



**NRA**

*National Rivers Authority  
South Western Region*

## **DEVON AREA REPORT**

### **River Clyst Fisheries Survey 1994**

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ENVIRONMENT AGENCY



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## RIVER CLYST FISHERIES SURVEY 1994

### 1) INTRODUCTION

A survey of the populations of freshwater fish at selected sites in the River Clyst system was carried out in June 1994. The aim of the survey was to assess the distribution and abundance of freshwater fish. The River Clyst has not previously been surveyed, consequently there is no historic data for comparative purposes. The survey was undertaken as part of a triennial programme to monitor the status of the freshwater fish population.

### 2) METHODS

A total of nineteen sites were chosen throughout the catchment. Eighteen sites were surveyed quantitatively, the remaining one, semi-quantitatively. Site selection was based upon physical accessibility, geographical distribution and habitat characteristics. Site distribution and locations are shown in Figure 1. Site details are given in Table 1.

#### 2.1 Site Clustering

Since 1992, routine sampling has included single-run sites in addition to three-run sites. Sites are clustered on a 'target area' basis - one three-run site is associated with up to four single-run sites. A typical 'cluster' will consist of five sites. The three-run site should be fished first, and should be immediately followed by the single-run sites in that cluster. All sites in a cluster should be fished by the same team of people, with each person performing the same task.

#### 2.2 Fieldwork

All sites were fished using a 240 Volt, 500 Watt generator producing pulsed direct current (PDC) via a control box. Fishing was carried out in an upstream direction, using a single anode.

a) **Quantitative Surveys.**

Quantitative surveys were carried out using a combination of triple and single shock sites. All sites were between 50 and 100 metres in length, isolated by stop nets. All salmonids were counted, measured (to the nearest mm) and identified by species. The numbers of other species were noted but not removed during the electric fishing process. A subjective assessment of numbers of each species was made using the following abundance indicator :-

Present	-	1-10
Common	-	11-100
Abundant	-	>100

b) **Semi-quantitative Surveys.**

Semi-quantitative sites were fished for a timed period of twenty minutes. Species were handled in the same way as for quantitative sites.

All fish were returned to the watercourse unharmed.

Population estimates for triple shock sites were obtained according to the methods described by Harding, Heathwood et al (1984). For single shock sites, population estimates were made using the multiplication factor ( $N/C1$ ) - where  $C1$  = catch one and  $N$  = population estimate, derived from the appropriate triple shock site associated with that cluster.

### 3) RESULTS AND DISCUSSION

The results are given in the form of population densities ( $N/100m^2$ ) in Table 2. Data for salmonid species are split into densities for fry (0+) and combined for older fish (1++). The most recent salmonid data is presented in Tables 3 to allow comparison with data collected in future surveys. The presence or absence of non-salmonid is recorded in Table 2.

### 3.1 Salmon (Salmo salar,L.)

Salmon fry and parr were absent from all sites. The absence of juvenile salmon may be attributed to several factors which include; obstacles to migration, lack of suitable spawning/nursery areas and poor water quality.

### 3.2 Trout (Salmo trutta,L.)

Trout fry were absent from the whole of the catchment with the exception of the Rockbeare Stream (sites 12-13). The recorded densities of fry at both these sites was extremely poor ( $>2$  100/m<sup>2</sup>).

Trout parr were absent from six locations (sites 1-3, 9,14 and 17). Parr were present at all other sites in low numbers (range 0.27-1.59 100/m<sup>2</sup>).

The Clyst catchment suffers from seasonal low flows and is situated in an area of intensive farming. Consequently water quality is often poor. Juvenile salmonids tend to be susceptible to reductions in water quality and this might explain the poor abundance and restricted distribution of both fry and parr.

### 3.3 Other Species

Eight species of fish were caught and these are shown in the list below :-

Bullhead, *Cottus gobio*,L.

Dace, *Leuciscus leuciscus*,L.

Eel, *Anguilla anguilla*,L.

Minnow, *Phoxinus phoxinus*,L.

Stone loach, *Noemacheilus barbatulus*,L.

Stickleback, *Gasterosteus aculeatus*,L.

Mullet, *Chelon labrosus*,L.

## Flounder. *Platichthys flesus*, L.

Bullhead, stone loach and minnow were recorded at the majority of sites. Stone loach, eel and minnow were generally more abundant than bullheads. Dace were recorded at sites 5 & 6, Mullet and flounder were present at sites 7 & 8.

### 4) CONCLUSIONS

- i) Trout fry distribution is severely restricted. Fry were present in low densities at just two sites.
- ii) Trout parr were present at most sites in the catchment.
- iii) Trout parr abundance was generally poor.
- iv) Salmon were absent from the catchment.
- v) The Clyst supports a varied coarse fish population of eight species.

### 5) RECOMMENDATIONS

- i) Further investigative work should be considered to identify the reasons behind the restricted distribution and abundance of trout.
- ii) Surveys on a more regular basis will facilitate a better understanding of the state of fish stocks in the Clyst.

### REFERENCES

HARDING, A.W. HEATHWOOD, R.G HUNT and K.L.Q. READ, 1984. The Estimation of Animal Population Size by the Removal Method. The Journal of the Royal Statistical Society Series C (Applied Statistics). Volume 33, No2, 1984.

**APPENDIX A.**

**TABLE 1 - SITE DETAIL SHEET**

**TABLE 2 - SUMMARY SHEET**

**TABLE 3 - TROUT DENSITIES 1994**

**FIGURE 1 - SITE DISTRIBUTION MAP**

TABLE 1

RIVER CLYST FISH SURVEY 1994 - SITE DETAIL SHEET

<u>WATERCOURSE</u>	<u>SITE No</u>	<u>SITENAME</u>	<u>NGR</u>	<u>DATE</u>	<u>LENGTH (m)</u>	<u>AVERAGE WIDTH</u>	<u>WETTED AREA (m<sup>2</sup>)</u>
CLYST	1	CLYSTHYDON	ST 036-016	06-Jun	87	1.77	153.99
	2	CLYSTSTLAWRENCE	SY 027-999	07-Jun	86	2.13	183.18
	3	ASHCLYSTFARM	SY 012-983	06-Jun	81	3.54	286.74
	4	BROADCLYST	SX 984-976	07-Jun	88	2.57	226.16
	5	WESTCLYST	SX 975-957	10-Jun	82	4.35	356.70
	6	CLYST HONITON	SX 985-935	09-Jun	106	5.87	622.22
	7	CLYST ST. MARY	SX 973-915	13-Jun	97	5.40	523.80
	7a	NEWCOURT BARTON	SX 968-901*	21-Jun	*	*	*
POLTIMORE STREAM	8	POLTIMORE HOUSE	SX 972-964	07-Jun	85	1.42	120.70
CRANNY BROOK	9	BARNSHAYES	SY 037-971	08-Jun	85	1.88	159.80
	10	CRANNAFORD	ST 013-959	08-Jun	75	2.32	174.00
	11	WISHFORD	SX 991-952	10-Jun	102	2.29	233.58
ROCKBEARE STREA	12	FORDFARM BRIDGE	SY 030-946	08-Jun	76	3.62	275.12
	13	YOUNGHAYES	SY 008-954	09-Jun	95	2.97	282.15
PINN BROOK	14	MOSSHAYNE	SX 983-944	13-Jun	81	1.37	110.97
FARINGDON STREAM	15	B3184 ROADBRIDGE	SY 015-928	15-Jun	67	3.76	251.92
	16	DYMONDS FARM	SX 986-927	15-Jun	82	3.06	250.92
GRINDLE BROOK	17	GREENDALE	SY 002-901	10-Jun	87	2.97	258.39
	18	A376 DUAL CARRIAGEWAY	SX 975-904	15-Jun	81	4.55	368.55

KEY

\* = Dip Site



**TABLE 2****RIVER CLYST FISH SURVEY 1994 - SUMMARY SHEET**

<u>WATERCOURSE</u>	<u>SITENAME</u>	<u>NGR</u>
CLYST	CLYSTHYDON	ST 036-016
	CLYSTSTLAWRENCE	SY 027-999
	ASHCLYSTFARM	SY 012-983
	BROADCLYST	SX 984-976
	WESTCLYST	SX 975-957
	CLYST HONITON	SX 985-935
	CLYST ST. MARY	SX 973-915
NEWCOURT BARTON	SX 968-901*	
POLTIMORE STREAM	POLTIMORE HOUSE	SX 972-964
CRANNY BROOK	BARNSHAYES	SY 037-971
	CRANNAFORD	ST 013-959
	WISHFORD	SX 991-952
ROCKBEARE STREAM	FORDFARM BRIDGE	SY 030-946
	YOUNGHAYES	SY 008-954
PINN BROOK	MOSSHAYNE	SX 983-944
FARINGDON STREAM	B3184 ROADBRIDGE	SY 015-928
	DYMONDS FARM	SX 986-927
GRINDLE BROOK	GREENDALE	SY 002-901
	A376 DUAL CARRIAGEWAY	SX 975-904

**KEY**

\* = Dip Site

# = Species Present

@ = Species Absent

TROUT DENSITY (100m2)

FRY

PARR

OTHER SPECIES

0.00	0.00	E,SL,SB,MW,
0.00	0.00	B,E,SL,MW,
0.00	1.40	B,E,SL,MW,
0.00	1.33	E,SL,MW
0.00	0.84	B,E,SL,MW,DA,
0.00	1.13	B,E,SL,MW,DA,
0.00	0.38	B,E,SL,MW,SB,FL,MT
@	@	E,MT,
0.00	0.83	B,E,SL,MW,SB
0.00	0.00	E,SL,MW,SB
0.00	0.58	E,SL,MW,
0.00	0.86	B,E,SL,MW
0.73	0.73	E,MW,
1.77	2.48	B,E,SL,MW
0.00	0.00	E,SL,MW,SB
0.00	1.59	B,E,SL,MW
0.00	0.80	B,E,SL,MW
0.00	0.00	B,E,SL,MW
0.00	0.27	B,E,SL,MW

SPECIES KEY

B = Bullhead

E = Eel

SL = Stone Loach

DA = Dace

MW = Minnow

FL = Flounder

MT = Mullet

SB = Stickleback

### TABLE 3

## RIVER CLYST FISH SURVEY '1994 - TROUT DENSITIES

<u>WATERCOURSE</u>	<u>SITE No.</u>	<u>SITENAME</u>
CLYST	1	CLYSTHYDON
	2	CLYSTSTLAWRENCE
	3	ASHCLYSTFARM
	4	BROADCLYST
	5	WESTCLYST
	6	CLYST HONITON
	7	CLYST ST. MARY
	7A	NEWCOURT BARTON
POLTIMORE STREAM	8	POLTIMORE HOUSE
CRANNY BROOK	9	BARNSHAYES
	10	CRANNAFORD
	11	WISHFORD
ROCKBEARE STREAM	12	FORDFARM BRIDGE
	13	YOUNGHAYES
PINN BROOK	14	MOSSHAYNE
FARINGDON STREAM	15	B3184 ROADBRIDGE
	16	DYMONDS FARM
GRINDLE BROOK	17	GREENDALE
	18	A376 DUAL CARRIAGEWAY

\* = Dip Site

@ = Species Absent

# = Species Present

<u>NGR</u>	<u>TROUT FRY (0+)</u> <u>1994</u>	<u>TROUT PARR (1+) AND OLDER</u> <u>1994</u>
ST 036-016	0.00	0.00
SY 027-999	0.00	0.00
SY 012-983	0.00	0.00
SX 984-976	0.00	1.33
SX 975-957	0.00	0.84
SX 985-935	0.00	1.13
SX 973-915	0.00	0.38
SX 968-901 *	@	@
SX 972-964	0.00	0.83
SY 037-971	0.00	0.00
ST 013-959	0.00	0.58
SX 991-952	0.00	0.86
SY 030-946	0.73	0.73
SY 008-954	1.77	2.48
SX 983-944	0.00	0.00
SY 015-928	0.00	1.59
SX 986-927	0.00	0.80
SY 002-901	0.00	0.00
SX 975-904	0.00	0.27

RIVER CLYST ELECTRIC FISHING SITES 1994

Figure 1

