ENVIRONMENT AGENCY
NORTH WEST REGION

River Hodder Juvenile Fish Stock Assessment 1998

With particular reference to salmonids

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EA/NW/C/FTR/00/03

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SUMMARY

A total of 37 sites was electrofished throughout the Hodder catchment between 22nd August 1998 and 22nd September 1998. These sites included 35 that had been previously sampled in the last comprehensive survey of the catchment, in 1993. No sites were surveyed on the middle and lower reaches of the main River Hodder, downstream of the Dunsop confluence.

The electrofishing procedure consisted of a single upstream pass at each site. The fish densities (expressed as numbers per $100m^2$) calculated from this method and presented in this report are semi-quantitative, or minimum estimates and therefore do not represent the complete juvenile salmonid production for these sites.

Salmon fry production was low throughout the catchment. Salmon fry were found at low densities in Losterdale Beck, lower Langden Brook, Croasdale Beck, Easington Beck and in the upper main River Hodder between the confluences with Croasdale and Birkett Becks. In comparison with previous surveys, salmon fry production in the Hodder in 1998 was very low.

Salmon parr production was relatively low throughout the catchment. Salmon parr were found at low densities in the lower River Loud, Chipping Brook, Hodder Bank Beck, River Dunsop, Foulscales, Easington and Croasdale Becks and in the main River Hodder between the confluences with Croasdale Beck and the River Dunsop. In comparison with previous surveys, salmon parr production in 1998 was relatively low.

Trout fry production in 1998 was comparatively high, with the most productive areas being. Hareden, Losterdale and Phynis Brooks. In comparison with previous surveys, trout fry production in 1998 was relatively high.

Trout parr production in 1998 was comparatively high, with the most productive areas being Losterdale and Phynis Brooks. In comparison with previous surveys, trout parr production in the Hodder in 1998 was relatively high.

The densities of juvenile salmon presented in this survey represent the production from natural spawning, since only very limited stocking of hatchery-reared salmon fry was carried out prior to the survey.

CONTENTS

1. INTRODUCTION

This report presents data collected for the River Hodder as part of the routine 5-year rolling programme of stock assessment surveys carried out by the Fisheries Management Science and Recreation Team, Environment Agency, North West Region, Central Area. The aim of this survey was to assess the distribution and abundance of juvenile salmonids within the Hodder catchment in 1998.

The River Hodder is one of the largest tributaries of the River Ribble and is presently the most important tributary in terms of salmonid production. The River Hodder rises on White Hill in the Forest of Bowland (NGR SD 682 603) at an altitude of 450m. The Hodder catchment drains the eastern side of the Bowland Fells with the main river being approximately 38km in length from source to its confluence with the Ribble.

The underlying geology of the Hodder catchment is dominated in the upper reaches by an extensive area of Millstone Grit. Further down the catchment the river crosses a band of Permo-Triassic Sandstone and shales, before the confluence with the Ribble. The superficial geology of the catchment is a mixture of lowland peat, alluvium and boulder clay.

Land use in the Hodder catchment is predominantly agricultural. The upper reaches of the catchment are dominated by moorland that provides rough grazing pasture for sheep and also grouse shooting. Further down the catchment the land changes to improved pasture used for sheep and cattle grazing.

Water quality in the study area is generally good (River Ecosystem Classification 1 or 2). Water is abstracted for Public Water Supply from the Langden system, the Dunsop system and from Stocks Reservoir. These abstractions have localised impacts, including low flows on the Rivers Brennand and Whitendale and the obstruction created by Stocks Reservoir, preventing access for migratory salmonids to the upper Hodder.

The entire Hodder catchment is classed as an Area of Outstanding Natural Beauty (AONB). A Site of Special Scientific Interest (SSSI) exists on the River Hodder between Higher Hodder Bridge and Lower Hodder Bridge. There are also four non-river SSSI's within the catchment and the majority of the main River Hodder plus some tributaries are classed as County Biological Heritage Sites (CBHS).

The River Hodder supports recreational fisheries for salmon, sea trout, brown trout and grayling downstream of Stocks Reservoir. Stocks Reservoir is itself operated as a put and take fly fishery for both rainbow and brown trout. There is no significant coarse fishery in the Hodder system although chub and dace are known to be present in the lower river.

2. METHODS

A total of 37 survey sites was electrofished on the main River Hodder and its tributaries, including 35 sites that had been sampled in the last survey of the catchment, in 1993. Sites were selected in shallow, wadeable areas to be representative of the available habitat, except on the main river where shallow riffle habitat was selected.

The survey commenced on 22nd August 1998 and was completed on 22nd September 1998. All sites were sampled using pulsed DC electrofishing, powered by a 2.5 KVA Honda generator. All sites were electrofished once in an upstream direction using 1 anode for sites less than 4m wide, or 2 anodes for sites greater than 4m wide. Sites ranged in length from 25m to 50m and the total area surveyed at each site ranged from 54m^2 to 550m^2.

All salmonids, eels, lampreys and any major coarse species such as chub were collected for measurement. The fork length of salmonids and major coarse species was measured to the nearest 0.5cm below. In addition, the total wet weight of eels and each major coarse species was measured. Salmonid age classes were identified as 0+ (fry) or greater than 0+ (parr) based on the length frequency method. Minimum densities per 100m^2 were calculated for each age class of each species caught (the number of fish caught divided by the area fished and multiplied by 100). Minor coarse species such as bullheads, minnows and stoneloach were not collected but their approximate numbers were estimated as tens, hundreds or thousands per 100m^2.

The fish data and physical habitat data were used to classify each site according to the National Fisheries Classification Scheme (NFCS). The NFCS compares the species/age class abundance data for each site with a national database of fish abundance, allocating each site to one of five abundance categories that each represents one fifth of the national data set for that species/age class. For example, if the density of salmon fry for a particular site falls within the top fifth of salmon fry densities for national sites, then it will be classified as category A for salmon fry; a density in the bottom fifth will classify the site as category E. Where the species/age class is absent, the site is classified as category F (absent).

The actual densities of each species and age class that correspond to the NFCS grades are defined in Table 1 below.

Table 1 The densities (number per 100m^2) of juvenile salmon and trout and corresponding NFCS grades.

NFCS Grade (Level 1 classification)	Salmon Densities (no./100m^2)		Trout Densities (no./100m^2)	
	Fry (0+)	Parr (>0+)	Fry (0+)	Parr (>0+)
A	>86	>19	>38	>21
B	45-86	10-19	17-38	12-21
C	23-45	5-10	8-17	5-12
D	9-23	3-5	3-8	2-5
E	0-9	0-3	0-3	0-2
F	0	0	0	0

3. RESULTS

3.1 Overview

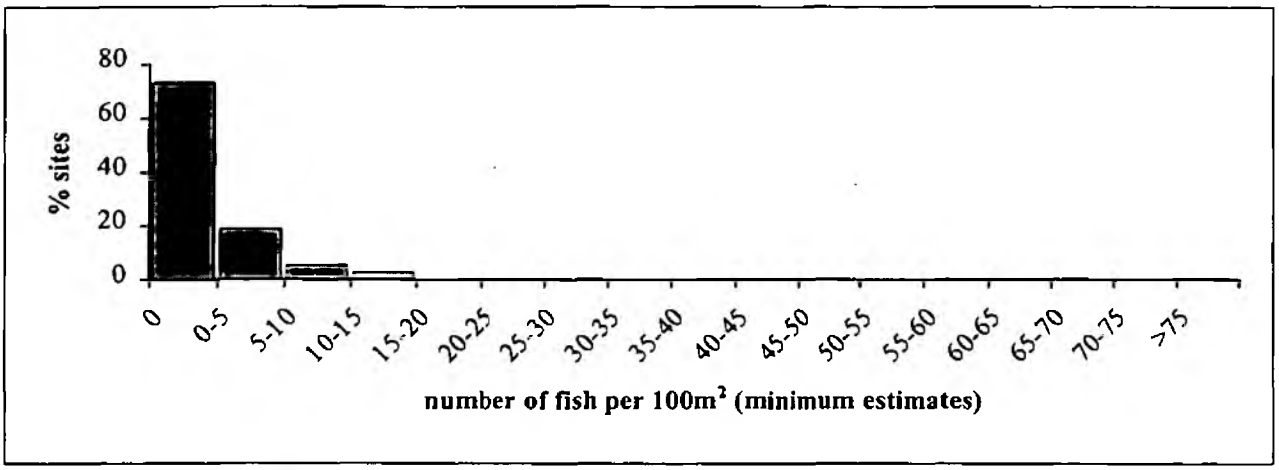
Eight species of fish were recorded in the 1998 survey, namely; trout (*Salmo trutta*), salmon (*Salmo salar*), eel (*Anguilla anguilla*), bullhead (*Cottus gobio*), minnow (*Phoxinus phoxinus*), stoneloach (*Barbatula barbatula*), stickleback (*Gasterosteus aculeatus*) and chub (*Leuciscus cephalus*). Grayling (*Thymallus thymallus*) and dace (*Leuciscus leuciscus*) are also known to be present in the catchment but none were caught in this survey. Rainbow trout (*Oncorhynchus mykiss*) are also occasionally present in the Hodder as a consequence of escape from put-and-take fisheries. However these are unlikely to form a self-sustaining population and none were found in the 1998 survey.

Juvenile trout were the most abundant species, being found at 35 (95%) of the 37 survey sites. Juvenile salmon were found at 17 (46%) of the survey sites.

3.2 Juvenile Salmon Densities 1998

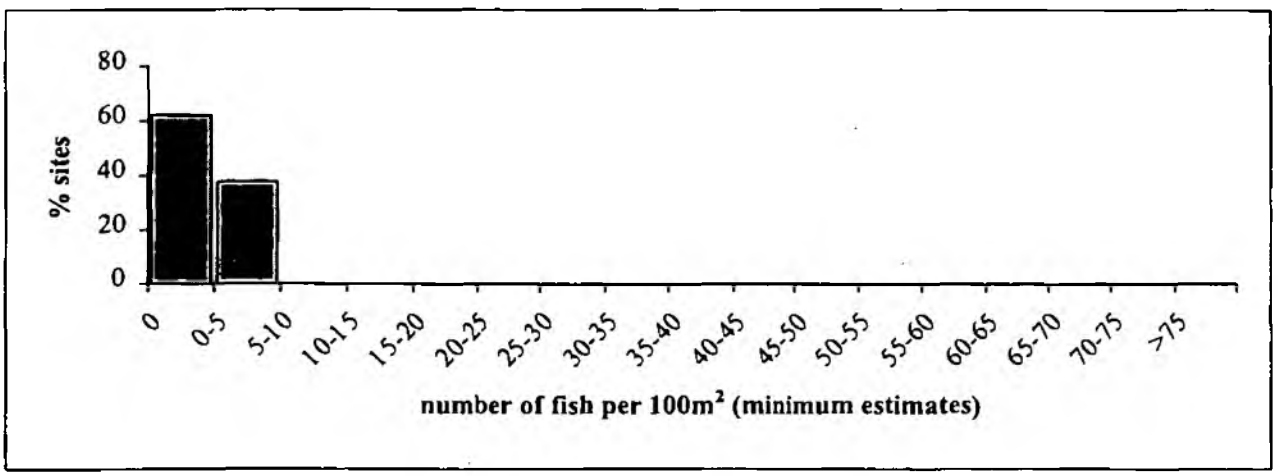
Salmon fry densities were particularly low in the 1998 survey. Fry were absent from 27 (73%) of the 37 survey sites and were found in low densities (less than 5 per $100m^2$) at a further 7 sites (19%). Densities of salmon fry did not exceed 15 fry per $100m^2$ in the 1998 survey.

Figure 1 The distribution of salmon fry densities (minimum estimates) for 37 sites surveyed in the Hodder catchment in 1998.



Salmon parr densities were also particularly low in 1998 with parr being absent from 23 (62%) of the 37 survey sites. Salmon parr densities did not exceed 5 parr per $100m^2$ at the remaining 14 (38%) survey sites in 1998.

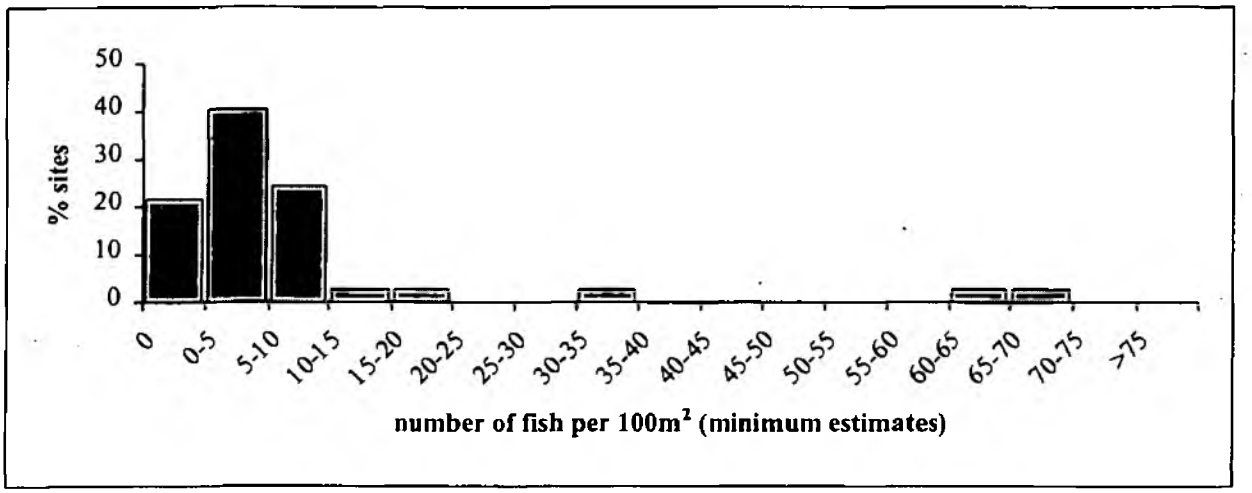
Figure 2 The distribution of salmon parr densities (minimum estimates) for 37 sites surveyed in the Hodder catchment in 1998.



3.3 Juvenile Trout Densities 1998

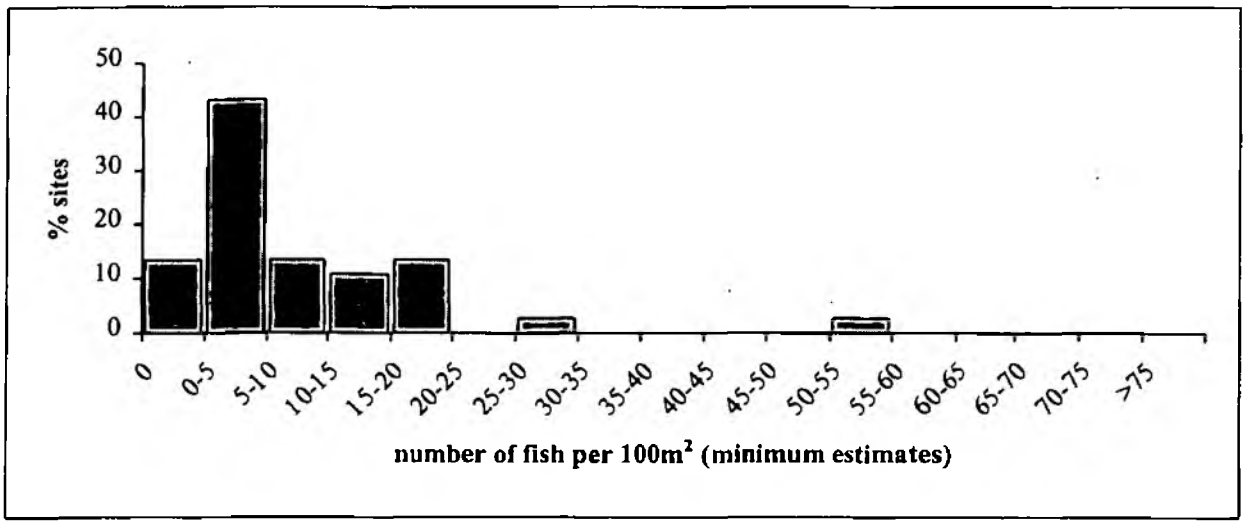
A wide range of trout fry densities was recorded in the 1998 survey. Trout fry were absent from 8 (22%) of the 37 survey sites and densities of less than 10 fry per 100m^2 were recorded at 24 (65%) of the survey sites. Relatively high densities of trout fry (in excess of 60 fry per 100m^2) were recorded at 2 (5%) of the survey sites in 1998.

Figure 3 The distribution of trout fry densities (minimum estimates) for 37 sites surveyed in the Hodder catchment in 1998.



A wide range of trout parr densities was recorded in the 1998 survey. Trout parr were absent from 5 (14%) of the 37 survey sites. Densities of up to 20 parr per 100m^2 were recorded at 30 (81%) of survey sites. Higher densities in excess of 25 parr per 100m^2 were recorded at 2 (5%) of the 37 survey sites in 1998.

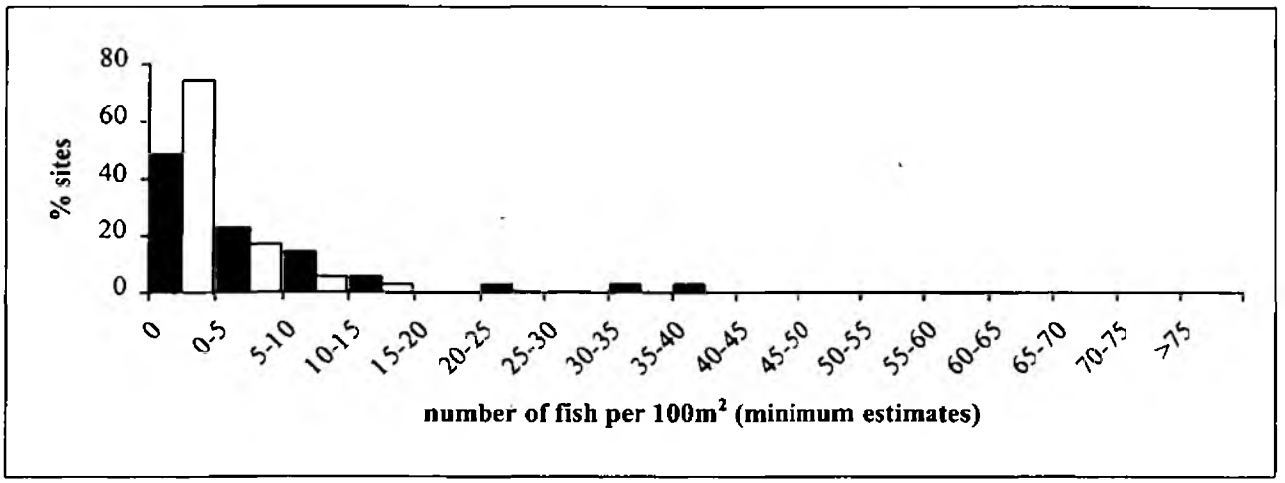
Figure 4 The distribution of trout parr densities (minimum estimates) for 37 sites surveyed in the Hodder catchment in 1998.



3.4 Comparison with 1993 Survey Results

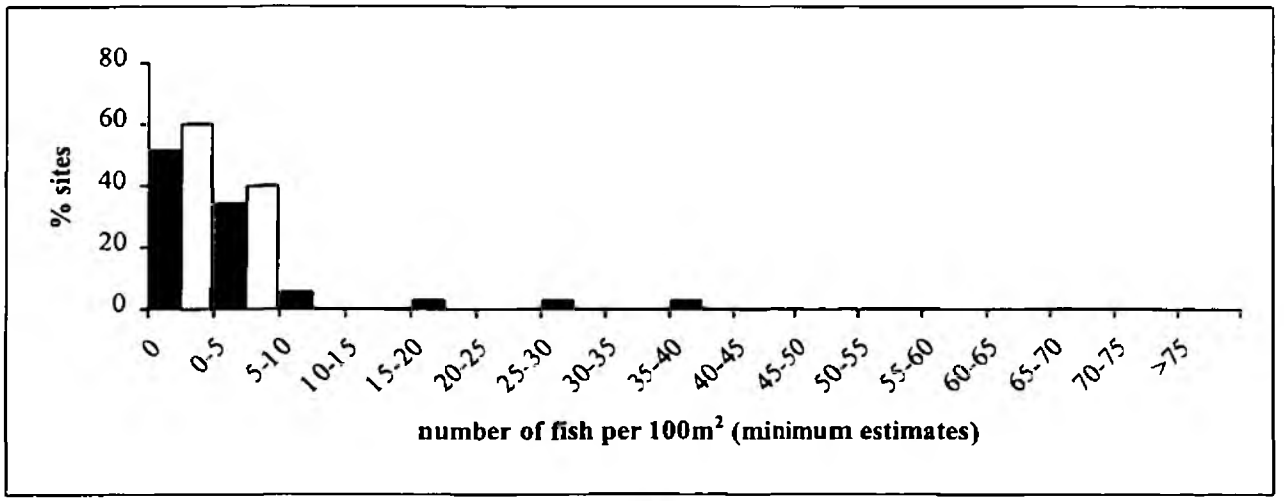
Salmon fry densities at the 35 repeated sites were markedly lower in 1998 than they had been in 1993. Fry were absent from 25 (71%) of the 35 repeated sites in 1998, compared with 17 (49%) of those 35 sites in 1993. Salmon fry densities at the remaining 10 sites (29%) in the 1998 survey, did not exceed 15 fry per $100m^2$. In contrast, in the 1993 survey, 15 sites (43%) recorded fry densities of up to 15 fry per $100m^2$. Densities in excess of 15 fry per $100m^2$ were not recorded in the 1998 survey, but were recorded at 3 sites (9%) in the 1993 survey.

Figure 5 The distribution of salmon fry densities (minimum estimates) for 35 sites in the Hodder catchment surveyed in both 1993 and 1998.



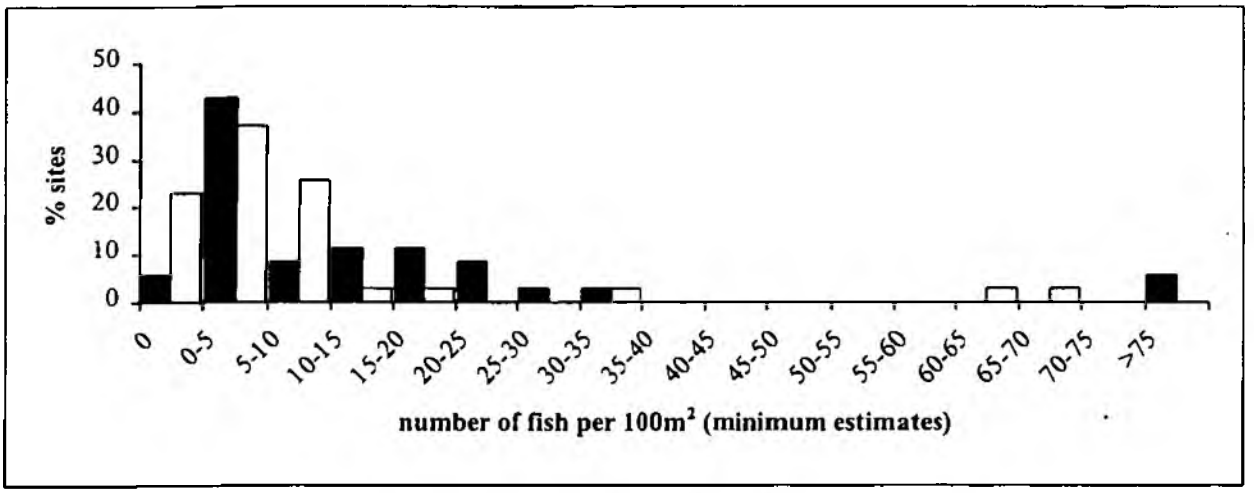
Salmon parr densities were also markedly lower in 1998 than in 1993 at those 35 sites that were surveyed in both years. Parr were absent from 21 sites (60%) in 1998, compared with 18 sites (51%) in 1993. Densities of up to 5 parr per 100 m^2 were recorded at the remaining 14 sites (40%) in the 1998 survey. In contrast, 12 sites (34%) recorded parr densities in this range in the 1993 survey. Salmon parr densities in excess of 5 parr per $100m^2$ were not recorded in the 1998 survey but were found at 5 sites (14%) in the 1993 survey.

Figure 6 The distribution of salmon parr densities (minimum estimates) for 35 sites in the Hodder catchment surveyed in both 1993 and 1998.



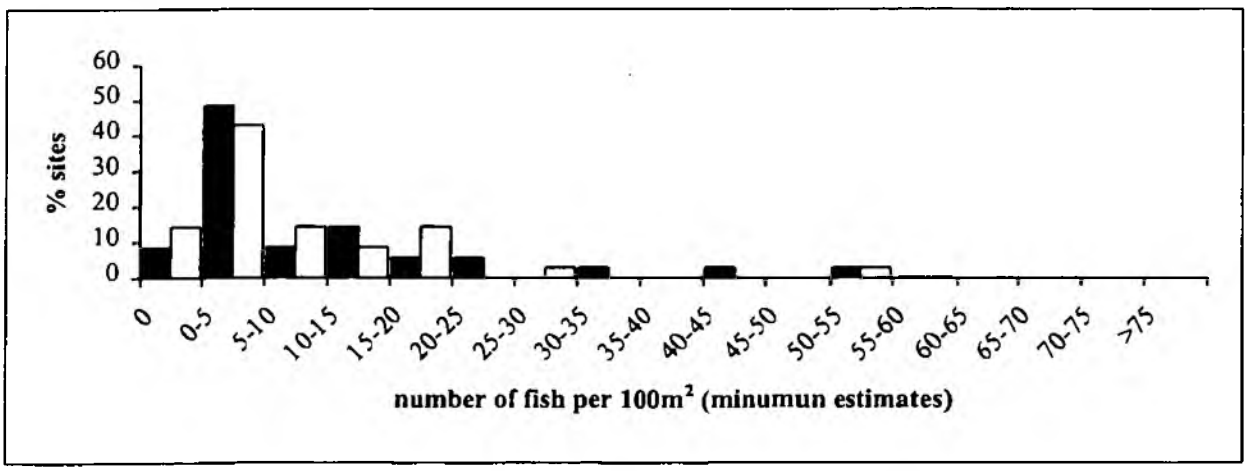
Densities of trout fry recorded at those 35 repeated sites in the 1998 and 1993 surveys were similar, although the percentage of sites from which fry were absent was higher in 1998 (23%) than in 1993 (6%). Fry densities of up to 10 fry per $100m^2$ were slightly more common in 1998 (63% of sites) than in 1993 (52% of sites). However, densities of 10 to 20 fry per $100m^2$ were markedly more common in 1993 (23% of sites) than in 1998 (6% of sites). In 1998, no fry densities in excess of 70 fry per $100m^2$ were recorded, while in 1993, particularly high densities in excess of 75 fry per $100m^2$ were recorded at 2 (6%) of the 35 repeated sites.

Figure 7 The distribution of trout fry densities (minimum estimates) for 35 sites in the Hodder catchment surveyed in both 1993 and 1998.



The distributions of trout parr densities at the 35 repeated sites were similar in both 1998 and 1993, although parr were absent from more sites in 1998 (14% of sites) than they had been in 1993 (9% of sites). The percentages of sites recording parr densities of up to 10 parr per $100m^2$ were similar in both surveys (57% of sites). Densities between 10 and 20 parr per $100m^2$ were slightly more common in 1998 (23% of sites) than in 1993 (20% of sites).

Figure 8 The distribution of trout parr densities (minimum estimates) for 35 sites in the Hodder catchment surveyed in both 1993 and 1998.



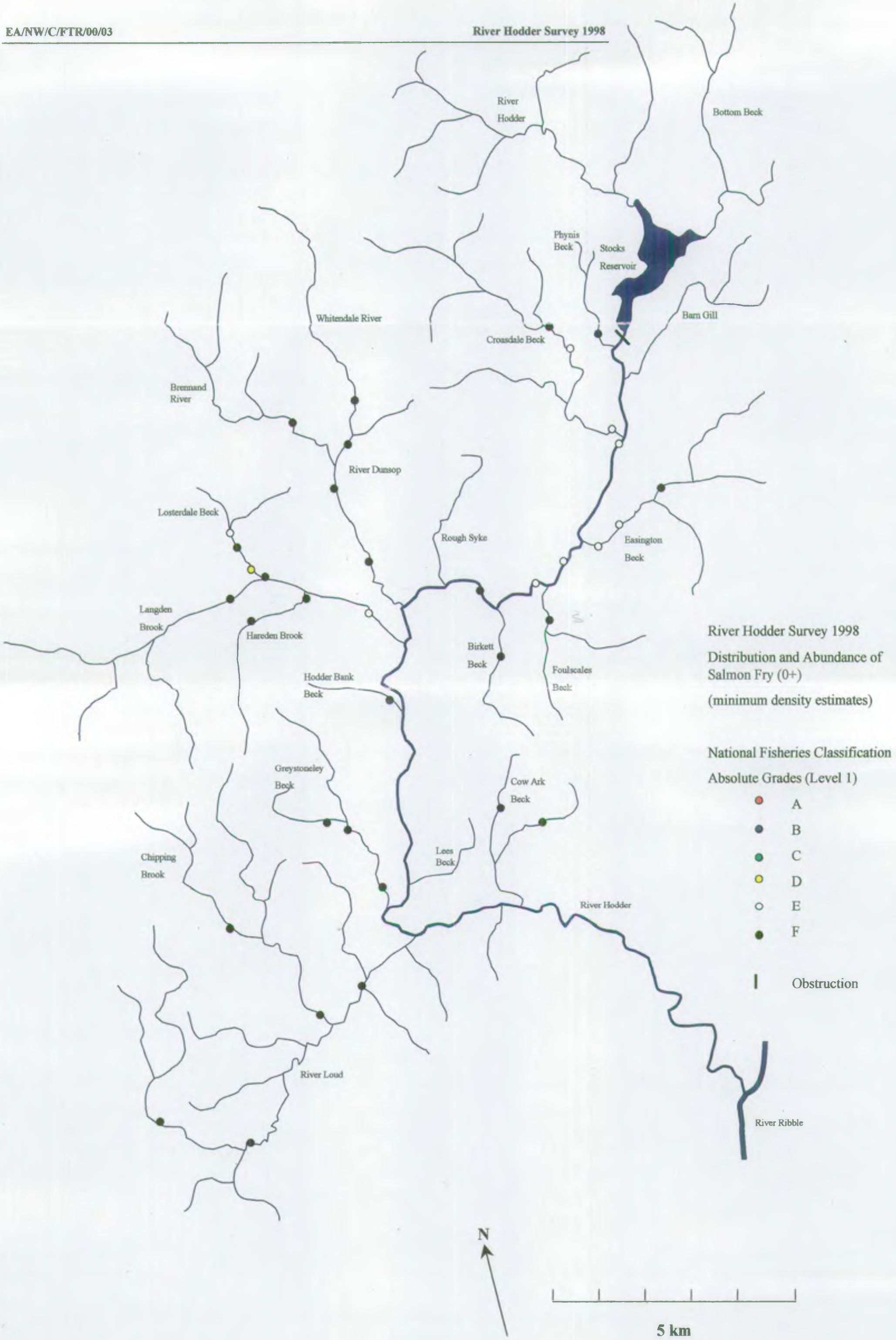
3.5 National Fisheries Classification Scheme

The distribution of salmon fry in 1998 was relatively restricted and the densities at which salmon fry were present were relatively low (NFCS grade E). Salmon fry were found in Croasdale Beck, Easington Beck, Losterdale and Langden Becks and also in the main river Hodder between the Croasdale and Birkett confluences. Fry were absent from survey sites on the Loud and Dunsop systems and also from the smaller tributaries including Cow Ark Beck, Greystoneley Beck, Hodder Bank Beck, Birkett Beck, Foulscales Beck and Phynis Beck (NFCS grade F). There are no records of salmon fry stocking in 1998 that could potentially influence these results. The densities reported here are therefore assumed to be the result of natural production from spawning in winter '97/'98.

Salmon parr were slightly more widespread than salmon fry in 1998, although the densities at which they were found were low (NFCS grade E). Parr were found in Croasdale, Easington and Foulscales Becks on the upper Hodder, the River Dunsop, Hodder Bank Beck, the River Loud and Chipping Brook. Salmon parr were also present at the main river sites located between the Croasdale and Rough Syke confluences. Smaller tributary survey sites including those on Cow Ark Beck, Greystoneley Beck, Birkett Beck and Phynis Beck did not contain salmon parr in 1998 (NFCS grade F). Salmon parr were also absent from the Langden system. Limited stocking of eyed salmon ova was undertaken on Easington Beck in January 1997. This could have potentially influenced the density of salmon parr found in this stream in the 1998 survey. Parr densities through the rest of the Hodder system are therefore likely to have arisen from natural spawning in winter '96/'97.

Trout fry were found throughout the Hodder system in 1998, at a wide range of densities. The most productive areas for trout fry included Losterdale and Hareden Becks on the Langden system (NFCS grades A to C), the Rivers Brennand and Whitendale on the Dunsop system (NFCS grade C), Greystoneley Beck (NFCS grade C) and Phynis Beck (NFCS grade A). Trout fry were found at low densities in the River Loud system, Easington and Croasdale Becks (NFCS grades E and F) and were absent from the main river sites on the upper Hodder (NFCS grade F).
There are no records of trout fry stocking in the Hodder system in the summer of 1998. The densities reported here are therefore assumed to result from natural trout spawning in winter '97/'98.

Trout parr were widespread throughout the Hodder system in 1998 and were found at a wide range of densities. Losterdale Beck was the most productive stream for trout parr (NFCS grades A to C). Least productive areas included Croasdale Beck, Easington Beck and sites on the main River Hodder.
Several areas were affected by stocking of trout fry in 1997, therefore potentially influencing these parr densities in 1998. These areas are considered further in the discussion.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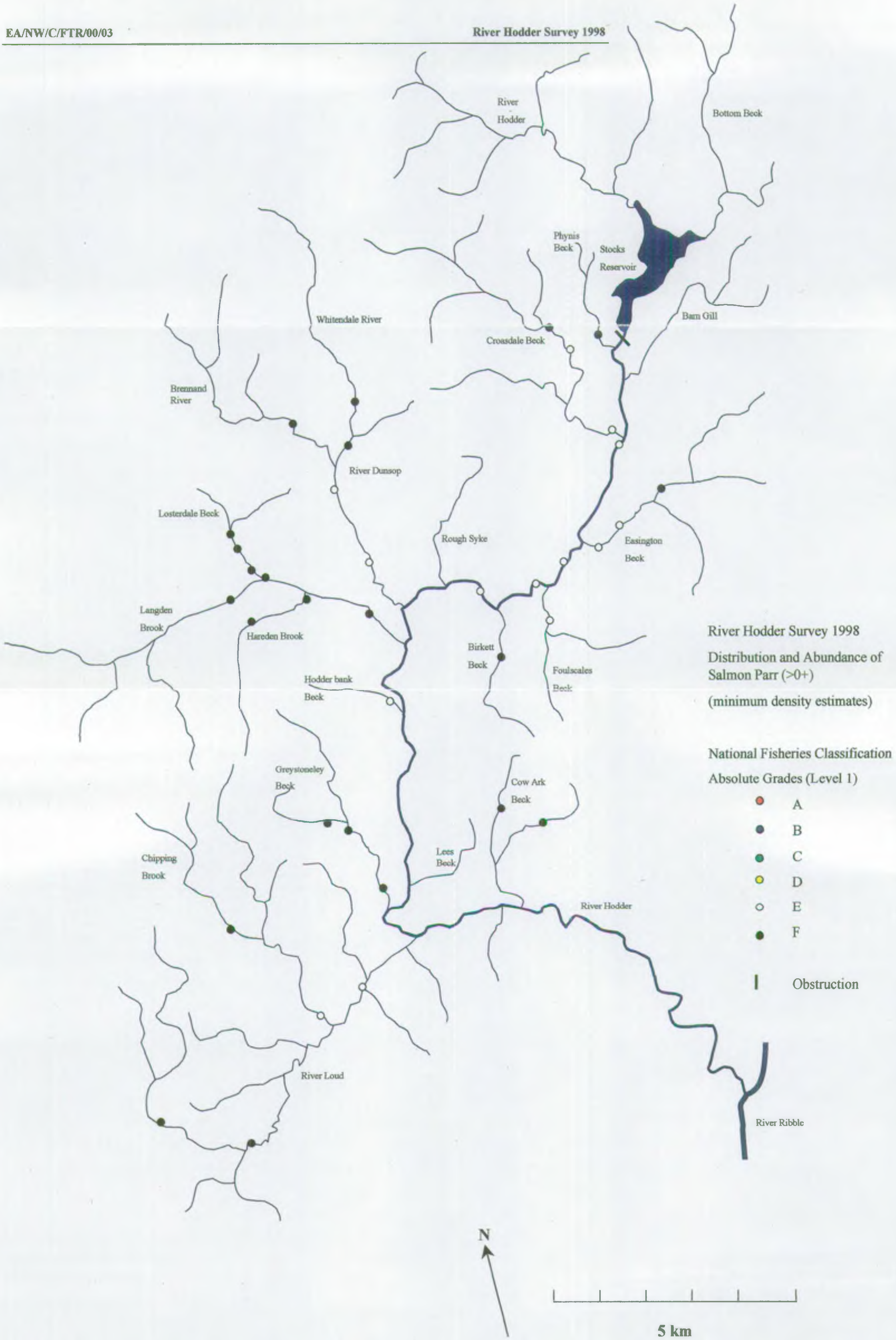
Bottom Beck
Phynis Beck
Stocks Reservoir
Whitendale River
Barn Gill
Croasdale Beck
Brennand River
River Dunsop
Losterdale Beck
Rough Syke
Easington Beck
Langden Brook
Hareden Brook
Birkett Beck
Foulscales Beck
Hodder Bank Beck
Greystoneley Beck
Cow Ark Beck
Chipping Brook
Lees Beck
River Hodder
River Loud
River Ribble
River Hodder Survey 1998
Distribution and Abundance of Salmon Fry (0+)
(minimum density estimates)
National Fisheries Classification
Absolute Grades (Level 1)
A
B
C
D
E
F
Obstruction
N
5 km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Hareden Brook
Birkett Beck
Foulscales Beck
Hodder bank Beck
Greystoneley Beck
Cow Ark Beck
Lees Beck
Chipping Brook
River Hodder
River Loud
River Ribble
River Hodder Survey 1998
Distribution and Abundance of Salmon Parr (>0+)
(minimum density estimates)
National Fisheries Classification
Absolute Grades (Level 1)
A
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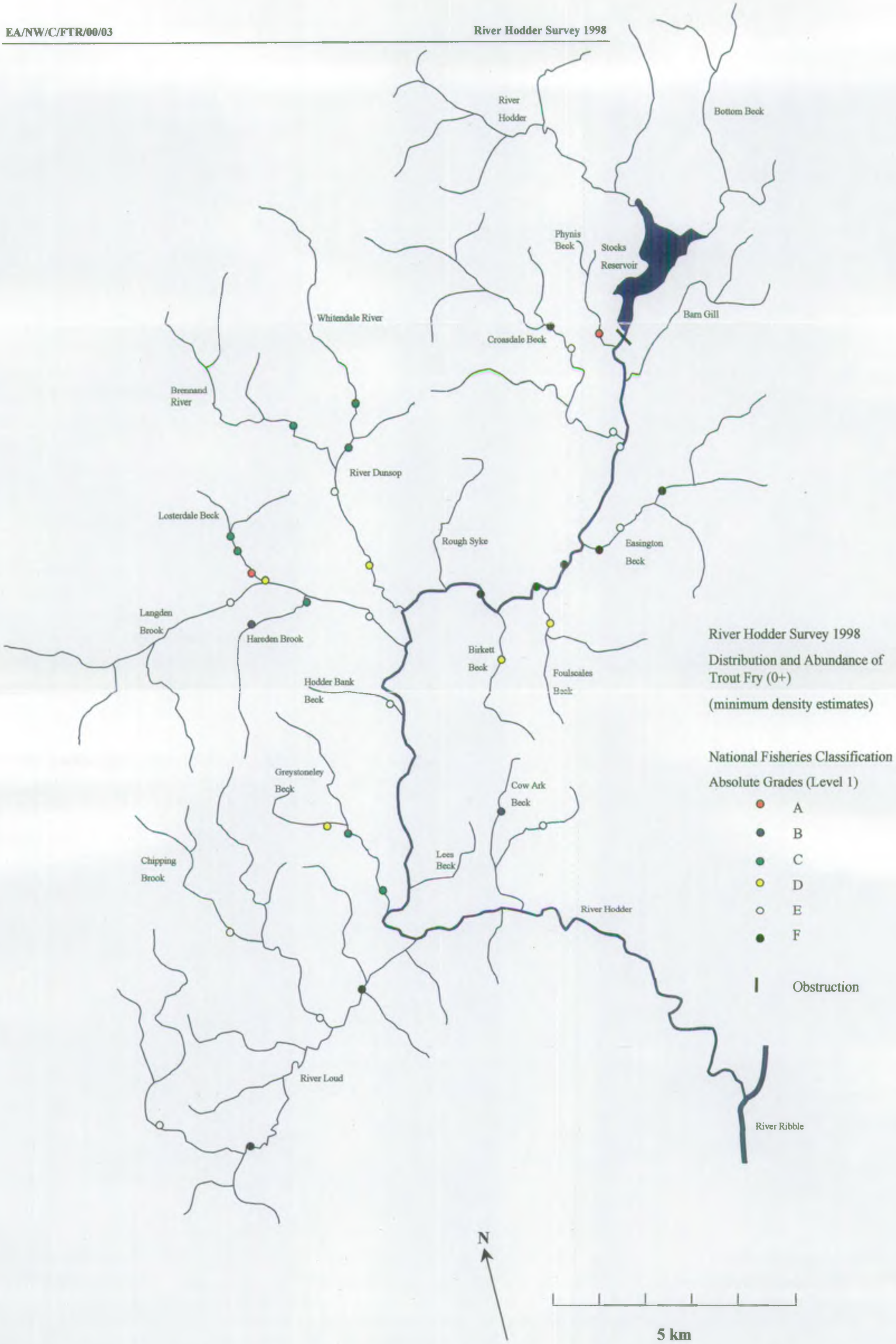
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Cow Ark Beck
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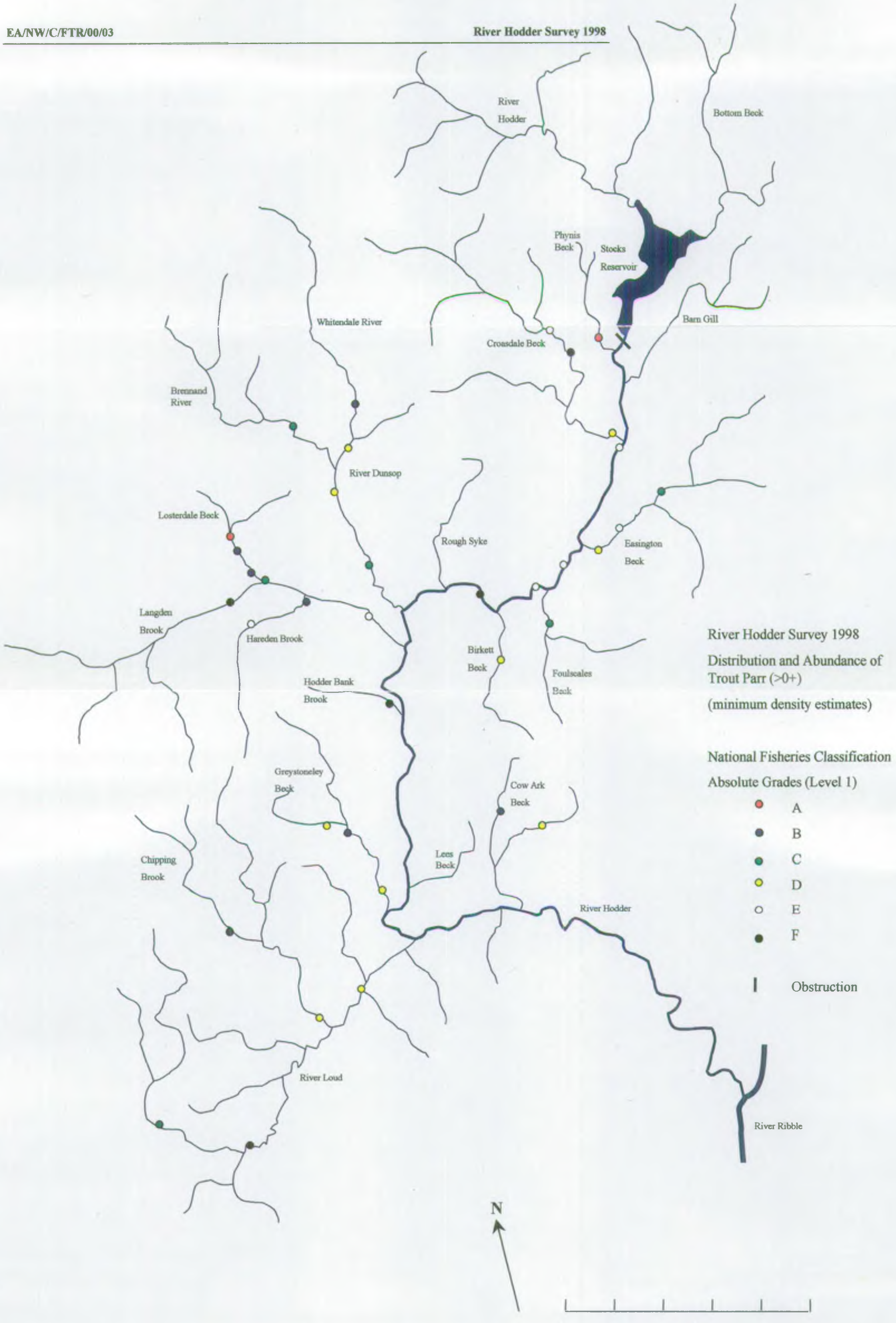
River Hodder
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Hodder Bank Brook
Greystoneley Beck
Cow Ark Beck
Lees Beck
Chipping Brook
River Hodder
River Loud
River Ribble
River Hodder Survey 1998
Distribution and Abundance of Trout Parr (>0+)
(minimum density estimates)
National Fisheries Classification
Absolute Grades (Level 1)
A
B
C
D
E
F
Obstruction
N
5 km

4. DISCUSSION

4.1 Species Composition

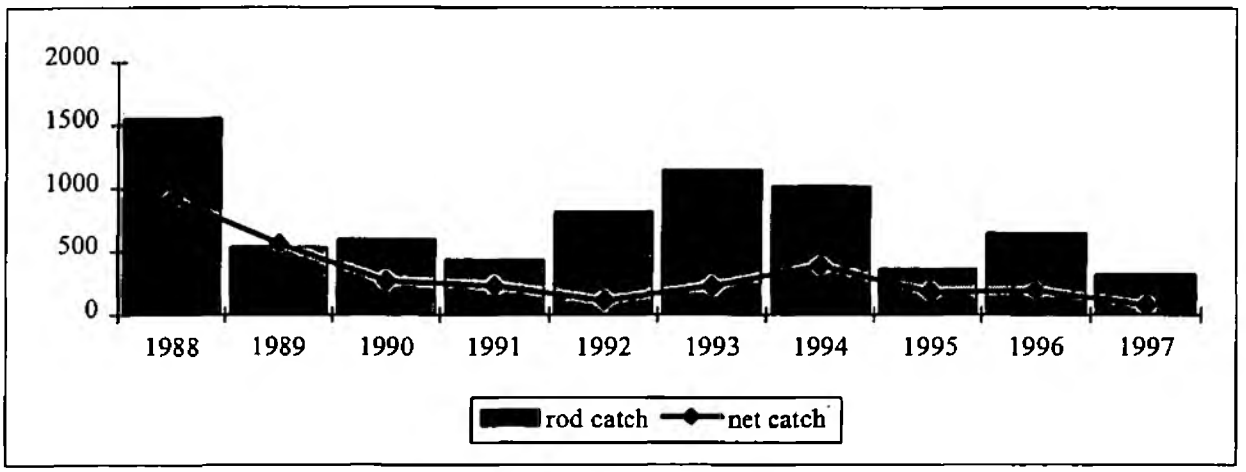
Limitations of the electrofishing technique restrict this survey to shallow riffle habitats that are typical of juvenile salmonid nursery areas. This type of survey will therefore focus on juvenile salmonid production and will not accurately reflect the status of deepwater fish populations such as major coarse species and adult salmonids. This is reflected in the range of species caught in the survey, compared with the range of species that are known to be present in the River Hodder.

4.2 Adult Abundance

Habitat and stocking issues aside, the distribution and abundance of juvenile salmon and trout are significantly affected by the abundance of spawning adults, particularly in the two previous years, and the ability of those adults to penetrate into the spawning streams. For example in low flow years, the ability of the adult stock to penetrate into spawning streams is likely to be reduced, therefore resulting in a more restricted distribution of juveniles in the following years.

The corrected rod and net catches from the Ribble (which includes rod catches from the Hodder) in 1996 and 1997 were relatively low, in particular, the 1997 catches were the lowest on record, (Figure 9). While these two methods only sample the salmon run for part of the year they do provide a valuable index of salmon abundance. Counts of adult salmon at Winckley weir are only available from 1996, but also confirm the relatively low abundance of salmon in 1997. Such low catches, particularly in 1997 could partly account for the relatively low densities of salmon fry found in the 1998 survey. It should be borne in mind that both 1996 and 1997 were particularly dry years and may have effectively restricted the distribution of spawning salmon within the Hodder system. It is likely that a larger proportion of spawning occurred in main river areas, however the sampling of main river sites in the 1998 survey was very limited.

Figure 9 - Corrected rod and net catches of salmon, River Ribble, 1988 – 1997.



4.3 Water Quality

The Environment Agency uses two principal schemes for the reporting and management of river water quality; the General Quality Assessment (GQA) scheme and the Water Quality Objectives (WQO) scheme. The GQA scheme is used to make periodic assessments of the quality of river water in terms of general chemistry and general biology, in order to monitor geographical and temporal trends. GQA chemistry and biology are defined by six grades ranging from A (Very good) to F (bad). In terms of GQA chemistry from 1995 to 1997, the majority of the Hodder is described as very good or good (GQA classes A and B respectively), with only the River Loud being described as fairly good (class C) and Greystoneley Beck and Higgin Beck (tributary of Loud) being described as fair (class D). None of the catchment is described as classes E or F (poor and bad respectively).

The WQO scheme establishes clear quality targets to provide a commonly agreed planning framework for regulatory bodies and dischargers alike. This scheme is based upon the recognised uses to which a stretch of river may be put. Standards defining the five-tiered River Ecosystem (RE) use classes, which address the chemical quality requirements of different types of aquatic ecosystems, were introduced by "The Surface Waters (River Ecosystem) Classification Regulations 1994".

Table 2 – General descriptions of the five River Ecosystem classes.

River Ecosystem Class	Description
RE 1	Water of very good quality suitable for all fish species
RE 2	Water of good quality suitable for all fish species
RE 3	Water of fair quality suitable for high class coarse fish populations
RE 4	Water of fair quality suitable for coarse fish populations
RE 5	Water of poor quality which is likely to limit coarse fish populations
Waters that do not achieve RE 5 are of bad quality in which fish are unlikely to survive.	

River Ecosystem objectives are set for all of the specified reaches of the river system, on both a short to medium term basis and a long term basis. Short to medium term objectives are set where investment or campaigns are likely to result in a rapid improvement in water quality, and long term objectives are set where short term investment is not planned but an improvement in water quality is sought. The long term River Ecosystem objectives for the Hodder system are mostly set at RE1 or RE2 which are levels that are capable of sustaining salmonids. The long term objective for Higgin Beck is set to RE4.

4.4 Sub-Catchment Descriptions

River Loud and Chipping Brook

Recent Results Salmon fry were absent from all sites on the River Loud and Chipping Brook in 1998 (NFCS grade F), while parr were found at low densities at the lowermost sites on both tributaries (NFCS grade E). Trout fry were found at low densities (NFCS grade E) at both survey sites on Chipping Brook and at the uppermost site on the River Loud. Trout parr densities in the 1998 survey ranged from high (NFCS grades B & C) in the upper Loud and upper Chipping Brook to low (NFCS grades D & F) in the middle and lower Loud and lower Chipping Brook.

Long Term Results The distribution of juvenile salmon in the Loud system in 1998 was very similar to that observed in the 1993 survey. Juvenile salmon were absent from the River Loud, upstream of the Chipping Brook confluence in both surveys. However, juvenile salmon were found in lower Chipping Brook and the lower River Loud in both surveys although the densities recorded in 1993 were slightly higher than those recorded in 1998.

Water Quality The long term water quality objectives for the River Loud and Chipping Brook are set to RE2. Chipping Brook complied with this objective in 1998, however, the upper and lower Loud marginally failed and the middle Loud significantly failed to meet this objective in 1998. The reason for these failures was pollution through agricultural activities. The long term water quality objective for Higgin Beck – a tributary of the upper Loud – is set to RE4. This standard was achieved in 1998.

Greystoneley Beck, Cow Ark Beck and Hodder Bank Beck

Recent Results Juvenile salmon were absent (NFCS grade F) from survey sites on Greystoneley Beck and Cow Ark Beck in 1998. Salmon fry were also absent from Hodder Bank Beck although salmon parr were found at low density (NFCS grade E) at this survey site. Juvenile trout densities were variable in these streams (NFCS grades B to E) in 1998.

Long Term Results Salmon fry were more widespread in the 1993 survey with low densities recorded in Cow Ark Beck and lower Greystoneley Beck. Hodder Bank Beck was not included in previous surveys. Salmon parr were similarly more widespread in 1993 with low densities being found in lower Greystoneley Beck and relatively high densities being found in Cow Ark Beck. The distribution and abundance of juvenile trout in these streams in 1993 was very similar to that observed in 1998.

Water Quality Long term water quality objectives have not been set for Hodder bank Beck or for Cow Ark Beck. The objectives for Greystoneley Beck are set to RE1 – a standard that was not achieved in 1998, by a significant margin due to pollution from agricultural activities.

Langden System

Recent Results Salmon fry were found at low densities (NFCS grades D & E) in Losterdale Beck and also in the lower Langden Brook. Salmon parr were absent from all sites in the Langden system in the 1998 survey. Trout fry densities were relatively high in Losterdale Beck (NFCS grades A & C) and also in Hareden Brook (NFCS grades B & C). However, trout fry densities were low in Langden Brook (NFCS grades D & E) in the 1998 survey. Similarly, trout parr were found at relatively high densities (NFCS grades A & B) in Losterdale Beck and lower Hareden Brook, but at low densities (NFCS grades C, E & F) in Langden Brook.

Long Term Results In the 1993 survey, salmon fry were found throughout the lower Langden Brook at relatively low densities and parr were found in the same area but at higher densities. Juvenile salmon were absent from both Losterdale and Hareden Brooks and also from the upper Langden Brook in 1993. Trout fry were also more widespread and more abundant in the 1993 survey of the Langden system. High fry densities were recorded in Losterdale Beck with relatively low densities throughout the remaining Langden and Hareden survey sites. Trout parr were found at high densities throughout the Losterdale, Hareden and middle and upper Langden sites.

Water Quality The long term water quality objective for Langden Beck is set to RE1. Water quality in 1998 marginally failed to meet this standard because of pollution generated by agricultural activities.

Dunsop System

Recent Results No salmon fry were found at the five survey sites in the Dunsop catchment in the 1998 survey (NFCS grade F) while salmon parr were found at low densities (NFCS grade E) in the main River Dunsop but were absent from Brennand and Whitendale sites (NFCS grade F). Trout fry were found at relatively low densities in the main River Dunsop (NFCS grades D & E) but at higher densities in the rivers Brennand and Whitendale (NFCS grade C). Similarly, trout parr were relatively scarce in the main River Dunsop (NFCS grades C & D) but were more abundant in the Brennand and Whitendale (NFCS grades B, C & D).

Long Term Results The distribution and abundance of juvenile salmon in 1993 was similar to that observed in the 1998 survey. Low densities of salmon fry and parr were recorded in the main River Dunsop but were absent from the Brennand and Whitendale survey sites in 1993. The distribution of juvenile trout was also similar in both surveys although both fry and parr tended to be slightly more abundant, particularly in the Whitendale, in the 1993 survey.

Water Quality The long term water quality objectives for the Dunsop system are set to RE1. These reaches complied with this standard in 1998.

Birkett, Foulscales, Easington, Croasdale and Phynis Becks

Recent Results Salmon fry were found at low densities (NFCS grade E) in Croasdale Beck and Easington Beck in the 1998 survey. Fry were absent from Phynis Beck, Foulscales Beck and Birkett Beck. Salmon parr were also found at low densities in 1998 (NFCS grade E). The distribution of salmon parr was similar to that of salmon fry with the exception of parr being found in Foulscales Beck. Trout fry were present at low densities in Birkett Beck, Foulscales Beck, Easington Beck and Croasdale Beck (NFCS grades D, E & F). High densities of trout fry were observed in Phynis Beck (NFCS grade A). Trout parr were similarly distributed in these streams in the 1998 survey with densities being generally low (NFCS grades D, E and F), with the exception of Phynis Beck (NFCS grade A).

Long Term Results The distribution of juvenile salmon in these tributaries was similar in 1993 and 1998. Juvenile salmon were absent from Phynis Beck (NFCS grade F) in both surveys but juvenile trout densities were high (NFCS grade A). Croasdale Beck held relatively high salmon densities (NFCS grades B & C) in its middle and lower reaches in the 1993 survey. However, juvenile salmon densities were low (NFCS grade E) in Croasdale Beck in the 1998 survey.

Water Quality Long term water quality objectives have been set at RE1 for Croasdale Beck and Easington Beck. Objectives have not been set for Birkett and Foulscales Becks. Croasdale Beck marginally failed to meet this objective while Easington Beck significantly

failed to meet the RE1 objective in 1998 – the reasons for failure being pollution through agricultural activities.

Main River Hodder

Recent Results Salmon fry were found at low densities (NFCS grade E) at three of the four Hodder sites in 1998. Similarly, salmon parr were present at low densities (NFCS grade E) at all four sites. Trout fry were largely absent from the main Hodder sites (NFCS grade E & F) while trout parr were present at low densities (NFCS grade E).

Long Term Results Salmon fry densities were low at these main River Hodder sites in the 1993 survey. However, salmon parr densities were higher in 1993 than those observed in the 1998 survey. The distribution and abundance of trout fry and parr were very similar in both surveys with low densities of both age classes (NFCS grade E) being found at these sites in the 1993 survey.

Water Quality The long term water quality objectives for the upper main River Hodder are set to RE1. This area failed to meet this standard by a significant margin in 1998 due to pollution caused by agricultural activities.

5. CONCLUSIONS

The inefficiency of the electrofishing technique in deep water has resulted in the under-representation of adult salmonids and major coarse fish species in this survey.

Insufficient survey sites were included on the main River Hodder to accurately reflect juvenile salmon production in 1998.

Juvenile salmon densities were generally low throughout the Hodder catchment, and the distribution of salmon fry and parr was relatively restricted in comparison with previous survey results. Salmon fry were found at low densities (NFCS grade E) in lower Langden Brook, Losterdale Beck, Easington Beck, Croasdale Beck and also at survey sites on the main River Hodder.

Salmon parr were found at low densities (NFCS grade E) in lower Chipping Brook, lower River Loud, Hodder Bank Beck, River Dunsop, Foulscales Beck, Easington Beck, Croasdale Beck and the upper main River Hodder.

These results suggest that both the 1997 and 1998 year classes are particularly weak, therefore potentially affecting returns of grilse in 2000 and 2001 and returns of two sea-winter salmon in 2001 and 2002.

Whilst it is recognised that the 1998 survey provided only a partial coverage of potentially important main river spawning areas, it appears that the River Hodder is below it's carrying capacity for juvenile salmon. The cause of this cannot be identified from this juvenile survey but possible factors include; a lack of spawning adults, a high mortality rate among the various juvenile life stages, stream habitat related problems, or a combination of all of these factors.

Juvenile trout were found throughout the catchment in 1998 at medium to high densities (NFCS grades A to C). The most productive areas for trout fry included, Hareden Brook, Losterdale Beck and Phynis Beck (NFCS grades A to C).

The most productive areas for trout parr included Losterdale Beck and Phynis Beck (NFCS grades A & B).

6. RECOMMENDATIONS

The current rolling program of river surveys does not allow the monitoring of year classes from one summer to the next and therefore cannot identify potential problems such as over-winter survival. A review of the current monitoring program is recommended in order to allow the regular monitoring of year-classes in a manner that would identify potential problems like over-winter survival.

The coverage of main river survey sites should be increased in order to provide a better representation of juvenile salmon production in main river areas. This is especially important following relatively dry years, when access for migratory salmonids into smaller tributaries may be restricted.

7. APPENDICES

Appendix I Salmonid Stocking, Hodder Catchment, 1997

Location	Date	Stage	Number
Easington Beck	15/1/97	Salmon eyed ova	6000
Main River (Slaidburn to Stocks)	9/6/97	0+ Sea Trout	10,000
Croasdale Beck	9/6/97	0+ Sea Trout	6000
Easington Beck	9/6/97	0+ Sea Trout	5000
Langden Beck	9/6/97	0+ Sea Trout	6000
Hareden Beck	9/6/97	0+ Sea Trout	6000
Foulscales Brook	9/6/97	0+ Sea Trout	2000
Birkett Brook	9/6/97	0+ Sea Trout	2000
River Loud	19/6/97	0+ Sea Trout	7000

Appendix II Site Report Sheets

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Co01
Watercourse:-	Cow Ark Beck	Date Fished:-	02/09/98
Location:-	below Bridge	NGR:-	SD 673 454

Habitat Features

Length (m):-	40	Mean width (m):-	2
Area (m^2):-	80	Mean depth (m):-	0.2
Gradient (m/km)	33	Max. depth (m):-	0.2
Water level:-	Medium summer flow		
Site description:-	0 % Pool	10 % Glide	90 % Riffle
Adjacent land use:-	Woodland, riparian area of shrubs and ferns		
Method:-	Upstream electro-fishing, 1 anode, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	E	E	E	E
1998 Classification	F	F	B	B

Comments

Species caught:- trout
Stocking:-
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	2.66	0
>0+ Salmon	2.66	0
0+ Trout	1.3	32.9
>0+ Trout	1.3	12.5
Total	7.92	45.4

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Mb01
Watercourse:-	Mill Beck	Date Fished:-	04/09/98
Location:-	nr Browsholme Hall	NGR:-	SD 683 449

Habitat Features

Length (m):-	50	Mean width (m):-	3
Area (m^2):-	150	Mean depth (m):-	0.3
Gradient (m/km)	13	Max. depth (m):-	0.5
Water level:-	Medium summer flow		
Site description:-	35 % Pool	55 % Glide	10 % Riffle
Adjacent land use:-	Grazing pasture, bedrock and rough grass riparian strip		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification				
1998 Classification	F	F	E	C

Comments

Species caught:- trout
Stocking:-
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon		0
>0+ Salmon		0
0+ Trout		0.66
>0+ Trout		11.3
Total		11.96

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Ld05
Watercourse:-	River Loud	Date Fished:-	15/09/98
Location:-	Loudscales Farm	NGR:-	SD 589 402

Habitat Features

Length (m):-	50	Mean width (m):-	5
Area (m^2):-	250	Mean depth (m):-	0.3
Gradient (m/km)	2	Max. depth (m):-	0.7
Water level:-	Low summer flow		
Site description:-	0 % Pool	80 % Glide	20 % Riffle
Adjacent land use:-	Grazing pasture, trees on riparian strip		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification				
1998 Classification	F	F	E	D

Comments

Species caught:- trout, bullheads, stoneloach and minnows
Stocking:- area stocked with 7000 sea trout fry in 1997
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon		0
>0+ Salmon		0
0+ Trout		0.4
>0+ Trout		2
Total		2.4

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Ld01
Watercourse:-	River Loud	Date Fished:-	15/09/98
Location:-	Blackmoss House	NGR:-	SD 605 396

Habitat Features

Length (m):-	50	Mean width (m):-	3
Area (m^2):-	150	Mean depth (m):-	0.2
Gradient (m/km)	1	Max. depth (m):-	0.5
Water level:-	Medium summer flow		
Site description:-	0 % Pool	50 % Glide	50 % Riffle
Adjacent land use:-	Garden, wooded area. Riparian trees and bushes		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	F	F	F
1998 Classification	F	F	F	F

Comments

Species caught:- stoneloach and minnows
Stocking:- area stocked with 7000 sea trout fry in 1997
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0	0
>0+ Salmon	0	0
0+ Trout	0	0
>0+ Trout	0	0
Total	0	0

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Ld04
Watercourse:-	River Loud	Date Fished:-	15/09/98
Location:-	Gibbon Bridge	NGR:-	SD 638 426

Habitat Features

Length (m):-	50	Mean width (m):-	4
Area (m^2):-	200	Mean depth (m):-	0.75
Gradient (m/km)	5	Max. depth (m):-	1.25
Water level:-	High summer flow		
Site description:-	80 % Pool	20 % Glide	0 % Riffle
Adjacent land use:-	Grazing pasture		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	E	D	D	E
1998 Classification	F	E	F	D

Comments

Species caught:- trout, salmon, chub, bullheads, stoneloach, minnows and eels
Stocking:- area stocked with 7000 sea trout fry in 1997
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	8.3	0
>0+ Salmon	3.3	0.5
0+ Trout	3.3	0
>0+ Trout	1.66	4
Total	16.56	4.5

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Ch01
Watercourse:-	Chipping Brook	Date Fished:-	15/09/98
Location:-	Wolfden Estate	NGR:-	SD 611 412

Habitat Features

Length (m):-	50	Mean width (m):-	3
Area (m^2):-	150	Mean depth (m):-	0.3
Gradient (m/km)	9	Max. depth (m):-	0.25
Water level:-	High summer flow, fast and clear		
Site description:-	0 % Pool	50 % Glide	50 % Riffle
Adjacent land use:-	Grassland with riparian shrub, nettles and grasses		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	E	F	C	B
1998 Classification	F	F	E	B

Comments

Species caught:- trout
Stocking:-
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per 100m^2)	
	1993	1998
0+ Salmon	5.6	0
>0+ Salmon	0	0
0+ Trout	10.4	1.3
>0+ Trout	19.2	14.6
Total	35.2	15.9

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Ch02
Watercourse:-	Chipping Brook	Date Fished:-	15/09/98
Location:-	Footbridge at Pale Farm	NGR:-	SD 627 417

Habitat Features

Length (m):-	50	Mean width (m):-	4
Area (m^2):-	175	Mean depth (m):-	0.3
Gradient (m/km)	9	Max. depth (m):-	0.5
Water level:-	Medium summer, fast flowing		
Site description:-	0 % Pool	40 % Glide	60 % Riffle
Adjacent land use:-	Rough grazing pasture. Trees on riparian strip		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (50V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	D	E	D	D
1998 Classification	F	E	E	D

Comments

Species caught:- trout and salmon
Stocking:-
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	14.4	0
>0+ Salmon	0.8	0.57
0+ Trout	4	2.28
>0+ Trout	2.4	4
Total	21.6	6.85

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Gr03
Watercourse:-	Greystoneley Brook	Date Fished:-	28/08/98
Location:-	u/s road culvert	NGR:-	SD 638 460

Habitat Features

Length (m):-	40	Mean width (m):-	3
Area (m^2):-	120	Mean depth (m):-	0.2
Gradient (m/km)	30	Max. depth (m):-	0.4
Water level:-	Medium summer flow		
Site description:-	0 % Pool	70 % Glide	30 % Riffle
Adjacent land use:-	Grazing pasture, riparian shrubs and small trees		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	F	C	D
1998 Classification	F	F	D	D

Comments

Species caught:- trout
Stocking:-
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per 100m^2)	
	1993	1998
0+ Salmon	0	0
>0+ Salmon	0	0
0+ Trout	10.61	6.46
>0+ Trout	3.03	6.17
Total	13.64	12.63

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Gr01
Watercourse:-	Greystoneley Brook	Date Fished:-	02/09/98
Location:-	Below Lickhurst Farm	NGR:-	SD 642 460

Habitat Features

Length (m):-	45	Mean width (m):-	2
Area (m^2):-	90	Mean depth (m):-	0.2
Gradient (m/km)	33	Max. depth (m):-	0.35
Water level:-	Medium summer flow		
Site description:-	10 % Pool	30 % Glide	60 % Riffle
Adjacent land use:-	Rough grazing, riparian trees and shrubs		
Method:-	Upstream electro-fishing, 1 anode, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	F	C	D
1998 Classification	F	F	C	B

Comments

Species caught:- trout and eels
Stocking:-
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0	0
>0+ Salmon	0	0
0+ Trout	10.61	9.7
>0+ Trout	3.03	15.1
Total	13.64	24.8

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Gr02
Watercourse:-	Greystoneley Brook	Date Fished:-	10/09/98
Location:-	nr Road bridge	NGR:-	SD 646 440

Habitat Features

Length (m):-	45	Mean width (m):-	6
Area (m^2):-	270	Mean depth (m):-	0.2
Gradient (m/km)	33	Max. depth (m):-	0.45
Water level:-	High summer flow		
Site description:-	10 % Pool	45 % Glide	45 % Riffle
Adjacent land use:-	Grazing pasture, riparian shrubs and small trees		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	E	E	E	E
1998 Classification	F	F	C	D

Comments

Species caught:- trout
Stocking:-
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	5.6	0
>0+ Salmon	1.2	0
0+ Trout	2.4	8.51
>0+ Trout	0.4	3.7
Total	9.6	12.21

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	
Watercourse:-	Hodder Bank Beck	Date Fished:-	02/09/98
Location:-	Burholme Bridge	NGR:-	SD 655 482

Habitat Features

Length (m):-	45	Mean width (m):-	2
Area (m^2):-	90	Mean depth (m):-	0.15
Gradient (m/km)	35	Max. depth (m):-	0.25
Water level:-	Medium summer flow		
Site description:-	0 % Pool	20 % Glide	80 % Riffle
Adjacent land use:-	Grazing pasture, riparian shrub, trees and grasses		
Method:-	Upstream electro-fishing, 1 anode, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	E	E	E	E
1998 Classification	F	E	E	F

Comments

Species caught:- trout, salmon, bullheads, stoneloach and minnows
Stocking:-
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	1.2	0
>0+ Salmon	0.8	1.1
0+ Trout	0.6	1.1
>0+ Trout	1	0
Total	3.6	2.2

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	La01
Watercourse:-	Langden Brook	Date Fished:-	04/09/98
Location:-	Upstream of intakes	NGR:-	SD 625 508

Habitat Features

Length (m):-	50	Mean width (m):-	6
Area (m^2):-	300	Mean depth (m):-	0.2
Gradient (m/km)	13	Max. depth (m):-	0.25
Water level:-	high summer flow		

Site description:- 10 % Pool 80 % Glide 10 % Riffle

Adjacent land use:- Grazing pasture, upland area. Riparian scrub

Method:- Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	F	D	D
1998 Classification	F	F	E	F

Comments

Species caught:- trout
Stocking:- area stocked with 6000 sea trout fry in 1997
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0	0
>0+ Salmon	0	0
0+ Trout	7.14	1
>0+ Trout	4.65	0
Total	11.79	1

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	La04
Watercourse:-	Langden Brook	Date Fished:-	03/09/98
Location:-	confluence with Losterdale	NGR:-	SD 635 512

Habitat Features

Length (m):-	50	Mean width (m):-	8
Area (m^2):-	400	Mean depth (m):-	0.3
Gradient (m/km)	18	Max. depth (m):-	0.4
Water level:-	Medium summer flow		
Site description:-	0 % Pool	30 % Glide	70 % Riffle
Adjacent land use:-	Riparian area consists of boulder and grass banks		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	D	E	D
1998 Classification	F	F	D	C

Comments

Species caught:- trout, bullheads and minnows
Stocking:- area stocked with 6000 sea trout fry in 1997
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0	0
>0+ Salmon	4	0
0+ Trout	1.5	3.75
>0+ Trout	2.5	11.5
Total	8	15.25

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	La06
Watercourse:-	Langden Brook	Date Fished:-	04/09/98
Location:-	below Hareden Bridge	NGR:-	SD 645 505

Habitat Features

Length (m):-	50	Mean width (m):-	10
Area (m^2):-	500	Mean depth (m):-	0.3
Gradient (m/km)	13	Max. depth (m):-	0.4
Water level:-	Medium summer flow		
Site description:-	0 % Pool	20 % Glide	80 % Riffle
Adjacent land use:-	Rough grazing plus important grassland. Riparian grasses		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	D	D	D
1998 Classification	E	F	E	E

Comments

Species caught:- trout and salmon
Stocking:- area stocked with 6000 sea trout fry in 1997
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0	3.4
>0+ Salmon	3.67	0
0+ Trout	7.67	1.6
>0+ Trout	2.67	0.8
Total	14.01	5.8

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Lo01
Watercourse:-	Losterdale Brook	Date Fished:-	27/08/98
Location:-	Above intake	NGR:-	SD 627 521

Habitat Features

Length (m):-	39	Mean width (m):-	2
Area (m^2):-	78	Mean depth (m):-	0.25
Gradient (m/km)	15	Max. depth (m):-	0.30
Water level:-	Medium summer flow		
Site description:-	30 % Pool	40 % Glide	30 % Riffle
Adjacent land use:-	Grazing pasture, grass on riparian strip		
Method:-	Upstream electro-fishing, 1 anode, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	F	B	A
1998 Classification	E	F	C	A

Comments

Species caught:- trout and salmon
Stocking:-
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0	3.8
>0+ Salmon	0	0
0+ Trout	22.67	8.97
>0+ Trout	54.66	28.2
Total	77.33	40.97

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Lo02
Watercourse:-	Losterdale Brook	Date Fished:-	27/08/98
Location:-	Above Sykes Farm	NGR:-	SD 629 516

Habitat Features

Length (m):-	27	Mean width (m):-	2
Area (m^2):-	54	Mean depth (m):-	0.1
Gradient (m/km)	20	Max. depth (m):-	0.3
Water level:-	Medium summer flow		
Site description:-	20 % Pool	20 % Glide	60 % Riffle
Adjacent land use:-	Grazing pasture, riparian grass and shrub		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	F	A	A
1998 Classification	F	F	C	B

Comments

Species caught:- trout
Stocking:-
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0	0
>0+ Salmon	0	0
0+ Trout	75.76	9.87
>0+ Trout	35.56	17.2
Total	111.32	27.07

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Lo03
Watercourse:-	Losterdale Brook	Date Fished:-	27/08/98
Location:-	below Sykes Farm	NGR:-	SD 632 513

Habitat Features

Length (m):-	25	Mean width (m):-	3
Area (m^2):-	75	Mean depth (m):-	0.05
Gradient (m/km)	18	Max. depth (m):-	0.3
Water level:-	Low summer flow		
Site description:-	20 % Pool	20 % Glide	60 % Riffle
Adjacent land use:-	Grazing pasture		
Method:-	Upstream electro-fishing, 1 anode, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	F	B	A
1998 Classification	D	F	A	B

Comments

Species caught:- trout and salmon
Stocking:-
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0	10.28
>0+ Salmon	0	0
0+ Trout	25	60.57
>0+ Trout	24	17.14
Total	49	87.99

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Ha01
Watercourse:-	Hareden Brook	Date Fished:-	22/08/98
Location:-	below Hareden intakes	NGR:-	SD 629 503

Habitat Features

Length (m):-	37	Mean width (m):-	4
Area (m^2):-	148	Mean depth (m):-	0.15
Gradient (m/km)	20	Max. depth (m):-	0.30
Water level:-	High summer flow		
Site description:-	0 % Pool	0 % Glide	100 % Riffle
Adjacent land use:-	Forest / grazing pasture, riparian grasses and reeds		
Method:-	Upstream electro-fishing, 1 anode, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	F	E	C
1998 Classification	F	F	B	D

Comments

Species caught:- trout
Stocking:- area stocked with 6000 sea trout fry in 1997
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per 100m^2)	
	1993	1998
0+ Salmon	0	0
>0+ Salmon	0	0
0+ Trout	0.91	19.21
>0+ Trout	11.82	1.8
Total	12.73	21.01

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Ha02
Watercourse:-	Hareden Brook	Date Fished:-	25/08/98
Location:-	above confluence	NGR:-	SD 643 506

Habitat Features

Length (m):-	29	Mean width (m):-	2
Area (m^2):-	58	Mean depth (m):-	0.3
Gradient (m/km)	20	Max. depth (m):-	0.5
Water level:-	high summer flow		
Site description:-	7 % Pool	70 % Glide	25 % Riffle
Adjacent land use:-	Grazing pasture, riparian grasses		
Method:-	Upstream electro-fishing,1 anode, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	F	B	A
1998 Classification	F	F	C	B

Comments

Species caught:- trout
Stocking:- area stocked with 6000 sea trout fry in 1997
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0	0
>0+ Salmon	0	0
0+ Trout	18.75	8.62
>0+ Trout	46.5	15.51
Total	65.25	24.13

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Du02
Watercourse:-	River Dunsop	Date Fished:-	03/09/98
Location:-	Dunsop Bridge	NGR:-	SD 655 510

Habitat Features

Length (m):-	40	Mean width (m):-	4
Area (m^2):-	160	Mean depth (m):-	0.5
Gradient (m/km)	6.7	Max. depth (m):-	1.0
Water level:-	High summer flow, clear		
Site description:-	0 % Pool	80 % Glide	20 % Riffle
Adjacent land use:-	Grazing pasture with riparian grasses and small trees		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	E	F	D	C
1998 Classification	F	E	D	C

Comments

Species caught:- trout, salmon, bullheads and eels
Stocking:-
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0.6	0
>0+ Salmon	0	0.63
0+ Trout	3.3	3.12
>0+ Trout	5.83	9.4
Total	9.73	13.15

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Du01
Watercourse:-	River Dunsop	Date Fished:-	03/09/98
Location:-	below Foot Holme	NGR:-	SD 653 526

Habitat Features

Length (m):-	50	Mean width (m):-	8
Area (m^2):-	400	Mean depth (m):-	0.3
Gradient (m/km)	6.7	Max. depth (m):-	0.4
Water level:-	Medium summer flow		
Site description:-	0 % Pool	50 % Glide	50 % Riffle
Adjacent land use:-	Rough pasture with riparian grasses and shrubs		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	E	E	E	E
1998 Classification	F	E	E	D

Comments

Species caught:- trout and salmon
Stocking:-
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0.2	0
>0+ Salmon	1.4	0.5
0+ Trout	0.4	2.25
>0+ Trout	1.8	2.5
Total	3.8	5.25

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Br02
Watercourse:-	River Brennand	Date Fished:-	03/09/98
Location:-	Brennand	NGR:-	SD 645 543

Habitat Features

Length (m):-	50	Mean width (m):-	3
Area (m^2):-	150	Mean depth (m):-	0.3
Gradient (m/km)	13	Max. depth (m):-	0.5
Water level:-	Medium summer, slightly coloured		
Site description:-	0 % Pool	30 % Glide	70 % Riffle
Adjacent land use:-	Rough pasture used for sheep grazing		
Method:-	Upstream electro-fishing, 1 anode, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	F	C	D
1998 Classification	F	F	C	C

Comments

Species caught:- trout and eels
Stocking:-
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0	0
>0+ Salmon	0	0
0+ Trout	16	8.66
>0+ Trout	4	9.33
Total	20	17.99

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Wh03
Watercourse:-	River Whitendale	Date Fished:-	03/09/98
Location:-	Whitendale	NGR:-	SD 657 539

Habitat Features

Length (m):-	50	Mean width (m):-	5
Area (m^2):-	250	Mean depth (m):-	0.3
Gradient (m/km)	19	Max. depth (m):-	0.4
Water level:-	Medium summer flow, clear		
Site description:-	20 % Pool	40 % Glide	40 % Riffle
Adjacent land use:-	Grazing and rough grassland, grassy riparian strip		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	F	C	B
1998 Classification	F	F	C	D

Comments

Species caught:- trout
Stocking:-
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0	0
>0+ Salmon	0	0
0+ Trout	10.4	9.2
>0+ Trout	19.6	3.2
Total	30.	12.4

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Wh01
Watercourse:-	River Whitendale	Date Fished:-	03/09/98
Location:-	Whitendale	NGR:-	SD 656 555

Habitat Features

Length (m):-	50	Mean width (m):-	3
Area (m^2):-	150	Mean depth (m):-	0.25
Gradient (m/km)	19	Max. depth (m):-	0.4
Water level:-	Medium summer flow, clear		
Site description:-	0 % Pool	50 % Glide	50 % Riffle
Adjacent land use:-	Rough grasses		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	F	B	B
1998 Classification	F	F	C	B

Comments

Species caught:- trout
Stocking:-
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per 100m^2)	
	1993	1998
0+ Salmon	0	0
>0+ Salmon	0	0
0+ Trout	17.78	11.3
>0+ Trout	13.3	18
Total	31.08	29.3

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Ho11
Watercourse:-	River Hodder	Date Fished:-	22/09/98
Location:-	Boarsden Farm	NGR:-	SD 679 500

Habitat Features

Length (m):-	50	Mean width (m):-	11
Area (m^2):-	550	Mean depth (m):-	0.3
Gradient (m/km)	20	Max. depth (m):-	0.4
Water level:-	High summer flow		
Site description:-	0 % Pool	0 % Glide	100 % Riffle
Adjacent land use:-	Grazing pasture, riparian trees and grasses		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	E	E	E	F
1998 Classification	F	E	F	F

Comments

Species caught:- salmon, bullheads and stoneloach
Stocking:-
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0.91	0
>0+ Salmon	0.45	0.18
0+ Trout	0.3	0
>0+ Trout	0	0
Total	1.66	0.18

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Bk01
Watercourse:-	Birkett Brook	Date Fished:-	02/09/98
Location:-	Birkett Brook	NGR:-	SD 683 492

Habitat Features

Length (m):-	41	Mean width (m):-	3
Area (m^2):-	123	Mean depth (m):-	0.2
Gradient (m/km)	29	Max. depth (m):-	0.3

Water level:- Heavy flow, peaty colour

Site description:- 0 % Pool 15 % Glide 85 % Riffle

Adjacent land use:- Rough grazing pasture with grass banks

Method:- Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	E	C	B	B
1998 Classification	F	F	D	D

Comments

Species caught:- trout, bullhead, stoneloach and minnows
Stocking:- area stocked with 2000 sea trout fry in 1997
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	8.57	0
>0+ Salmon	6.43	0
0+ Trout	24.29	7.31
>0+ Trout	13.57	4.9
Total	52.86	12.21

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Ho10
Watercourse:-	River Hodder	Date Fished:-	22/09/98
Location:-	Birkett Farm	NGR:-	SD 691 499

Habitat Features

Length (m):-	50	Mean width (m):-	9
Area (m^2):-	450	Mean depth (m):-	0.3
Gradient (m/km)	4	Max. depth (m):-	0.75
Water level:-	high summer flow		
Site description:-	10 % Pool	30 % Glide	60 % Riffle
Adjacent land use:-	Grazing pasture, riparian strip tree-lined		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	E	E	E	E
1998 Classification	E	E	F	E

Comments

Species caught:- trout, salmon, bullheads, stoneloach and eels
Stocking:-
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	1.3	2.2
>0+ Salmon	1	0.66
0+ Trout	0.66	0
>0+ Trout	0.17	0.44
Total	3.13	3.3

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Fu01
Watercourse:-	Foulscales Brook	Date Fished:-	02/09/98
Location:-	Gibbs Farm	NGR:-	SD 692 494

Habitat Features

Length (m):-	50	Mean width (m):-	4
Area (m^2):-	200	Mean depth (m):-	0.5
Gradient (m/km)	17	Max. depth (m):-	1.5
Water level:-	Medium summer flow		
Site description:-	40 % Pool	0 % Glide	60 % Riffle
Adjacent land use:-	Grazing pasture, riparian grasses and shrubs		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	E	C	B	C
1998 Classification	F	E	D	C

Comments

Species caught:- trout, salmon, bullheads, stoneloach, minnows and eels
Stocking:- area stocked with 2000 sea trout fry in 1997
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	3	0
>0+ Salmon	8	0.74
0+ Trout	37	3.42
>0+ Trout	9	8
Total	57	12.16

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Ho09
Watercourse:-	River Hodder	Date Fished:-	22/09/98
Location:-	Newton STW	NGR:-	SD 698 503

Habitat Features

Length (m):-	50	Mean width (m):-	8
Area (m^2):-	400	Mean depth (m):-	0.4
Gradient (m/km)	4	Max. depth (m):-	0.8
Water level:-	high summer flow		
Site description:-	0 % Pool	80 % Glide	20 % Riffle
Adjacent land use:-	Grazing pasture, riparian trees and grasses		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	E	F	F	F
1998 Classification	E	E	F	E

Comments

Species caught:- trout, salmon, bullheads, stoneloach and eels
Stocking:-
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0.13	1.75
>0+ Salmon	0	2.25
0+ Trout	0	0
>0+ Trout	0	0.5
Total	0.13	4.5

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Ea04
Watercourse:-	Easington Brook	Date Fished:-	02/09/98
Location:-	Fowlers Laithe	NGR:-	SD 705 504

Habitat Features

Length (m):-	50	Mean width (m):-	4
Area (m^2):-	200	Mean depth (m):-	0.3
Gradient (m/km)	7	Max. depth (m):-	0.60
Water level:-	Medium summer flow		
Site description:-	0 % Pool	40 % Glide	60 % Riffle
Adjacent land use:-	Grazing pasture, riparian grasses and trees		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	D	A	E	C
1998 Classification	E	E	F	D

Comments

Species caught:- trout, salmon,bullheads, stoneloach, minnows and eels
Stocking:- area stocked with 5000 sea trout fry and 6000 eyed salmon ova in 1997
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	13.3	2.28
>0+ Salmon	25.6	2.28
0+ Trout	1.66	0
>0+ Trout	5.3	4.56
Total	45.86	9.12

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Ea03
Watercourse:-	Easington Brook	Date Fished:-	28/08/98
Location:-	Easington	NGR:-	SD 713 507

Habitat Features

Length (m):-	40	Mean width (m):-	8
Area (m^2):-	500	Mean depth (m):-	0.5
Gradient (m/km)	11	Max. depth (m):-	0.5
Water level:-	Low summer flow		
Site description:-	0 % Pool	60 % Glide	40 % Riffle
Adjacent land use:-	Grazing pasture, riparian grasses, and shrubs		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	C	B	D	D
1998 Classification	E	E	E	E

Comments

Species caught:- trout, salmon, bullheads and stoneloach
Stocking:- area stocked with 5000 sea trout fry and 6000 eyed salmon ova in 1997
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	36.1	0.2
>0+ Salmon	16.7	0.2
0+ Trout	7.8	1.8
>0+ Trout	2.2	0.8
Total	62.8	3

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Ea01
Watercourse:-	Easington Brook	Date Fished:-	28/08/98
Location:-	Broadhead Farm	NGR:-	SD 722 513

Habitat Features

Length (m):-	40	Mean width (m):-	3
Area (m^2):-	120	Mean depth (m):-	0.5
Gradient (m/km)	11	Max. depth (m):-	0.5
Water level:-	Low summer flow		
Site description:-	20 % Pool	50 % Glide	30 % Riffle
Adjacent land use:-	Grazing pasture with riparian grasses and trees		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	F	D	E
1998 Classification	F	F	F	C

Comments

Species caught:- trout, bullheads, stoneloach and minnows
Stocking:- area stocked with 5000 sea trout fry and 6000 eyed salmon ova in 1997
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0	0
>0+ Salmon	0	0
0+ Trout	3.77	0
>0+ Trout	0.75	8.33
Total	4.52	8.33

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Ho07
Watercourse:-	River Hodder	Date Fished:-	22/09/98
Location:-	Slaidburn Green	NGR:-	SD 713 523

Habitat Features

Length (m):-	50	Mean width (m):-	7
Area (m^2):-	350	Mean depth (m):-	0.3
Gradient (m/km)	4	Max. depth (m):-	0.5
Water level:-	Medium summer flow		
Site description:-	0 % Pool	50 % Glide	50 % Riffle
Adjacent land use:-	Grazing pasture, riparian grasses and trees		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	E	D	E	E
1998 Classification	E	E	E	E

Comments

Species caught:- trout, salmon, bullheads, stoneloach, minnows and eels
Stocking:-
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	5.17	5.42
>0+ Salmon	3.5	2.28
0+ Trout	0.83	2.28
>0+ Trout	0.17	0.57
Total	9.67	10.55

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Cr06
Watercourse:-	Croasdale Brook	Date Fished:-	01/09/98
Location:-	Slaidburn	NGR:-	SD 712 526

Habitat Features

Length (m):-	50	Mean width (m):-	7
Area (m^2):-	350	Mean depth (m):-	0.3
Gradient (m/km)	8	Max. depth (m):-	0.4
Water level:-	High summer flow		
Site description:-	0 % Pool	50 % Glide	50 % Riffle
Adjacent land use:-	Grazing pasture, riparian grasses and trees		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	D	D	D	E
1998 Classification	E	D	E	D

Comments

Species caught:- trout, salmon, bullhead stoneloach, minnows and eels
Stocking:- area stocked with 6000 sea trout fry in 1997
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	20.4	7.42
>0+ Salmon	4.81	0.28
0+ Trout	3.2	0.28
>0+ Trout	2	2.28
Total	30.41	10.26

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Cr04
Watercourse:-	Croasdale Brook	Date Fished:-	04/09/98
Location:-	Shay House	NGR:-	SD 706 543

Habitat Features

Length (m):-	50	Mean width (m):-	5
Area (m^2):-	250	Mean depth (m):-	0.1
Gradient (m/km)	8	Max. depth (m):-	0.4
Water level:-	Low summer flow		
Site description:-	0 % Pool	70 % Glide	30 % Riffle
Adjacent land use:-	Improved pasture with riparian trees and grasses		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	C	A	B	A
1998 Classification	E	E	F	E

Comments

Species caught:- trout, salmon, bullheads, stoneloach and eels
Stocking:- area stocked with 6000 sea trout fry in 1997
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	33.3	3.2
>0+ Salmon	38.3	1.88
0+ Trout	30	2
>0+ Trout	23.3	0
Total	124.9	7.08

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Cr03
Watercourse:-	Croasdale Brook	Date Fished:-	04/09/98
Location:-	d/s Croasdale House	NGR:-	SD 702 550

Habitat Features

Length (m):-	50	Mean width (m):-	10
Area (m^2):-	500	Mean depth (m):-	0.35
Gradient (m/km)	8	Max. depth (m):-	0.50
Water level:-	High summer flow		
Site description:-	0 % Pool	70 % Glide	30 % Riffle
Adjacent land use:-	Grazing pasture with riparian shrubs. Lots of overhanging cover.		
Method:-	Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	F	B	B
1998 Classification	F	F	E	F

Comments

Species caught:- trout
Stocking:- area stocked with 6000 sea trout fry in 1997
Access for migratory salmonids:-accessible to sea trout and salmon

Species	Density (no. per 100m^2)	
	1993	1998
0+ Salmon	0	0
>0+ Salmon	0	0
0+ Trout	18	0
>0+ Trout	14	0.42
Total	32	0.42

SITE REPORT

Site Details

River System:-	River Hodder	Site Code:-	Ph01
Watercourse:-	Phynis Beck	Date Fished:-	01/09/98
Location:-	Phynis House	NGR:-	SD 714 546

Habitat Features

Length (m):-	35	Mean width (m):-	2
Area (m^2):-	70	Mean depth (m):-	0.2
Gradient (m/km)	35	Max. depth (m):-	0.3
Water level:-	High summer flow		
Site description:-	20 % Pool	60 % Glide	20 % Riffle
Adjacent land use:-	Grazing pasture, riparian trees and grasses		
Method:-	Upstream electro-fishing, 1 anode, pulsed DC (75V), wading, no stopnets		

Fishery Classification (level 1)

	0+ salmon	>0+ salmon	0+ trout	>0+ trout
1993 Classification	F	F	A	B
1998 Classification	F	F	A	A

Comments

Species caught:- trout
Stocking:-
Access for migratory salmonids:-accessible to sea trout

Species	Density (no. per $100m^2$)	
	1993	1998
0+ Salmon	0	0
>0+ Salmon	0	0
0+ Trout	112	65.3
>0+ Trout	14.6	52.2
Total	126.6	117.5