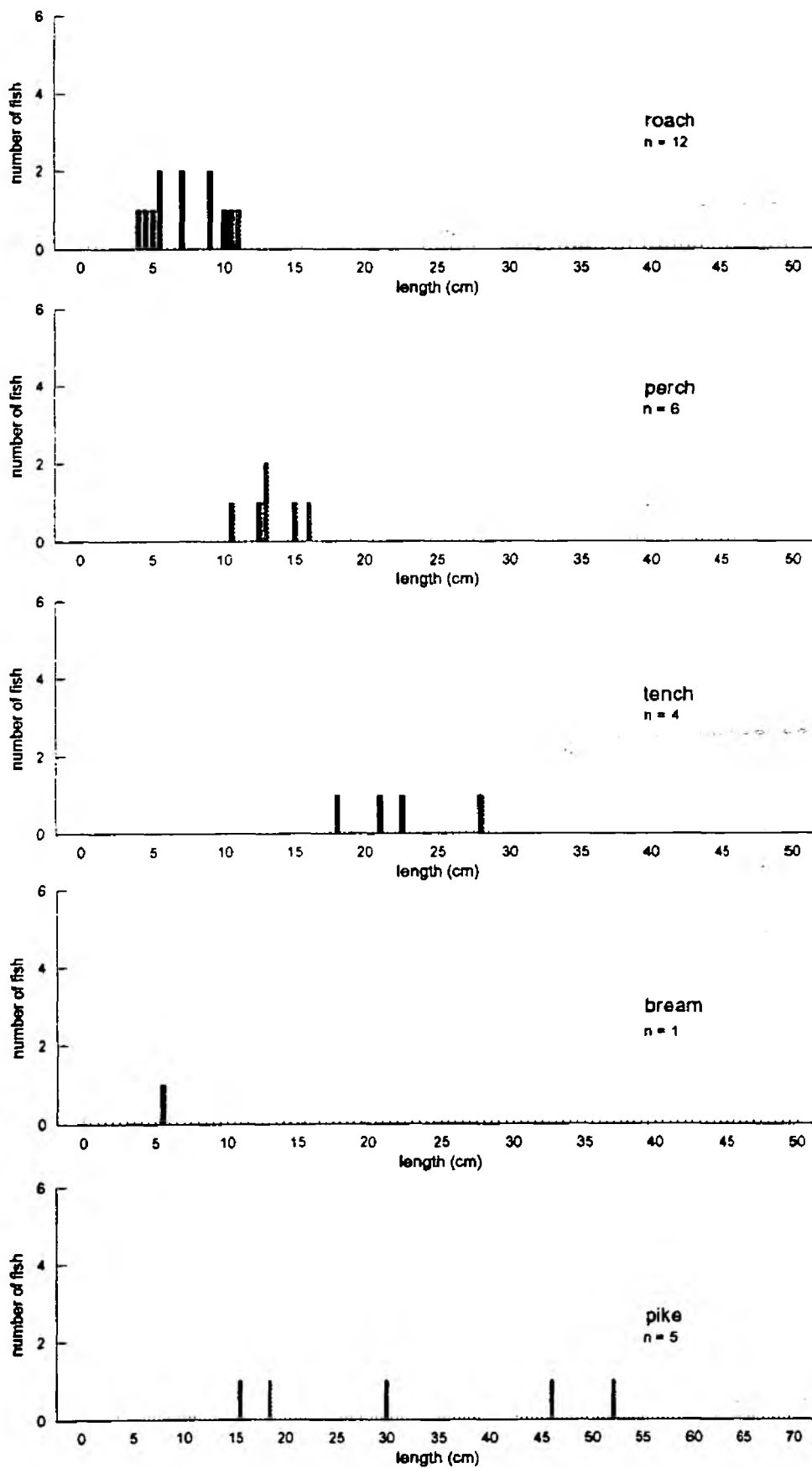
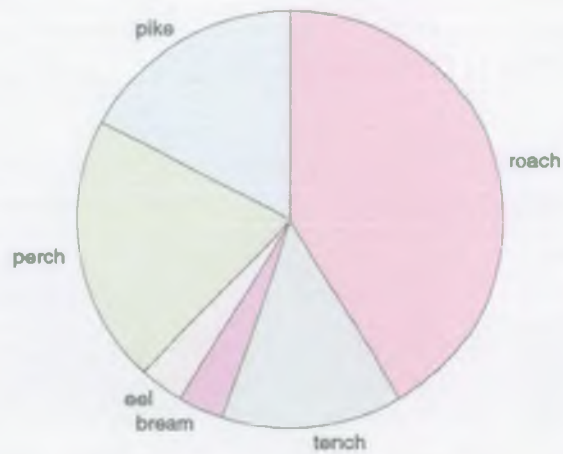
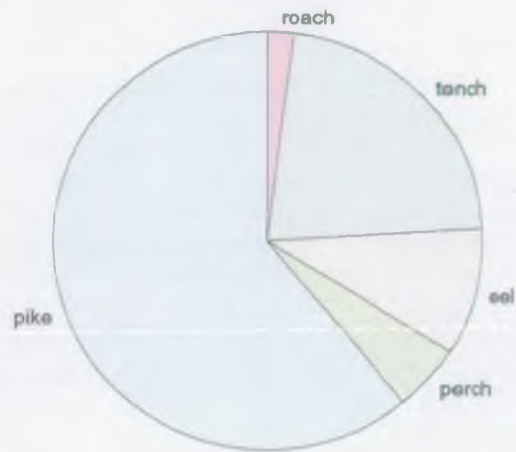


Fig. 2 Chainhurst Bridge: Species composition

Number per m²



Biomass gm⁻²



	Number caught	Estimated total	Number m ²	Biomass gm ⁻²
1) Estimate based on total catch *				
	29	58.0	0.021	2.99
2) Estimates for individual species				
roach	12	14.7	0.009	0.06
tench	4	4.0	0.003	0.66
bream	1	1.0	0.001	<0.01
eel	1	1.0	0.001	0.29
perch	6	5.8	0.004	0.15
pike	5	5.7	0.004	1.82

The "total catch" population estimate is calculated from the depletion of all fish caught, regardless of species. That estimate is considered more reliable than the total of individual species estimates, some of which may have limited accuracy due to small sample size.

Table 1. Chainhurst Bridge: Length for age

Species	Age (years)	Number aged	Mean length (cm)	min (cm)	max (cm)
bream	0+	1	5.0		
perch	0+	1	10.0		
	1+	3	12.4	12.1	12.5
	2+	2	15.0	14.5	15.5
pike	0+	2	16.8	15.4	18.2
	1+	1	29.5		
	3+	1	45.9		
	5+	1	51.5		
roach	0+	5	5.5	4.5	6.6
	1+	5	9.7	8.7	10.9
	2+	1	17.9		
	3+	1	22.3		
	4+	1	20.6		
	5+	1	27.5		

Fig. 3 Chainhurst Bridge: Length for age

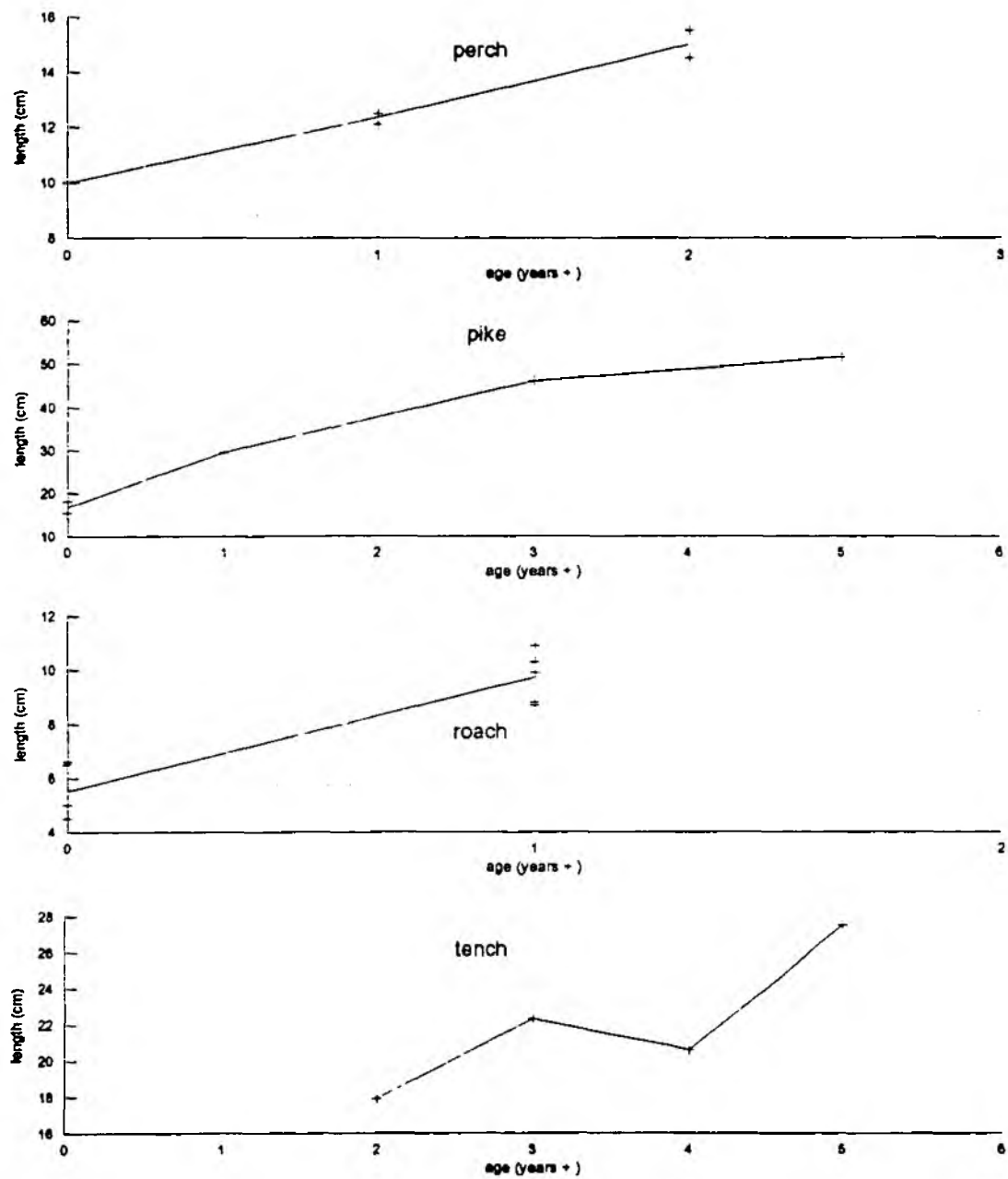
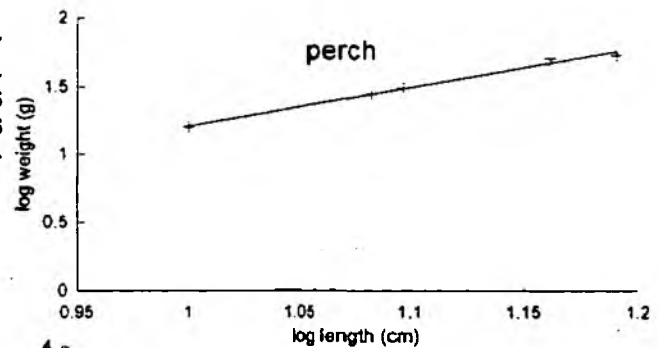


Fig. 4 Chainhurst Bridge: Weight for length

perch Regression Output:

Constant -1.68237
 Std Err of Y Est 0.021104
 R Squared 0.990456
 No. of Observations 6
 Degrees of Freedom 4

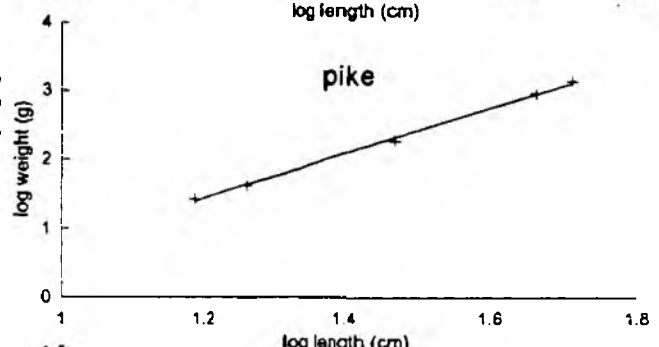
X Coefficient(s) 2.891872
 Std Err of Coef. 0.141934



pike Regression Output:

Constant -2.5257
 Std Err of Y Est 0.038253
 R Squared 0.998149
 No. of Observations 5
 Degrees of Freedom 3

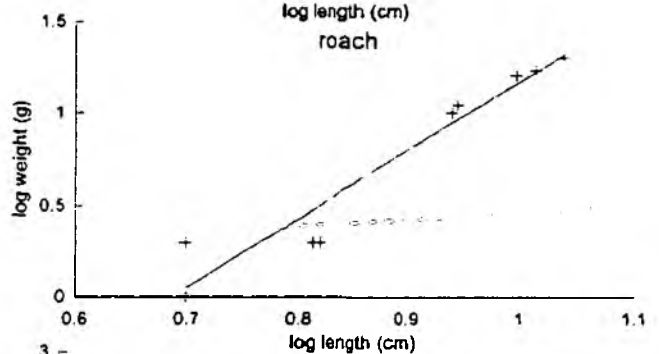
X Coefficient(s) 3.291839
 Std Err of Coef. 0.081847



roach Regression Output:

Constant -2.55875
 Std Err of Y Est 0.144548
 R Squared 0.92882
 No. of Observations 9
 Degrees of Freedom 7

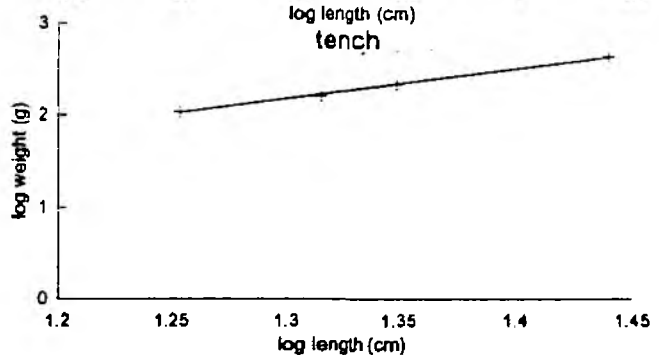
X Coefficient(s) 3.732131
 Std Err of Coef. 0.390499



tench Regression Output:

Constant -1.96803
 Std Err of Y Est 0.014779
 R Squared 0.997644
 No. of Observations 4
 Degrees of Freedom 2

X Coefficient(s) 3.187759
 Std Err of Coef. 0.109536

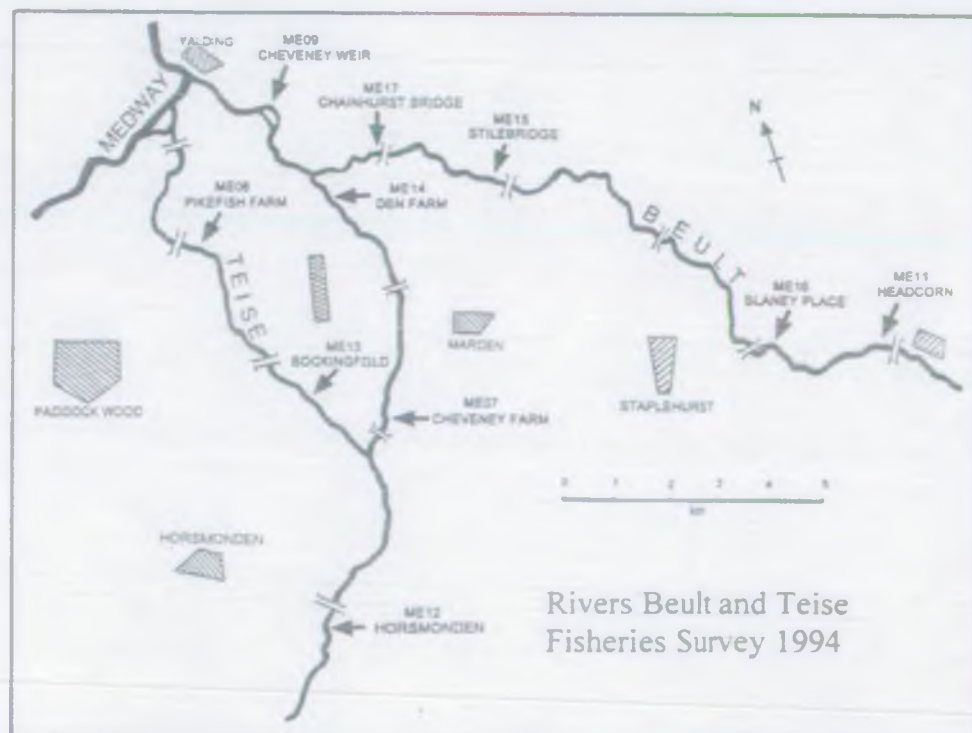


RIVER BEULT AT CHEVENEY WEIR

FISHERIES SURVEY 1994

RIVER BEULT AT CHEVENEY WEIR

FISHERIES SURVEY 1994



Rivers Beult and Teise
Fisheries Survey 1994

Fisheries Survey : River Beult at Cheveney weir

1. The sampled site was located upstream of the Cheveney weir at NGR TQ 707495. The width of the fishable river channel was reduced to approximately 3-4 metres by in-stream marginal vegetation, allowing the site to be fished effectively using a single anode. Average water depth was 2.18 metres and in places was probably too deep for efficient electrofishing. Of the total numbers of fish caught (Fig.2), 50% were caught on the first electrofishing run, with 40% and 10% being recorded from the second and third runs respectively. The good decline in numbers on each consecutive run produced a population estimate of 21 ± 2 fish in the 100 metre sample reach. Apparent capture efficiencies expressed as a percentage of the estimated population, allowing for fish removed, were 48%, 73% and 67% respectively.
2. Pike were the numerically predominant species (Fig.2), followed by perch, eels and a single ruffe. Although the species diversity of the sample was relatively poor, anglers and the owner of the site suggested that the river in the general area held good numbers of chub, roach and bream. The low numbers caught may have been partly due to natural variability between individual reaches.
3. Figure 1 indicates lengths of all fish caught. Figure 2 shows species composition by numbers and weight. The total estimated population was calculated to be 0.03 fish/m², with a biomass of 24.79 gm². In terms of both numbers and biomass the pike were dominant. Pike up to 68.0 cm (6 lb 3 oz.) were recorded.
4. Table 1 shows fish ages as determined by scale reading. Pike ages ranged between 0+ to 7+, the 1989 and 1994 year classes being best represented. Perch ages range from 1+ to 2+ years, with the single ruffe being aged 4+ years.
5. Length for age parameters of pike are given in figure 3. These values indicate growth slightly below that of the standards given in Hickley and Sutton (1984).
6. Weight for length parameters are given in figure 4 as indices of condition. These indicate that pike were not significantly different weight for length than those from other sites on the River Beult.
7. Visual assessment of the captured fish indicated generally good health, with no apparent damage or external parasites.

Site Information: Cheveney weir

Watercourse: River Beult **National Grid Reference:** TQ 707 495

Site Code: ME09 **Survey Date:** 6/10/94

Sampling method: Single hand held anode, 240 v, 2 Kva, pulsed D.C, 50 Hz.

Site Length: 100 m **Mean Width (range):** 7.47 m (7.10-7.90)

Mean Depth (range): 2.18 m (2.09-2.29)

Water Temperature (°C): 10 **Conductivity (μS):** 530

Weather Conditions: Clear and sunny, still

Habitat Details

Substrate Composition (%): Mud/Silt: 100 Gravel: 0 Cobbles: 0 Boulders: 0

Flow Characteristics (%): Pool: 0 Riffle: 0 Glide: 70 Slack: 30

Flow Velocity (cm/s): 2-10 **Water Level:** moderate **Water Clarity:** moderate visibility

Aquatic Vegetation: Submerged Type: none

% Cover: 0

Emergent Type: Reeds

% Cover: 30 (marginal)

Bankside Vegetation: Type (% Cover): Trees (20) Nettles and Balsam (80)

Bank Nature: Steep

Adjacent Land Use: LHB: Arable

RHB: Woodland

Fig. 1 Cheveney Weir: length frequency

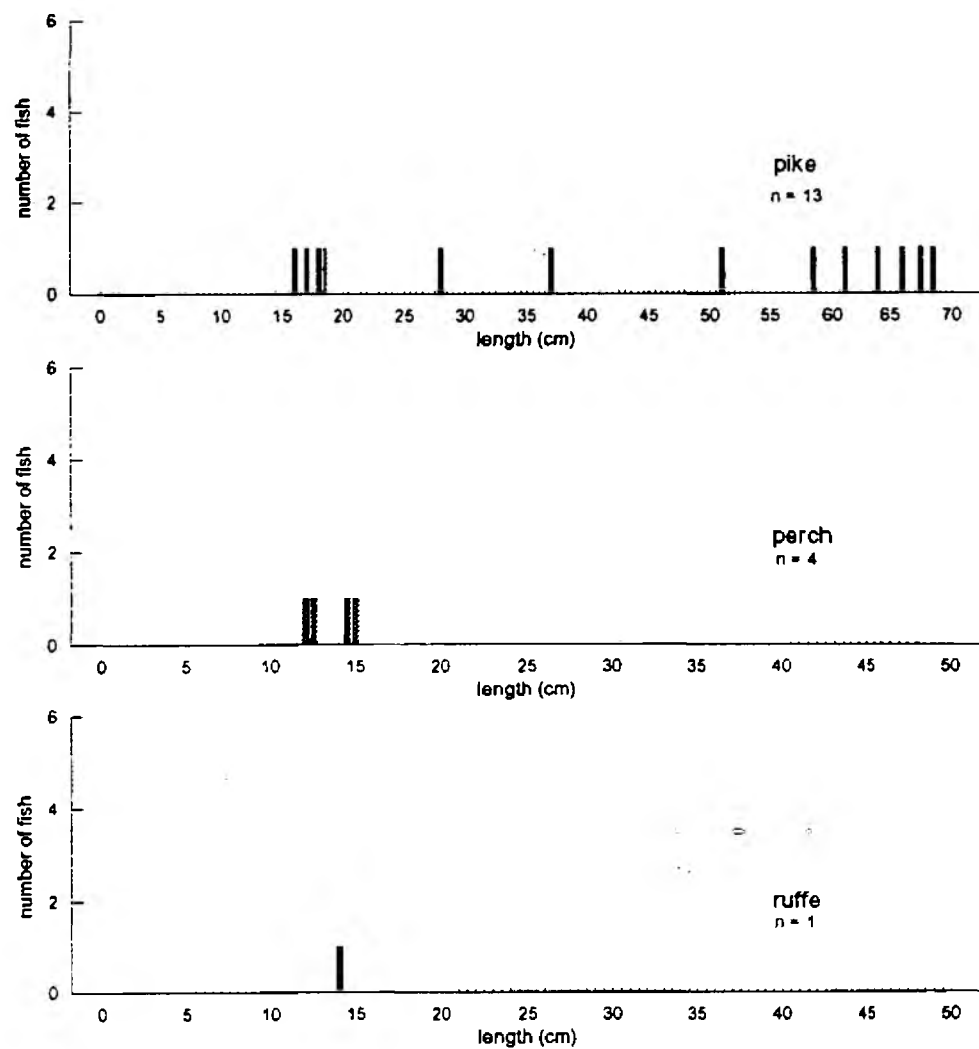
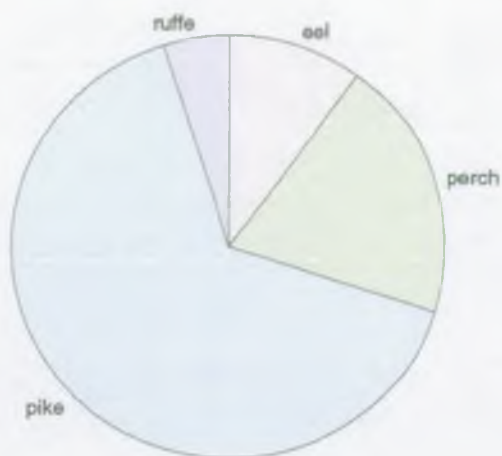


Fig. 2 Cheveney Weir: Species composition

Number per m²



Biomass gm⁻²



	Number caught	Estimated total	Number m ²	Biomass gm ⁻²
1) Estimate based on total catch *				
	20	20.7	0.027	24.79
2) Estimates for individual species				
eel	2	2.0	0.003	1.20
perch	4	5.0	0.005	0.19
pike	13	13.9	0.017	23.34
ruffe	1	1.0	0.001	0.06

The "total catch" population estimate is calculated from the depletion of all fish caught, regardless of species. That estimate is considered more reliable than the total of individual species estimates, some of which may have limited accuracy due to small sample size.

Table 1. Cheveney Weir: Length for age

Species	Age (years)	Number aged	Mean length (cm)	min (cm)	max (cm)
perch	1+	1	11.9	14.1	14.7
	2+	2	14.4		
pike	0+	4	17.8	15.9	18.3
	1+	1	27.5		
	2+	1	36.6		
	4+	1	50.8	58.0	67.4
	5+	4	62.4		
	6+	1	68.0		
	7+	1	65.7		
ruffe	4+	1	13.6		

Fig. 3 Cheveney Weir: Length for age

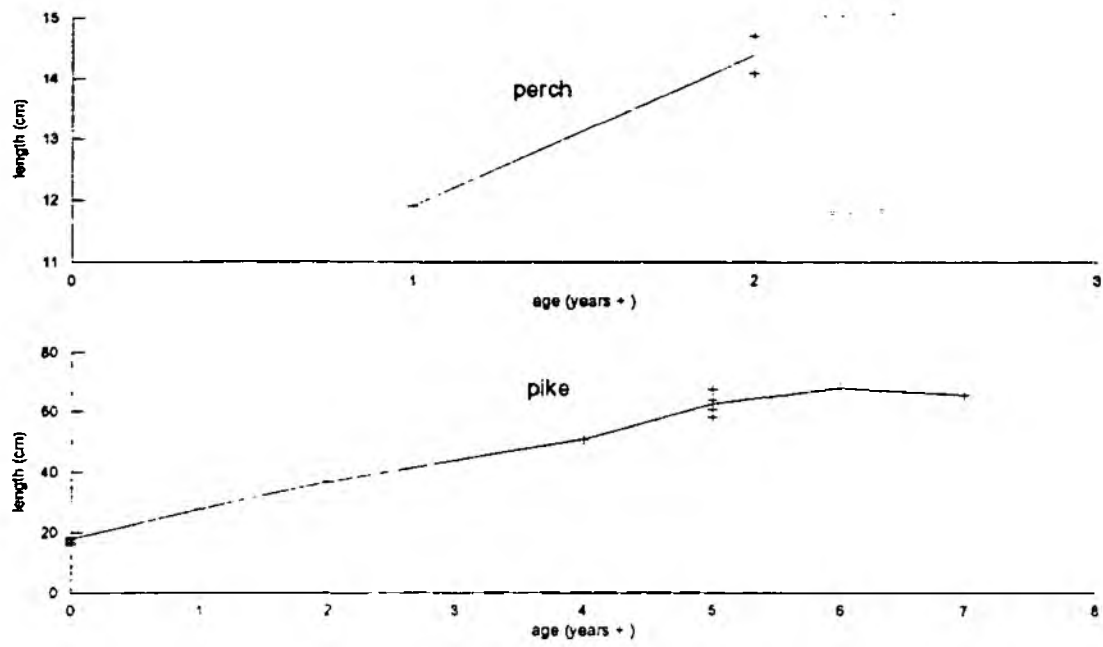
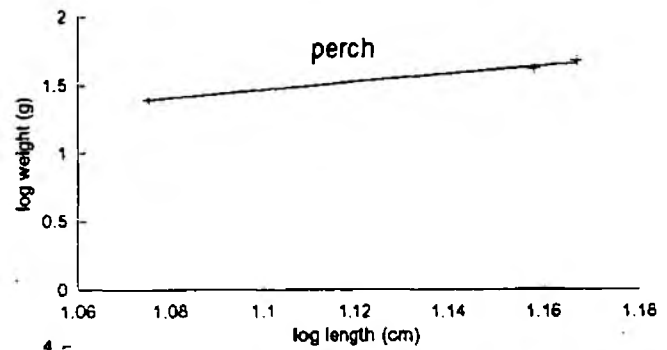


Fig. 4 Cheveney Weir: Weight for length

perch Regression Output:

Constant	-1.76702
Std Err of Y Est	0.022471
R Squared	0.988728
No. of Observations	3
Degrees of Freedom	1

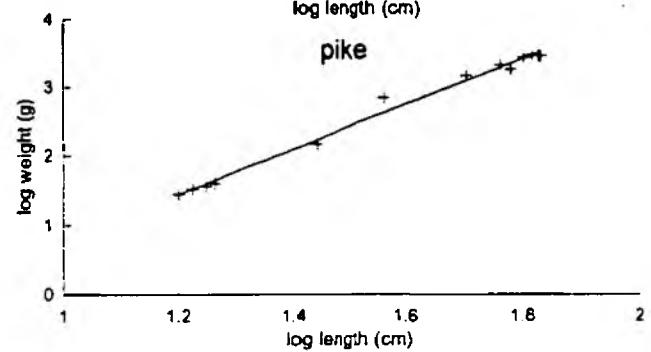
X Coefficient(s)	2.941139
Std Err of Coef.	0.314042



pike Regression Output:

Constant	-2.49864
Std Err of Y Est	0.082313
R Squared	0.991637
No. of Observations	13
Degrees of Freedom	11

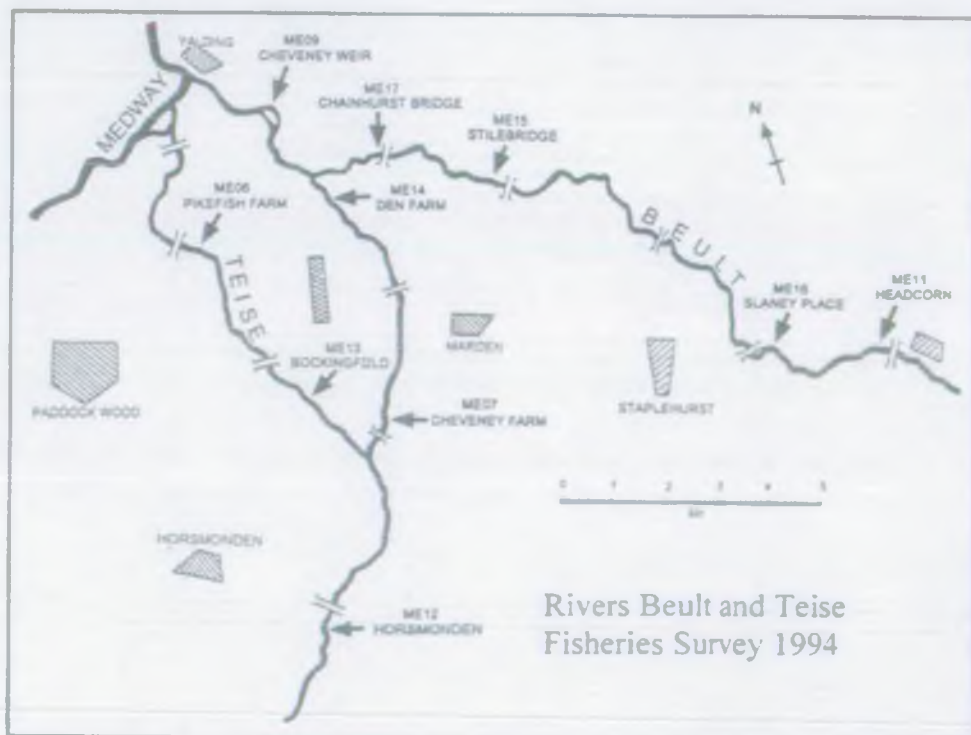
X Coefficient(s)	3.278132
Std Err of Coef.	0.090766



RIVER TEISE AT HORSMONDEN

FISHERIES SURVEY 1994

RIVER TEISE AT HORSMONDEN FISHERIES SURVEY 1994



Rivers Beult and Teise
Fisheries Survey 1994

Fisheries Survey : River Teise, Horsmonden

1. The sample site was located approximately 100m upstream of the road bridge NGR TQ717397. The sample reach was electrofished three times from a boat using two anodes. Of the total numbers of fish caught (Fig 2), 52% were caught on the first electrofishing run, with 33% and 14% being recorded from the second and third runs respectively. The reasonably consistent decline in numbers on consecutive runs produced a total population estimate of 22 ± 3 fish in the 100 metre sampled reach. Apparent capture efficiencies expressed as a percentage of the estimated population, allowing for fish removed, were 50%, 64% and 75% respectively.
2. Minnows, eels, bullheads, gudgeon and rainbow trout were numerically predominant but caught in low numbers (Fig 2). Individual brown trout, dace and stone loach were also caught.
3. Figure 1 indicates lengths of all fish caught. Rainbow trout were recorded with lengths between 33 and 39.8 cm the largest fish weighing 722g (1 lb 9oz). A single brown trout was recorded with length 26.1 cm (220g = 8oz).
4. Population density was estimated to be 0.03 fish/m², with biomass 2.74 gm². These values are well below the overall averages of 0.21 fish/m² and 15.54 gm² respectively, recorded at all five sample sites on the Teise.
5. Species composition in terms of numbers and biomass is shown in figure 2. Although the site yielded rather small numbers; minnows, gudgeon and eel were most abundant. However, the greatest fraction of biomass was contributed by rainbow trout.
6. Table 1 shows fish ages as determined by scale reading. Gudgeon were aged at 2+ or 3+ years. The single dace was recorded in its first year of life.
7. Visual assessment of the captured fish indicated generally good health, although the rainbow trout displayed eroded fins which are common with farmed fish.

Site Information :Horsmonden

Watercourse: River Teise **National Grid Reference:** TQ 717 398

Site Code: ME12 **Survey Date:** 7/10/94

Sampling method: Double hand held anode, 240 v, 2 Kva, pulsed D.C, 50 Hz.

Site Length: 100 m **Mean Width (range):** 8.03 m (6.70-9.10)

Mean Depth (range): 1.32 m (1.07-1.56)

Water Temperature (°C): 10 **Conductivity (μS):** 320

Weather Conditions: Sunny spells, southerly breeze.

Habitat Details

Substrate Composition (%): Mud/Silt: 100 Gravel: 0 Cobbles: 0 Boulders: 0

Flow Characteristics (%): Pool: 20 Riffle: 10 Glide: 70 Slack: 0

Flow Velocity (cm/s): 5-15 **Water Level:** High **Water Clarity:** moderate to poor visibility

Aquatic Vegetation: Submerged **Type:** Water crowfoot

% Cover: 5

Emergent **Type:** none

% Cover: 0

Bankside Vegetation: **Type (% Cover):** Trees (30) Grasses (20) Nettles/balsam (50)

Bank Nature: Left hand bank practically vertical for much of the length, right hand bank a more gentle slope but still steep.

Adjacent Land Use: LHB: Pasture

RHB: Pasture

Fig. 1 Horsemonden: length frequency

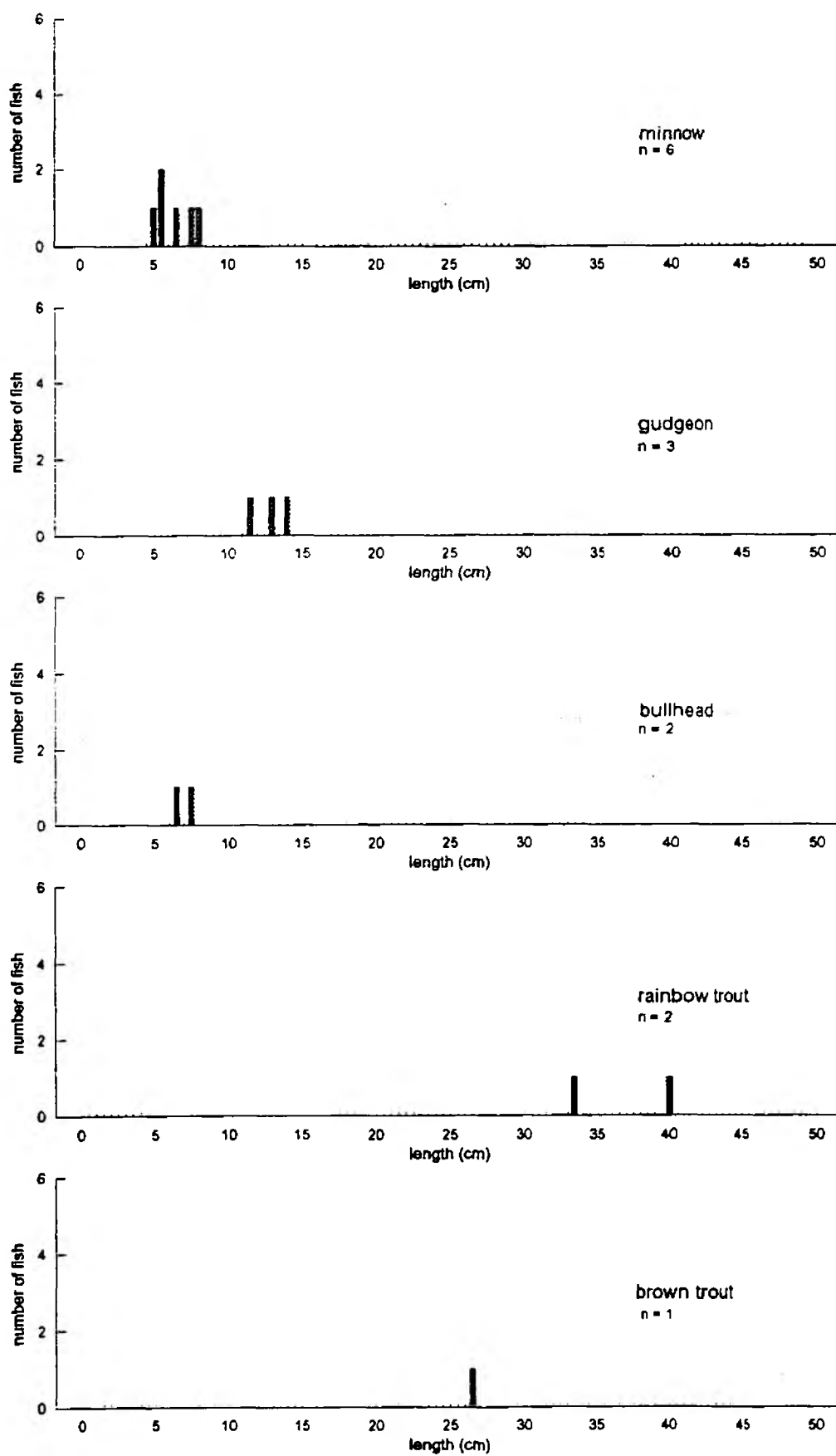


Fig. 1(cont) Horsmonden: length frequency

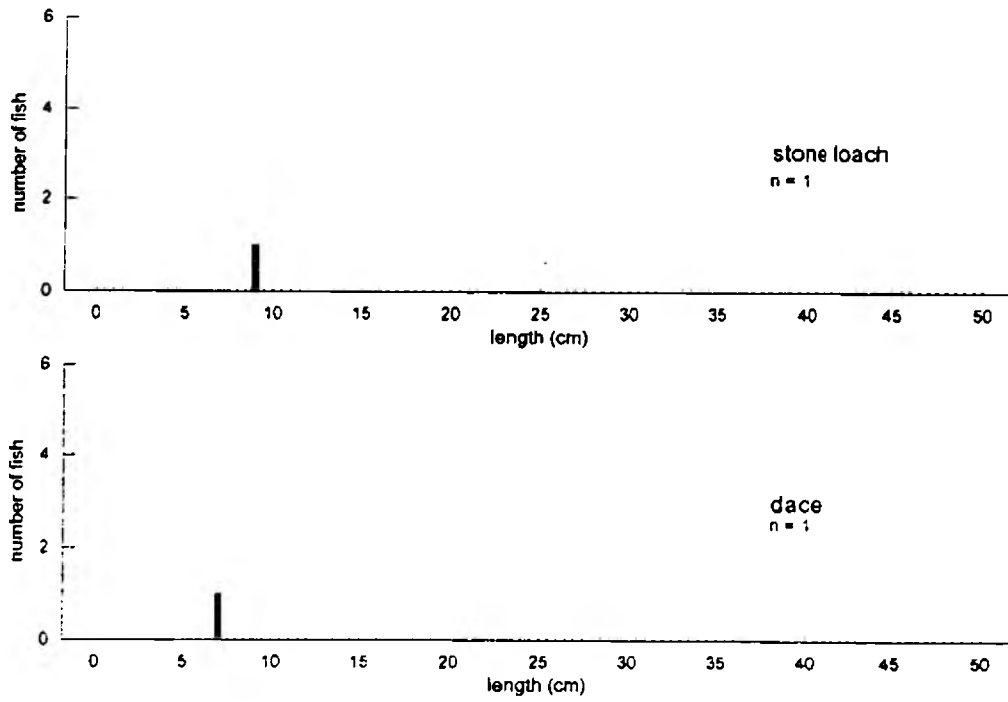


Fig. 2 Horsmonden: Species composition



	Number caught	Estimated total	Number m ²	Biomass gm ⁻²
1) Estimate based on total catch *				
	21	22.10	0.026	2.74
2) Estimates for individual species				
bullhead	2	2.00	0.002	0.01
eel	5	6.20	0.623	85.43
dace	1	1.00	0.125	0.50
gudgeon	3	3.00	0.374	10.34
minnow	6	6.70	0.747	2.32
b.trout	1	1.00	0.125	27.40
r.trout	2	2.00	0.249	146.45
stone loach	1	1.00	0.125	0.55

The "total catch" population estimate is calculated from the depletion of all fish caught, regardless of species. That estimate is considered more reliable than the total of individual species estimates, some of which may have limited accuracy due to small sample size.

Table 1. Horsmonden: Length for age

Species	Age (years)	Number aged	Mean length (cm)	min (cm)	max (cm)
dace	0+	1	6.9		
gudgeon	2+	1	11.1		
	3+	2	13.3	12.7	13.8

Fig. 3 Horsmonden: Length for age

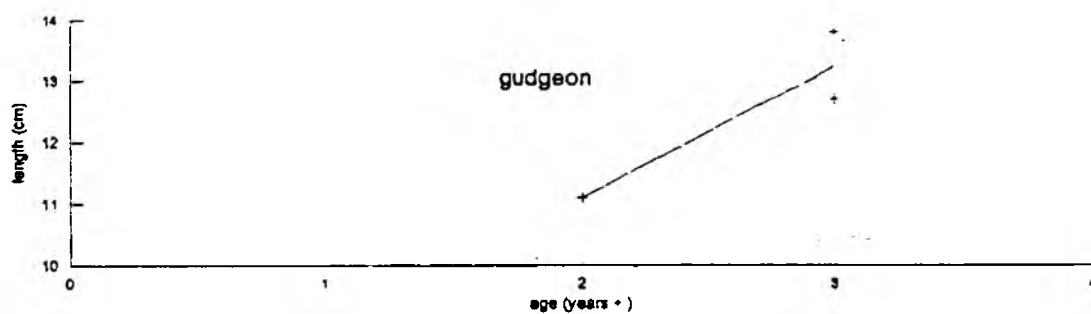
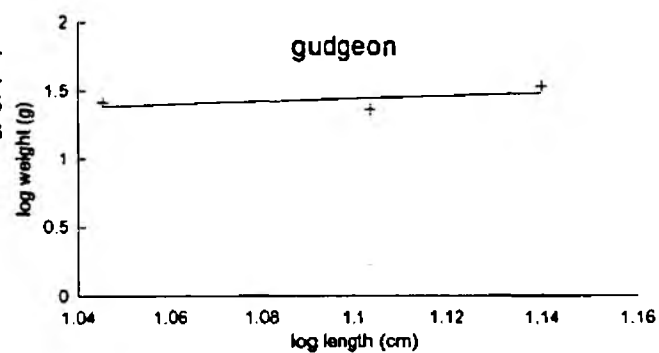


Fig. 4 Horsemonden: Weight for length

gudgeon Regression Output:

Constant	0.310514
Std Err of Y Est	0.101364
R Squared	0.318415
No. of Observations	3
Degrees of Freedom	1

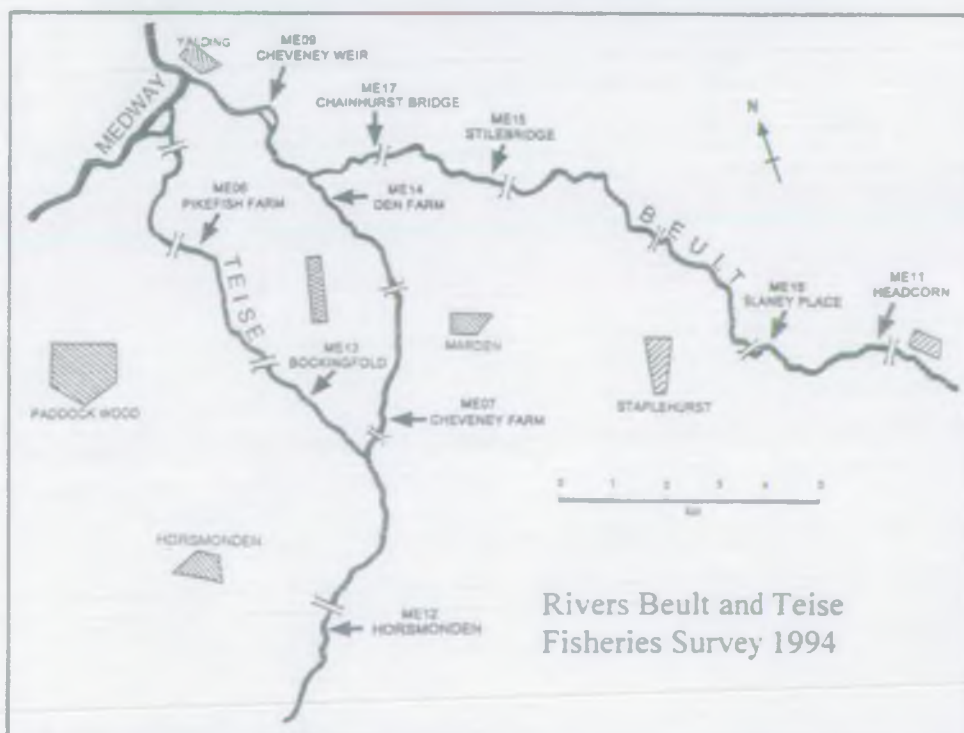
X Coefficient(s)	1.026644
Std Err of Coef.	1.502045



RIVER TEISE AT LITTLE CHEVENEY FARM

FISHERIES SURVEY 1994

RIVER TEISE AT LITTLE CHEVENEY FARM FISHERIES SURVEY 1994



Fisheries Survey : River Teise at Little Cheveney farm

1. The sample site was located immediately upstream of the road bridge at Little Cheveney farm NGR TQ727432. The narrow width of the fishable river channel allowed the site to be fished effectively using a single anode. Average water depth of 0.5 metres was considered suitable for electrofishing. Of the total numbers of fish caught (Fig.2), 48% were caught on the first electrofishing run, with 35% and 17% being recorded from the second and third runs respectively. The consistent decline in numbers on each consecutive run produced a total population estimate of 269 ± 39 fish in the 100 metre sampled reach. Apparent capture efficiencies expressed as a percentage of the estimated population, allowing for fish removed, were 38%, 45% and 39% respectively.
2. Minnows, gudgeon, bullheads and stone loach were the numerically predominant species, with reasonable numbers of chub (Fig.2). Small numbers of dace, eels, grayling and brown trout were also recorded. Altogether the sample showed broad diversity of species, with a community typical of a reasonably fast flowing shallow stream.
3. Figure 1 indicates the lengths of all fish caught. Notable observations included dace to 25.8 cm (272g = 9.6oz), chub to 40.0 cm (879g = 1 lb 15oz), several brown trout between 32 and 35 cm (to 512g = 1 lb 2oz) and gudgeon of up to 15.2 cm (45g = 1.6oz). Juvenile grayling of the current year class were also found.
4. Population density of all species was estimated to be 0.55 fish/m², with biomass 30.21 gm⁻². These values are well above the overall averages of 0.12 fish/m² and 15.54 gm⁻² respectively, for all five sites sampled on the Teise.
5. Species composition in terms of numbers and biomass is shown in figure 2. Although the smaller species minnows, gudgeon and bullheads were numerically predominant, the greatest fraction of the biomass was contributed by the larger species, chub and eel.
6. Table 1 shows fish ages as determined by scale reading. Chub were aged between 2+ years and 8+ years, with the 1989 and 1990 year classes best represented. Dace of age 4+ and 5+ years were recorded, with one individual fish of 7+ years. Of the five grayling caught all were in their first or second years of life.
7. Lengths for age are shown in figure 3. Values for chub and dace suggest growth rates above average by comparison with standards reported by Hickley and Dexter (1979).
8. Weight for length parameters are given in figure 4 as indices of condition. Reasonably complete data are available for chub and gudgeon, showing no significant difference from other samples taken at Den Farm, also on the eastern arm of the Teise. However samples from those two sites contained fish in slightly better condition than from other sites on the Teise.
9. Visual assessment of the captured fish indicated generally good health. However a number of the chub displayed low levels of black spot parasite *Posthodiplostimum* ('low' infection taken to be 1-5 parasites visible).

Site Information: Little Cheveney farm

Watercourse: River Teise National Grid Reference: TQ 727 432
Site Code: ME07 Survey Date: 7/10/94
Sampling method: Single hand held anode, 240 v, 2 Kva, pulsed D.C, 50 Hz.
Site Length: 100 m Mean Width (range): 3.87 m (2.4-4.9)
Mean Depth (range): 0.55 m (0.30-0.90)
Water Temperature (°C): 10 Conductivity (μS): 320
Weather Conditions: Hazy sunshine, some cloud. Still.

Habitat Details

Substrate Composition (%): Sand: 10 Gravel: 80 Cobbles: 0 Boulders: 10
Flow Characteristics (%): Pool: 20 Riffle: 30 Glide: 50 Slack: 0
Flow Velocity (cm/s): 40 Water Level: moderate Water Clarity: good visibility
Aquatic Vegetation: Submerged Type: none
% Cover: 0
Emergent Type: Reeds
% Cover: 10 (marginal)
Bankside Vegetation: Type (% Cover): Trees (10) Grasses (50) Nettles/balsam (40)
Bank Nature: Steep, heavily vegetated. short vertical drop into river channel.

Adjacent Land Use: LHB: Arable
RHB: Arable

Fig. 1 Little Cheveney Farm: length frequency

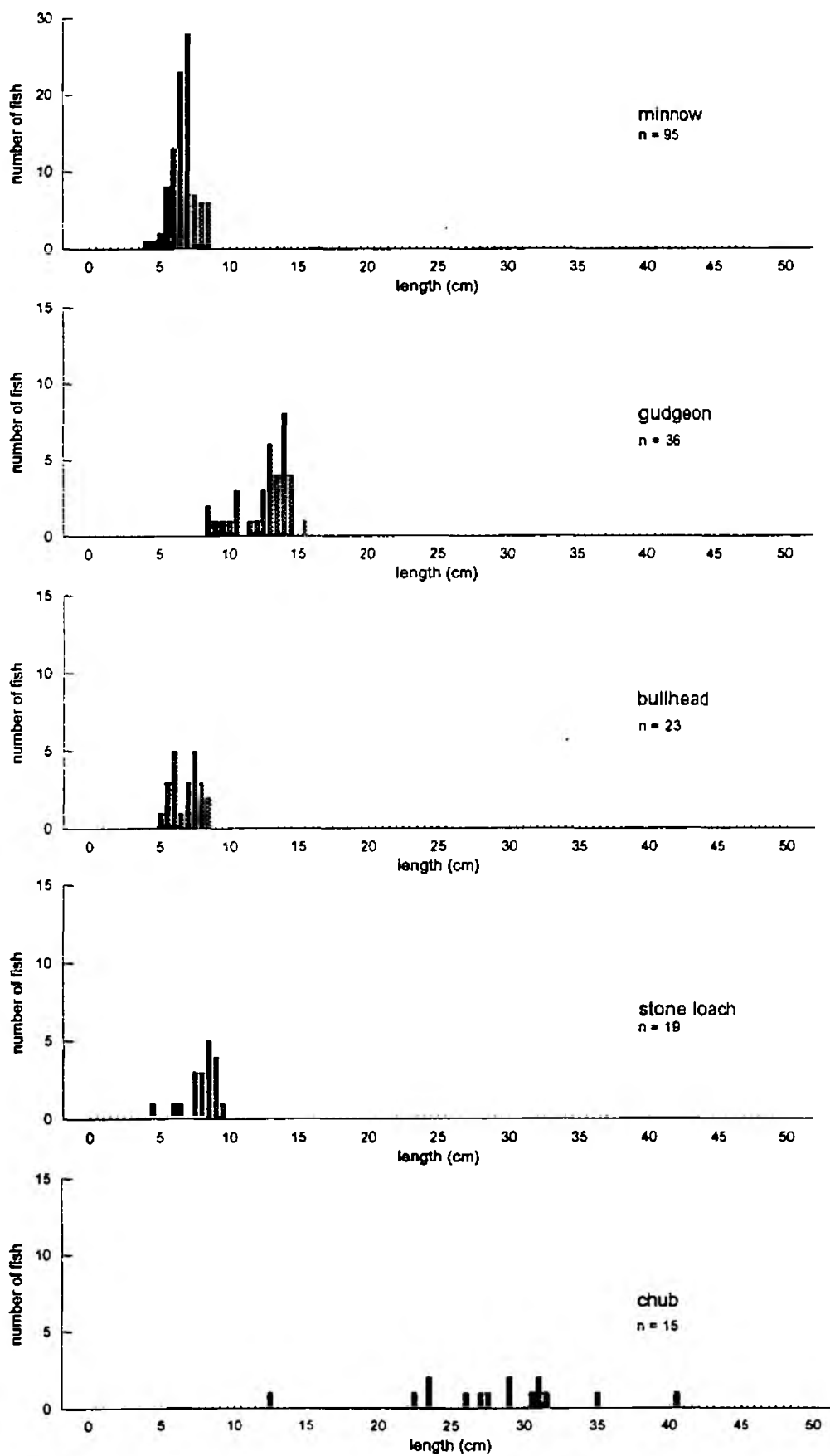


Fig. 1(cont) Little Cheveney Farm: length frequency

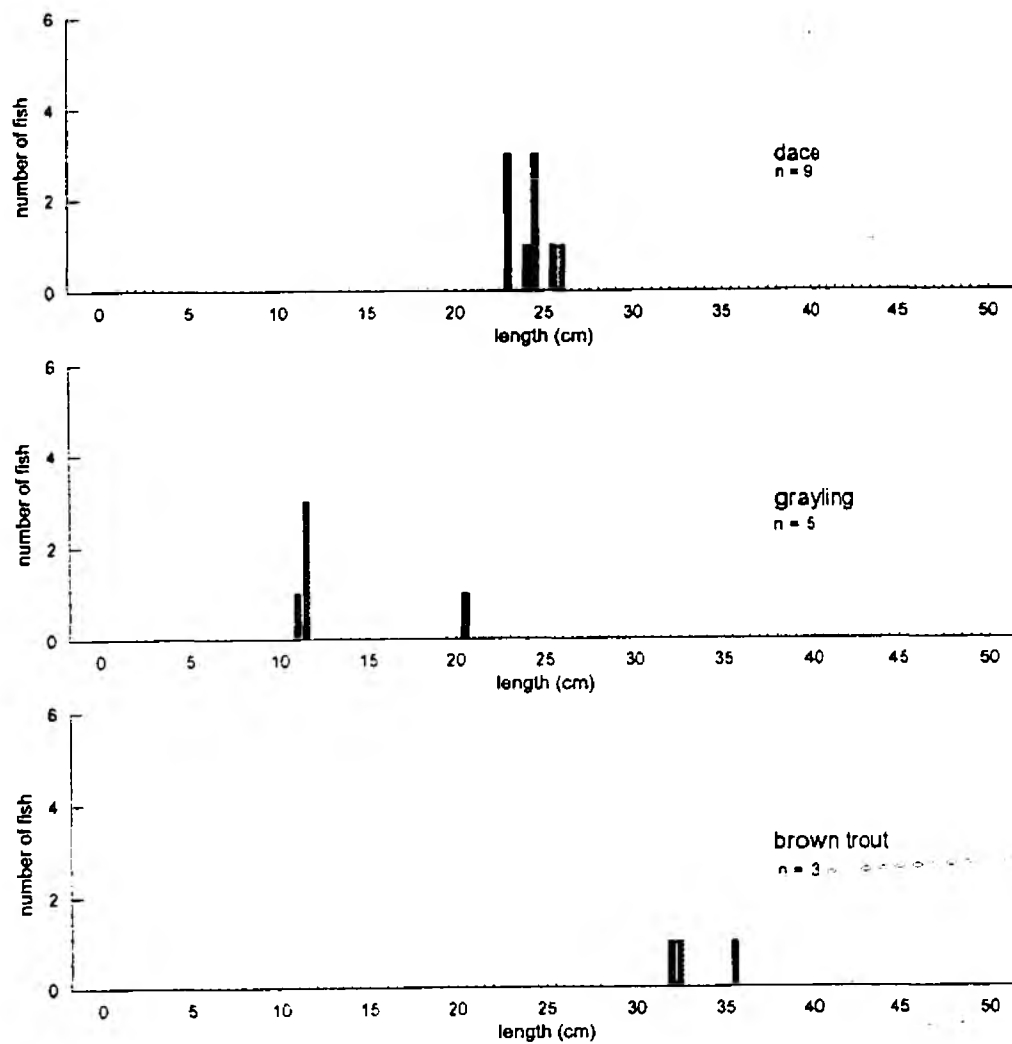
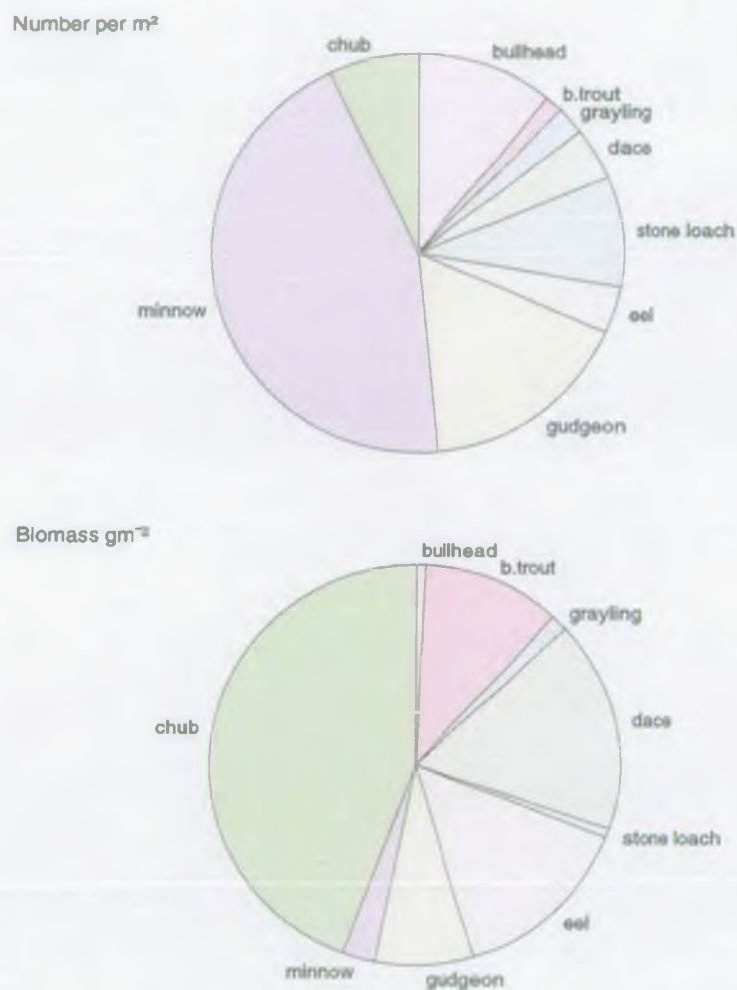


Fig. 2 Little Cheveney Farm: Species composition



	Number caught	Estimated total	Number m ²	Biomass gm ⁻²
1) Estimate based on total catch *				
	213	268.50	0.550	30.21
2) Estimates for individual species				
bullhead	23	29.10	0.059	0.23
b.trout	3	4.60	0.008	3.31
grayling	5	5.00	0.013	0.41
dace	9	9.50	0.023	5.15
stone loach	19	23.60	0.049	0.22
eel	8	9.90	0.021	4.36
gudgeon	36	44.60	0.093	2.36
minnow	95	132.00	0.245	0.76
chub	15	15.30	0.039	13.41

The "total catch" population estimate is calculated from the depletion of all fish caught, regardless of species. That estimate is considered more reliable than the total of individual species estimates, some of which may have limited accuracy due to small sample size.

Table 1. Little Cheveney Farm: Length for age

Species	Age (years)	Number aged	Mean length (cm)	min (cm)	max (cm)
chub	2+	1	12.1		
	4+	3	25.5	23.0	30.2
	5+	5	26.3	23.1	28.7
	6+	2	29.8	28.7	30.9
	7+	2	32.7	30.7	34.7
	8+	1	40.0		
dace	4+	3	23.1	22.5	24.1
	5+	3	24.4	23.9	25.1
	7+	1	25.8		
grayling	0+	4	11.2	10.9	11.4
	1+	1	20.1		
gudgeon	1+	7	9.2	8.2	10.0
	2+	6	12.1	11.2	14.2
	3+	6	13.8	13.1	14.2

Fig. 3 Little Cheveney Farm: Length for age

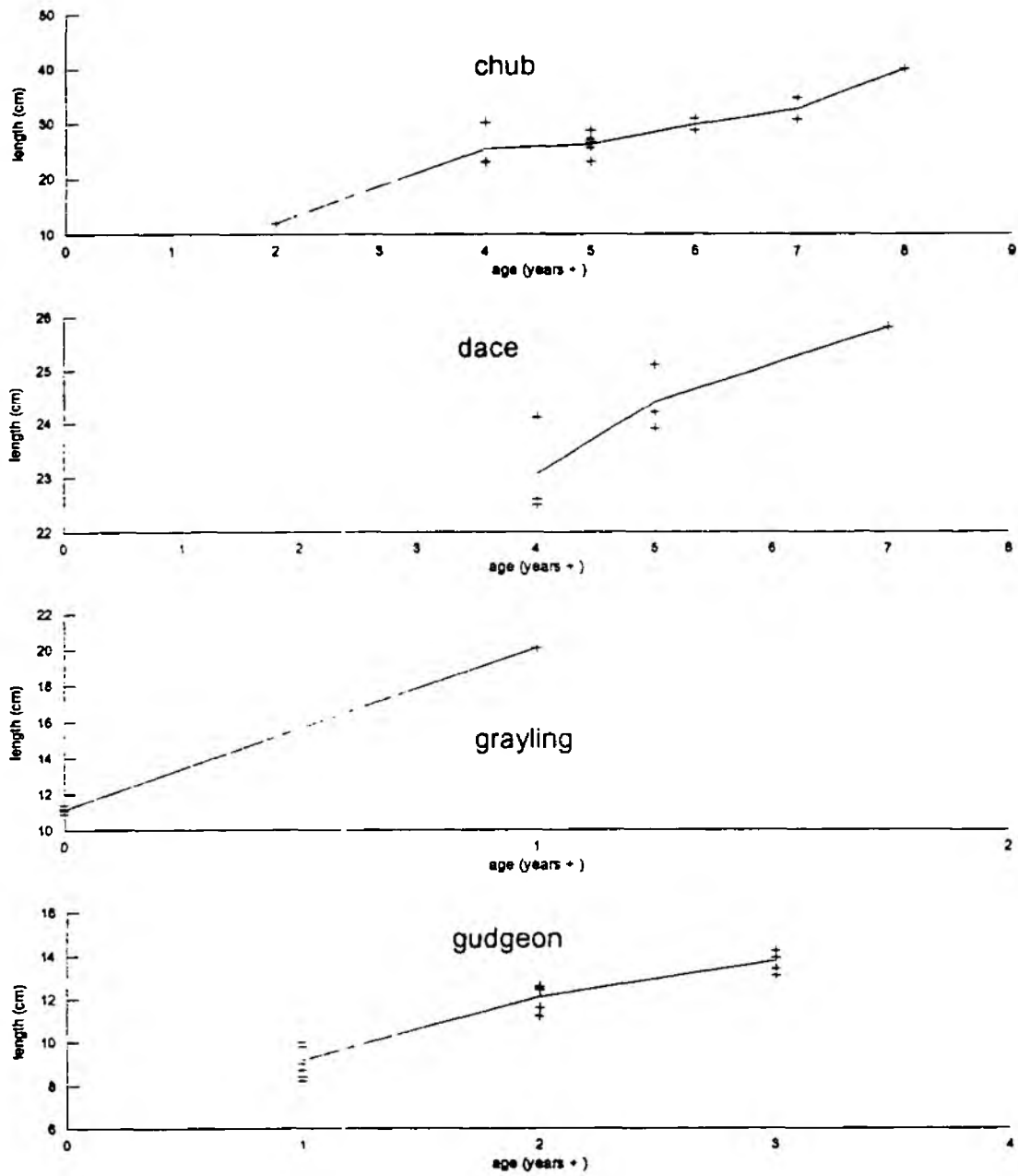
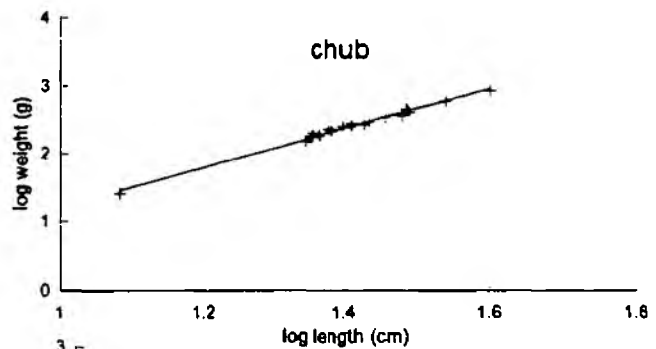


Fig. 4 Little Cheveney Farm: Weight for length

chub Regression Output:

Constant -1.72995
Std Err of Y Est 0.029618
R Squared 0.990273
No. of Observations 22
Degrees of Freedom 20

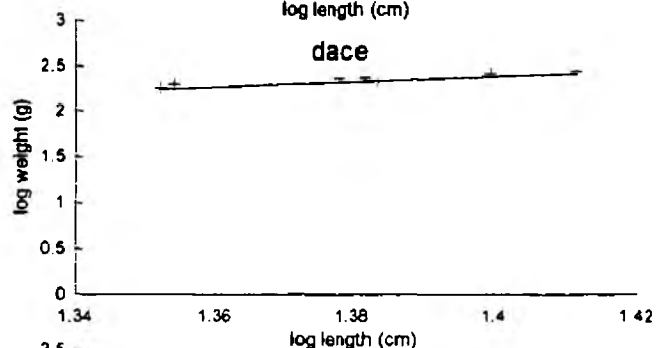
X Coefficient(s) 2.931769
Std Err of Coef. 0.064971



dace Regression Output:

Constant -1.43245
Std Err of Y Est 0.019965
R Squared 0.914761
No. of Observations 7
Degrees of Freedom 5

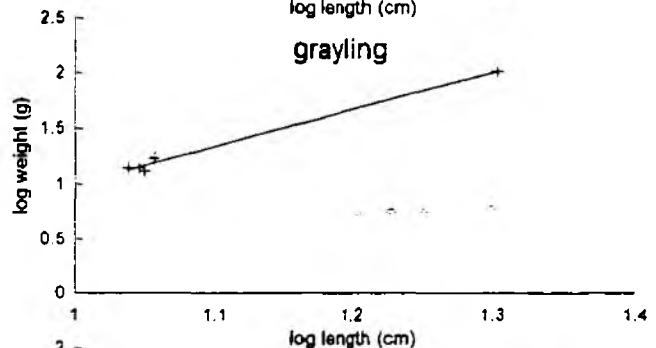
X Coefficient(s) 2.73861
Std Err of Coef. 0.37386



grayling Regression Output:

Constant -2.31797
Std Err of Y Est 0.039349
R Squared 0.992056
No. of Observations 5
Degrees of Freedom 3

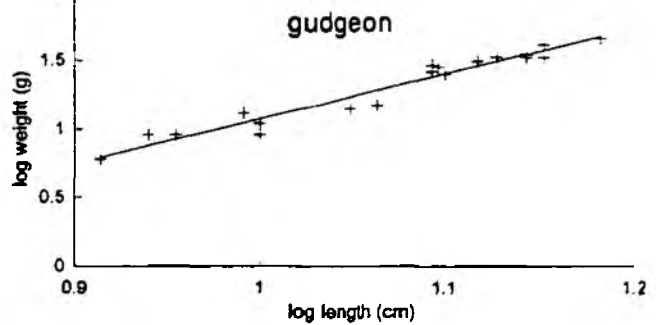
X Coefficient(s) 3.32026
Std Err of Coef. 0.171542



gudgeon Regression Output:

Constant -2.1905
Std Err of Y Est 0.062115
R Squared 0.949715
No. of Observations 19
Degrees of Freedom 17

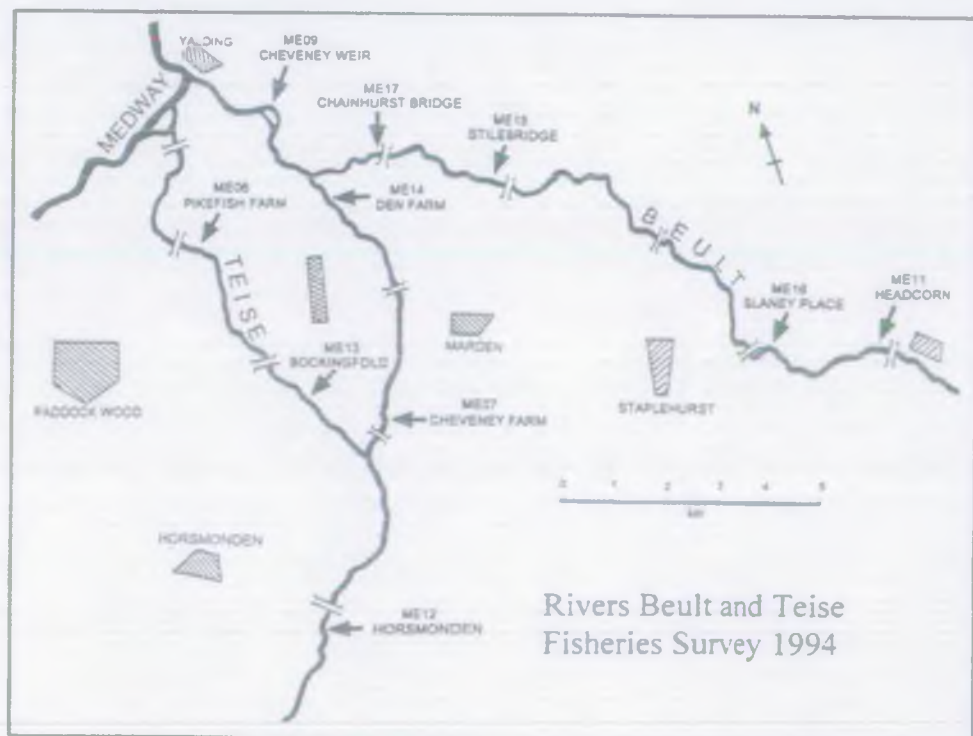
X Coefficient(s) 3.264707
Std Err of Coef. 0.182197



RIVER TEISE AT DEN FARM

FISHERIES SURVEY 1994

RIVER TEISE AT DEN FARM FISHERIES SURVEY 1994



Fisheries Survey : River Teise at Den farm

1. The sample site at Den farm was located below a weir at NGR TQ723474. The river was electrofished three times by wading, using twin anodes. Of the total numbers of fish caught (Fig.2), 71% were caught on the first electrofishing run, with 19% and 10% being recorded from the second and third runs respectively. The good decline in numbers on each consecutive run produced a population estimate of 122 ± 4.6 fish within the 100 metre sampled reach. Capture efficiencies expressed as a percentage of the estimated population, allowing for fish removed, were 69%, 61% and 80% respectively.
2. Roach, gudgeon and chub were the numerically predominant species (Fig.2), with reasonable but generally smaller numbers of pike, perch and eels. Small numbers of dace and a single bullhead were also caught.
3. Lengths of all species caught are shown in figure 1. Chub were recorded to 45.5 cm (2 lb 14 oz.) and pike to 66.5 cm (5 lb 5 oz.). Roach were mostly within the range 10-15 cm with a maximum length of 17.5 cm.
4. Population density of all species was estimated to be 0.22 fish/m², with biomass of 28.94 gm² (Figure 2). Those values compare very favourably with overall averages of 0.21 fish/m² and 15.54 gm² respectively for all five sampled sites on the Teise. The biomass estimate in particular was almost double that for the river as a whole.
5. Species and biomass composition is shown in figure 2. Biomass estimates indicate that while roach and gudgeon had the largest numerical representation, the greatest part of the biomass was made up of chub and pike.
6. Table 1 shows fish ages as determined by scale reading. Chub ages ranged between 1+ to 11+ years, the largest age group being the 1989 year class. There were good numbers of juvenile (0+ and 1+) perch and pike with the occasional larger fish. Roach ages ranged between 0+ and 4+, the 1993 and 1990 year classes being best represented.
7. Lengths for age of the fish caught at Den farm are shown in figure 3. Chub, roach and gudgeon, in particular, displayed wide ranges in length for age. Length for age of chub indicated average growth as compared with standards reported by Hickley and Dexter (1979). Occasional year classes appear to display above average length for age. Roach showed length for age slightly below standard, whilst the pike were comparable standards as given by Hickley and Sutton (1984).
8. Weight to length parameters are given in figure 4 as indices of condition. Values for both the chub and gudgeon are not significantly different from those recorded at Little Cheveney farm, also located on the eastern arm of the Teise. However condition values from those two sites for gudgeon were significantly greater than from other sites on the Teise.
9. Visual assessment of the captured fish indicated generally good health. However a number of fish, particularly chub and roach displayed low infections of the black spot parasite *Posthodiplostomum* ('low' infection taken to be 1-5 parasites visible).

Site Information: Den farm

Watercourse: River Teise National Grid Reference: TQ 723 474
Site Code: ME14 Survey Date: 6/10/94
Sampling method: Double hand held anode, 240 v, 2 Kva, pulsed D.C, 50 Hz.
Site Length: 100 m Mean Width (range): 5.4 m (4.3-7.4)
Mean Depth (range): 0.8 m (0.60-1.10)
Water Temperature (°C): 10 Conductivity (μS): 320
Weather Conditions: Clear and sunny, moderate south westerly breeze.

Habitat Details

Substrate Composition (%): Mud/Silt: 0 Gravel: 100 Cobbles: 0 Boulders: 0
Flow Characteristics (%): Pool: 0 Riffle: 30 Glide: 70 Slack: 0
Flow Velocity (cm/s): 20 Water Level: moderate Water Clarity: good visibility
Aquatic Vegetation: Submerged Type: none
% Cover: 0
Emergent Type: none
% Cover: 0
Bankside Vegetation: Type (% Cover): Trees (20) Nettles and balsam (80)
Bank Nature: Steep, heavily vegetated
Adjacent Land Use: LIIB: Arable
RHB: Arable

Fig. 1 Den Farm: length frequency

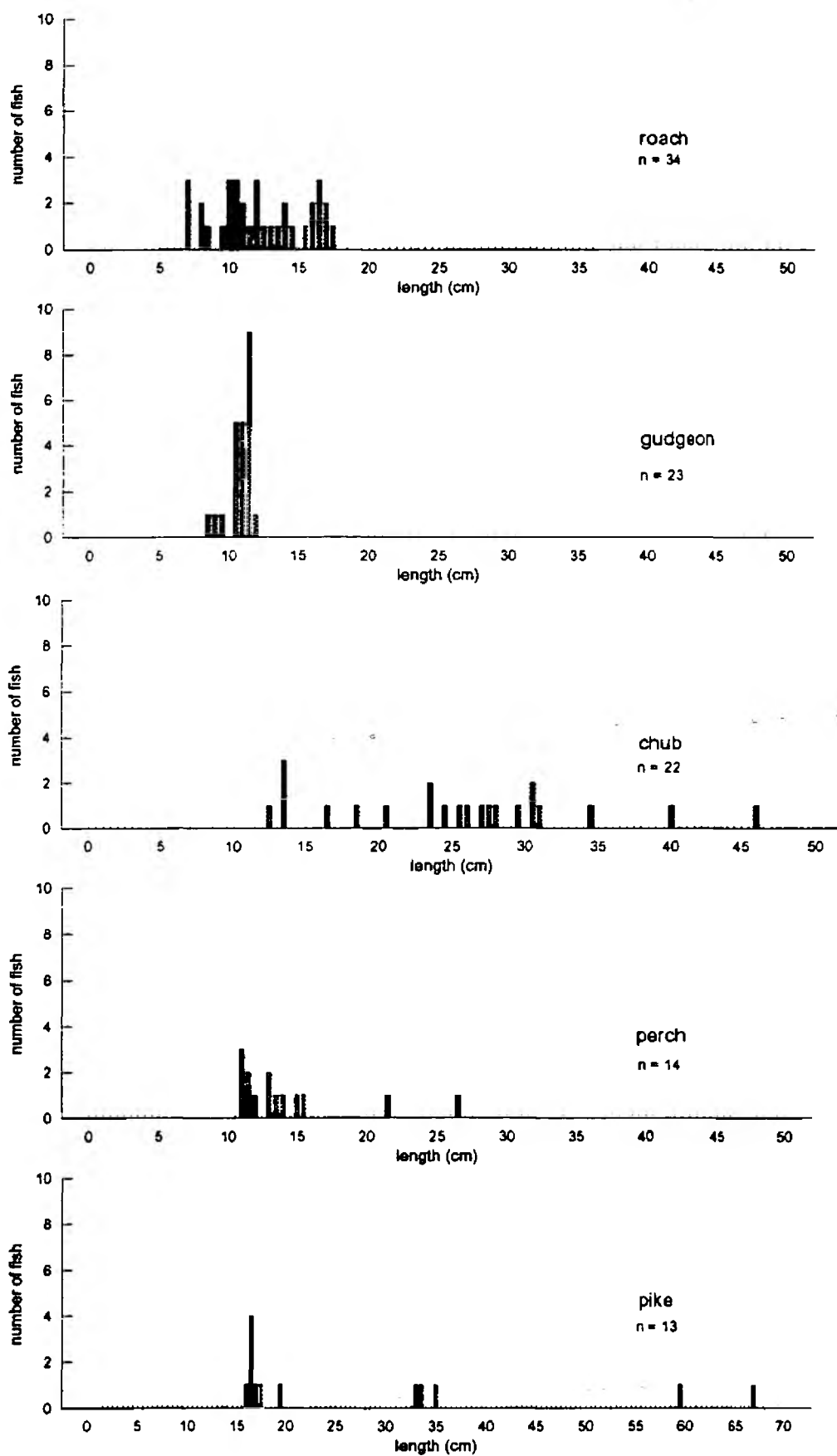


Fig. 1(cont) Den Farm: length frequency

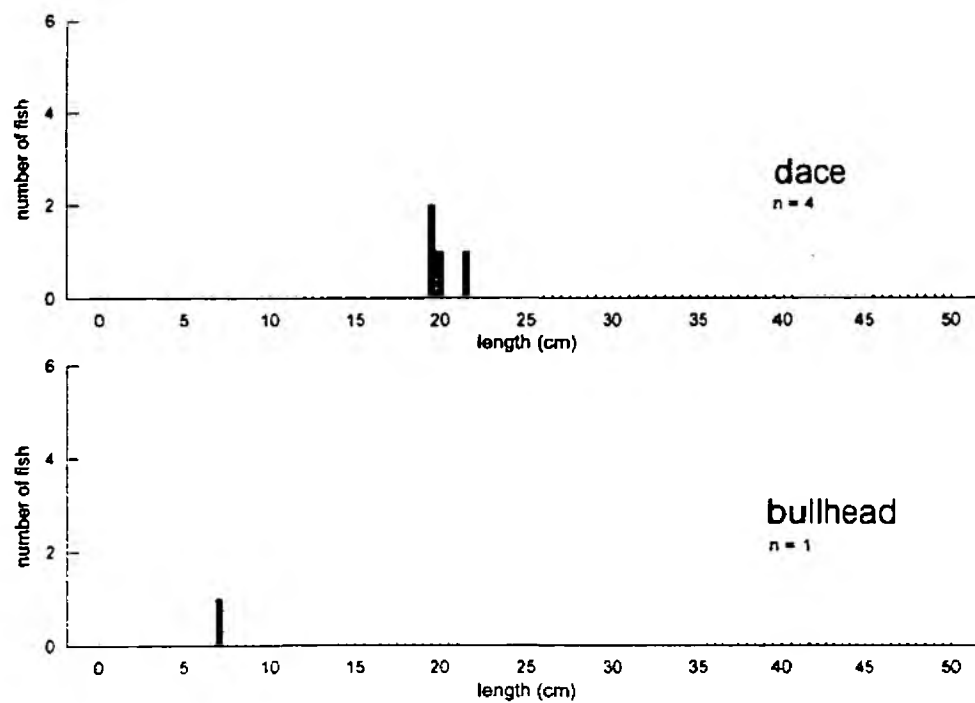


Fig. 2 Den Farm: Species composition



	Number caught	Estimated total	Number m ²	Biomass gm ⁻²
1) Estimate based on total catch *				
	119	122.4	0.220	28.94
2) Estimates for individual species				
chub	22	22.3	0.041	11.90
dace	4	4.6	0.007	0.80
eel	8	8.5	0.015	2.66
gudgeon	23	24.8	0.043	0.60
perch	14	14.5	0.026	1.34
pike	13	13.4	0.024	9.60
roach	34	36.5	0.063	2.04
bullhead	1	1.0	0.002	0.01

The "total catch" population estimate is calculated from the depletion of all fish caught, regardless of species. That estimate is considered more reliable than the total of individual species estimates, some of which may have limited accuracy due to small sample size.

Table 1. Den Farm: Length for age

Species	Age (years)	Number aged	Mean length (cm)	min (cm)	max (cm)
chub	1+	2	12.5	12.0	13.0
	2+	3	14.3	13.2	16.3
	3+	1	18.2		
	4+	2	26.6	24.0	29.1
	5+	9	26.4	20.1	30.8
	7+	1	34.0		
	11+	1	39.8		
dace	3+	2	19.4	19.0	19.7
	5+	1	21.3		
gudgeon	1+	3	9.3	8.6	10.0
	2+	5	10.9	10.4	11.5
perch	0+	6	11.0	10.6	11.5
	1+	6	13.6	12.5	15.0
	4+	1	21.1		
	5+	1	26.0		
pike	0+	7	16.8	15.9	19.3
	1+	3	33.7	32.8	34.9
	5+	1	66.5		
	6+	1	59.4		
roach	0+	2	6.6	6.6	6.6
	1+	14	10.0	7.8	11.9
	2+	4	12.9	12.4	13.6
	3+	2	14.8	13.6	15.9
	4+	8	15.9	14.1	17.0

Fig. 3 Den Farm: Length for age

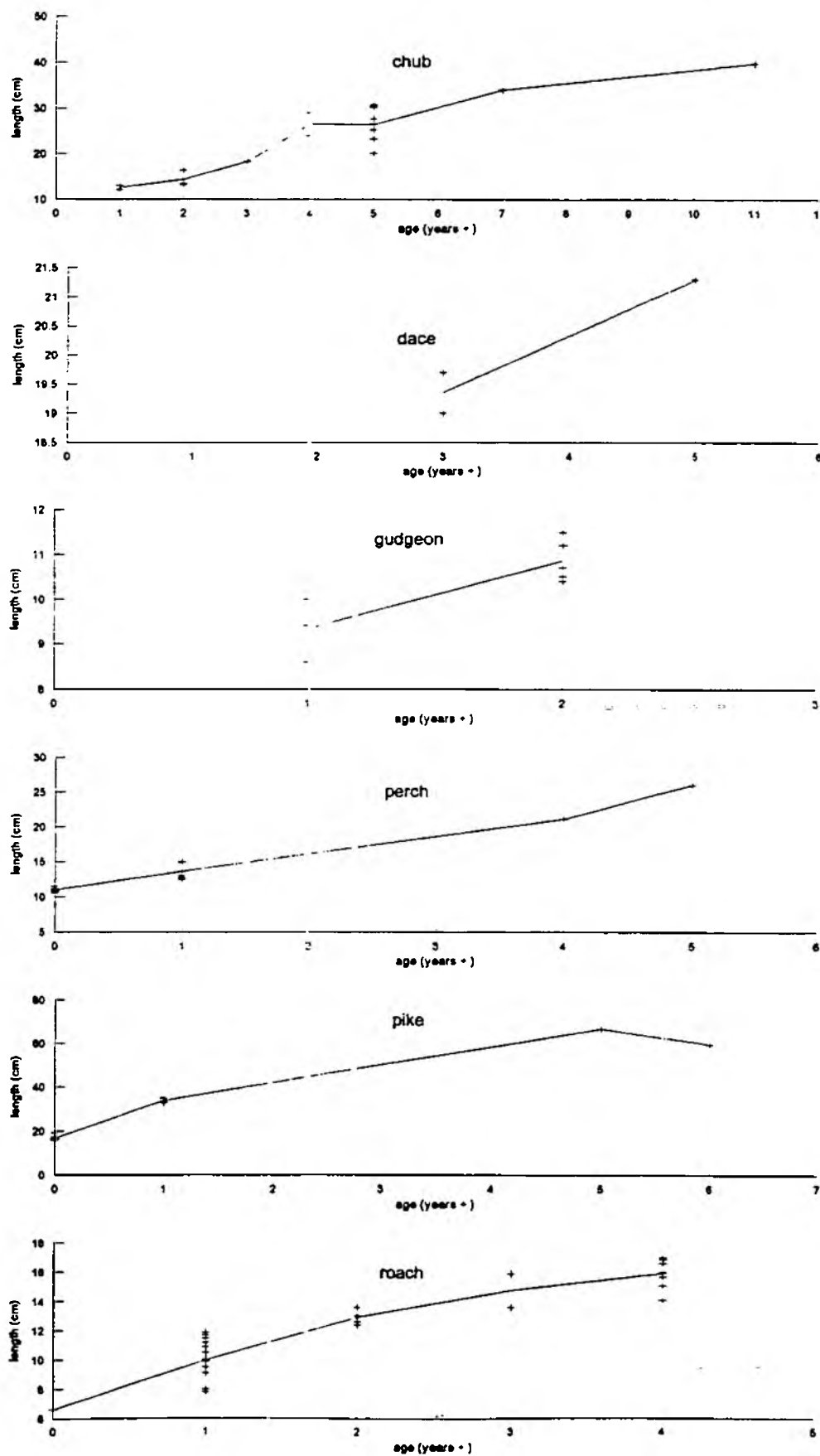
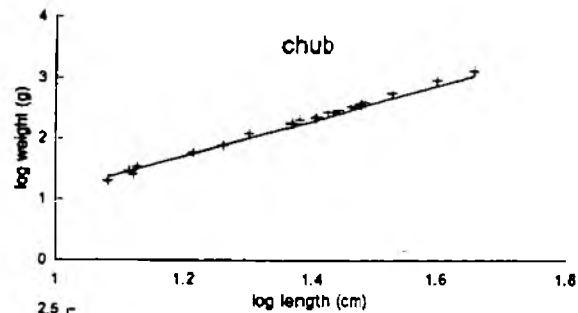


Fig. 4 Den Farm: Weight for length

chub Regression Output:

Constant -1.74464
Std Err of Y Est 0.226469
R Squared 0.812527
No. of Observations 22
Degrees of Freedom 20

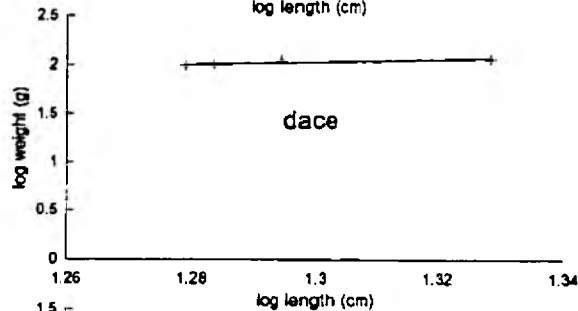
X Coefficient(s) 2.877329
Std Err of Coef. 0.309047



dace Regression Output:

Constant 0.367297
Std Err of Y Est 0.022965
R Squared 0.702243
No. of Observations 4
Degrees of Freedom 2

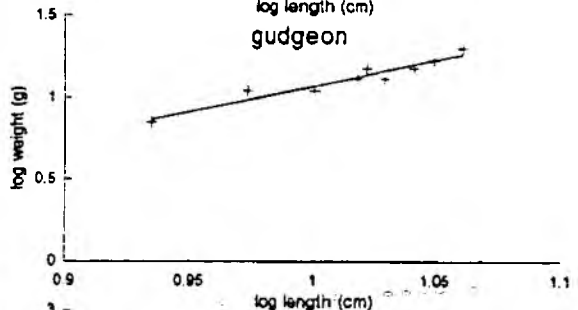
X Coefficient(s) 1.283806
Std Err of Coef. 0.591115



gudgeon Regression Output:

Constant -2.11698
Std Err of Y Est 0.038702
R Squared 0.924615
No. of Observations 9
Degrees of Freedom 7

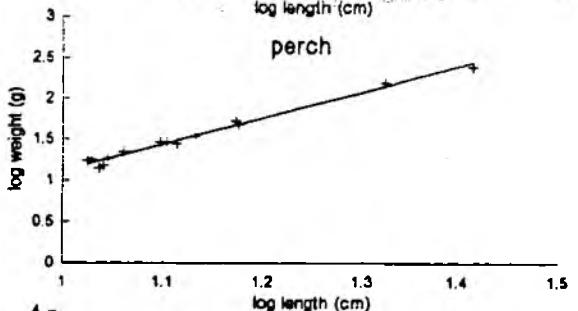
X Coefficient(s) 3.187654
Std Err of Coef. 0.34402



perch Regression Output:

Constant -2.0749
Std Err of Y Est 0.047181
R Squared 0.985174
No. of Observations 14
Degrees of Freedom 12

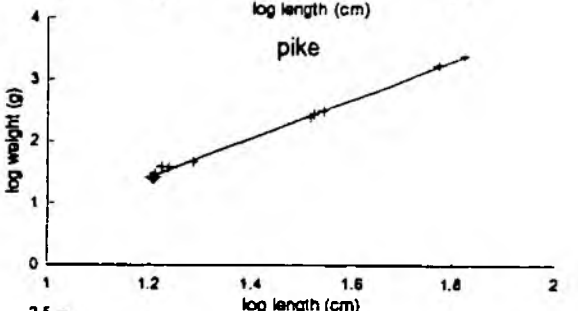
X Coefficient(s) 3.190807
Std Err of Coef. 0.112998



pike Regression Output:

Constant -2.30772
Std Err of Y Est 0.04072
R Squared 0.997099
No. of Observations 12
Degrees of Freedom 10

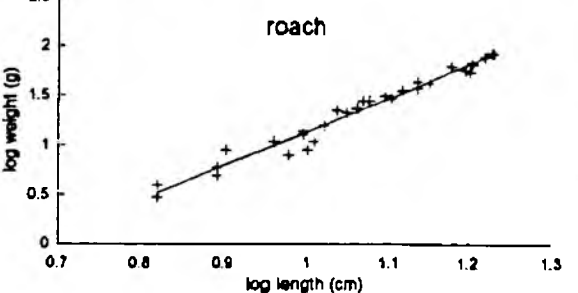
X Coefficient(s) 3.114887
Std Err of Coef. 0.053133



roach Regression Output:

Constant -2.26681
Std Err of Y Est 0.072269
R Squared 0.970642
No. of Observations 31
Degrees of Freedom 29

X Coefficient(s) 3.405844
Std Err of Coef. 0.109992



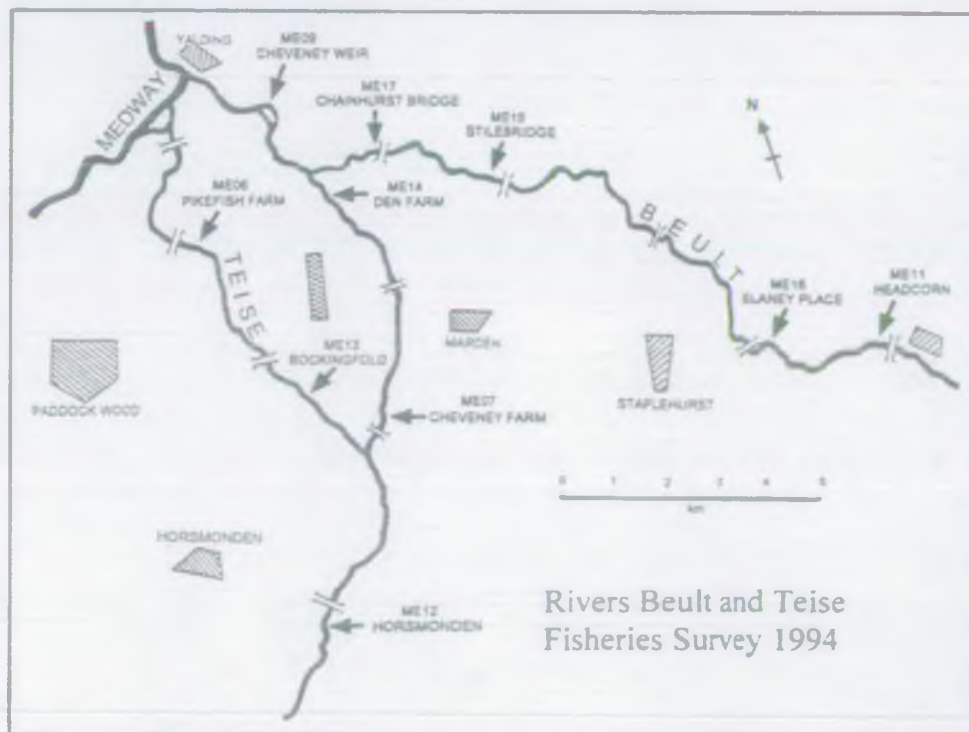
RIVER TEISE AT BOCKINGFOLD

FISHERIES SURVEY 1994

Fisheries Survey : River Teise at Bockingfold

1. The site at Bockingfold was situated immediately downstream of an automated sluice at NGR TQ707444. The width of the fishable river channel was reduced to between 3 and 5 metres by in-stream marginal vegetation, allowing the site to be fished effectively using a single anode. Of the total numbers of fish caught (Fig.2), 65% were caught on the first electrofishing run, with 22% and 13% being recorded from the second and third runs respectively. The reasonable decline in numbers on each consecutive run produced a population estimate of 63 ± 4.5 fish within the 100 metre sampled reach. Apparent capture efficiencies expressed as a percentage of the estimated population, allowing for fish removed, were 62%, 54% and 73% respectively.
2. Gudgeon and minnows were the numerically predominant species (Fig.2), with smaller numbers of chub, roach, eels and a single pike.
3. Figure 1 indicates lengths of all fish caught. Although only five chub up to 30.9 cm (450g = 1 lb) were caught, a shoal of quite large chub were observed at the site on arrival and moved downstream before the stop nets could be set up.
4. Population density of all species was estimated to be 0.10 fish/m², with biomass 3.29 gm⁻². These values fall well below the averages of 0.21 fish/m² and 15.54 gm⁻² respectively recorded from all five sample sites on the River Teise.
5. Species composition in terms of numbers and biomass is shown in figure 2. Whilst gudgeon and minnows were numerically predominant, chub contributed the largest fraction of the biomass.
6. Table 1 shows fish ages as determined by scale reading. Chub were aged between 2+ years to 5+ years. Gudgeon ages ranged from 1+ years to 3+ years, the strongest year class being that of 1993.
7. Length for age data is shown in figure 3. Although the site produced relatively small numbers of fish, chub showed length for age values which suggest average growth as compared with standards reported by Hickley and Dexter (1979).
8. Weight for length parameters are given in figure 4 as indices of condition. Values for gudgeon are not significantly different from those recorded at Pikefish farm, also on the western arm of the River Teise. However fish at both those sites were in poorer condition weight for length than at other sites on the Teise.
9. Visual assessment of the captured fish indicated generally good health. However a number of the minnows displayed high levels of infection with black spot *Posthodiplostomum* (high infection rate taken as more than 20 parasites per fish).

RIVER TEISE AT BOCKINGFOLD FISHERIES SURVEY 1994



Rivers Beult and Teise
Fisheries Survey 1994

Site Information: Bockingfold

Watercourse: River Teise **National Grid Reference:** TQ 707 444

Site Code: ME13 **Survey Date:** 8/10/94

Sample method: Single hand held anode, 240 v, 2 Kva, pulsed D.C, 50 Hz.

Site Length: 100 m **Mean Width (range):** 6.23 m (5.2-7.7)

Mean Depth (range): 0.78 m (0.54-0.91)

Water Temperature (°C): 10 **Conductivity (μS):** 280

Weather Conditions: Sunny and clear, slight breeze.

Habitat Details

Substrate Composition (%): Mud/Silt: 100 Gravel: 0 Cobbles: 0 Boulders: 0

Flow Characteristics (%): Pool: 20 Riffle: 0 Glide: 50 Slack: 30

Flow Velocity (cm/s): 10 **Water Level:** moderate **Water Clarity:** moderate visibility

Aquatic Vegetation: Submerged **Type:** none

% Cover: 0

Emergent **Type:** Reeds

% Cover: 10 (marginal)

Bankside Vegetation: Type (% Cover): Trees (5) Grasses (45) Nettles/brambles (50)

Bank Nature: Steep, short vertical drop to waterlevel.

Adjacent Land Use: LHB: Pasture

RHB: Pasture

Fig. 1 Bockingfold: length frequency

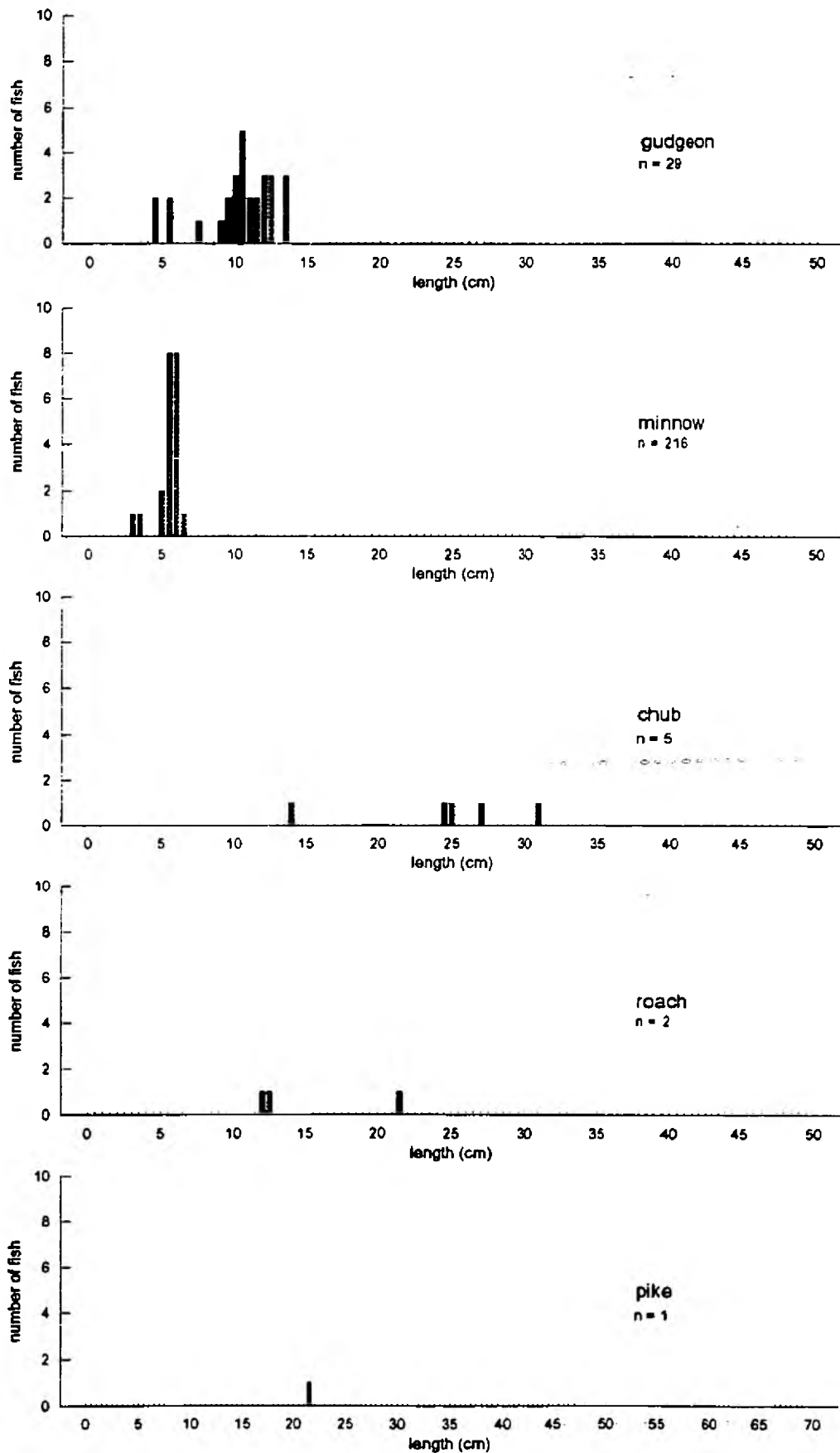
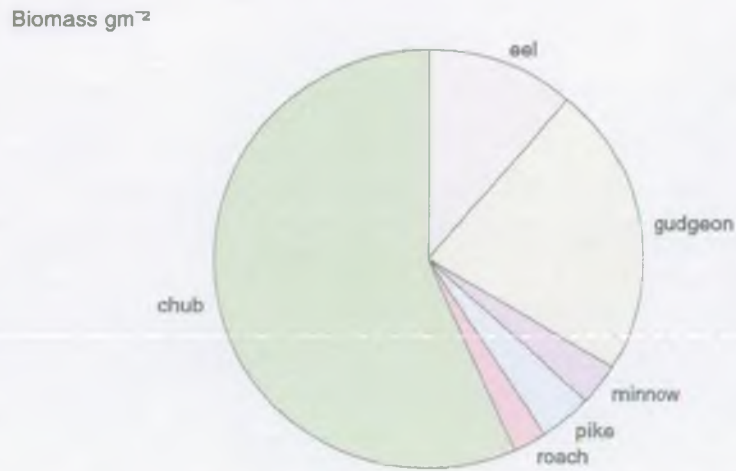
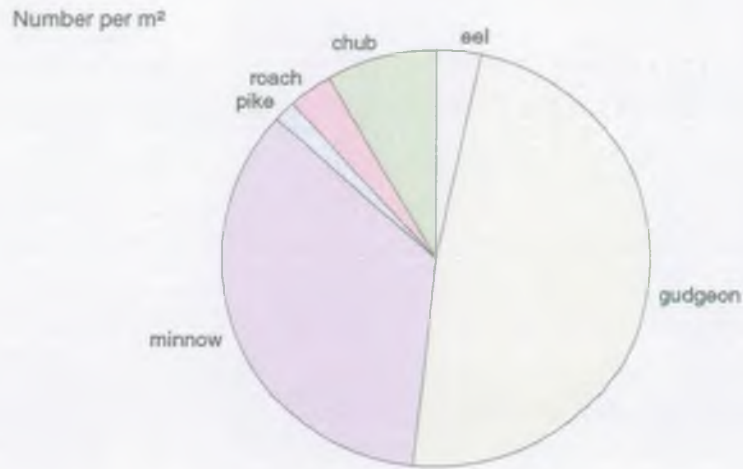


Fig. 2 Bockingfold: Species composition



	Number caught	Estimated Total	Number m ²	Biomass gm ⁻²
1) Estimate based on total catch *				
	60	62.80	0.096	3.29
2) Estimates for individual species				
eel	2	2.00	0.003	0.37
gudgeon	29	29.30	0.047	0.74
minnow	21	27.10	0.034	0.10
pike	1	1.00	0.002	0.13
roach	2	2.00	0.003	0.08
chub	5	6.20	0.008	1.86

The "total catch" population estimate is calculated from the depletion of all fish caught, regardless of species. That estimate is considered more reliable than the total of individual species estimates, some of which may have limited accuracy due to small sample size.

Table 1. Bockingfold: Length for age

Species	Age (years)	Number aged	Mean length (cm)	min (cm)	max (cm)
chub	2+	1	13.6		
	5+	4	26.5	24.1	30.9
gudgeon	1+	11	9.5	7.2	10.7
	2+	7	11.9	11.0	13.2
	3+	2	13.1	13.1	13.1
roach	1+	2	12.1	11.7	12.4

Fig. 3 Bockingfold: Length for age

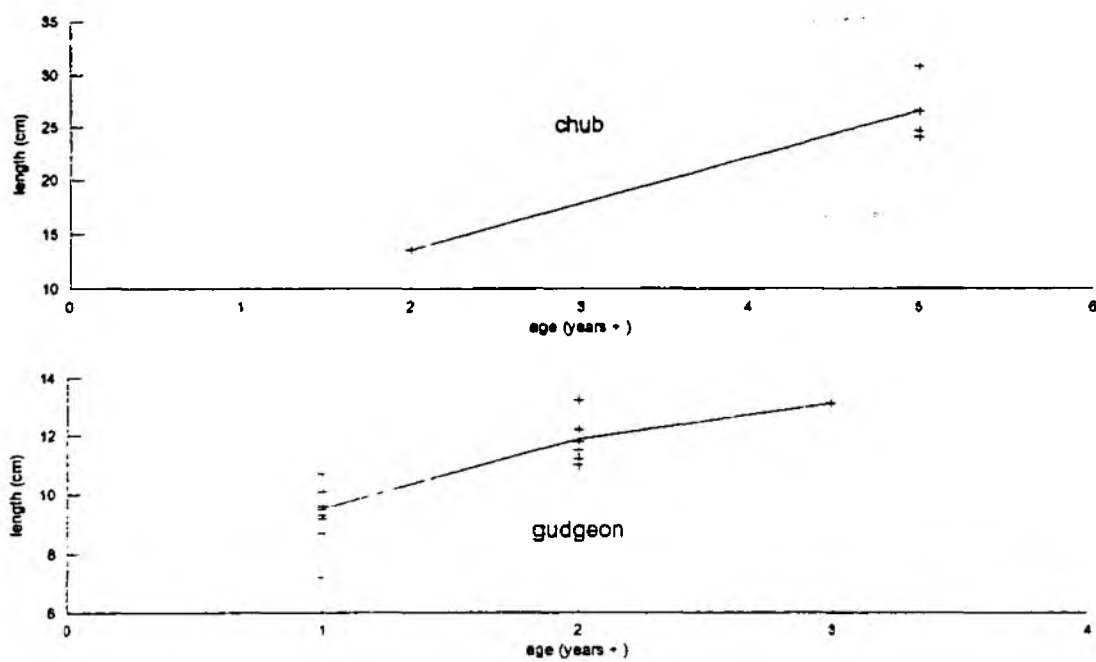
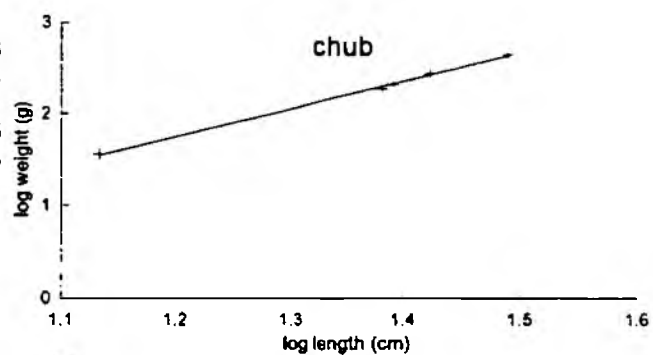


Fig. 4 Bockingfold: Weight for length

chub Regression Output:

Constant -1.91266
 Std Err of Y Est 0.023674
 R Squared 0.997551
 No. of Observations 5
 Degrees of Freedom 3

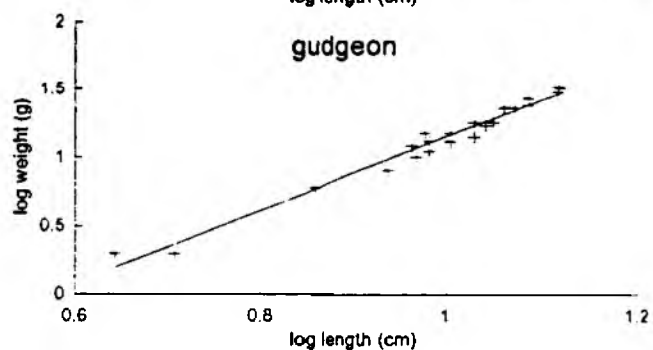
X Coefficient(s) 3.051733
 Std Err of Coef. 0.0873



gudgeon Regression Output:

Constant -1.5315
 Std Err of Y Est 0.05482
 R Squared 0.97382
 No. of Observations 22
 Degrees of Freedom 20

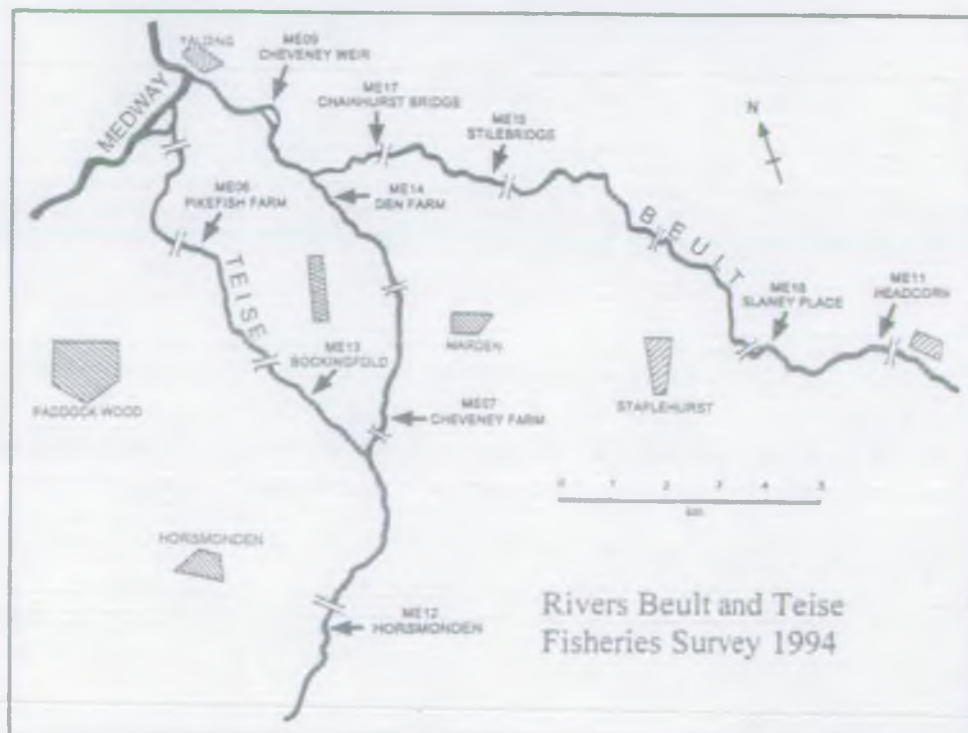
X Coefficient(s) 2.683078
 Std Err of Coef. 0.098369



RIVER TEISE AT PIKEFISH FARM

FISHERIES SURVEY 1994

RIVER TEISE AT PIKEFISH FARM FISHERIES SURVEY 1994



Fisheries Survey : River Teise at Pikefish farm

1. The sampled site was located upstream of the road bridge at NGR TQ695468. The width of the fishable river channel was reduced to approximately 4.5 metres by in-stream marginal vegetation, allowing the site to be fished effectively using a single anode. Average water depth of 0.9 metres was considered suitable for electrofishing. Of the total numbers caught (Fig 2), 52% were caught on the first electrofishing run, with 30% and 17% being recorded from the second and third runs respectively. The consistent decline in numbers on each consecutive run produced a total population estimate of 109 ± 18 fish. Apparent capture efficiencies expressed as a percentage of the estimated population, allowing for fish removed, were 44%, 46% and 48% respectively.
2. Gudgeon, minnows and roach were the numerically predominant species (Fig 2), with smaller numbers of chub, eels and stone loach.
3. Figure 1 indicates the length frequencies of all fish caught. Chub were recorded between 41.4 and 45.4 cm in length, the largest weighing 1500g (3 lb 5 oz.). Roach up to 21.4 cm (155g = 5 oz.) were recorded.
4. Population density was estimated to be 0.17 fish/m², with biomass 12.54 gm⁻². These values are comparable with overall mean values of 0.21 fish/m² and 15.54 gm⁻² recorded for all five sample sites on the river Teise.
5. Species composition in terms of numbers and biomass is shown in figure 2. Although the smaller species gudgeon, minnow and roach were numerically predominant, chub contributed the greatest fraction of biomass.
6. Table 1 shows fish ages as determined by scale reading. Chub were aged between 8+ years and 13+ years. Roach ages ranged from 2+ years to 5+, the 1992 year class being well represented. Gudgeon were aged between 1+ and 2+, with the 1992 year class best represented.
7. Lengths for age are shown in figure 3. Values for roach would indicate average growth rates as compared with standards reported by Hickley and Dexter (1979).
8. Weight for length parameters are given in figure 4 as indices of condition. Values for gudgeon were not significantly different from those recorded at Bockingfold, also on the western arm of the Teise. Those values were however, significantly lower than condition parameters from other sites on the Teise. Values for Roach were not significantly different from those obtained from other sites on the Rivers Beult and Teise.
9. Visual assessment of the captured fish indicated generally good health. However a number of the minnows displayed high levels of the black spot parasite *Posthodiplostimum* (high infection rate taken to be more than 20 parasites per fish).

Site Information: Pikefish farm

Watercourse: River Teise **National Grid Reference:** TQ 695 468

Site Code: ME06 **Survey Date:** 8/10/94

Sample method: Single hand held anode, 240 v, 2 Kva, pulsed D.C, 50 Hz.

Site Length: 100m **Mean Width (range):** 5.37 m (5.2-5.5)

Mean Depth (range): 0.89 m (0.85-0.93)

Water Temperature (°C): 10 **Conductivity (μS):** 290

Weather Conditions: Clear and sunny. Slight wind.

Habitat Details

Substrate Composition (%): Mud/Silt: 100 Gravel: 0 Cobbles: 0 Boulders: 0

Flow Characteristics (%): Pool: 0 Riffle: 0 Glide: 100 Slack: 0

Flow Velocity (cm/s): 10 **Water Level:** moderate **Water Clarity:** moderate visibility

Aquatic Vegetation: Submerged Type: none

% Cover: 0

Emergent **Type: Reeds**

% Cover: 10 (marginal)

Bankside Vegetation: Type (% Cover): Trees (20) Nettles and Willow herbs (80)

Bank Nature: Steep and uneven.

Adjacent Land Use: LHB: Arable

RHB: Fruit growing

Fig. 1 Pikefish Farm: length frequency

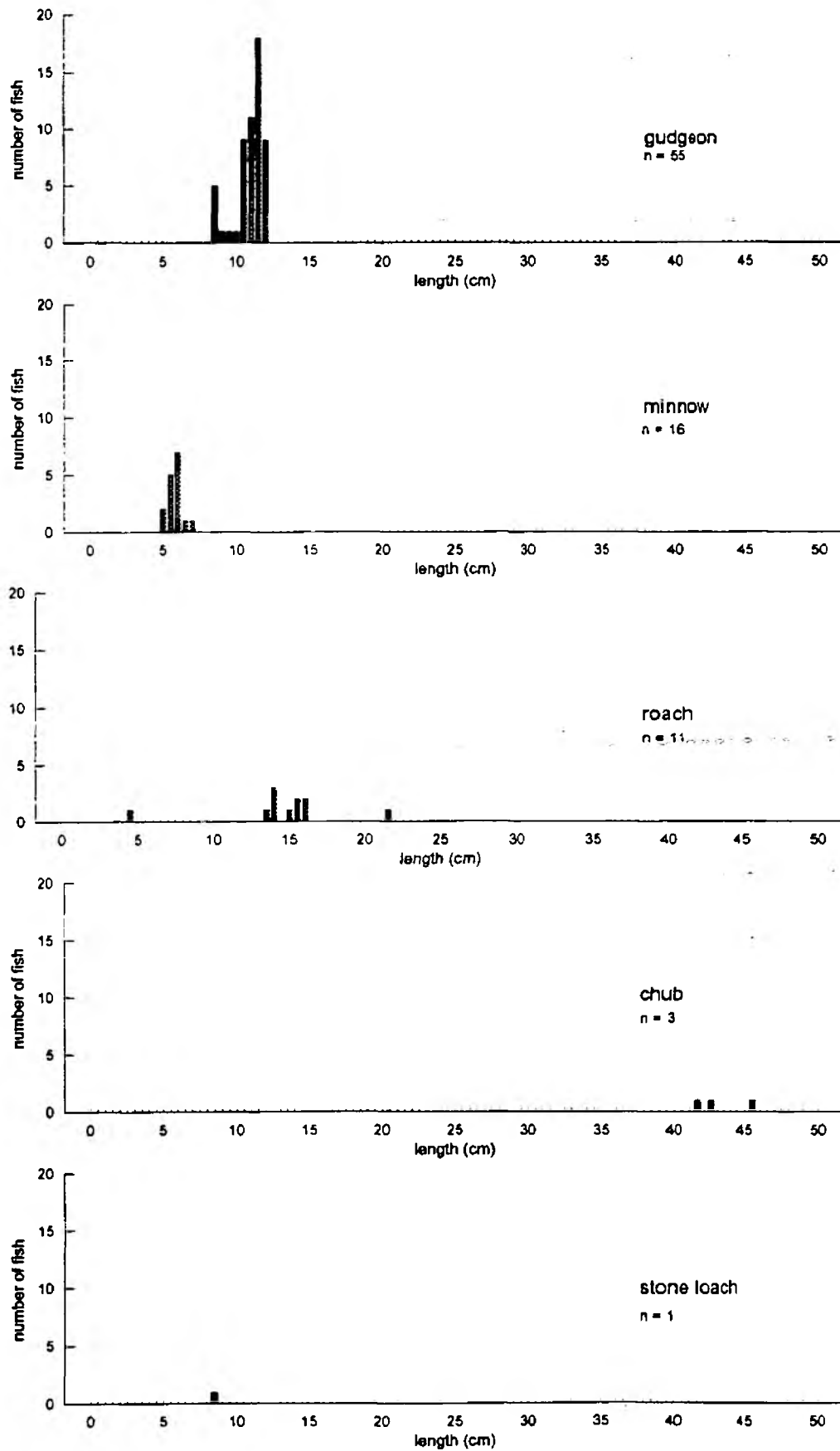
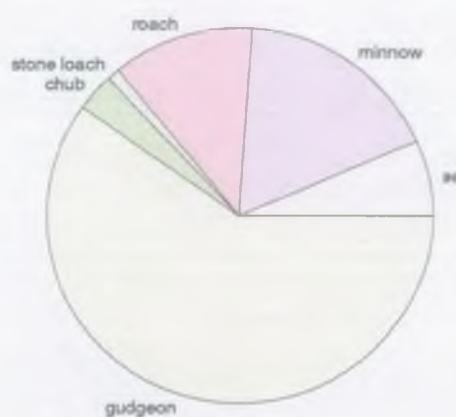
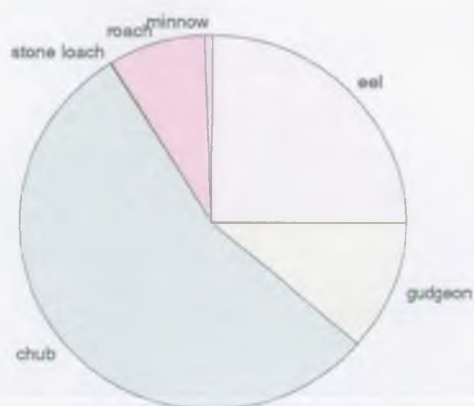


Fig. 2 Pikefish Farm: Species composition

Number per m²



Biomass gm⁻²



	Number caught	Estimated total	Number m ²	Biomass gm ⁻²
1) Estimate based on total catch *				
	92	109.3	0.171	12.54
2) Estimates for individual species				
eel	6	7.4	0.011	3.13
minnow	16	17.6	0.030	0.09
roach	11	11.1	0.020	1.02
stone loach	1	1.0	0.002	0.01
chub	3	3.0	0.006	6.89
gudgeon	55	62.9	0.102	1.40

The "total catch" population estimate is calculated from the depletion of all fish caught, regardless of species. That estimate is considered more reliable than the total of individual species estimates, some of which may have limited accuracy due to small sample size.

Table 1. Pikefish Farm: Length for age

Species	Age (years)	Number aged	Mean length (cm)	min (cm)	max (cm)
chub	8+	1	42.0		
	11+	1	41.4		
	13+	1	45.4		
gudgeon	1+	3	8.4	8.0	8.9
	2+	10	10.6	9.4	11.8
roach	2+	6	14.2	13.0	15.2
	3+	2	14.6	13.7	15.5
	5+	1	21.4		

Fig. 3 Pikefish Farm: Length for age

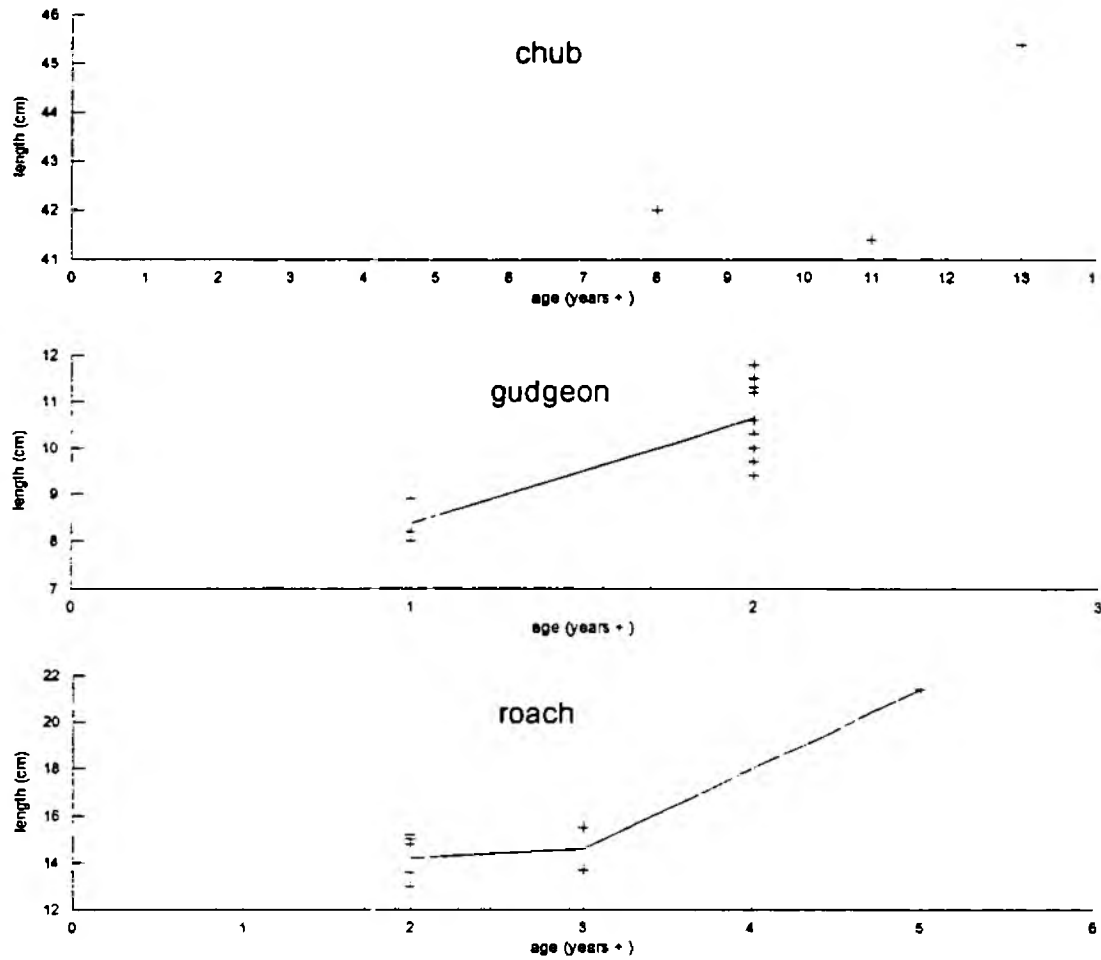
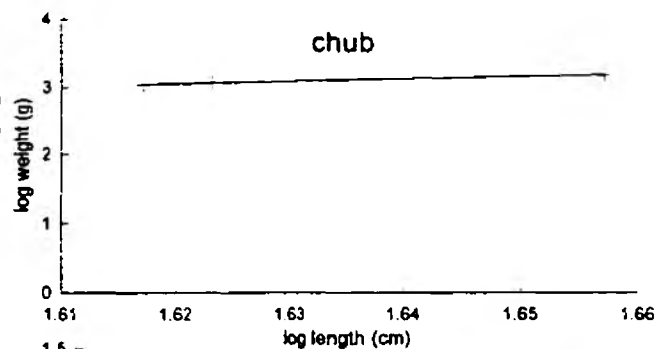


Fig. 4 Pikefish Farm: Weight for length

chub Regression Output:

Constant -2.97922
Std Err of Y Est 0.011642
R Squared 0.989539
No. of Observations 3
Degrees of Freedom 1

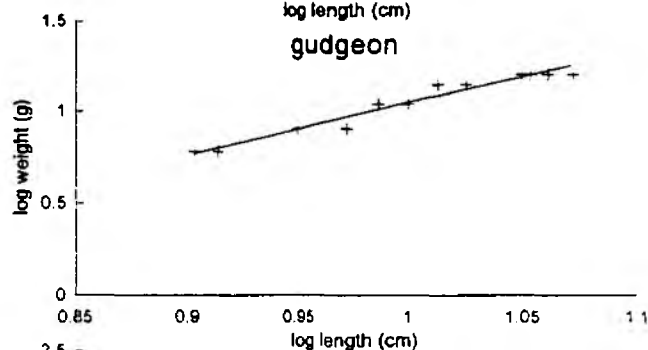
X Coefficient(s) 3.715441
Std Err of Coef. 0.382019



gudgeon Regression Output:

Constant -1.84452
Std Err of Y Est 0.036071
R Squared 0.95437
No. of Observations 13
Degrees of Freedom 11

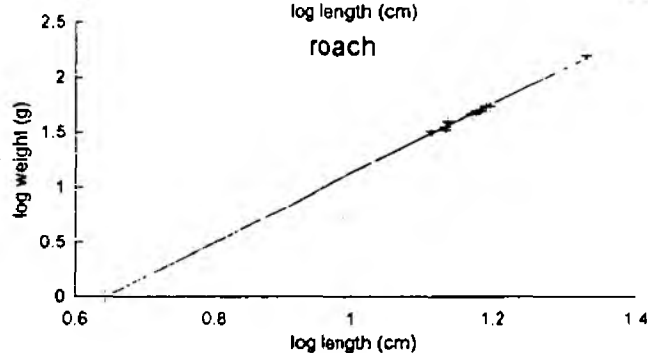
X Coefficient(s) 2.892919
Std Err of Coef. 0.190725



roach Regression Output:

Constant -2.04145
Std Err of Y Est 0.018235
R Squared 0.998979
No. of Observations 11
Degrees of Freedom 9

X Coefficient(s) 3.168141
Std Err of Coef. 0.033769



4 SECTION IV : SUMMARY AND CONCLUSIONS

4.1 River Beult : Overview of Survey Results

- 4.1.1 The survey of five sites on the River Beult recorded twelve fish species. The fish community was characterised by general abundance of roach, bleak, pike, gudgeon and perch. Roach were numerically predominant at four sites, with consistent numbers of pike and perch recorded at all five sites. The samples included roach to 268g (14 oz), pike to 68.0 cm (6 lb 3 oz.). Tench up to 27.5 cm (14 oz.) were recorded at Chainhurst Bridge.
- 4.1.2 Population densities and biomass are summarised in table 1. Average density was 0.094 fish/m², ranging from 0.02 fish/m² at Chainhurst bridge to 0.16 fish/m² at Stilebridge. Average biomass was 14.23 gm² ranging from 2.99 gm² at Chainhurst to 24.79 gm² at Cheveney Weir.
- 4.1.3 Species composition in terms of numbers and biomass is shown in figure 5. Whilst roach, gudgeon and pike were the numerically predominant species, the greatest fraction of the biomass in the samples was contributed by pike.
- 4.1.4 Length frequencies of roach across all five sites are shown in figure 6. Roach ranged in size between 4.0 and 23.9 cm, the largest fish being caught at Headcorn weighing 268 g (14 oz.). At Slaney Place, Chainhurst bridge and Stilebridge weir the predominant year classes of roach were those of 1993 and 1994. The 1991 year class (3+) was well represented at Headcorn, with the bulk of the population represented by fish between 2+ to 4+ years of age.
- 4.1.5 Length frequencies for pike from the Beult are shown in figure 7. Pike ranged between 15 and 68 cm. The largest individual fish being caught at Cheveney weir weighing 2800g (6 lb 3 oz). The size range of pike was consistent and evenly spread across the sites. The 1994 year class was well represented, being present across all five sites. The 1993 year class predominated at Headcorn, the 1989 and 1994 year classes being equally represented at Cheveney Weir.
- 4.1.6 Lengths for age of roach and pike are shown in figure 8, together with standards published Hickley and Dexter (1979) and Hickley and Sutton (1984) respectively. These values provide a general guide as to growth rates of the two species. It is important to note that the relative positions of the lines are influenced by the time of year when samples are taken. The slope rather than overall position of the curve is therefore indicative of growth.
- 4.1.7 Values for roach would suggest growth rates slightly above average by comparison with standards reported by Hickley and Dexter (1979). Values for pike would suggest slightly below average growth rates by comparison with standards reported by Hickley and Sutton (1984).

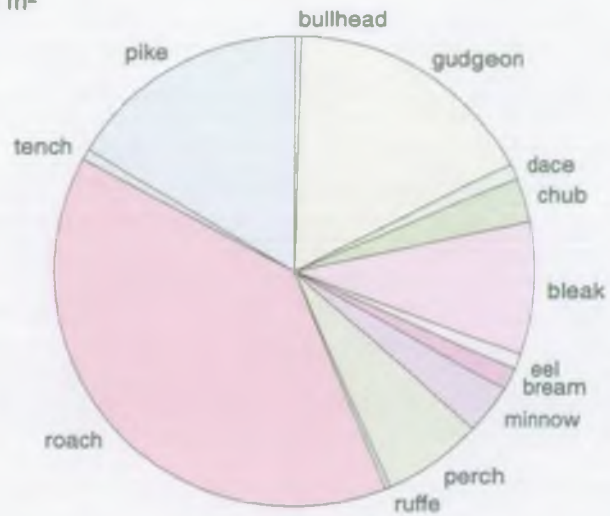
- 4.1.8 Visual assessment of fish from the River Beult indicated generally good health. Small numbers of roach were infected with low levels of the black spot parasite *Posthodiplostimum* ('low' infection taken to be 1-5 parasites visible). Hook damage to the mouthparts of a number of roach was noted at Headcorn.

4.2 River Beult : Discussion

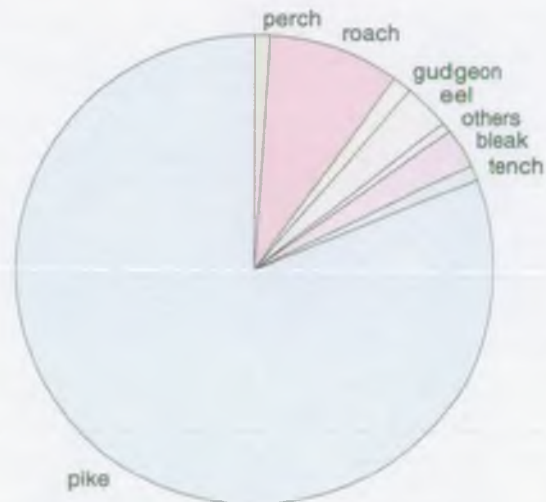
- 4.2.1 The River Beult is characterised by low gradients, with generally slow flows and long pooled sections. The fish community was typical of a relatively slow flowing lowland coarse fishery, being characterised by the abundance of roach, bleak, pike and perch. The presence of tench at Chainhurst bridge may be due to the deep ponded nature of that reach. Gudgeon were recorded as abundant at only one site, Stilebridge, from an area of faster flowing water downstream of a weir.
- 4.2.2 The Beult was formerly considered to be one of the regions premier coarse fisheries. Indications are that water quality is currently improving as a result of greater control over effluents and agricultural runoff. Biomass estimates ranging from 2.99 gm⁻² to 24.79 gm⁻² (table 1.) would suggest populations of variable status ranging from poor to good. The two lowest density results may to some extent have been influenced by deep water and reduced electrofishing efficiency at Chainhurst and unstable water levels at Slaney Place.
- 4.2.3 It is felt that instability of water levels due to adjustment to weir structures may be a significant factor affecting poor species diversity at certain locations (eg. see survey report Slaney Place). This aspect warrants further research with the aim of achieving co-ordinated management of water levels, in order to allow full development of mature and stable fisheries.
- 4.2.4 Samples across all five sites on the Beult (figure 5) showed an apparently disproportionate biomass of pike. This phenomenon is common in electrofishing surveys and may be due to two factors. Firstly, large species, such as pike, are electrofished more efficiently than smaller species and juveniles. Secondly, pike accumulate biomass over a long life span, whereas smaller species focus much of their biomass amongst younger age groups, which may be sampled less effectively. The apparently high biomass of pike in the samples may not therefore be entirely indicative of a predator imbalance in the population.
- 4.2.5 In conclusion, water quality is generally considered to be improving in the Beult and the river supports reasonable levels of fish biomass. However, it is considered that the instability of water levels caused by irregular adjustment of weir structures may be a significant factor affecting species diversity at certain sites. Altogether, a planned approach should be adopted towards management of control structures, in order to allow development of permanent pools and other features. The mean biomass levels do not indicate that the river as a whole is under-stocked and it is unlikely that re-stocking would, in the long term, increase overall biomass levels. Schemes for improvement should, therefore, concentrate on management of the river habitat in order to promote stability and development of mature fish communities with maximum angling value.

fig. 5 River Beult: Species composition

Number per m²



Biomass gm⁻²



Species	Number m ²	Biomass gm ⁻²
bullhead	0.04	0.05
gudgeon	1.39	0.16
dace	0.09	0.04
chub	0.25	0.04
bleak	0.74	0.33
eel	0.09	0.39
bream	0.12	<0.01
minnow	0.27	0.02
perch	0.56	0.12
ruffe	0.03	0.01
roach	3.18	1.09
tench	0.06	0.13
pike	1.33	9.99

Fig. 6 River Beult: Roach length frequency

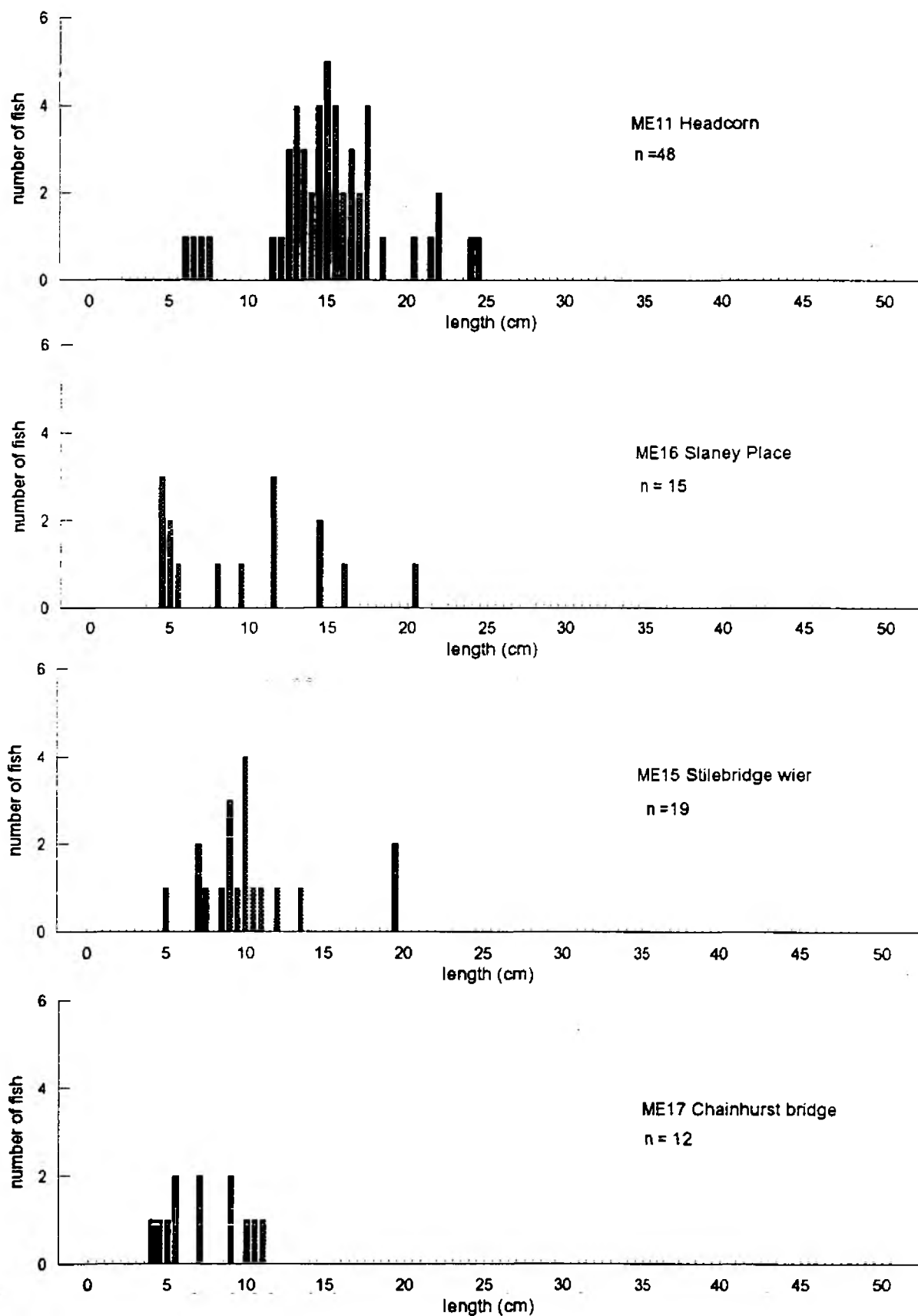


Fig. 7 River Beult: Pike length frequency

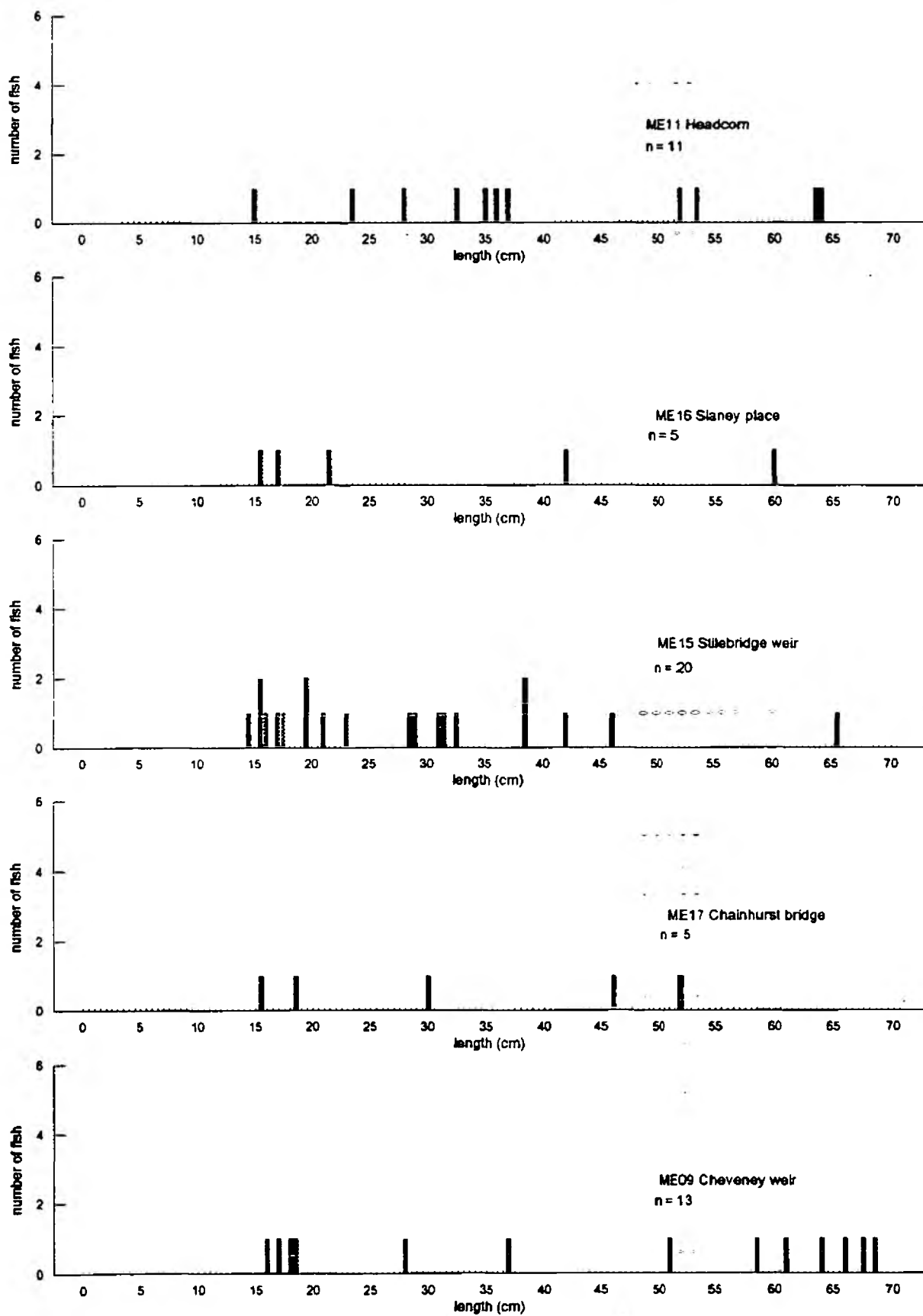
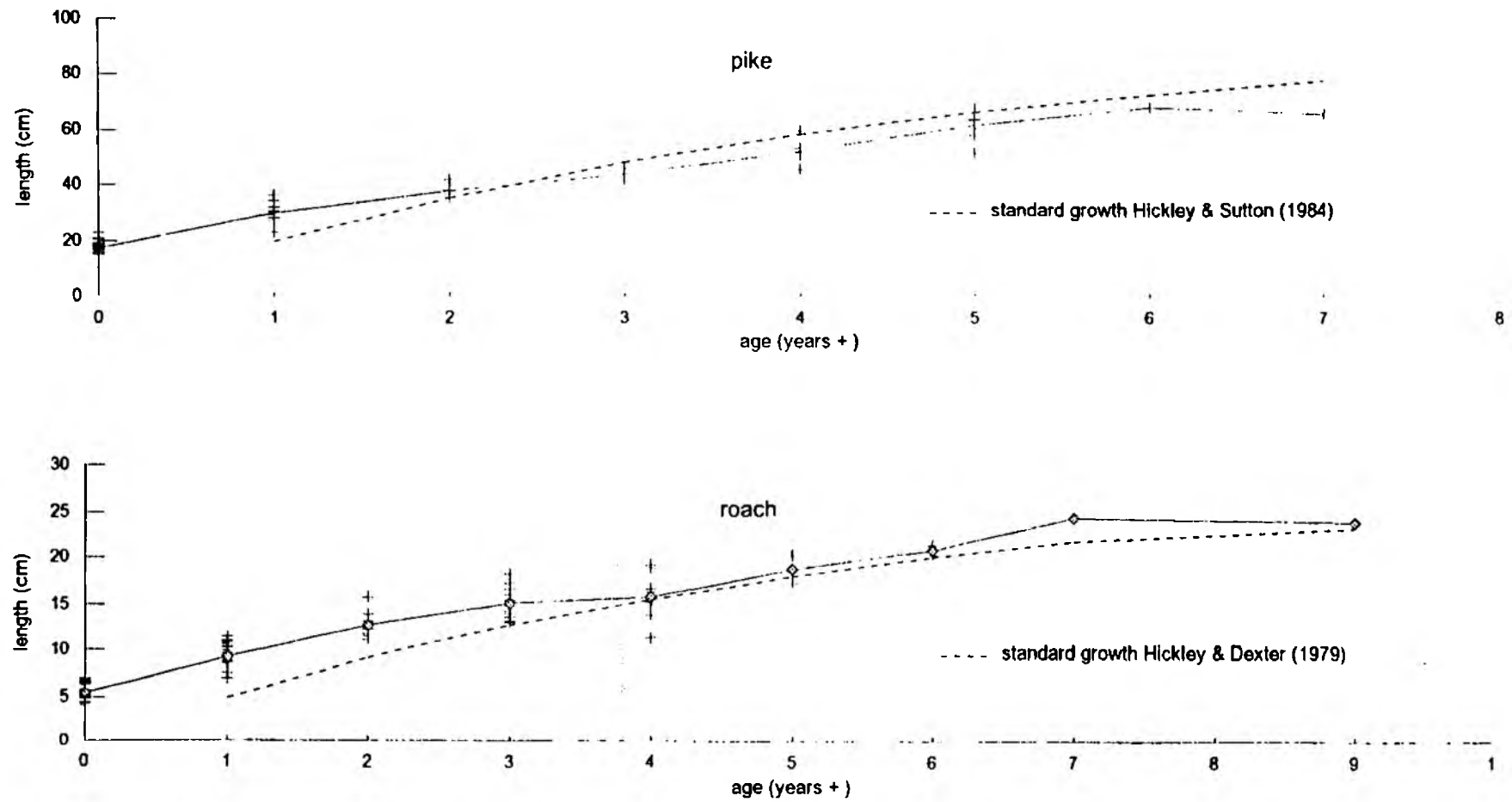


Fig. 8 River Beult: Length for age



4.3 River Teise : Overview of Survey Results

- 4.3.1 The Teise survey recorded thirteen species, of which gudgeon and minnows showed overall numerical predominance. Reasonable numbers of chub and roach were also recorded, with modest numbers of the fast water species brown trout, grayling and dace. Gudgeon were recorded at all five sites, minnows and chub being abundant at four.
- 4.3.2 Dace were recorded to 25.8 cm (272g = 9.6 oz), brown trout to 35.0 cm (512g = 1lb 2 oz), chub to 45.4 cm (1500g = 3 lb 5 oz) and gudgeon to 15.2 cm (45 g 1.6 oz). Juvenile grayling of the 1994 year class were found. Significantly, all of the above fish were recorded at Little Cheveney Farm.
- 4.3.3 Population densities and biomass are shown in table 1. Average population density for the five sample sites was 0.21 fish/m², ranging from 0.03 fish/m² at Horsemonden to 0.55 fish/m² Little Cheveney farm. Mean estimated biomass was 15.54 gm² ranging from 2.74 gm² at Horsmonden to 30.21 gm² at Little Cheveney farm.
- 4.3.4 Species composition in terms of numbers and biomass is shown in figure 9. Whilst the smaller species, minnows and gudgeon, were numerically predominant, the greatest fraction of the biomass was contributed by smaller numbers of the larger species, chub, pike and eels.
- 4.3.5 Length frequencies for gudgeon across all sites are shown in Figure 10. Gudgeon ranged in length between 4.5 and 15.2 cm, the largest fish being caught at Little Cheveney farm. The majority of the gudgeon recorded were either 1+ or 2+ years of age. Length frequencies for chub are shown in figure 11. Chub ranged in length between 12.5 to 45.5 cm, the largest fish being recorded at Den farm. Chub were mostly between 23 and 33 cm in length. The 1989 year class (5+ years) were well represented at three of the four sites. The oldest chub, a fish of 45.4 cm was aged at 13+ years (1981 year class).
- 4.3.6 Lengths for age are shown in figure 12. Values for chub and roach would suggest growth rates above average by comparison with standards as reported by Hickley and Dexter (1979).
- 4.3.7 Visual assessment of fish from the river Teise indicated generally good health. It was noted that some minnows from the two sites on the western arm of the Teise showed high infection with the black spot parasite *Posthodiplostimum* (high infection taken as more than 20 parasites per fish). The parasite was also present in lower numbers on minnows and other species at the other sites on the river.

4.4 River Teise : Discussion

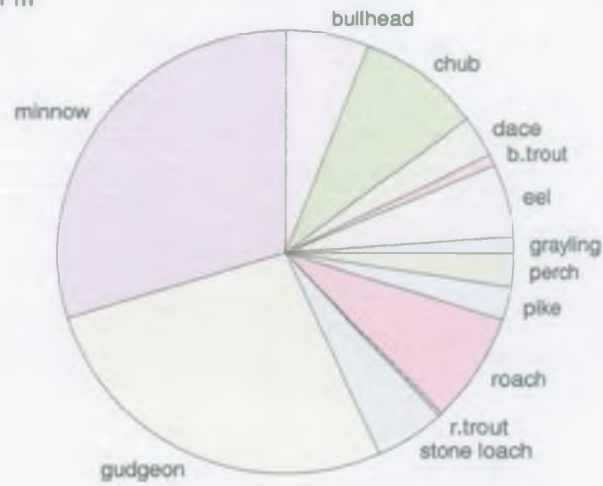
- 4.4.1 The fish community of the river Teise was found to be typical of small rivers with moderate to significant water velocities. The community was characterised by numerical predominance of minnow and gudgeon, with reasonable numbers of chub and roach. Although lower in abundance, the presence of gravel spawners, trout, grayling and dace are indicative of occasional fast flowing shallow gravelly reaches. Pike and perch were

either absent or found in very low numbers at all sites on the Teise. In terms of biomass, Chub contributed the greatest fraction of all species in Teise samples, whereas pike contributed the greatest biomass fraction in the Beult samples.

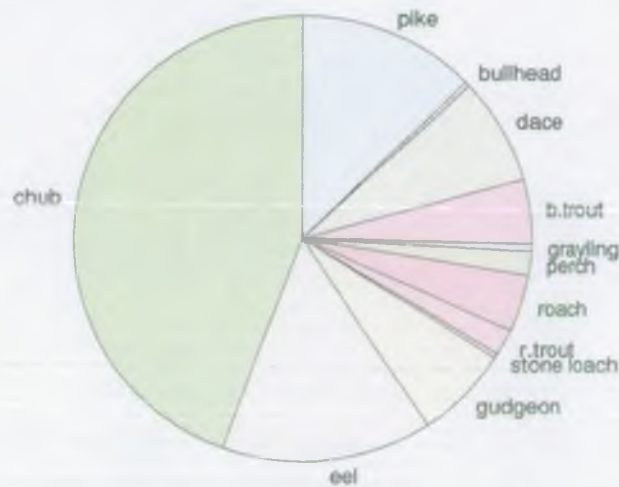
- 4.4.2 Mean estimated biomass of 15.54 gm^{-2} , with range 2.74 gm^{-2} to 30.21 gm^{-2} would suggest populations of variable status, ranging from poor to high density. The river therefore shows potential for high productivity, given stability and good management.
- 4.4.3 Much of the upper Teise and some of the eastern arm of the lower river is controlled by game angling associations. Stocking of trout is carried out in many areas. Despite this, populations at those locations were still predominated by an essentially mixed coarse fish community. Although brown and rainbow trout caught at Little Cheveney farm and Horsmonden may have been artificially stocked, grayling at Little Cheveney farm were 1994 fish and are likely to be naturally recruited stock.
- 4.4.4 The two arms of the River Teise are very different in nature. Two sites on the eastern arm at Den farm and Little Cheveney farm, were both shallow and, for the most part gravelly. Sites on the western arm at Pikefish farm and Bockingfold, were more similar in nature to the River Beult, being regulated by a series of sluices, with deep, slow flowing sections. Populations on the eastern arm of the river when considered in isolation gave biomass of 29.00 gm^{-2} , which is well above average for the river as a whole. The western arm sites gave an average biomass of 7.92 gm^{-2} which was below the average for the river as a whole.
- 4.4.5 Altogether, fish populations in the western arm of the Teise were lower than expected, given the reasonably good water quality. The absence of all but low numbers of juvenile roach and chub may suggest a low level of spawning success in that part of the river. Large variations in water levels and flows were felt to be a contributory factor at Bockingfold, where an electrically powered sluice was found to be fully closed and fully open on two consecutive visits to the site.
- 4.4.6 In conclusion, the presence of good quality mixed angling at Little Cheveney Farm and Den Farm would suggest that the Teise holds considerable potential to support good mixed coarse fisheries with occasional salmonids. Other than at certain sites, the results indicate that biomass levels are high and unlikely to be improved by stocking. As with the Beult however, the results would suggest that the natural diversity and maturity of the fisheries may be constrained in certain areas by unstable water levels. Fishery management objectives might therefore usefully focus on the development of a co-ordinated operating regime for the impounding structures.

Fig. 9 River Teise: Species composition

Number per m²



Biomass gm⁻²



Species	Number m ²	Biomass gm ⁻²
bullhead	1.28	0.05
chub	1.86	6.81
dace	0.64	1.19
b.trout	0.18	0.72
eel	1.12	2.27
grayling	0.26	0.08
perch	0.52	0.27
pike	0.51	1.95
roach	1.73	0.63
r.trout	0.05	0.29
stone loach	1.04	0.05
gudgeon	5.77	1.04
minnow	6.33	0.20

Fig. 10 River Teise: Gudgeon length frequency

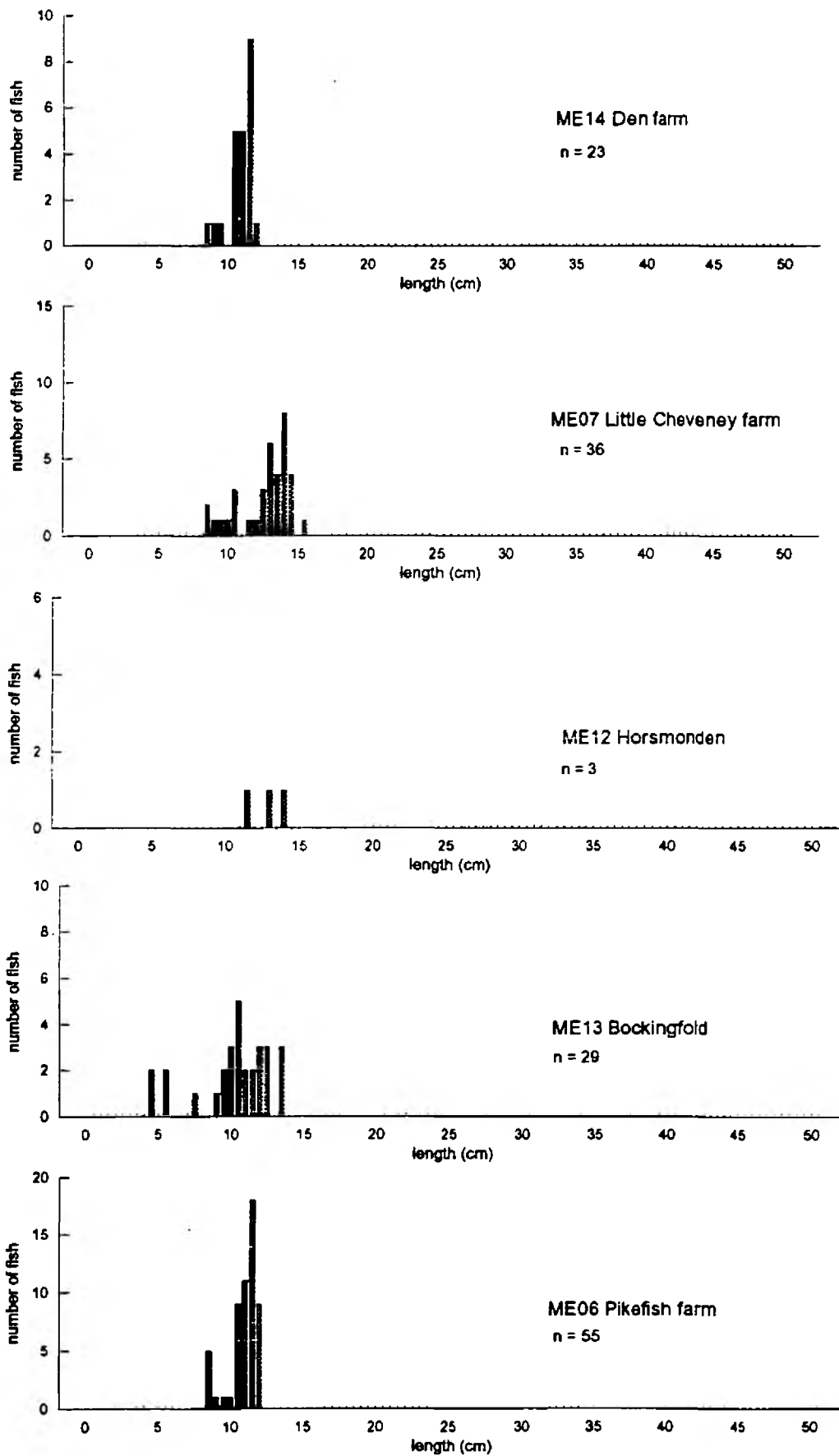


Fig. 11 River Teise: Chub length frequency

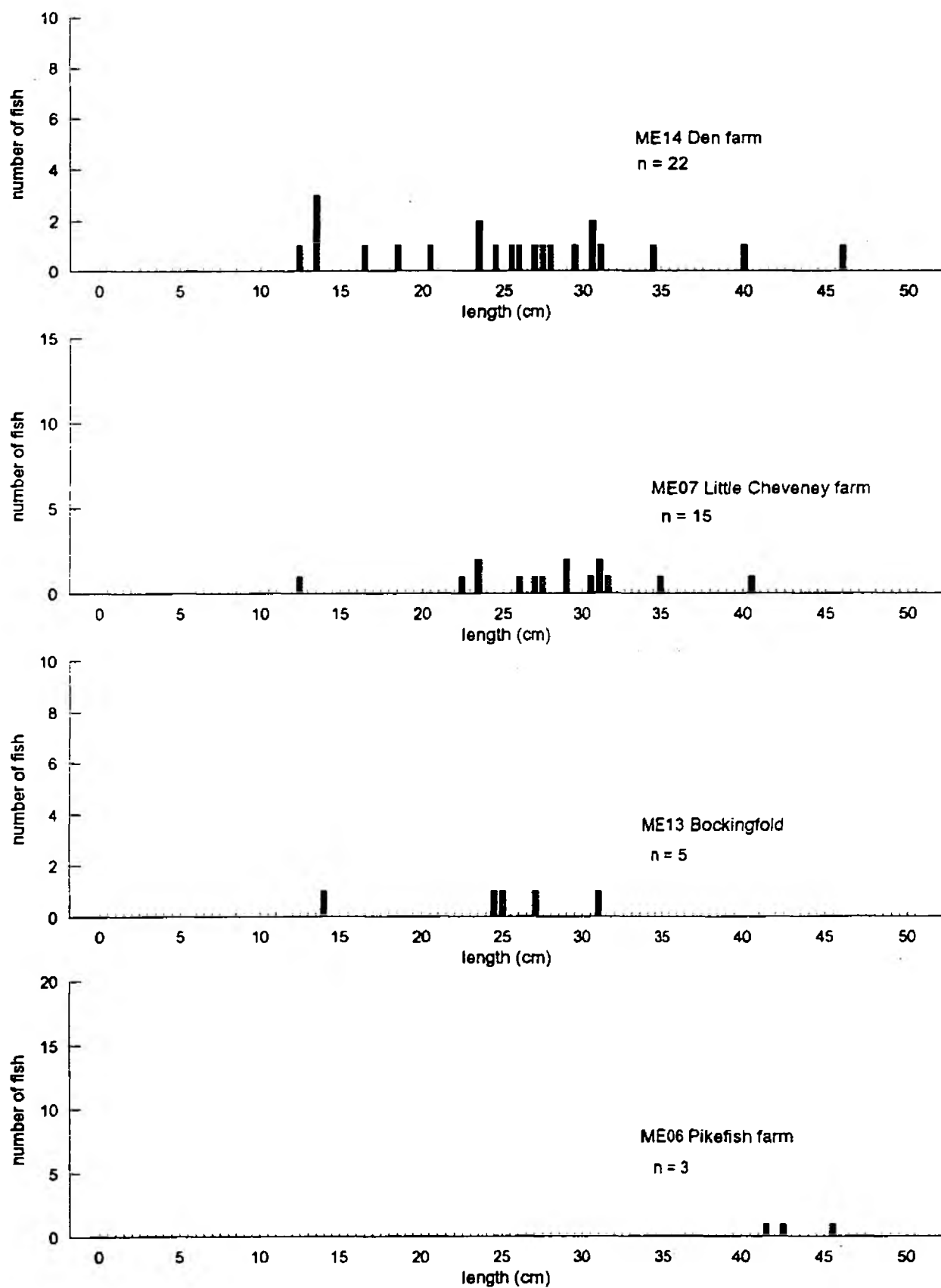


Fig. 12 River Teise: Length for age

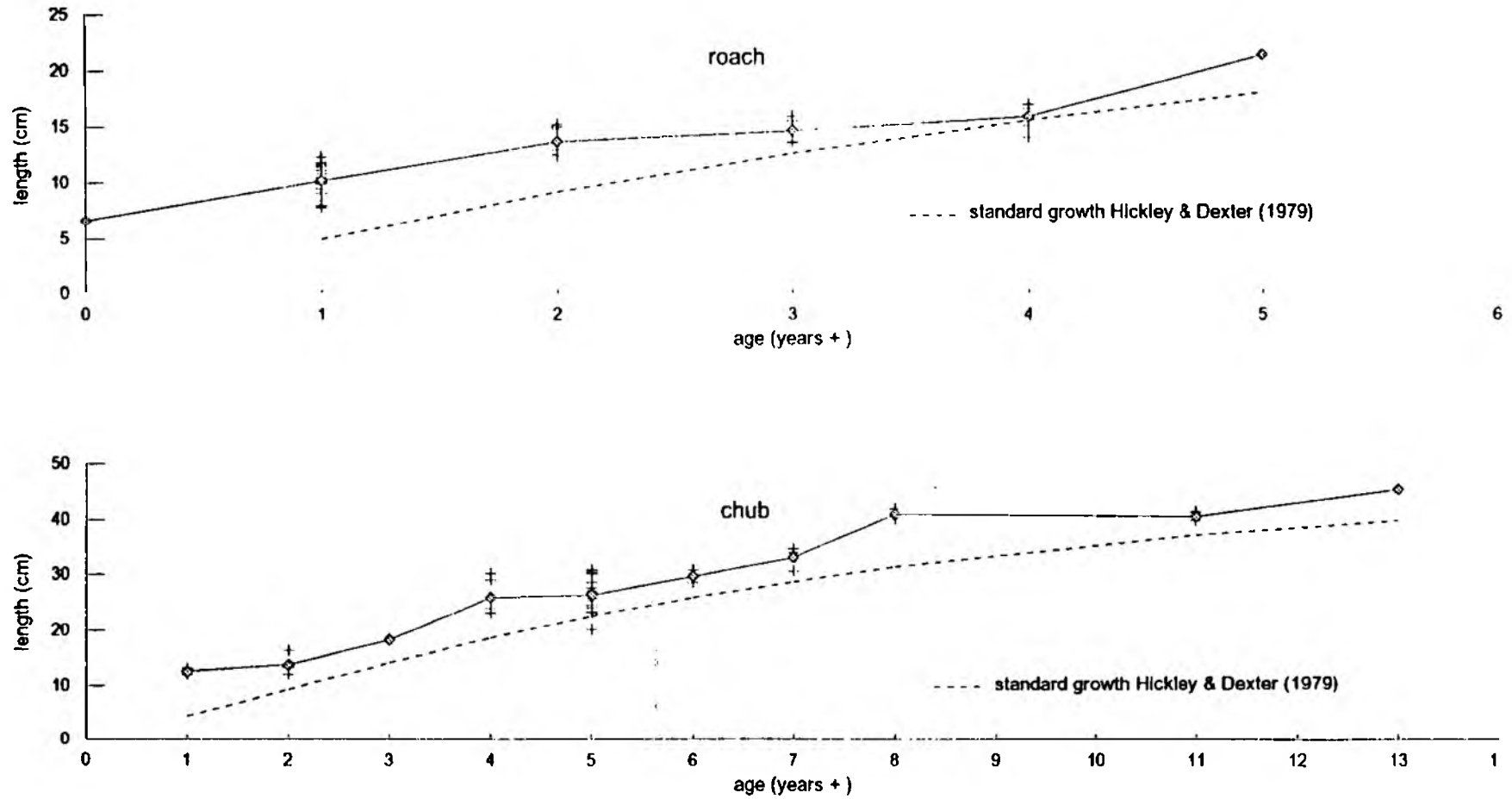
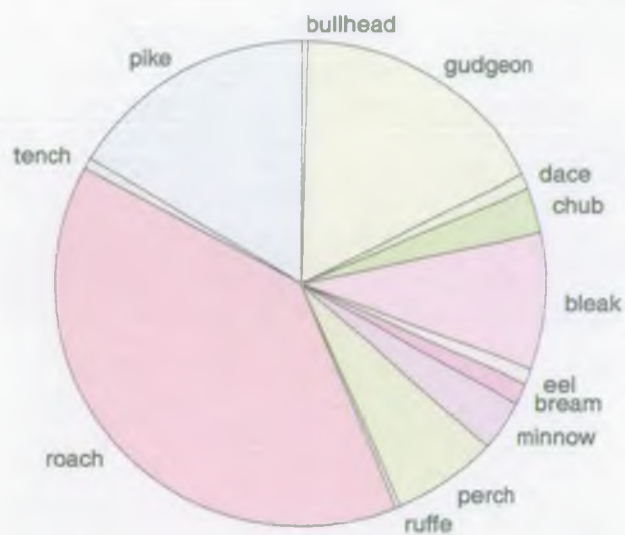


Table 1. Summary of Densities and Biomass

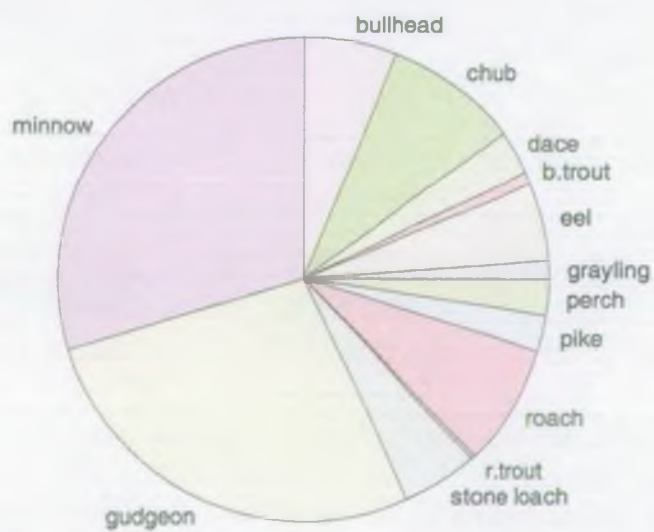
Sites	Numbers m ²	Biomass gm ⁻²
River Beult		
Headcorn	0.156	21.98
Slaney Place	0.103	10.3
Stile Bridge	0.16	11.07
Chainhurst	0.021	2.99
Cheveney Weir	0.027	24.79
Mean	0.094	14.225
Standard deviation	0.060	8.042
River Teise		
Horsmonden	0.026	2.74
Den Farm	0.220	28.94
Little Cheveney Farm	0.550	30.21
Bockingfold	0.096	3.29
Pikefish Farm	0.171	12.54
Mean	0.213	15.543
Standard deviation	0.181	11.980

Fig. 13 Rivers Beult and Teise: Species composition

Beult numbers per m²



Teise numbers per m²



References

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