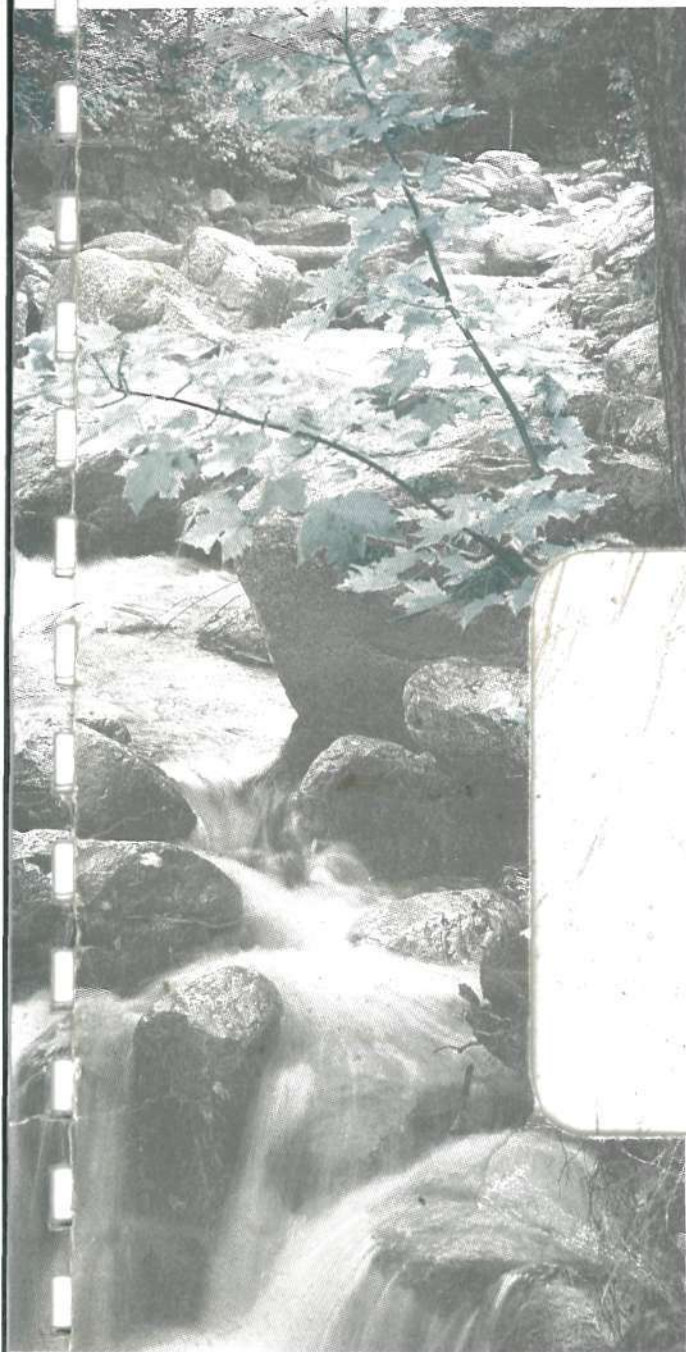


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NRA

*National Rivers Authority
North West Region*

A black and white photograph of a rocky stream flowing through a forest. The water is turbulent as it cascades over numerous large, dark rocks. The surrounding area is filled with dense foliage and trees, with some branches and leaves visible in the foreground.

**Report On The 1992
Stock Assessment
Of The Wyre Catchment.**

NRA/NW/FTR/93/14.

**GUARDIANS OF THE WATER
ENVIRONMENT**

Report On The 1992 Stock Assessment Of The Wyre Catchment.

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December 1993.

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1. SUMMARY AND RECOMMENDATIONS.

1.1. SALMONIDS.

1.1.1. Juvenile salmon.

- a). Juvenile salmon had a limited distribution within the study area. In those sites where they were found, they were only present in low densities. The majority of juvenile salmon production in the Wyre catchment appeared to be from the main river between Scorton and Garstang.
- b). No juvenile salmon were found in the Tarnbrook Wyre, Damas Gill or Foxhouses Beck. They were found in only two sites in the Marshaw Wyre and one site in Cam Brook.
- c). No evidence of salmon spawning was found downstream of Grizedale Beck.
- d). There appear to be three factors limiting to juvenile salmon distribution in the study area:

i. Spawning substrate - Abbeystead Reservoir appears to be preventing the natural replenishment of gravel in the main river with gravel from the upper Wyre catchment. In addition, the availability of suitable spawning substrate in the main river downstream of Churchtown Weir is extremely limited due to heavy deposition of silt throughout this area.

ii. Acid stress - Salmon spawning in the upper catchment is probably limited by the effects of acid rain. This is especially true in the Marshaw Wyre, the Tarnbrook Wyre and the upper reaches of tributaries such as Cam Brook.

iii. Barriers to migration - Lee Bridge Weir at the foot of Tarnbrook Wyre is probably impassable to adult migratory fish. The fish pass at Churchtown Weir is inefficient and needs to be improved.

Recommendation 1.

A full habitat audit of the Wyre catchment should be carried out. This should identify:

- i. Barriers to fish migration.
- ii. The spawning substrate quality present in different areas of the catchment.
- iii. Seasonal fluctuations in pH in different parts of the catchment.
- iv. Any other factors limiting to adult return, spawning success and juvenile survival.

Recommendation 2.

A scheme should be developed to mitigate for the adverse impact of Abbeystead Reservoir on the natural replenishment of gravel in the river downstream.

- e). There appear to be low numbers of adult salmon returning to the Wyre each year. This observation is made on the basis of the low level of the annual rod catch, the limited juvenile distribution found during the course of this survey and the low numbers of salmon and sea trout redds counted.

- f). Given a probably limited number of returning adults, it is important that their exploitation is closely monitored and that sufficient spawning substrate is available for the spawning escapement that takes place.

Recommendation 3.

A programme to stock the Wyre catchment with juvenile salmon should be formulated, to increase numbers of adults returning to the river.

It is not recommended that the initial stocking should involve the removal and stripping of Wyre salmon. This is because of the difficulty in obtaining sufficient adult fish and the risks associated with taking a large proportion of the natural broodstock from the river for hatchery purposes.

However, this stocking should be carried out using a source of juveniles from a catchment as similar in nature to the Wyre as possible. The Hodder catchment would be a suitable source of broodstock, because this river is similar to the Wyre in terms of geography, geology and water chemistry.

It is recommended that a proportion of the stocked fish are micro-tagged as pre-smolts. This will enable the success of the stocking programme to be assessed. The survival of stocked fry could be assessed by targetted electric fishing surveys of stocked areas.

1.1.2. Trout.

- a). The distribution and densities of juvenile trout in the study area were generally better than those of juvenile salmon.
- b). The factors outlined above which appear to have had an adverse impact on juvenile salmon populations, are likely to be limiting also to juvenile trout densities and distribution.
- c). The higher densities and wider distribution of the juvenile trout in Marshaw Wyre and Tarnbrook Wyre are likely to reflect the greater resistance of juvenile trout to acid stress. In Tarnbrook Wyre, the good densities of trout found probably result from resident brown trout spawning upstream of Lee's Bridge Weir.
- d). The very high densities of both 0+ and older than 0+ juvenile trout found in Damas Gill highlight the importance of this beck as spawning and nursery habitat for trout. It is likely that Damas Gill produces a large proportion of the juvenile trout in the Wyre catchment.

Recommendation 4.

A study of Damas Gill should be carried out to determine why this beck is so productive.

Recommendation 5.

A group of representatives from the NRA, local angling clubs and riparian owners should be formed. This group would be responsible for the development and implementation of a strategy to improve the Wyre migratory salmonid fisheries.

1.2. COARSE FISH.

- a). Twelve coarse fish species were found in the study area. In the area of the river exploited by coarse anglers, coarse fish biomass at all of the sites studied (except Wy20.) was above a minimum level of 200 kg.hectare-1.
- b). Juvenile coarse fish appeared to be absent from all of the sites studied. This might reflect poor spawning success and/or juvenile survival in the lower river.
- c). The apparent very low level of juvenile recruitment of the major coarse fish species in the Wyre below Churchtown Weir is likely to be due to the limited amount of suitable spawning and nursery habitat present in this area. Juvenile chub were found upstream of Garstang, where suitable spawning and nursery habitat were available.

Recommendation 6.

A full habitat assessment of the Wyre downstream of Churchtown Weir should be carried out. In particular, this should provide an estimate of the amount and location of coarse fish spawning and juvenile habitat present.

Recommendation 7.

Stocking of the coarse fishery below Churchtown Weir with juvenile coarse fish may need to be carried out. The species stocked should include chub, dace and roach.

Recommendation 8.

The possibility of improving access for coarse fish past the barrier of Churchtown Weir should be assessed. This would allow coarse fish to reach those areas of the catchment where suitable spawning and nursery habitat exist.

Recommendation 9.

A study should be considered, to study the age composition of the various components of the Wyre coarse fish stock. This would require the collection of representative scale samples from the various coarse fish species present. This would necessitate the co-operation of coarse anglers who fish the river.

- d). It is very difficult to obtain good quality stock assessment information about coarse fish populations in the deeper areas of the lower river. It is important that the maximum use is made of information provided from coarse anglers' catch statistics.

Recommendation 10.

Coarse anglers who regularly fish the Wyre should be encouraged to participate in the Coarse Angling Log Book Scheme. This would make available good quality catch per unit effort data from the coarse fishery.

2. INTRODUCTION.

The aim of this study was to assess the status of the juvenile salmonid and coarse fish populations of the Wyre catchment. Emphasis was placed on an examination of the distribution of spawning and nursery areas for salmonids within the study area and an assessment of the status of juvenile salmonid stocks. The species distribution and spawning areas for other fish species were also identified where possible and the status of the Wyre coarse fishery, downstream of Churchtown Weir, assessed.

This report examines the results of stock assessment surveys carried out in the Wyre catchment between 2/06/92 and 11/08/92. Forty-six sites were surveyed from Tarnbrook Wyre (SD. 598577) and Marshaw Wyre (SD. 614541) downstream to St Michaels (SD. 465411) (Figure 1).

Flow, habitat and in-river obstructions have been shown to affect juvenile salmonid densities (Elliot, 1984; Gardiner, 1989). A habitat description is provided for each site studied during the course of this study.

2.1. The Wyre catchment.

The Wyre catchment drains the eastern side of the Bowland Fells in Lancashire. The river is approximately 38km in length from the source of its longest tributary (The Tarnbrook Wyre), downstream to the tidal limit at Great Ecclestone. The Wyre estuary is approximately 15km in length from the tidal limit downstream to where the river flows into Morcambe Bay at Fleetwood.

The Wyre rises from two major tributaries near Abbeystead in the Forest of Bowland. The Tarnbrook Wyre rises on Tarnbrook Fell (SD. 612588) and the Marshaw Wyre rises on Threaphaw Fell (SD. 624546). These tributaries meet to form the main River Wyre near Abbeystead (SD. 564541).

The river has two other major tributaries. The Calder which rises on Bleasdale Fell (SD. 588490) and flows South West to join the Wyre north of Catterall (SD. 492431). The Calder suffers low flow problems as a result of abstraction. The River Brock rises to the West of Blindhurst Fell (SD. 592463) and joins the Wyre at St Michaels (SD. 468412).

The Wyre between Abbeystead and Garstang is used as a natural water transfer system. Water is transferred from an abstraction point on the River Lune into the Wyre downstream of Abbeystead (SD. 556538). An equivalent volume of water to that transferred, as well as some additional water from the Wyre itself, is then abstracted at Garstang (SD. 496455).

Extensive flood defence works have been carried out in the lower reaches of the river, particularly between Churchtown and Great Ecclestone. These works have included straightening and bank reformation work as well as the creation of two flood basins at Garstang (SD. 496455) and downstream of Churchtown (SD. 475415).

2.2. The Fisheries of the River Wyre.

The Wyre supports recreational fisheries for both coarse and game fish. Within the Wyre estuary there are commercial net fisheries for marine species such as mullet and bass. A commercial elver fishery also exists downstream of St Michaels.

The survey area is predominantly used as a game fishery. Salmon and sea trout are fished for from Abbeystead downstream to the tidal limit. The river is also fished for brown trout and this species is regularly stocked at a takeable size (larger than 200mm) by the various riparian owners and angling clubs which have fishing rights in the area.

An established mixed coarse fishery, exploited by a number of different angling clubs, exists between Churchtown Weir and the tidal limit at Great Ecclestone.

2.3. Geology.

The Wyre rises in an extensive area of Millstone Grit and crosses a band of Permo-Triassic Sandstone for approximately 8km at Garstang, before flowing across the Keuper Marl area of the Fylde to Fleetwood.

The Superficial geology of the catchment is a mixture of alluvium and boulder clay, which is bordered to the north by an area of lowland peat.

2.4. Land use.

The major part of the study area is agricultural. The moorland surrounding the upper tributaries of the Wyre is used for rough shooting of grouse and pheasant. Upstream of Abbeystead much of the river flows through improved pasture for sheep and cattle and this type of land use borders the river throughout the rest of its length downstream.

A gravel quarry existed at the confluence of Foxhouses Beck and the River Wyre. At the time of this survey the quarry was no longer operational and it has now been dismantled. Extensive settlement lagoons from the quarry still exist next to Foxhouses Beck.

The towns of Catterall, Garstang and St Michaels border the middle and lower reaches of the river. The estuary is bordered to the east by the extensive urban area of Thornton and Fleetwood.

2.5. Water quality.

The water quality in the study area is generally of a high standard. Both Tarnbrook Wyre and Marshaw Wyre are Class 1B. From the confluence of these tributaries to the confluence of the River Brock the Wyre is Class 1A. From this confluence downstream to the tidal limit the Wyre is Class 1B.

There are acid rain problems at the head of the catchment in Tarnbrook Wyre and Marshaw Wyre. There are waste water treatment works, which discharge into the Wyre, at Garstang and Churchtown. The other major discharge in the catchment is from the ICI Hillhouse plant which has an industrial discharge into the estuary. Water quality in the catchment is outlined in Figure 2.

2.6. Water quantity.

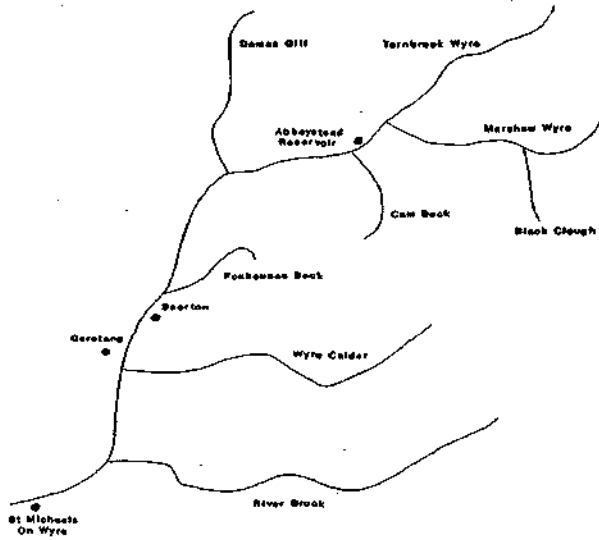
Water quantity and flow regimes in the Wyre catchment are adversely effected by abstraction from the river, from groundwater via boreholes and by water transfer schemes.

Low flow problems exist on the Tarnbrook Wyre as a result of water transfer from the fells in this area into Damas Reservoir. There are also reduced flows in Damas Gill because no flow is provided to compensate for the effects of water retention in this reservoir.

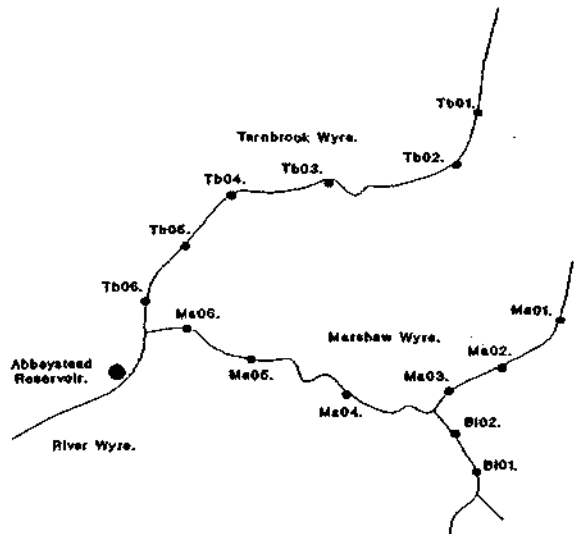
All of the water from the upper Calder and the upper reaches of Grizedale Beck is transferred to Grizedale Reservoir. This results in low flows in these watercourses. In the Calder, there is no water in the upper catchment for nine months of the year. An abstraction by the British Waterways Board from the lower Calder, to maintain water levels in the Lancaster Canal, uses all of the water from the lower reaches of the Calder during periods of low flow.

Finally, borehole abstraction from groundwaters in the area of the lower Wyre have a direct effect by reducing river flows downstream of the River Brock.

Wyre Catchment (Not to scale).

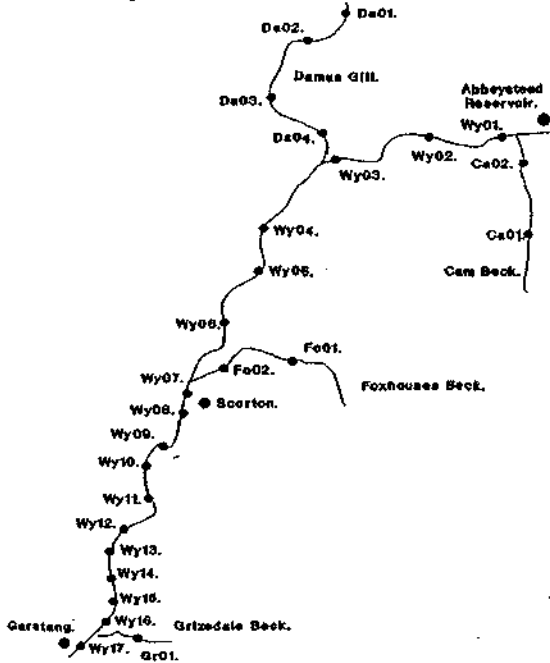


Tarnbrook Wyre and Marshaw Wyre.



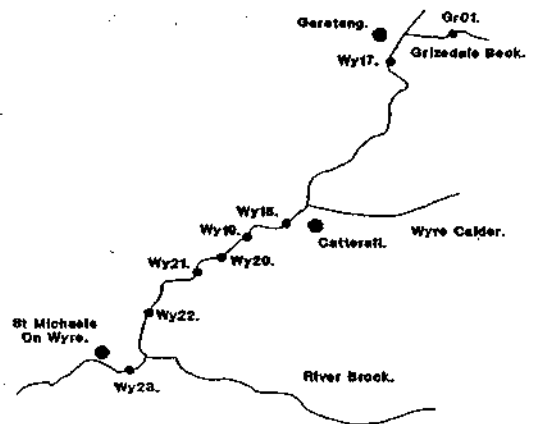
(Not to scale).

Abbeystead to Garstang.



(Not to scale).

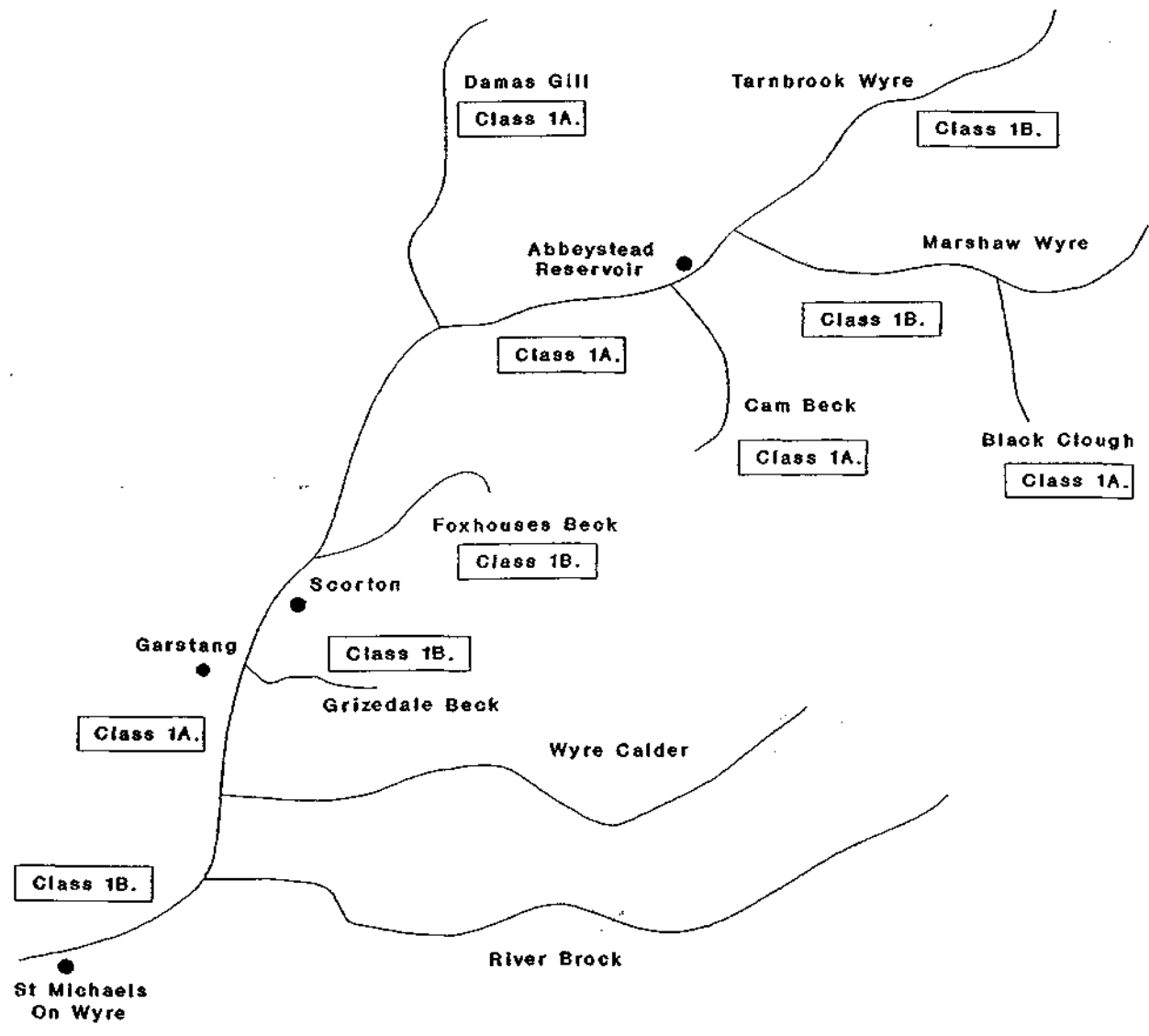
Garstang to St Michaels.



(Not to scale).

Figure 1.

Figure 2. **Wyre Catchment
Water Quality.**



3. METHODS.

The main river and tributaries within the study area were sampled by electric fishing at approximately 1km intervals. All sites were surveyed using pulsed D.C. and either one or two hand-held anodes.

At all sites, the number of fish of each species and the fork length (to the nearest 5mm) of individual fish was recorded. Examination of the length frequency distribution for juvenile salmon and trout made it possible to separate these species into 0+ and older than 0+ age classes (Figures 3 and 4). For the purposes of this report, all salmon parr of less than 85mm and all brown trout juveniles of less than 95mm, were regarded as being of the 0+ age group.

Three sites were sampled by the successive removal of fish using three fishings between an upstream and downstream stop net. Quantitative estimates of the fish populations present at these sites were calculated using the method of Carle and Strub (1978). Estimates of population density were calculated for 0+ and older than 0+ salmonids, brown trout exceeding the takeable size limit (greater than 200mm) and other species. These were expressed as numbers of fish per 100m².

If the overall probability of capture was greater or equal to 0.3 and was constant for each fishing then the population estimate was considered valid. When this was not the case then a minimum estimate of the population was calculated (number of fish/total area) x 100. The remaining forty-three sites were sampled semi-quantitatively. Thirty-eight sites, downstream to Churchtown, were sampled using a single fishing of twenty minutes duration without the use of stop nets to provide a semi-quantitative estimate of the population structure at the site. Sites Wy19. to Wy23. were sampled using two anodes operated from a punt. These sites were fished by drifting downstream to a stopnet. Minimum estimates of the densities of the various population components at all of the semi-quantitative survey sites were calculated as outlined above.

The salmonid populations were classified according to the density of fish recorded. The classification system used allocates each site a class ranging from A to E in order of decreasing salmonid density. This classification system was developed by the NRA for use in the rivers of the North West Region (Table 1.)

Table 1. Abundance categories (N/100m²) for juvenile salmon and trout for rivers of the North West Region of the NRA.

Quantitative survey

Salmon and trout

	Fry (0+)	Parr (older than 0+)
Class A	More than 100.00	More than 20.00
Class B	50.01 - 100.00	10.01 - 20.00
Class C	25.01 - 50.00	5.01 - 10.00
Class D	0.01 - 25.00	0.01 - 5.00
Class E	0.00	0.00

Semi-quantitative survey

Salmon

	Fry (0+)	Parr (older than 0+)
Class A	More than 46.30	more than 8.48
Class B	23.16 - 46.30	4.24 - 8.47
Class C	11.58 - 23.15	2.12 - 4.23
Class D	0.005 - 11.57	0.004 - 2.11
Class E	0.00	0.00

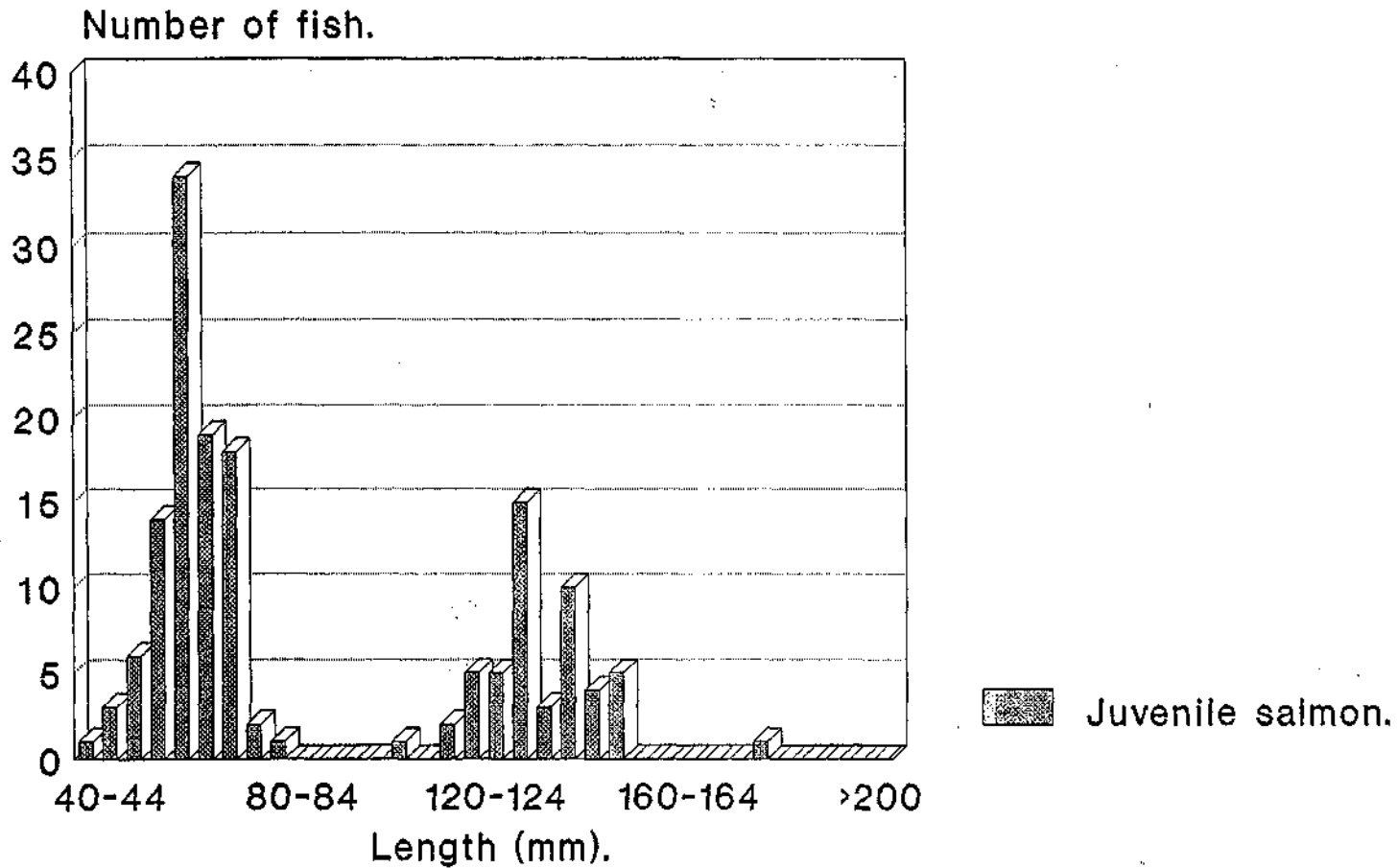
Trout

	Fry (0+)	Parr (older than 0+)
Class A	More than 51.50	more than 10.78
Class B	25.76 - 51.40	5.39 - 10.77
Class C	12.88 - 25.75	2.70 - 5.38
Class D	0.005 - 12.87	0.005 - 2.69
Class E	0.00	0.00

Figure 3.

Wyre juvenile salmon.

Length frequency distribution.

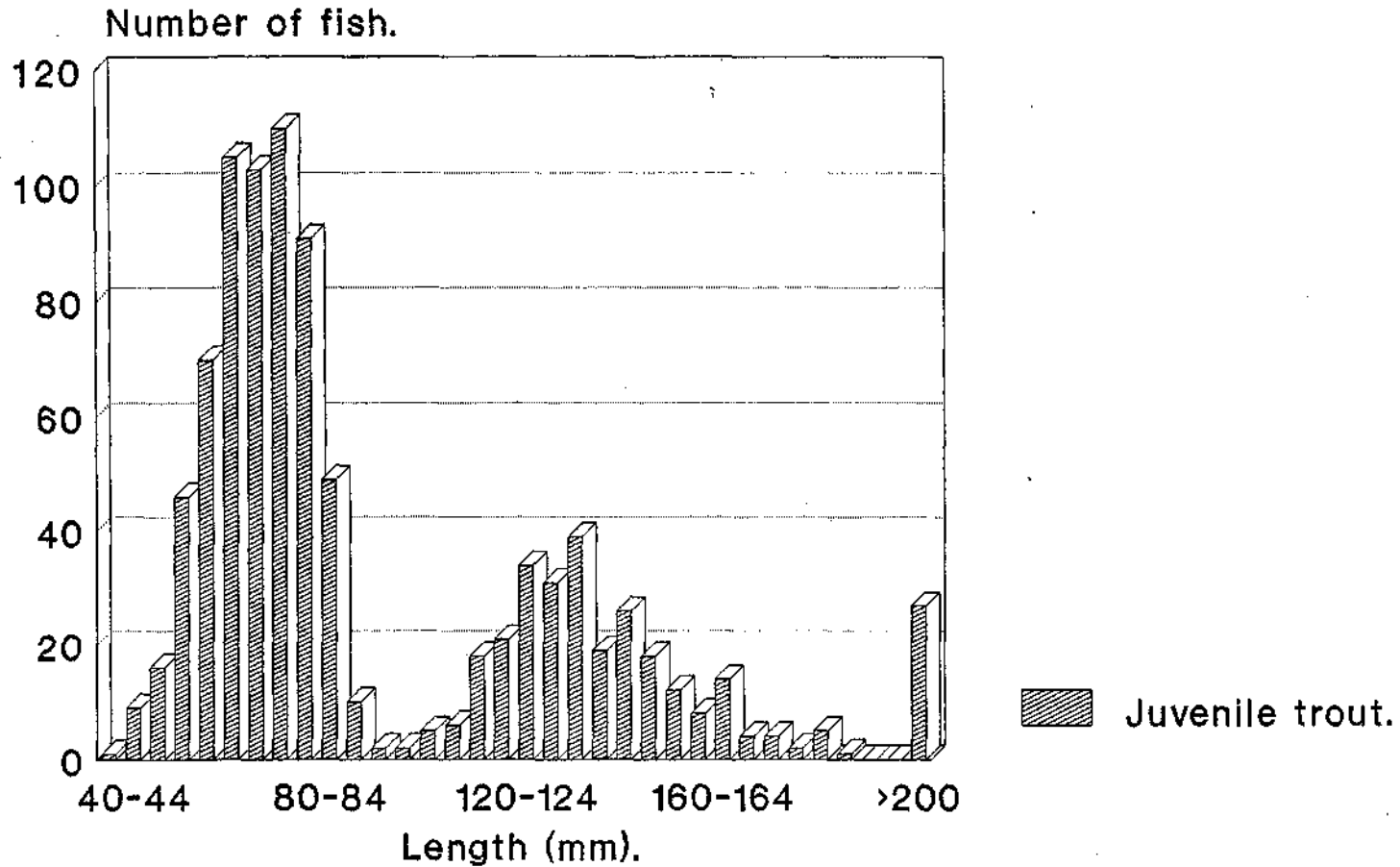


1992 survey.

Figure 4.

Wyre juvenile trout.

Length frequency distribution.



1992 survey.

4. RESULTS.

4.1. Species diversity and distribution.

Fifteen species of fish were found within the study area. These are listed below. The distribution of both the major coarse fish species and juvenile salmon and trout is shown in Figure 5.

Species list.

Salmon	(<i>Salmo salar</i>)	- 0+ and older than 0+ parr.
Brown trout	(<i>Salmo trutta</i>)	- 0+ and older than 0+ parr.
Rainbow trout	(<i>Onchorynchus mykiss</i>)	- Adults only.
Chub	(<i>Leuciscus cephalus</i>)	- 0+ juveniles only.
Roach	(<i>Rutilus rutilus</i>)	
Dace	(<i>Leuciscus leuciscus</i>)	
Common bream	(<i>Abramis brama</i>)	
Pike	(<i>Esox lucius</i>)	
Gudgeon	(<i>Gobio gobio</i>)	
Bullhead	(<i>Cottus gobio</i>)	
Stoneloach	(<i>Noemacheilus barbatulus</i>)	
Minnnow	(<i>Phoxinus phoxinus</i>)	
Stickleback	(<i>Gasterosteus aculeatus</i>)	
Eel	(<i>Anguilla anguilla</i>)	
Flounder	(<i>Platichthys flesus</i>)	

4.2. Salmonid densities.

The number of sites in each density category for salmon and trout is shown in Table 2. The distribution of sites of a particular category, for 0+ salmon, older than 0+ salmon, 0+ trout and older than 0+ trout are shown in Figures 6-17.

Table 2. Number of sites in each density category for salmon and trout.

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class A	0	0	4	7
Class B	0	1	1	3
Class C	0	0	3	7
Class D	16	11	24	20
Class E	30	34	14	9

4.3 Coarse fish densities.

A target biomass for coarse fish in a lowland river such as the lower Wyre is accepted as being between 200-400kg per hectare. All of the sites studied in the area of river exploited for coarse fishing meet this target, with the exception of the site above St Michaels Weir (Wy23.).

The efficiency of the surveys in the area of river downstream of Churchtown Weir was severely limited by the equipment available. The electric fishing punt was not designed for use in deep water. In all of the sites studied fish were seen to evade the electrodes. The fish density and biomass present in sites Wy18. to Wy23. are likely therefore to be higher than suggested by the survey results.

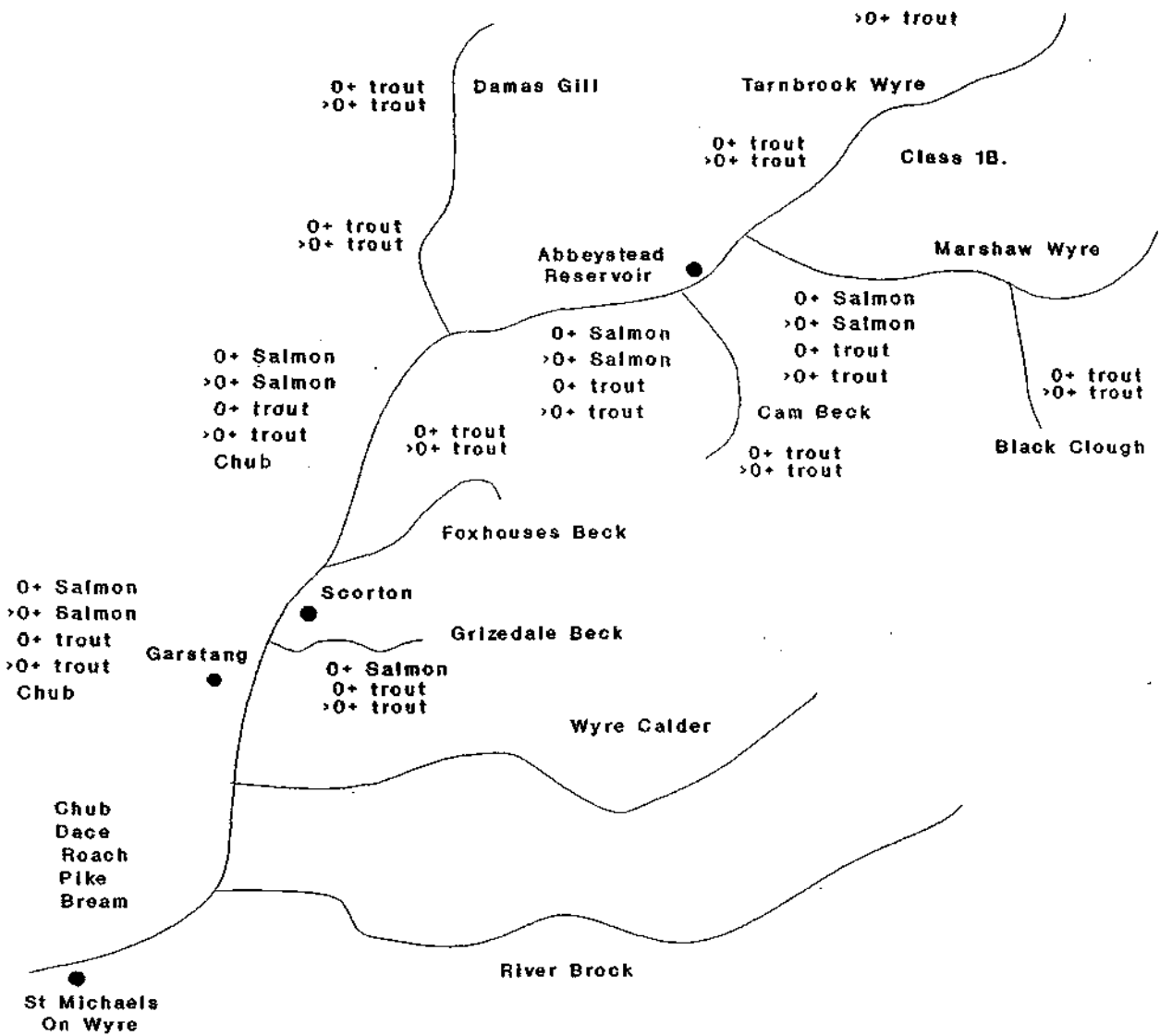
A variety of coarse fish species were found at the survey sites. No common bream were caught at the survey sites, but two substantial shoals of this species were observed upstream of St Michaels during the course of the survey. Bream have also featured in anglers catches in this part of the river.

There was a marked absence of juvenile coarse fish in the study sites. This may indicate poor juvenile recruitment or reflect a decreased efficiency for catching small fish in the equipment used. The latter explanation seems unlikely because gudgeon, minnows and small flounder were caught in a number of sites.

Chub were the dominant species in terms of biomass in all of the sites studied. Dace were the most common species in site Wy19. at Churchtown, but were absent from 4 sites and only present in low densities in the other 2 sites studied. Roach were found in 4 of the sites studied but were only present in very low densities.

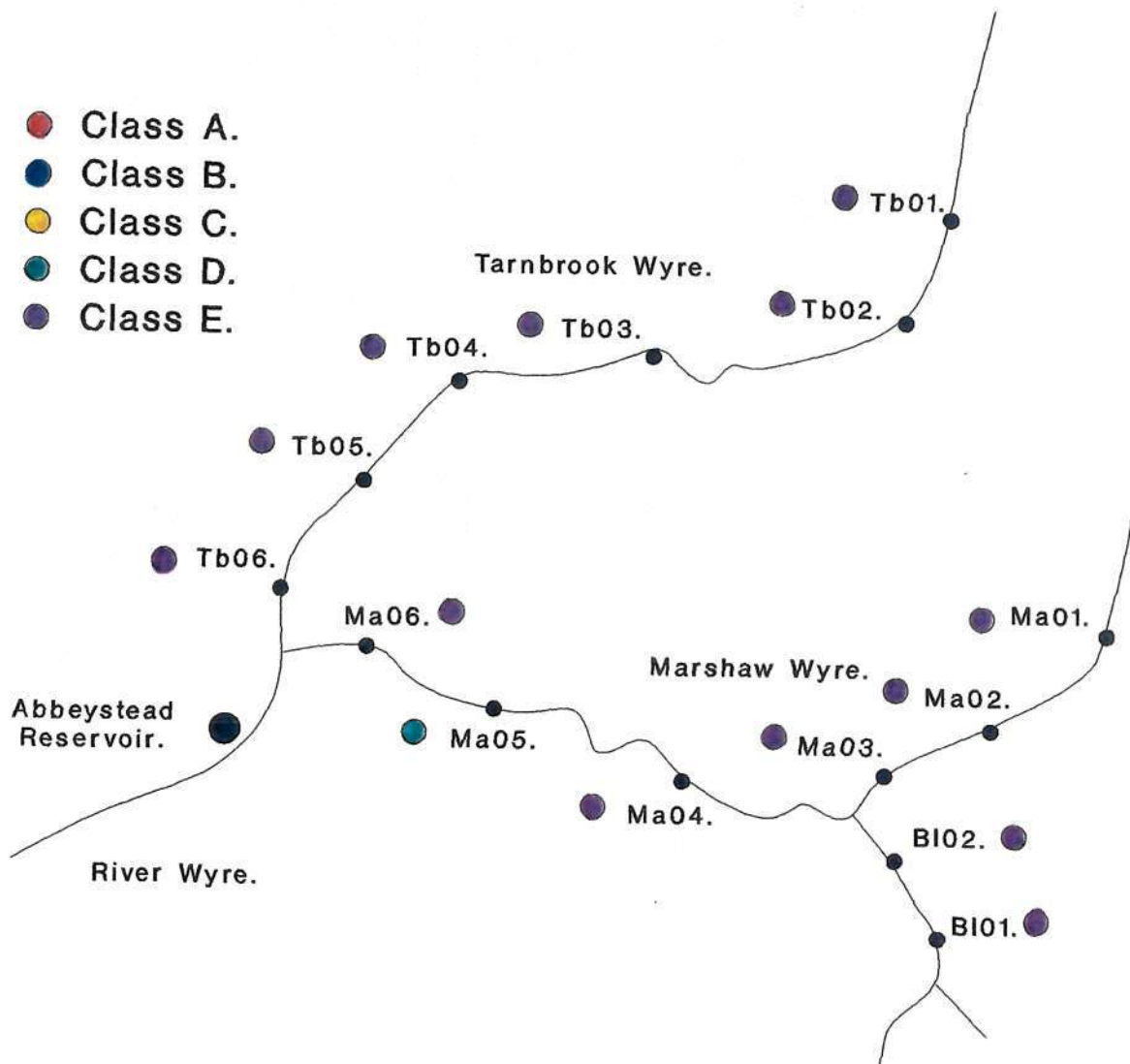
Pike were found in 3 sites (Wy20., Wy21., Wy22.). There was no evidence from the survey results of a greater than expected pike population in the survey area, as has been suggested by some local anglers.

Figure 5. **Wyre Catchment Species Distribution.**



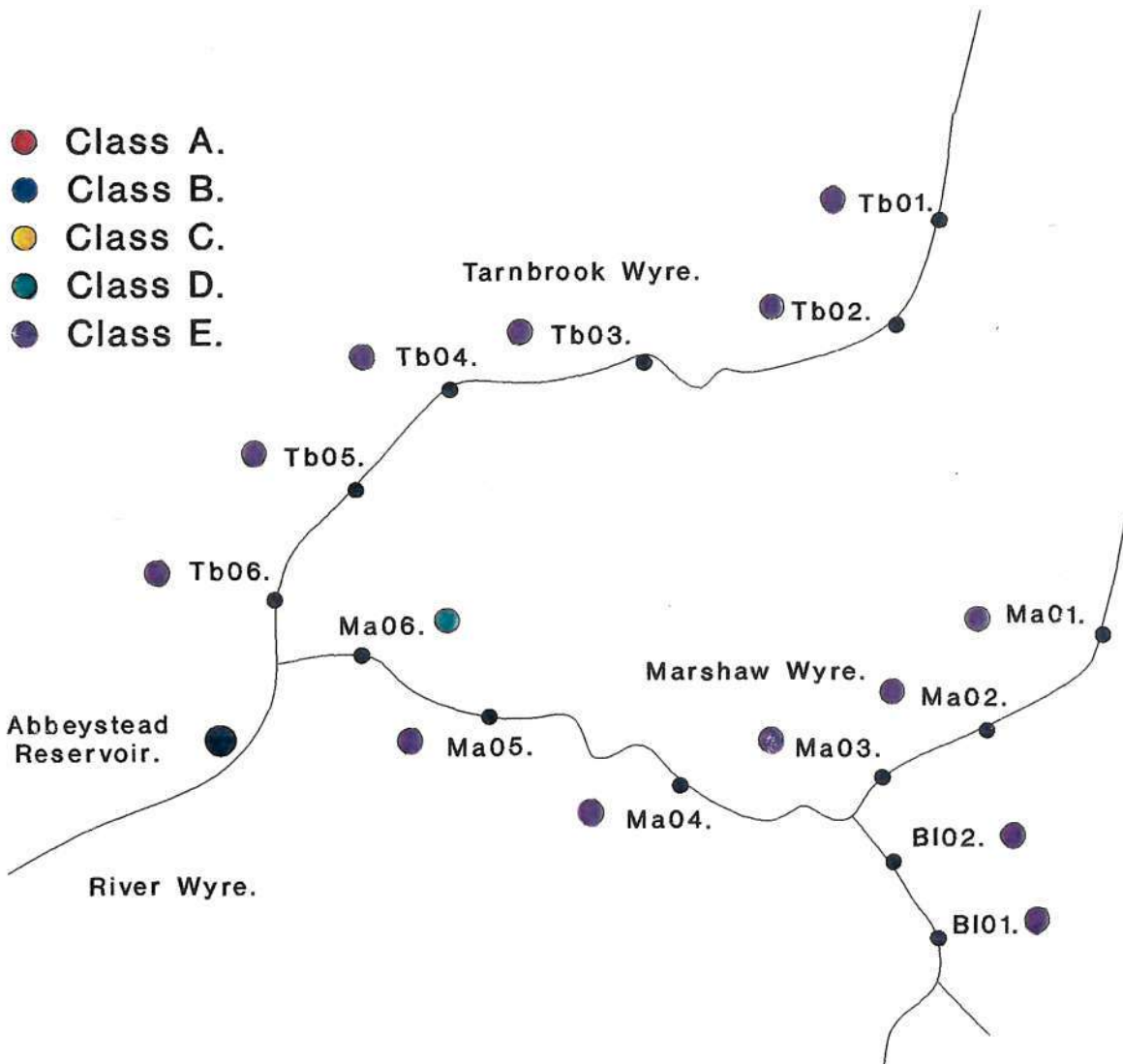
(Not to scale).

Figure 6. Tarnbrook Wyre and Marshaw Wyre.
0+ salmon density categories.



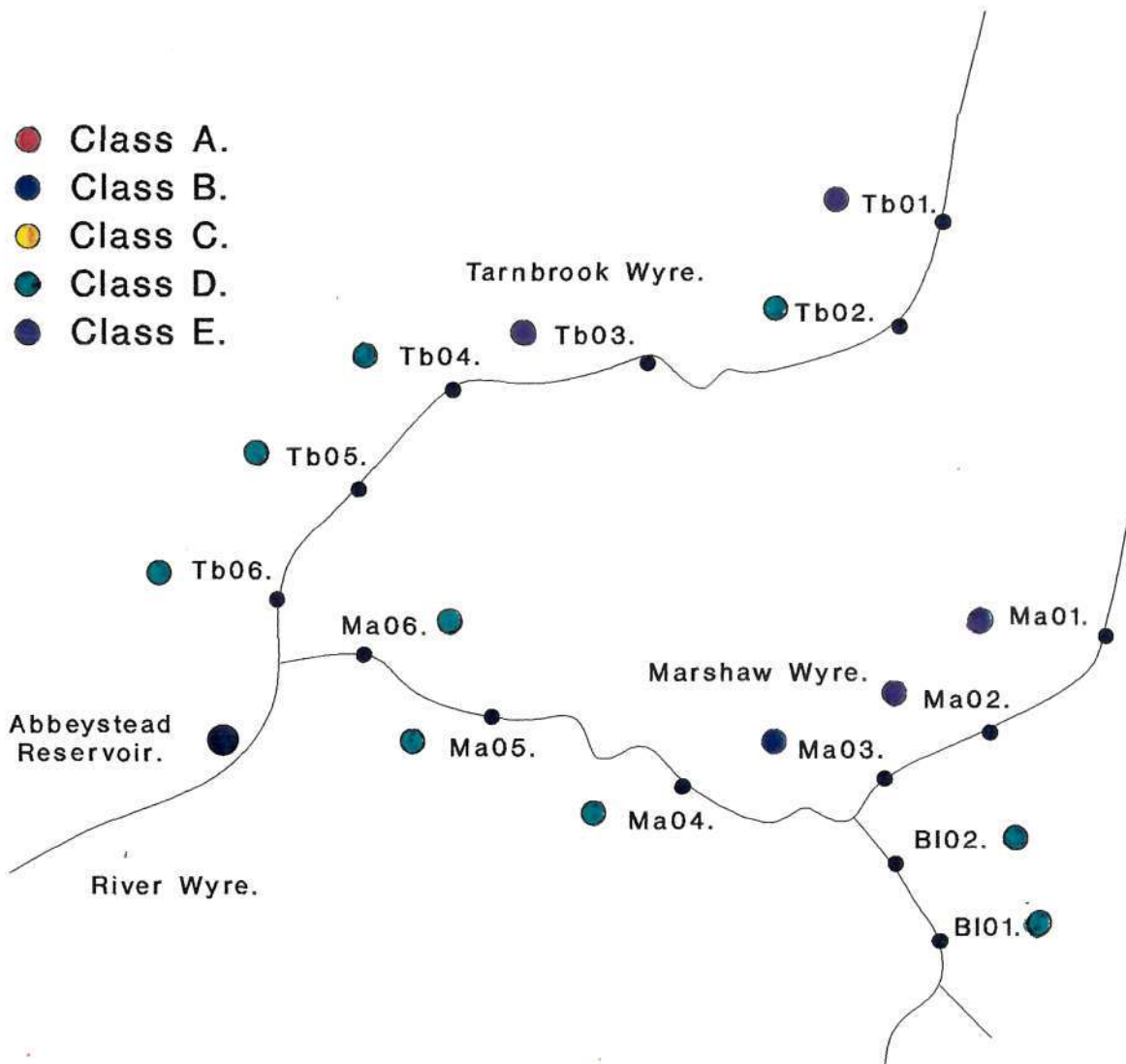
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Figure 7. Tarnbrook Wyre and Marshaw Wyre.
Older than 0+ salmon density categories.



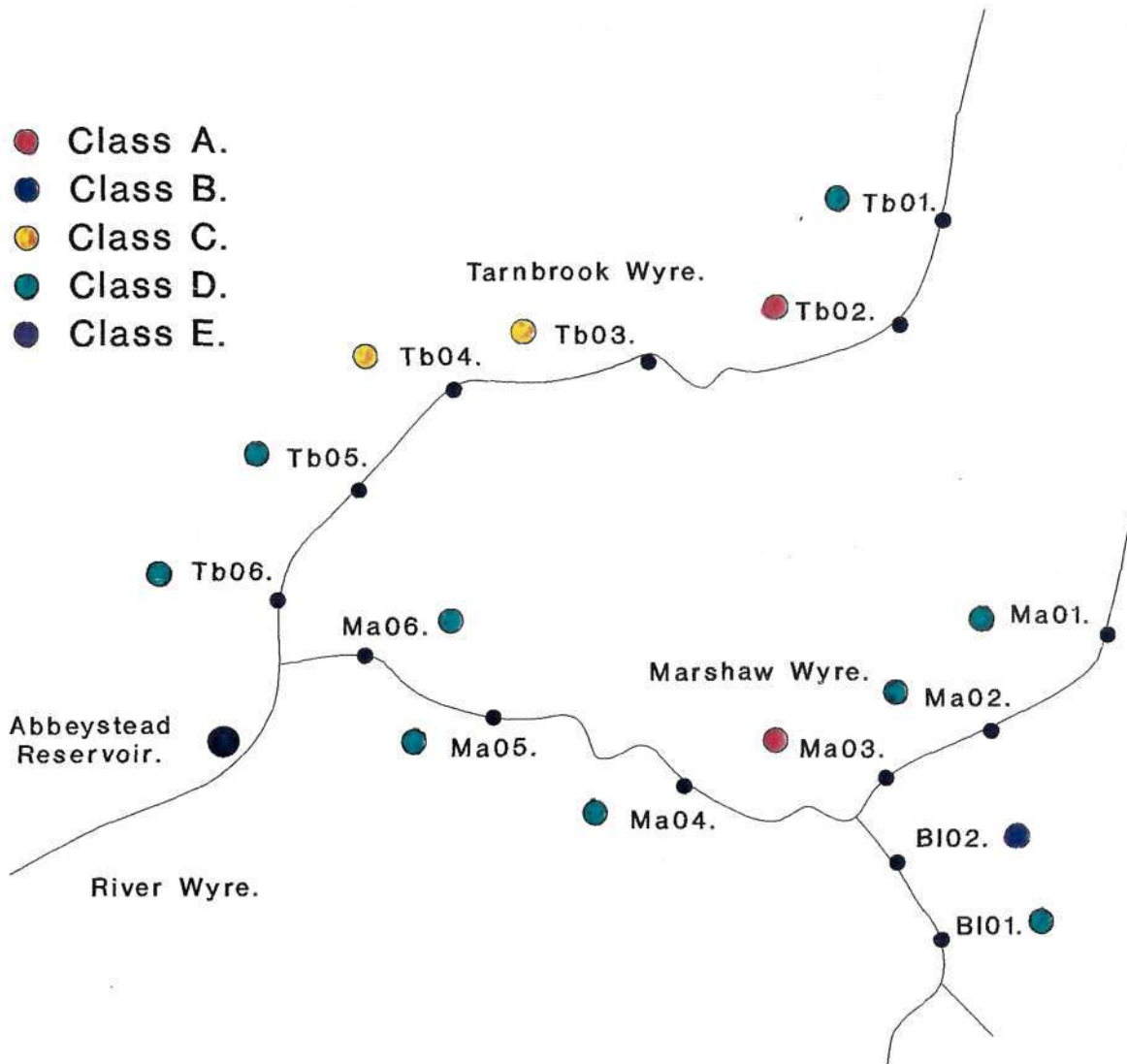
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Figure 8. Tarnbrook Wyre and Marshaw Wyre.
0+ trout density categories.



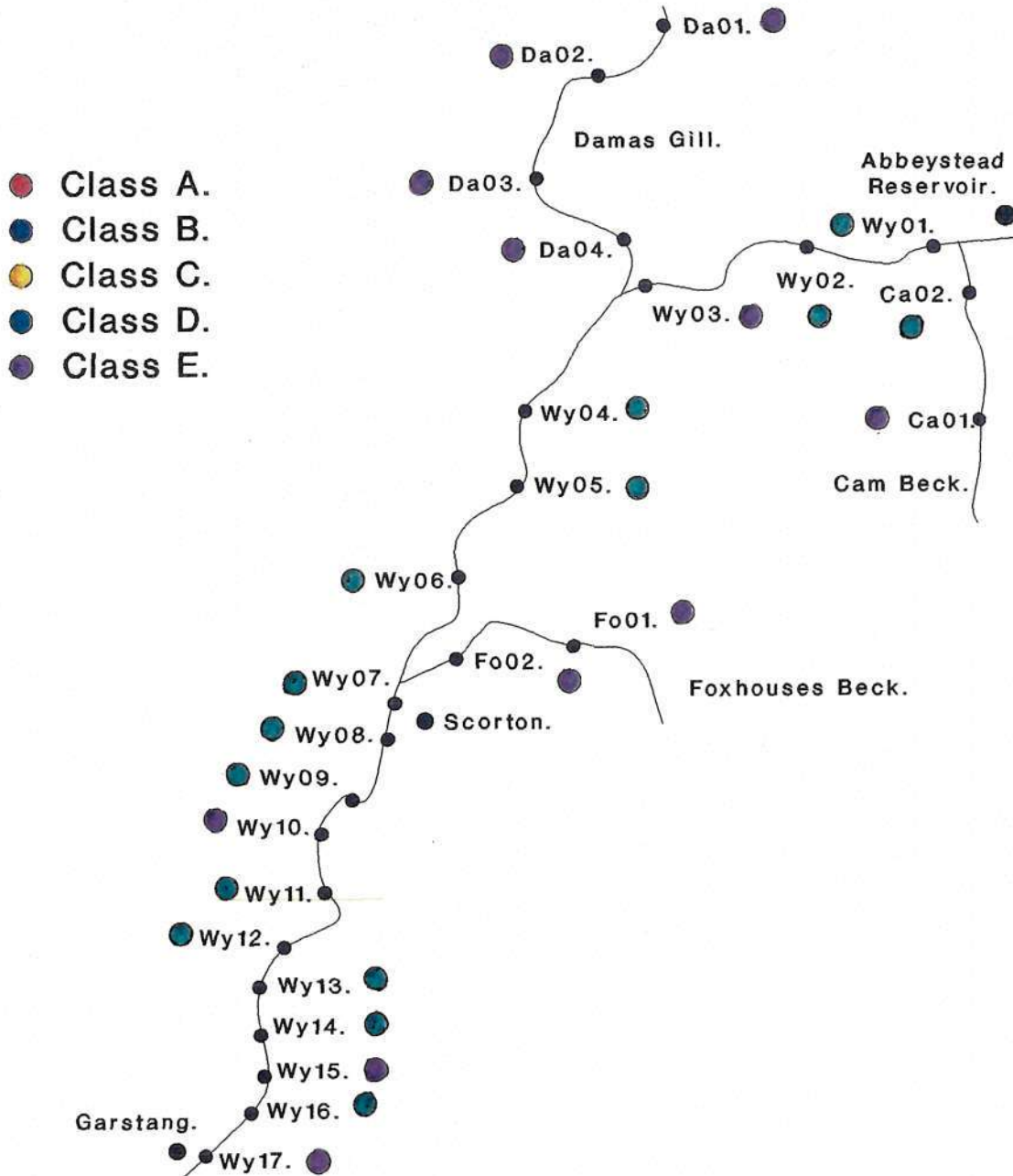
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Figure 9. Tarnbrook Wyre and Marshaw Wyre.
Older than 0+ trout density categories.



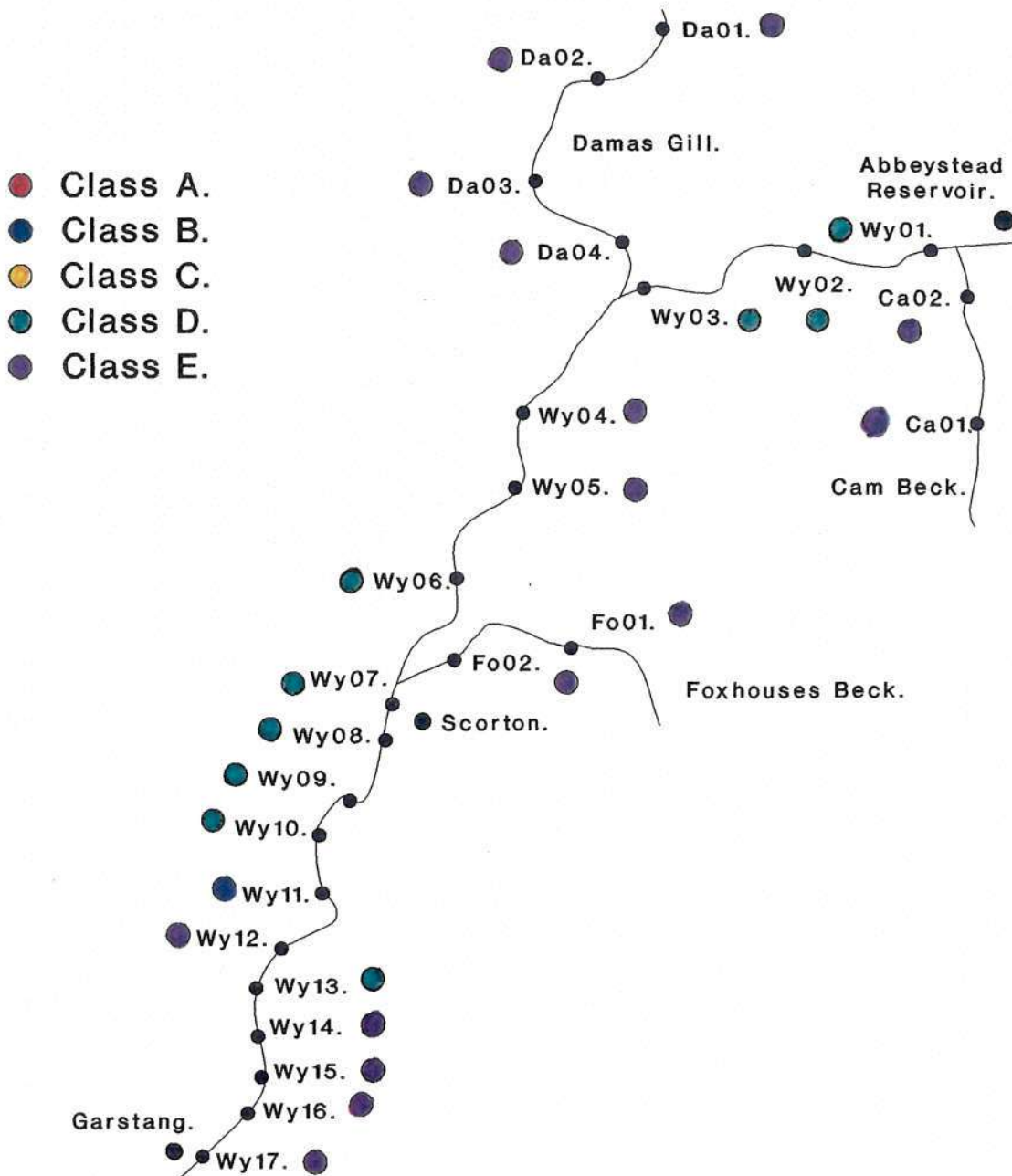
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Figure 10. **Abbeystead to Garstang.**
0+ salmon density categories.



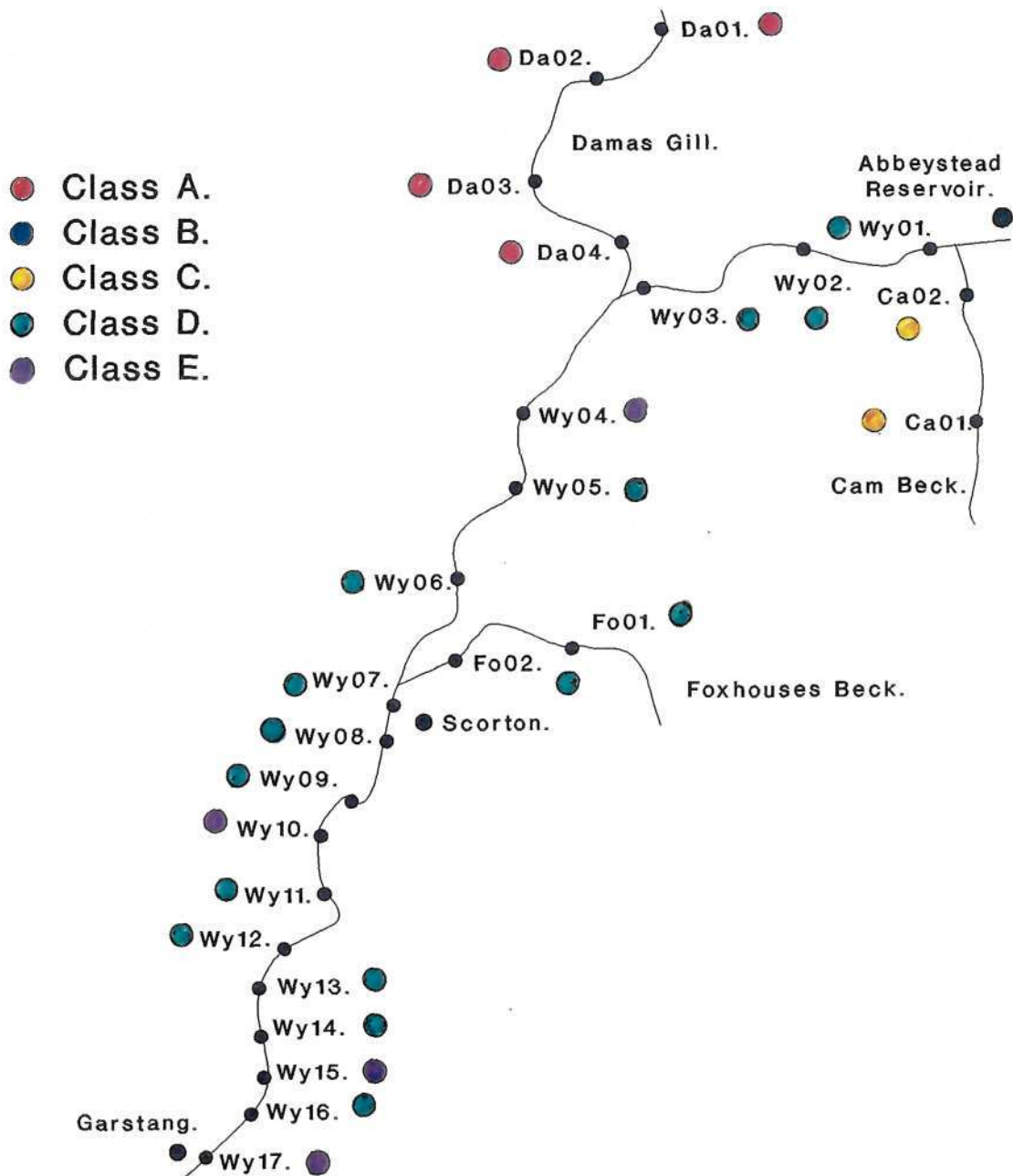
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Figure 11. **Abbeystead to Garstang.**
Older than 0+ salmon density categories



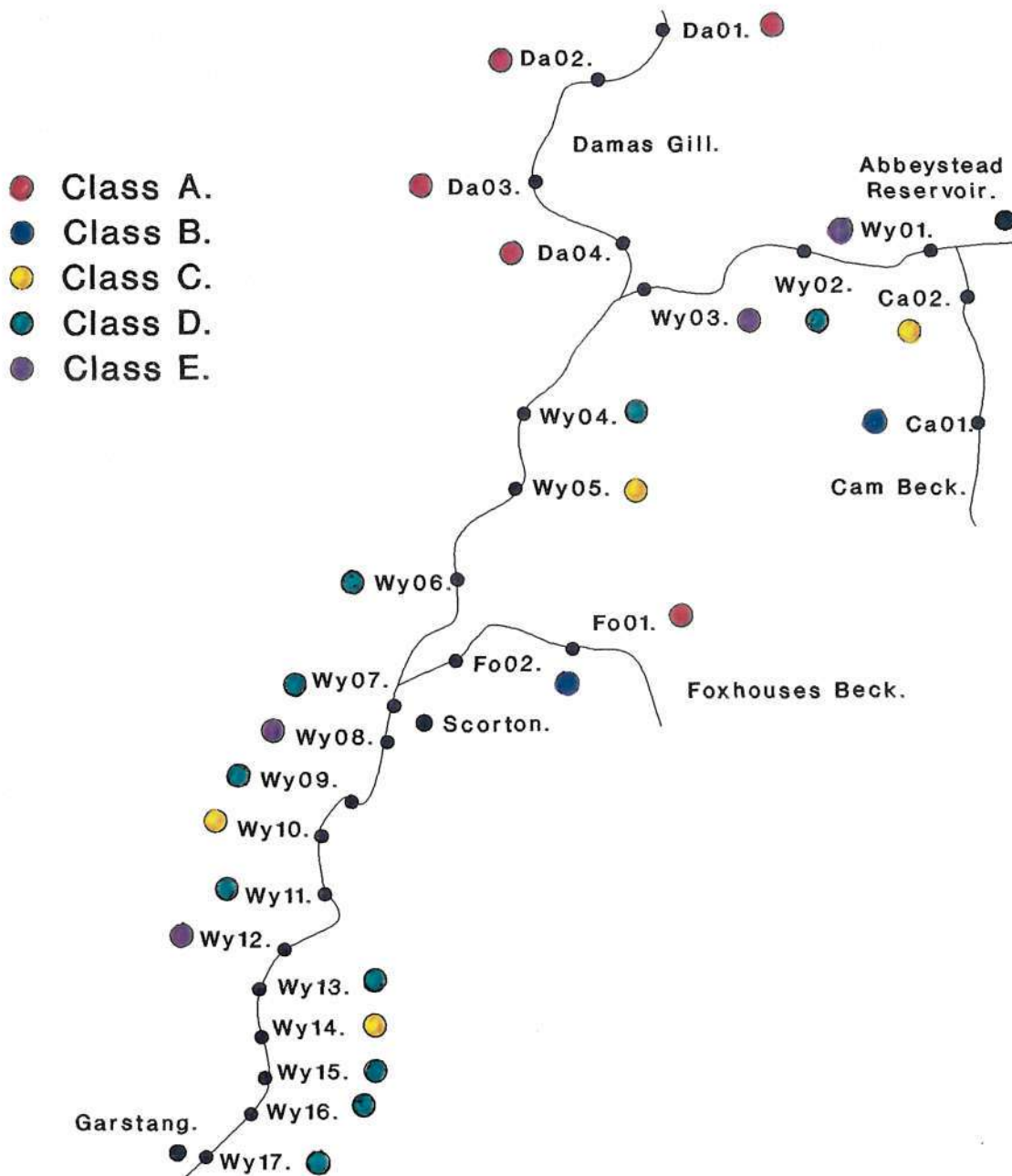
(Not to scale).

Figure 12. **Abbeystead to Garstang.**
0+ trout density categories.



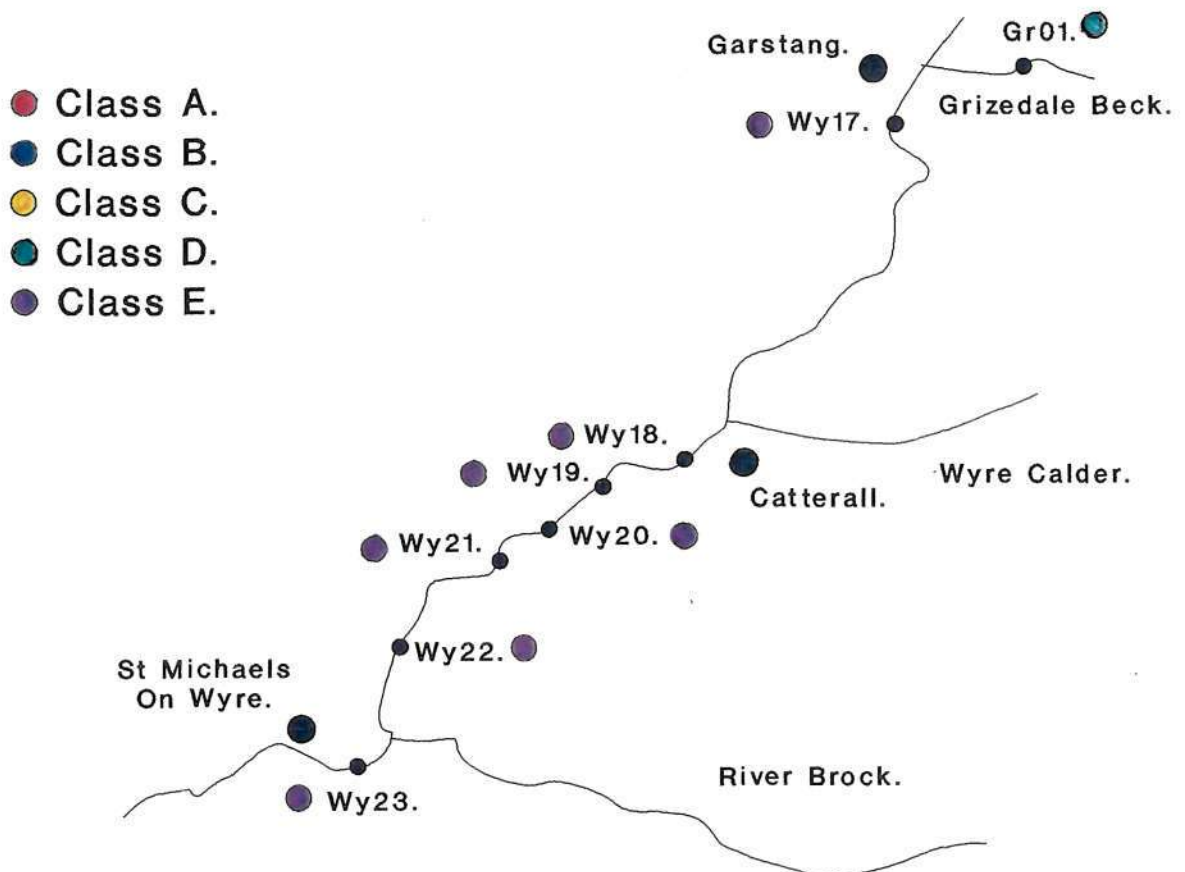
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Figure 13. **Abbeystead to Garstang.**
Older than 0+ trout density categories.



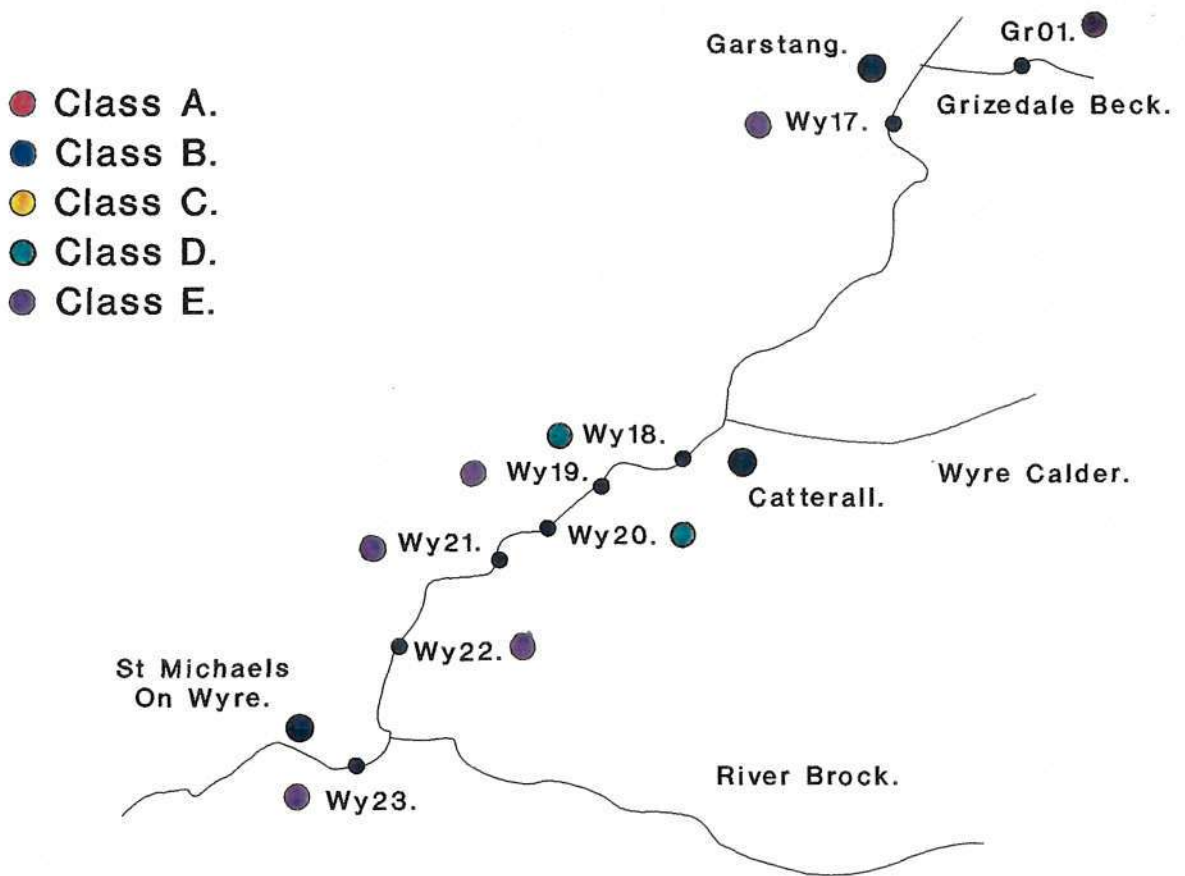
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Figure 14. Garstang to St Michaels.
0+ salmon density categories.



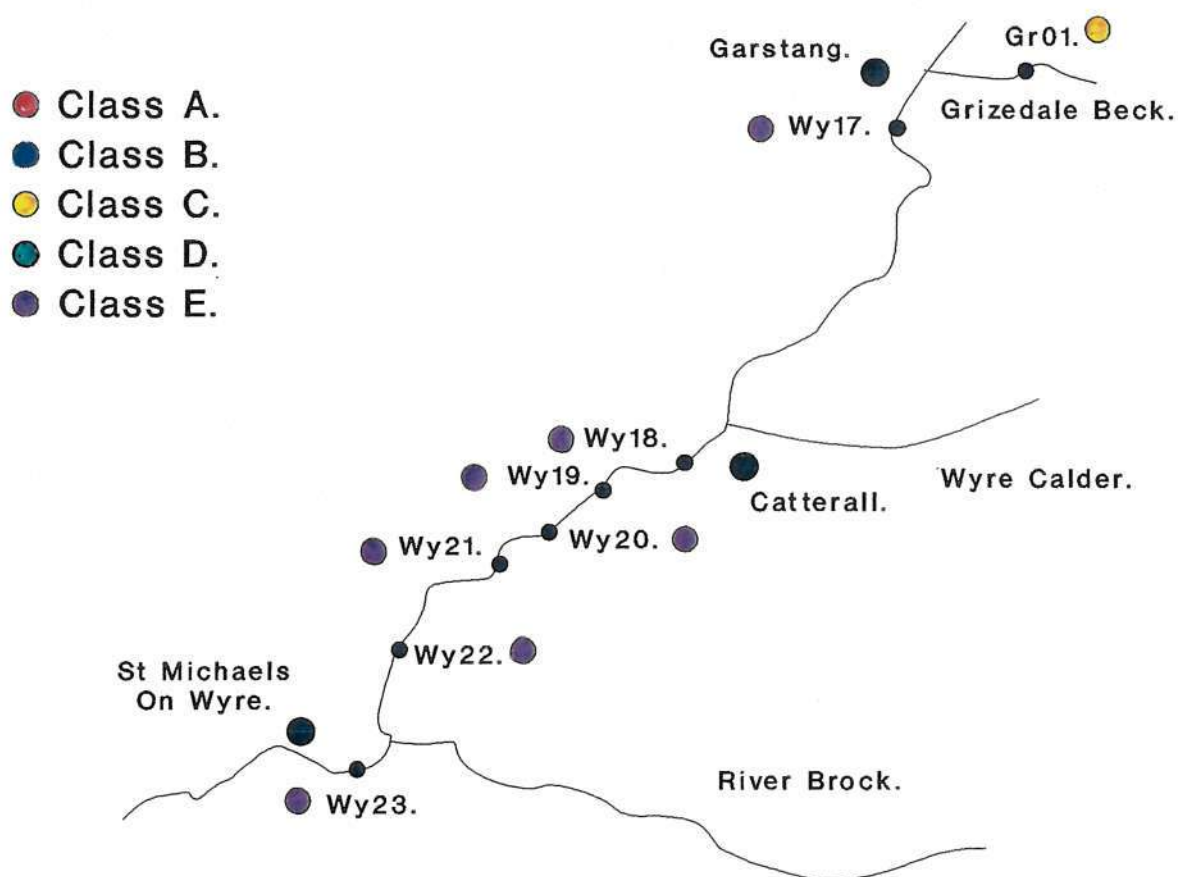
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Figure 15. Garstang to St Michaels.
Older than 0+ salmon density categories



(Not to scale).

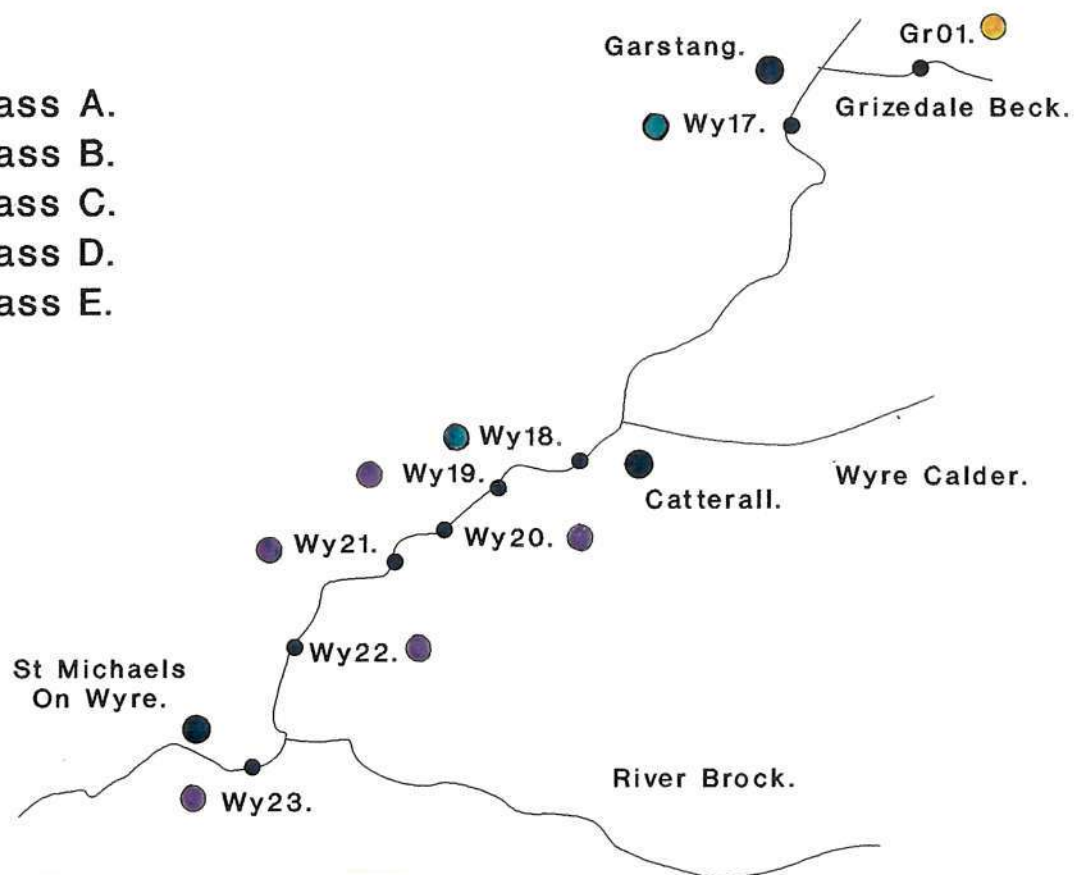
Figure 16. Garstang to St Michaels.
0+ trout density categories.



(Not to scale).

Figure 17. Garstang to St Michaels.
Older than 0+ trout density categories.

- Class A.
- Class B.
- Class C.
- Class D.
- Class E.



(Not to scale).

5. DISCUSSION.

5.1. Juvenile salmonids.

5.1.1. Juvenile salmon.

Juvenile salmon were found to have a limited distribution within the study area. In those sites where they were found, they were only present in low densities. The majority of juvenile salmon production in the Wyre catchment appeared to be from the main river between Scorton and Garstang.

It is apparent that natural spawning and/or juvenile salmon survival are very limited within the Wyre catchment.

The very poor juvenile salmon densities in the upper catchment may be a result of the adverse effects of acid stress. Acid rain is known to affect the upper Wyre catchment (A. Clarke, *pers. com.*). Both fluctuations in and low pH have been measured in Tarnbrook Wyre, ranging from as low as pH 3.7 to pH 8.2 (NRA Water Quality Archive Data).

It is probable that fluctuations in pH of this magnitude could greatly impair juvenile salmon survival. In the long term, poor juvenile salmon productivity from the upper catchment would result in few returning adults homing to this area.

In addition, there is a substantial barrier to fish migration at Lee Bridge Weir, at the foot of Tarnbrook Wyre (SD. 568552). This weir may be impassable to adult salmon and sea trout. In contrast, the fish pass at Abbeystead Reservoir appears to be effective and is not thought to prevent fish migration.

Sites in the main river upstream of Scorton had either very poor juvenile salmon densities, or juvenile salmon were absent entirely. The river-bed in this area is mainly made up of large cobbles, with little gravel of a suitable size for spawning. It has been suggested that Abbeystead Reservoir is acting as a trap for gravel washed down from the upper catchment. This would prevent gravel in the main river below the reservoir being replaced following wash-out by spates (A. Clarke, *pers. com.*).

Where good quality spawning gravel was present in the main river, in the Scorton to Garstang area, both 0+ and older than 0+ salmon were found (sites Wy04. to Wy16.). However, the densities at all of these sites for both 0+ and older than 0+ salmon were very poor (Class D), with the exception of site Wy11, which was Class B for older than 0+ salmon. This might result either from poor juvenile survival or from a low level of spawning, resulting from the presence of a low number of adult fish.

There is no evidence of salmon spawning downstream of Churchtown Weir and no suitable spawning substrate was observed in this area. It is thought that the older than 0+ salmon found in this area were smolts migrating downstream to the sea.

5.1.2. Brown trout.

The distribution and densities of juvenile trout in the study area were generally better than those of juvenile salmon.

The factors outlined above which appear to have had an adverse impact on juvenile salmon populations, are likely to be limiting also to juvenile trout densities and distribution.

The presence of high trout densities in some sites in the Marshaw Wyre and Tarnbrook Wyre is likely to reflect the greater resistance of juvenile trout to acid stress. In the Tarnbrook Wyre, the high densities of trout found probably result from resident brown trout spawning upstream of Lee's Bridge Weir.

The very high densities of both 0+ and older than 0+ juvenile trout found in Damas Gill highlight the importance of this beck as spawning and nursery habitat for trout. This is known to be a very productive sea trout spawning beck (S. Leech, *pers. com.*). It is quite likely that Damas Gill produces a large proportion of the juvenile sea trout in the Wyre catchment.

As for juvenile salmon, trout densities in the main river were poor and no trout were found downstream of site Wy18. Sites Wy10. and Wy14. were both Class C for older than 0+ trout. However, many of the older than 0+ trout found at these two sites were likely to be from angling club stocking rather than from natural production.

The major factor limiting juvenile trout densities in the main river is probably the availability of spawning substrate, as for salmon. It is possible that the regular stocking of this area with trout, carried out by local angling clubs, may also be having a deleterious impact on the indigenous trout population, which may result from competition by the large, stocked fish.

5.2. Coarse Fish.

Extensive flood defence works carried out since the beginning of the century have had a major impact on the amount, diversity and quality of riverine habitat for coarse fish in the lower Wyre catchment. However, little or no work has taken place in the river itself in recent years. The habitat will now have stabilised and is probably fully exploited by coarse fish.

The reduction in habitat diversity which has resulted from these works does however appear to have had an impact on coarse fish recruitment. There appears to be very little suitable spawning substrate or nursery habitat in the lower catchment for coarse fish.

This lack of spawning and nursery habitat is reflected in the possible absence of juvenile coarse fish in any of the sites studied in the lower catchment. Coarse fish recruitment appears to have been very limited, if not absent for a number of years. This could be due to poor spawning success and/or poor juvenile survival.

The presence of an adequate biomass of adult fish of a number of different species shows that water quality and/or food availability are probably not limiting to coarse fish production.

Access for most coarse fish species to those areas of the catchment where suitable spawning and nursery habitats are found is prevented by Churchtown Weir. However, it is likely that chub would be able to pass this obstacle and this species is found in the river as far upstream as site Wy08. The presence of juvenile chub in some sites above the weir (eg. Wy08., Wy13., Wy14., Wy16.) indicates that coarse fish will spawn successfully where suitable spawning substrate and nursery habitat are present.

The Wyre downstream of Churchtown Weir has been extensively stocked with coarse fish in the past. The species of fish stocked have included roach, dace, chub and bream, adults of which were found during this study. The river, between Churchtown and St Michaels, was heavily re-stocked following a major pollution incident in June 1984.

The records show that the restocking following this incident was as follows: 1,565 lbs of chub, 3780 lbs of roach, 627 lbs of bream, 80 lbs of perch, 10 lbs of carp, and 100 lbs of trout.

It is possible that many of the adult coarse fish found during this study originate from this and other stocking exercises.

It seems likely, that there will be a problem with coarse fish stock levels in the Wyre coarse fishery in future years as the existing adult stock declines through natural mortality. This could be prevented in the short term by restocking with juvenile fish and it is recommended that a coarse fish stocking strategy is formulated with this aim.

It seems likely that a long term solution to the apparent recruitment problem would only be possible if habitat restoration work is carried out to create spawning and nursery habitat. It is recommended that a habitat assessment is carried out in the lower Wyre and the feasibility and likely cost of coarse fish spawning and nursery habitat restoration work assessed.

The possibility of improving access for all coarse fish species past the barrier of Churchtown Weir should also be considered. This would allow access for coarse fish to areas above the weir, where suitable spawning and nursery habitat exist.

References.

Carle, F.L. and Strub, M.R. (1978). A new method for estimating population size from removal data. *Biometrics* 34, 621-630.

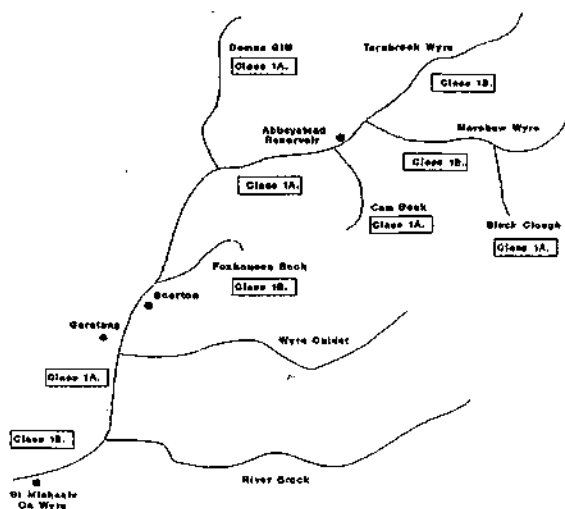
Elliot, J.M. (1992). Variation in the population density of adult sea trout, *Salmo trutta*, in 67 rivers in England and Wales. *Ecol. Freshwat. Fish.* 1, 5-11.

Farooqi, M.A. and Aprahamian, M.W. (1993). The calibration of a semi-quantitative approach to fish stock assessment in the North West Region of the NRA. *NRA Fisheries Report. NRA/NW/FTR/93/4.*

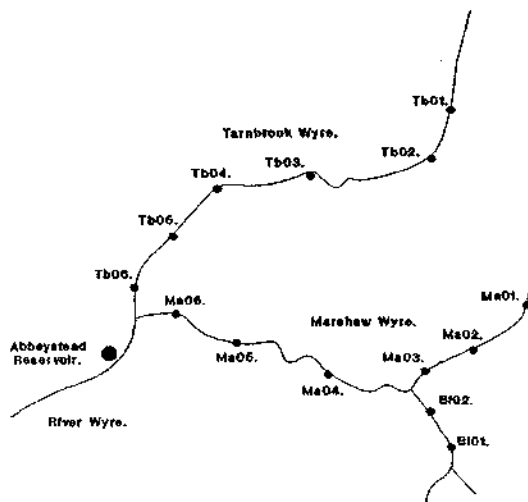
Appendix 1.

Site summaries.

Wyre Catchment Water Quality.

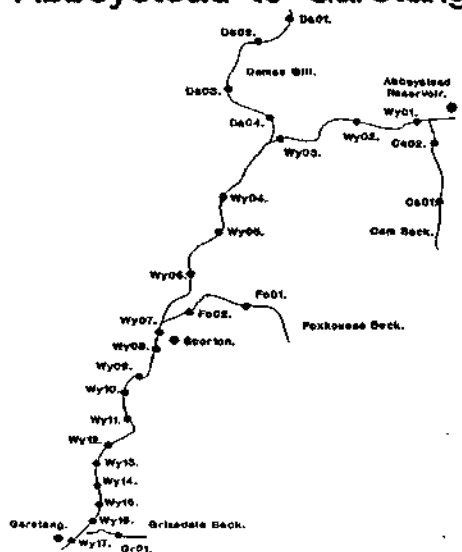


Tarnbrook Wyre and Marshaw Wyre.



(Not to scale).

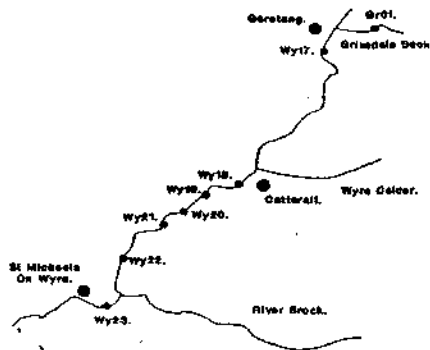
Abbeystead to Garstang.



(Not to scale).

(Not to scale).

Garstang to St Michaels.



(Not to scale).

Site Report.

Watercourse: Tarnbrook Wyre.

Site Code:Tb01

Location: Track end below Pea Carr Barn. Bottom of Gables Clough.

N.G.R.: 598557

Date Fished: 4/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	E	D

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

Habitat Features

Length: 83m

Mean Width (Range): 3m (1-4m)

Area: 100m²

Mean Depth (Range): 0.2m (0.05-0.5m)

Substrate Composition:

Gravel 50% Cobble 30% Sand 20%

Water Level:

Low, summer flow. Turbulent.

Site Description:

Pool 25% Glide 0% Riffle 75%

Area of riffle interspersed with short pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Grouse moorland.

Fishing Rights:

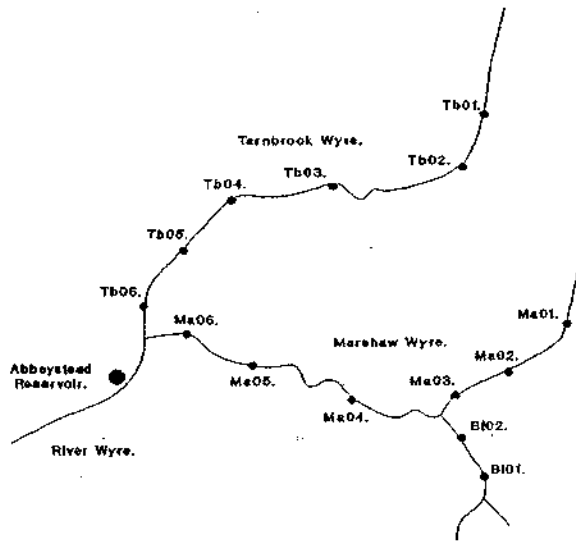
Not known.

Comments:

No salmon were found at this site. 4 brown trout were caught from 100-135mm. No other species were found.

Tb01. NGR. 598577.

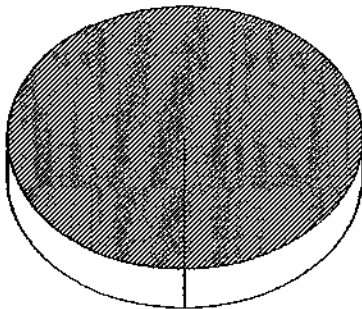
Tarnbrook Wyre and Marshaw Wyre.



(Not to scale).

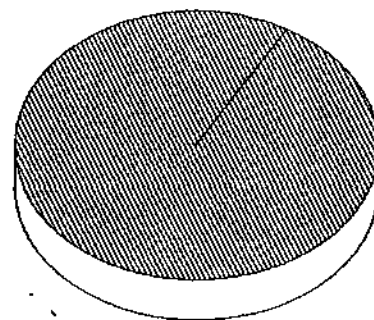
Species.	Density (N/100m ²)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	0
Older than 0+ brown trout	2.00
Brown trout larger than 200mm	0
Total 0+ salmonids	0
Total salmonids	2.00
Other species	0
Total	2.00

Older than 0+ brown trout



Salmonid population composition.

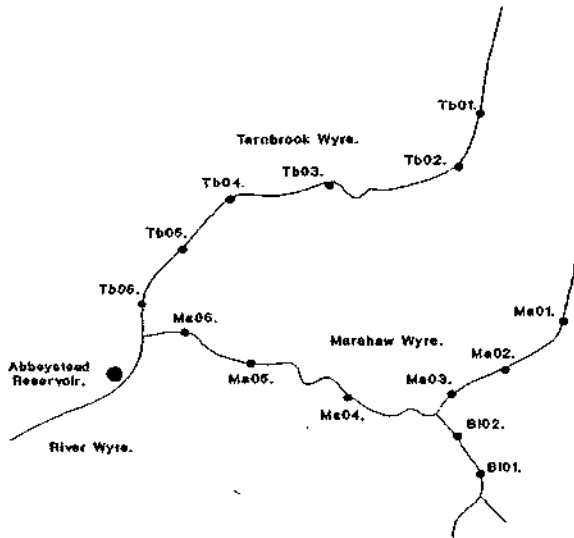
Salmonids



Total population composition.

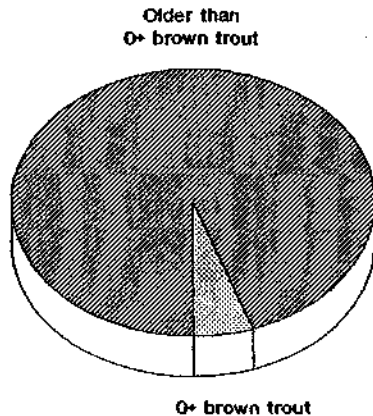
Tb02. NGR. 590555.

Tarnbrook Wyre and Marshaw Wyre.

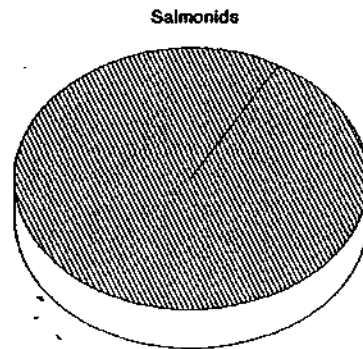


(Not to scale).

Species.	Density (N/100m ³)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	0.95
Older than 0+ brown trout	16.67
Brown trout larger than 200mm	0
Total 0+ salmonids	0.95
Total salmonids	17.62
Other species	0
Total	17.62



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: Tarnbrook Wyre.

Site Code:Tb02

Location: 50m upstream of Tarnbrook mountain rescue post.

N.G.R.: 590555

Date Fished: 4/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	D	A

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

Habitat Features

Length: 70m

Mean Width (Range): 3m (1-4m)

Area: 210m²

Mean Depth (Range): 0.2m (0.05-0.5m)

Substrate Composition:

Gravel 50% Cobble 50%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 0% Riffle 90%

Area of riffle interspersed with short pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Grouse moorland.

Fishing Rights:

Not known.

Comments:

No salmon were found at this site. 52 brown trout were caught from 75-172mm. 1 eel was also caught.

Site Report.

Watercourse: Tarnbrook Wyre.

Site Code:Tb03

Location: Ouzel Thorn Bridge.

N.G.R.: 584557

Date Fi'shed: 4/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	E	C

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

Habitat Features

Length: 60m

Mean Width (Range): 4m (3-5m)

Area: 240m²

Mean Depth (Range): 0.3m (0.1-0.4m)

Substrate Composition:

Gravel 40% Cobble 50% sand 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 10% Riffle 80%

Area of riffle and glide interspersed with short pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Beside road. Improved pasture.

Fishing Rights:

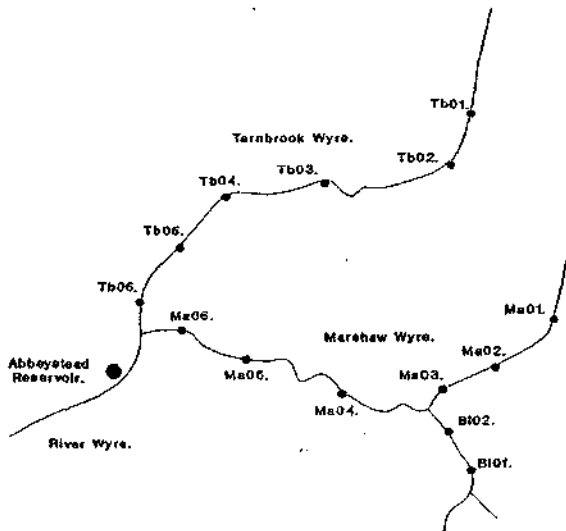
Not known.

Comments:

No salmon were found at this site. 11 brown trout were caught from 102-205mm. 3 eels were also caught.

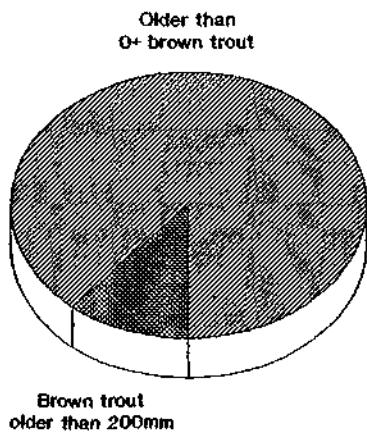
Tb03. NGR. 584577.

Tarnbrook Wyre and Marshaw Wyre.

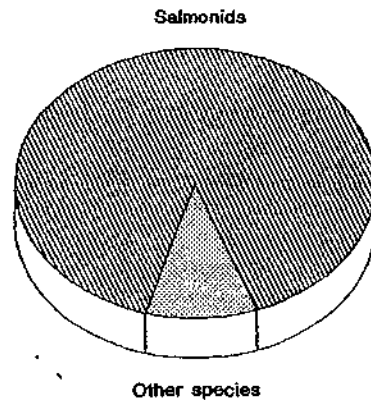


Species.	Density (N/100m ³)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	0
Older than 0+ brown trout	3.33
Brown trout larger than 200mm	0.42
Total 0+ salmonids	0
Total salmonids	3.75
Other species	0.42
Total	4.17

(Not to scale).



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: Tarnbrook Wyre.

Site Code:Tb04

Location: 1km upstream of main road bridge.

N.G.R.: 578556

Date Fished: 30/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	D	C

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

Habitat Features

Length: 40m

Mean Width (Range): 3m (2-5m)

Area: 120m²

Mean Depth (Range): 0.3m (0.1-0.5m)

Substrate Composition:

Gravel 40% Cobble 50% sand 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 30% Riffle 60%

Area of riffle and glide between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Beside road. Improved pasture.

Fishing Rights:

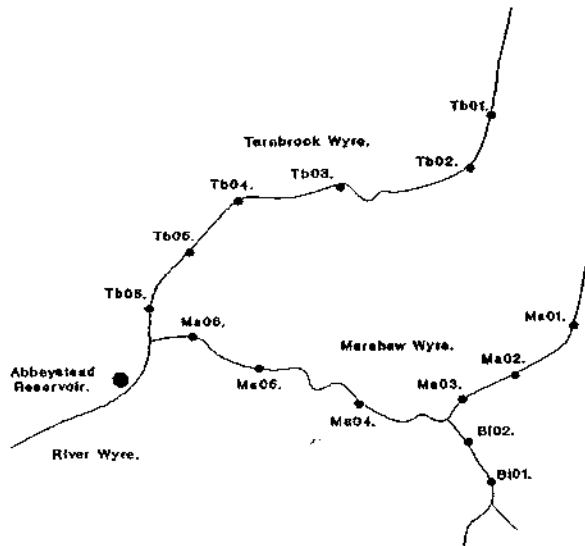
Not known.

Comments:

No salmon were found at this site. 6 brown trout were caught from 75-240mm. 1 eel was also caught.

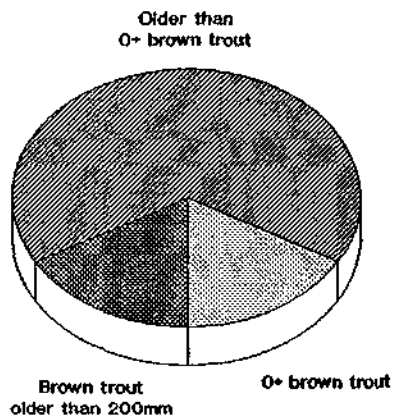
Tb04. NGR. 584577.

Tarnbrook Wyre and Marshaw Wyre.

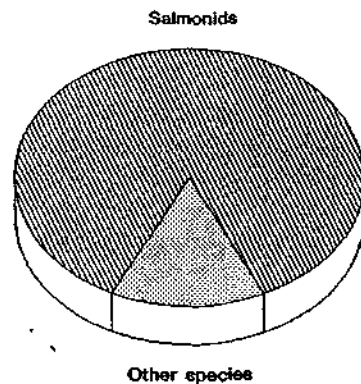


Species.	Density (N/100m ²)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	0.83
Older than 0+ brown trout	3.33
Brown trout larger than 200mm	0.83
Total 0+ salmonids	0.83
Total salmonids	4.99
Other species	0.83
Total	5.72

(Not to scale).



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: Tarnbrook Wyre.

Site Code:Tb05

Location: 2km upstream of Wyre confluence.

N.G.R.: 566549

Date Fished: 30/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	D	D

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

Habitat Features

Length: 40m

Mean Width (Range): 12m (10-13m)

Area: 480m²

Mean Depth (Range): 0.3m (0.1-0.5m)

Substrate Composition:

Gravel 20% Cobble 70% sand 10%

Water Level:

Low, summer flow.

Site Description:

Pool 40% Glide 30% Riffle 30%

Area of riffle and glide between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

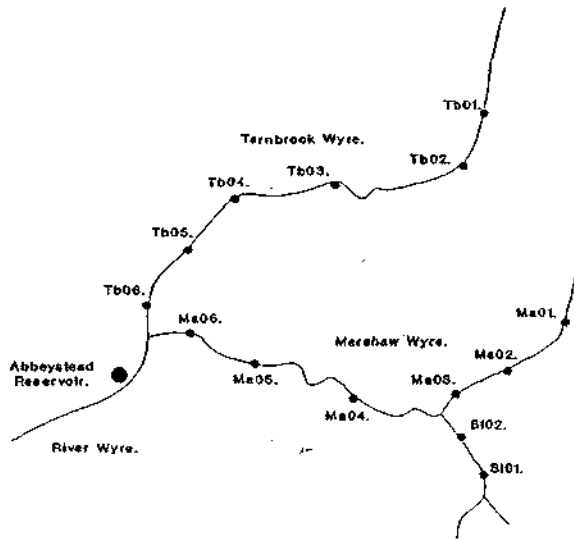
Not known.

Comments:

No salmon were found at this site. 14 brown trout were caught from 75-210mm. 25 bullheads and 312 minnows were also caught.

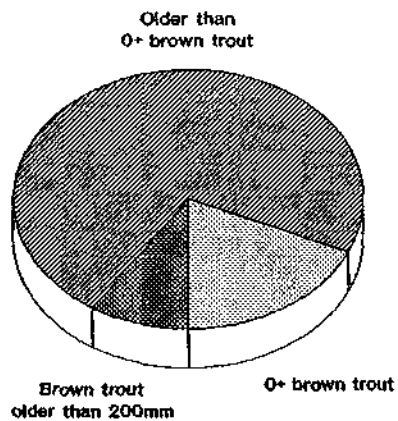
Tb05. NGR. 566549.

Tarnbrook Wyre and Marshaw Wyre.

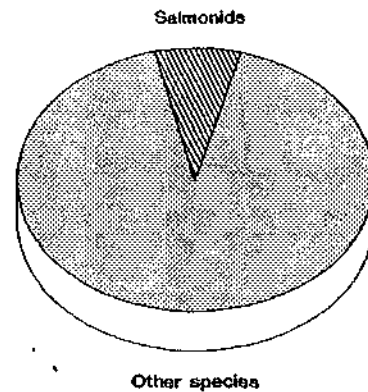


Species.	Density (N/100m ³)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	0.42
Older than 0+ brown trout	1.67
Brown trout larger than 200mm	0.21
Total 0+ salmonids	0.42
Total salmonids	2.30
Other species	27.08
Total	29.38

(Not to scale).



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: Tarnbrook Wyre.

Site Code:Tb06

Location: 0.5km upstream of Wyre confluence.

N.G.R.: 563544

Date Fished: 30/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	D	D

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

Habitat Features

Length: 40m

Mean Width (Range): 7m (6-8m)

Area: 280m²

Mean Depth (Range): 0.3m (0.1-0.5m)

Substrate Composition:

Gravel 30% Cobble 70%

Water Level:

Low, summer flow.

Site Description:

Pool 90% Glide 0% Riffle 10%

Area of pool between two riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

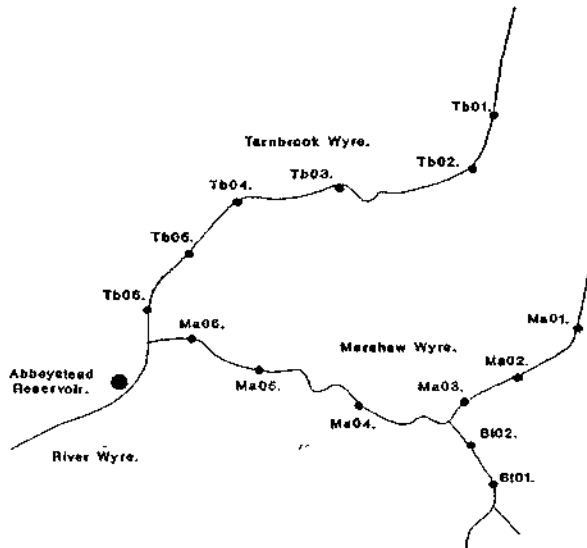
Not known.

Comments:

No salmon were found at this site. 10 brown trout were caught from 60-180mm. 14 bullheads and 10 gudgeon were also caught. Minnows were abundant (321 caught).

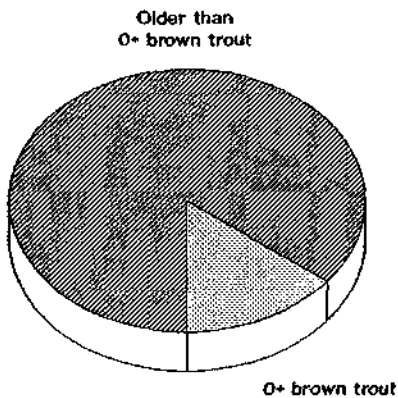
Tb06. NGR. 563544.

Tarnbrook Wyre and Marshaw Wyre.

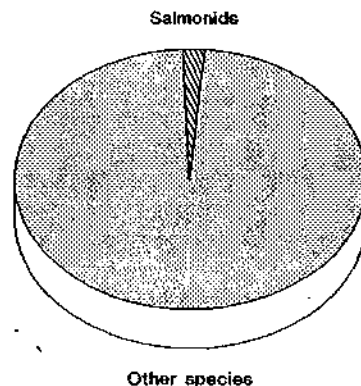


(Not to scale).

Species.	Density (N/100m')
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	0.36
Older than 0+ brown trout	2.14
Brown trout larger than 200mm	0
Total 0+ salmonids	0.36
Total salmonids	2.50
Other species	123.21
Total	125.71



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: Marshaw Wyre.

Site Code:Ma01.

Location: Upstream of road bridge.

N.G.R.: 614541

Date Fished: 4/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	E	D

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

Habitat Features

Length: 75m

Mean Width (Range): 1.5m (12m)

Area: 112.5m²

Mean Depth (Range): 0.1m (0.1-0.15m)

Substrate Composition:

Gravel 30% Cobble 70%

Water Level:

Low, summer flow.

Site Description:

Pool 40% Glide 30% Riffle 30%

Area of pool, glide and riffle areas.

Accessible to migratory salmonids.

Adjacent Land Use:

Rough pasture.

Fishing Rights:

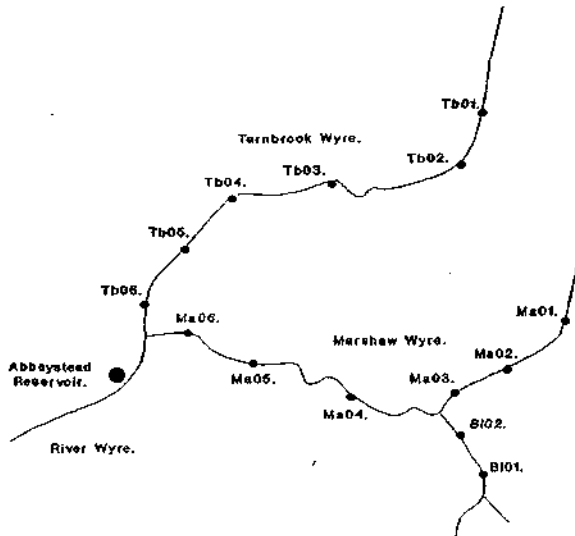
Duke of Westminster.

Comments:

2 brown trout were found at this site (125mm and 185mm).

Ma01. NGR. 614541.

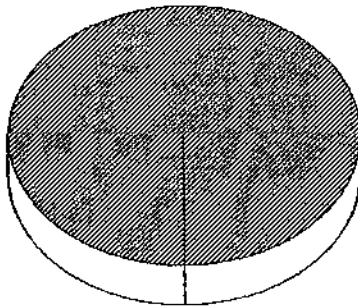
Tarnbrook Wyre and Marshaw Wyre.



Species.	Density (N/100m ³)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	0
Older than 0+ brown trout	1.78
Brown trout larger than 200mm	0
Total 0+ salmonids	0
Total salmonids	1.78
Other species	0
Total	1.78

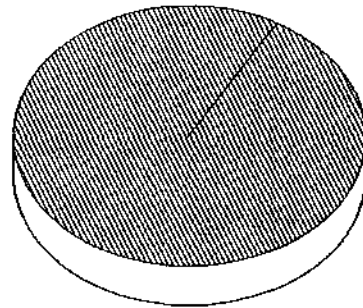
(Not to scale).

Older than 0+ brown trout



Salmonid population composition.

Salmonids



Total population composition.

Site Report.

Watercourse: Marshaw Wyre.

Site Code:Ma02.

Location: Next to picnic area.

N.G.R.: 606538

Date Fished: 4/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	E	D

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

Habitat Features

Length: 100m

Mean Width (Range): 2m (1-3m)

Area: 200m²

Mean Depth (Range): 0.05m (0.05-0.1m)

Substrate Composition:

Gravel 40% Cobble 60%

Water Level:

Low, summer flow.

Site Description:

Pool 5% Glide 80% Riffle 15%

Area glide and short riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Rough pasture. Picnic site.

Fishing Rights:

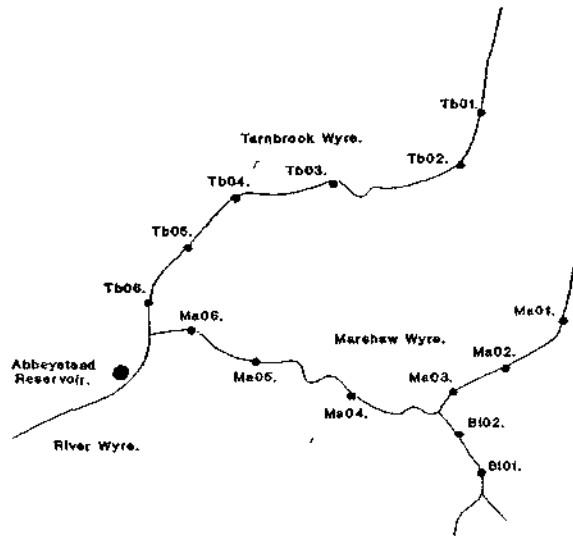
Duke of Westminster.

Comments:

5 trout were found at this site (140mm-160mm).

Ma02. NGR. 606538.

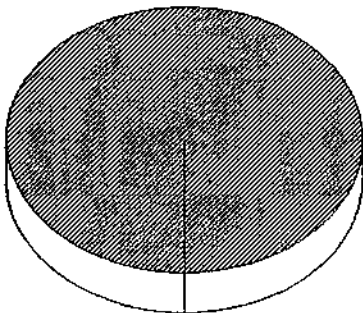
Tarnbrook Wyre and Marshaw Wyre.



(Not to scale).

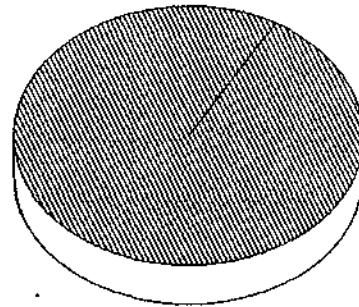
Species.	Density (N/100m ³)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	0
Older than 0+ brown trout	2.00
Brown trout larger than 200mm	0
Total 0+ salmonids	0
Total salmonids	2.00
Other species	0
Total	2.00

Older than 0+ brown trout



Salmonid population composition.

Salmonids



Total population composition.

Site Report.

Watercourse: Marshaw Wyre.

Site Code:Ma03.

Location: Next to road.

N.G.R.: 598536

Date Fished: 4/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	B	A

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

Habitat Features

Length: 75m

Mean Width (Range): 3m (2-4m)

Area: 225m²

Mean Depth (Range): 0.1m (0.05-0.2m)

Substrate Composition:

Gravel 40% Cobble 60%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 70% Riffle 20%

Area glide and short riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Rough pasture.

Fishing Rights:

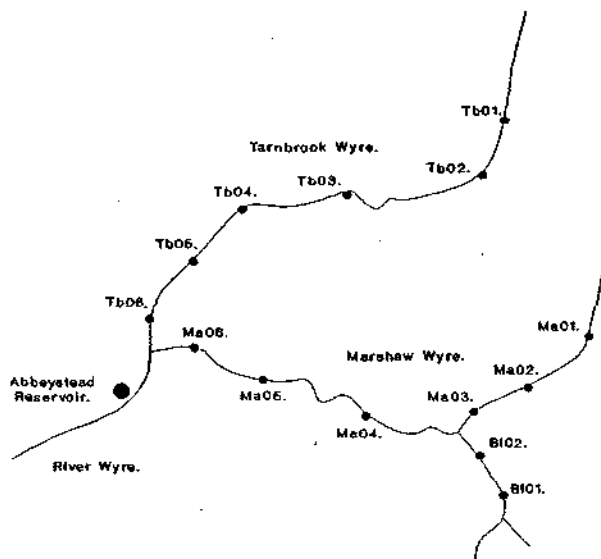
Duke of Westminster.

Comments:

110 trout were found at this site (60mm-140mm). One bullhead was also found.

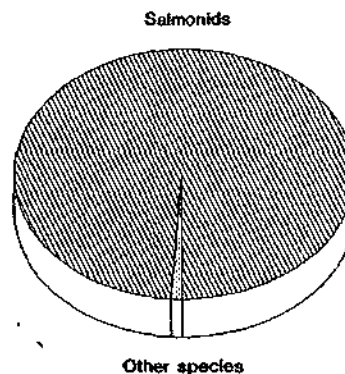
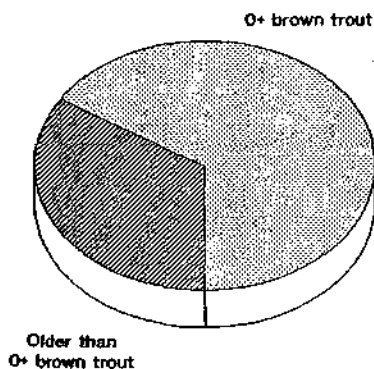
Ma03. NGR. 598536.

Tarnbrook Wyre and Marshaw Wyre.



Species.	Density (N/100m')
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	27.56
Older than 0+ brown trout	14.22
Brown trout larger than 200mm	0
Total 0+ salmonids	27.56
Total salmonids	41.78
Other species	0.44
Total	42.20

(Not to scale).



Site Report.

Watercourse: Black Clough

Site Code: B101

Location: 2km upstream from Wyre confluence.

N.G.R.: 600528

Date Fished: 5/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
<u>Class</u>	E	E	D	D

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

Habitat Features

Length: 50m

Mean Width (Range): 2m (1-2m)

Area: 100m²

Mean Depth (Range): 0.05m (0.05-0.3m)

Substrate Composition:

Gravel 60% Cobble 30% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 20% Riffle 70%

Area of riffle interspersed with short lengths of glide and deeper pools.

Accessible to migratory salmonids.

Adjacent Land Use:

Heather moorland.

Fishing Rights:

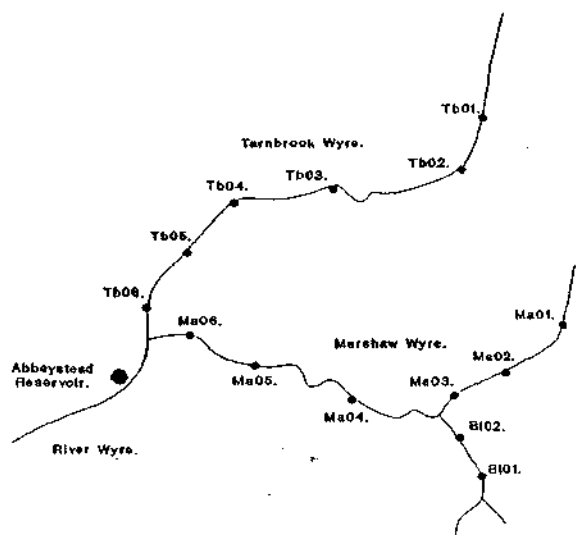
None

Comments:

No salmon were found at this site. 7 brown trout were caught from 70-140mm. 8 bullheads were also caught.

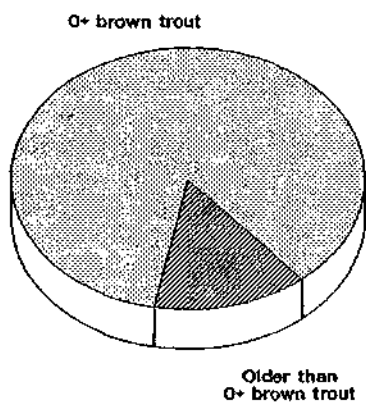
BI01. NGR. 600528.

Tarnbrook Wyre and Marshaw Wyre.

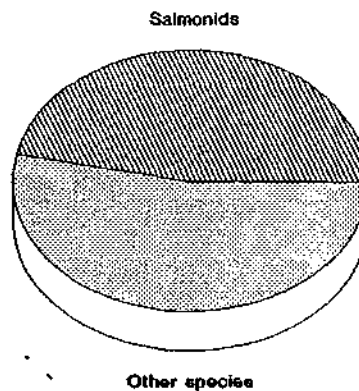


(Not to scale).

Species.	Density (N/100m ³)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	6.00
Older than 0+ brown trout	1.00
Brown trout larger than 200mm	0
Total 0+ salmonids	6.00
Total salmonids	7.00
Other species	8.00
Total	15.00



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: Black Clough

Site Code:Bl02

Location: 1km upstream from Wyre confluence.

N.G.R.: 597532

Date Fished: 5/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	D	B

Method: Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, upstream and downstream stopnets.

Habitat Features

Length: 60m

Mean Width (Range): 2.5m (1-3m)

Area: 150m²

Mean Depth (Range): 0.05m (0.05-0.3m)

Substrate Composition:

Gravel 10% Cobble 70% Sand 20%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 80% Riffle 10%

Area of glide interspersed with short lengths of riffle and deeper pools.

Accessible to migratory salmonids.

Adjacent Land Use:

Heather moorland.

Fishing Rights:

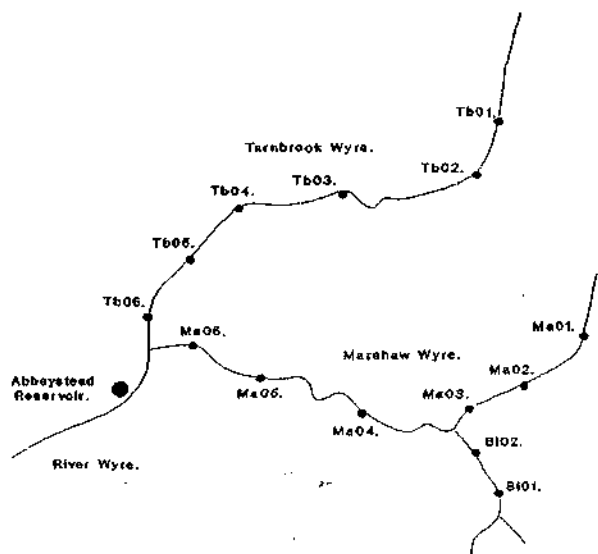
Not known.

Comments:

This site was sampled quantitatively using three fishings. No salmon were found at this site. 13 brown trout were caught from 55-140mm. 10 bullheads and 1 eel were also caught.

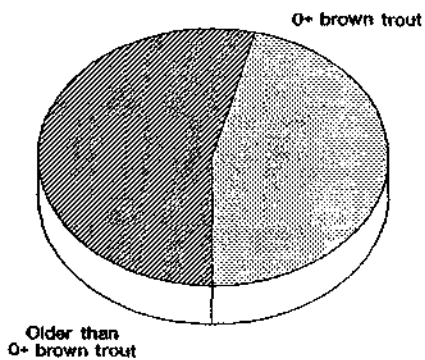
BI02. NGR. 597532.

Tarnbrook Wyre and Marshaw Wyre.

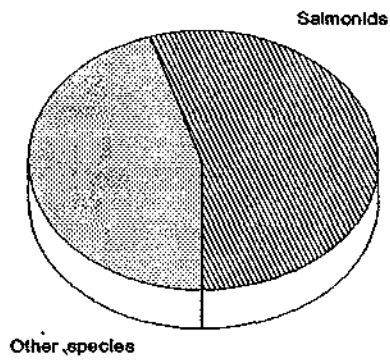


Species.	Density (N/100m ³)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	4.00
Older than 0+ brown trout	4.67
Brown trout larger than 200mm	0
Total 0+ salmonids	4.00
Total salmonids	8.87
Other species	7.30
Total	16.17

(Not to scale).



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: Marshaw Wyre.

Site Code:Ma04.

Location: Upstream of Marshaw Farm.

N.G.R.: 593533

Date Fished: 5/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	D	D

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

Habitat Features

Length: 75m

Mean Width (Range):4m (3-5m)

Area: 300m²

Mean Depth (Range): 0.5m (0.4-0.6m)

Substrate Composition:

Gravel 40% Cobble 60%

Water Level:

Low, summer flow.

Site Description:

Pool 0% Glide 50% Riffle 50%

Area glide and riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Rough pasture.

Fishing Rights:

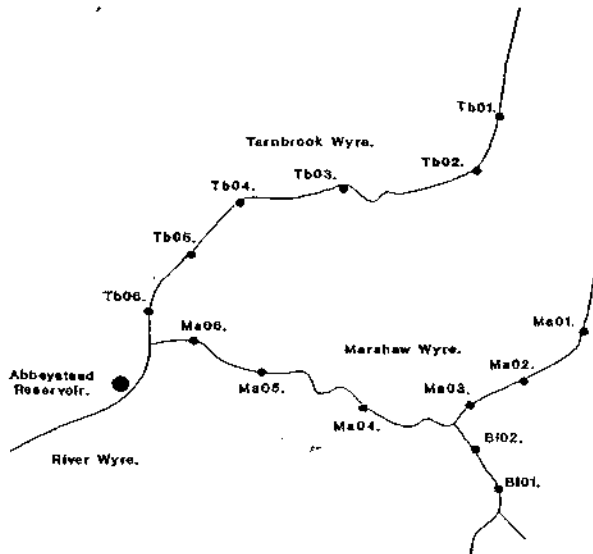
Duke of Westminster.

Comments:

40 brown trout were found at this site (60mm-130mm). 25 bullheads were also found.

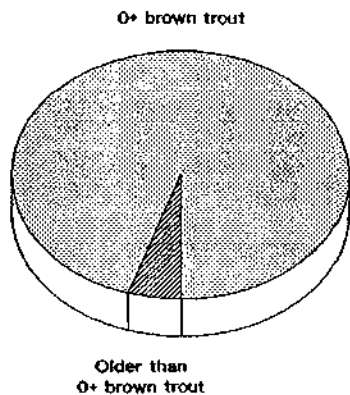
Ma04. NGR. 593533.

Tarnbrook Wyre and Marshaw Wyre.

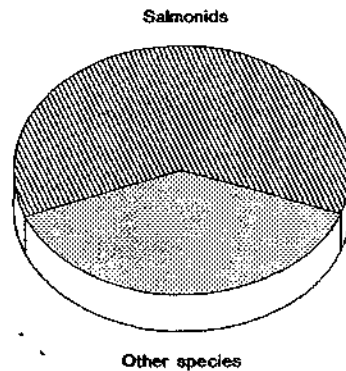


Species.	Density (N/100m ³)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	12.67
Older than 0+ brown trout	0.67
Brown trout larger than 200mm	0
Total 0+ salmonids	12.67
Total salmonids	13.34
Other species	8.33
Total	21.67

(Not to scale).



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: Marshaw Wyre.

Site Code:Ma05.

Location: Well Brook Farm.

N.G.R.: 584535

Date Fished: 2/06/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	D	E	D	D

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

Habitat Features

Length: 50m

Mean Width (Range):4m (3-5m)

Area: 200m²

Mean Depth (Range): 0.5m (0.4-0.6m)

Substrate Composition:

Gravel 40% Cobble 60%

Water Level:

Low, summer flow.

Site Description:

Pool 20% Glide 30% Riffle 50%

Area glide and riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Rough pasture.

Fishing Rights:

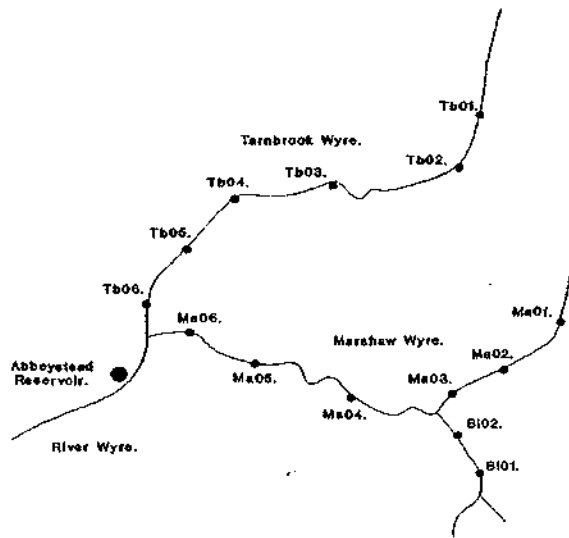
Not known.

Comments:

One 0+ salmon parr of 35mm was found at this site. 18 brown trout were caught from 30-100mm. 17 bullheads and 1 eel were also caught.

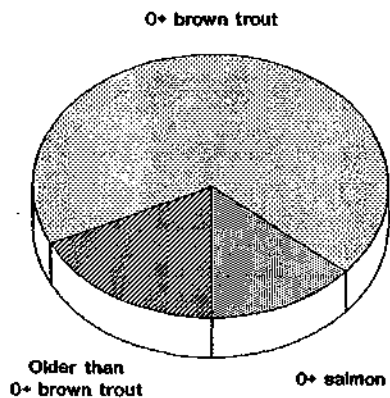
Ma05. NGR. 584535.

Tarnbrook Wyre and Marshaw Wyre.

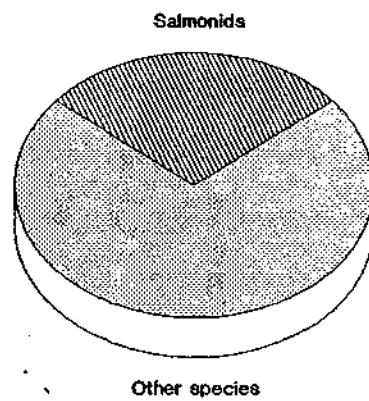


(Not to scale).

Species.	Density (N/100m ³)
0+ salmon	0.50
Older than 0+ salmon	0
0+ brown trout	2.50
Older than 0+ brown trout	0.65
Brown trout larger than 200mm	0
Total 0+ salmonids	3.00
Total salmonids	3.65
Other species	9.45
Total	13.107



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: Marshaw Wyre.

Site Code:Ma06.

Location: Near Tarnbrook confluence.

N.G.R.: 566543

Date Fished: 2/06/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
<u>Class</u>	E	D	D	D

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

Habitat Features

Length: 40m

Mean Width (Range):4m (3-5m)

Area: 160m²

Mean Depth (Range): 0.5m (0.4-0.6m)

Substrate Composition:

Gravel 40% Cobble 60%

Water Level:

Low, summer flow.

Site Description:

Pool 20% Glide 30% Riffle 50%

Area glide and riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Rough pasture and woodland.

Fishing Rights:

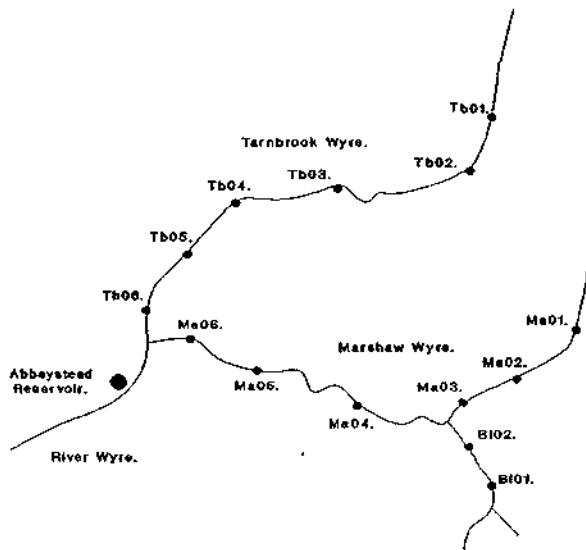
Not known.

Comments:

Four 1+ salmon parr of 100-110mm were found at this site. 3 brown trout were caught from 41-350mm and 1 rainbow trout of 355mm. 2 bullheads and 4 minnows were also caught.

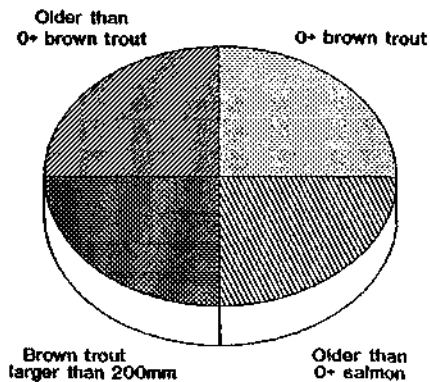
Ma06. NGR. 566543.

Tarnbrook Wyre and Marshaw Wyre.

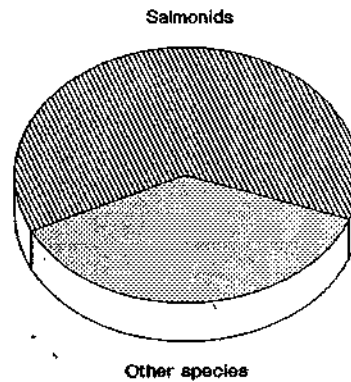


Species.	Density (N/100m ²)
0+ salmon	0
Older than 0+ salmon	0.63
0+ brown trout	0.63
Older than 0+ brown trout	0.63
Brown trout larger than 200mm	0.63
Rainbow trout	0.63
Total 0+ salmonids	0.63
Total salmonids	3.15
Other species	1.87
Total	5.02

(Not to scale).



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: Cam Brook

Site Code:Ca01

Location: Road Bridge

N.G.R.: 562528

Date Fished: 5/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	C	B

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

Habitat Features

Length: 50m

Mean Width (Range): 2.5m (1-3m)

Area: 125m²

Mean Depth (Range): 0.05m (0.05-0.1m)

Substrate Composition:

Gravel 60% Cobble 30% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 60% Riffle 30%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Rough pasture with sheep grazing.

Fishing Rights:

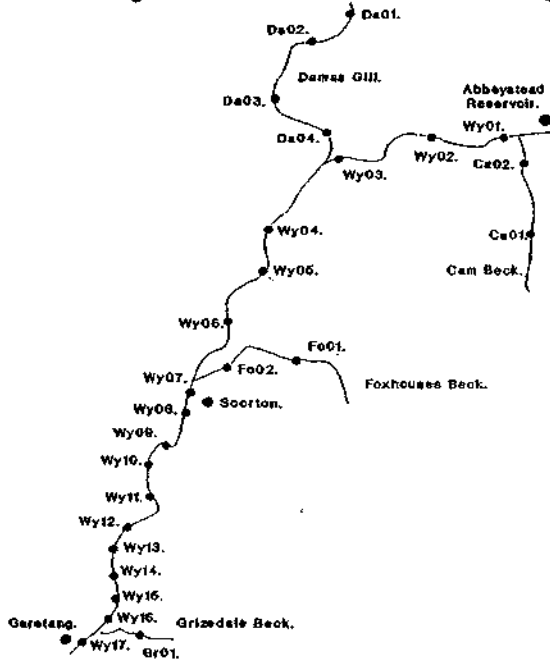
None.

Comments:

No salmon were found at this site. 55 brown trout were caught from 60-155mm. No other fish species caught.

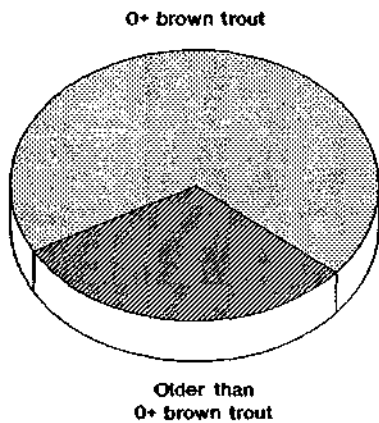
Ca01. NGR. 562528.

Abbeystead to Garstang.

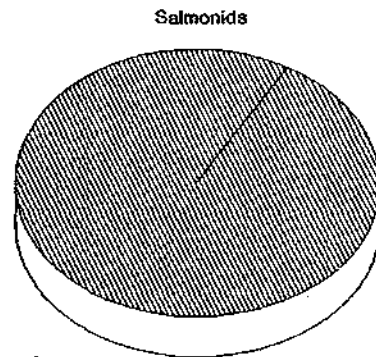


Species.	Density (N/100m ³)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	21.60
Older than 0+ brown trout	9.60
Brown trout larger than 200mm	0
Total 0+ salmonide	21.60
Total salmonids	31.20
Other species	0
Total	31.20

(Not to scale).



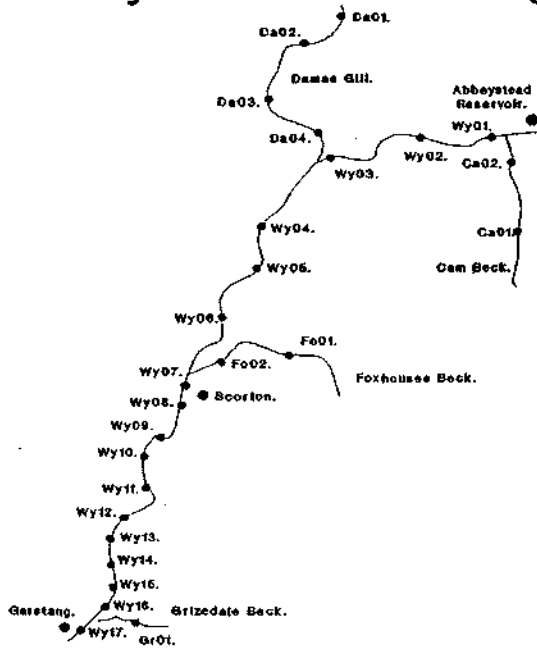
Salmonid population composition.



Total population composition.

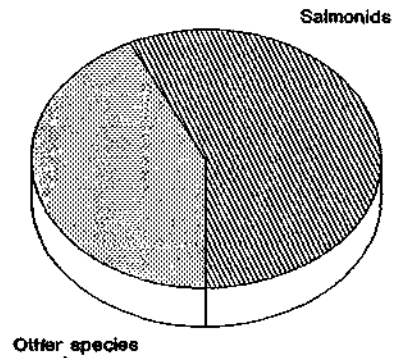
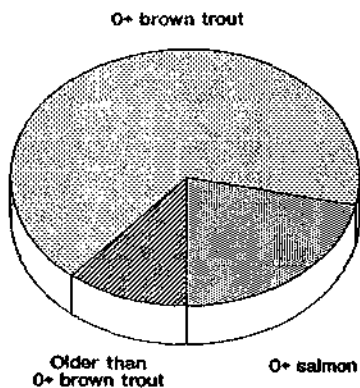
Ca02. NGR.556536.

Abbeystead to Garstang.



(Not to scale).

Species.	Density (N/100m ³)
0+ salmon	11.0
Older than 0+ salmon	0
0+ brown trout	34.30
Older than 0+ brown trout	5.70
Brown trout larger than 200mm	0
Total 0+ salmonids	45.30
Total salmonids	51.00
Other species	38.10
Total	89.10



Salmonid population composition.

Total population composition.

Site Report.

Watercourse: Cam Brook

Site Code:Ca02

Location: Road Bridge

N.G.R.: 556536

Date Fished: 11/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	D	E	C	C

Method: Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, upstream and downstream stopnets.

Habitat Features

Length: 60m

Mean Width (Range): 3.5m (2-4m)

Area: 210m²

Mean Depth (Range): 0.05m (0.05-0.1m)

Substrate Composition:

Gravel 60% Cobble 30% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 60% Riffle 30%

Area of glide and riffle between deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture with sheep grazing.

Fishing Rights:

Not known.

Comments:

This site was sampled quantitatively using three fishings. Seventeen 0+ salmon parr of 40-65mm were found at this site. 76 brown trout were caught of 50-125mm. 18 eels, 25 bullheads, 20 minnows and 1 stone loach were also caught.

Site Report.

Watercourse: River Wyre

Site Code:Wy01

Location: Below Abbeystead reservoir. Downstream of Lune intake.

N.G.R.: 552538

Date Fished: 30/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	D	D	D	E

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

Habitat Features

Length: 50m

Mean Width (Range): 5m (4-6m)

Area: 250m²

Mean Depth (Range): 0.3m (0.1-0.4m)

Substrate Composition:

Gravel 30% Cobble 60% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 60% Riffle 30%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture with cattle grazing.

Fishing Rights:

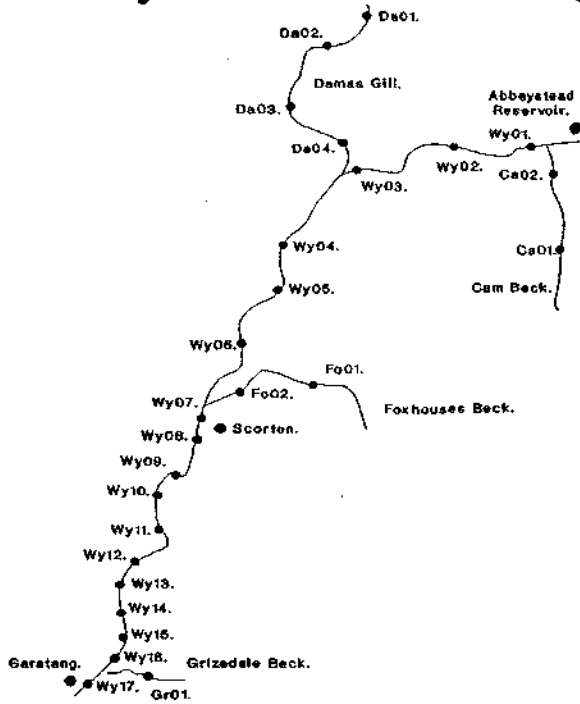
Not known.

Comments:

8 salmon were found at this site. Seven were 0+ parr of 55-65mm. One was a parr of greater than 0+ which measured 115mm. Ten brown trout were caught of 50-70mm. 127 minnows, 14 bullheads, 20 stone loach and 13 eels were also caught.

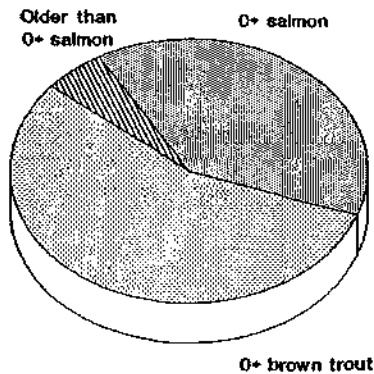
Wy01. NGR. 552538.

Abbeystead to Garstang.

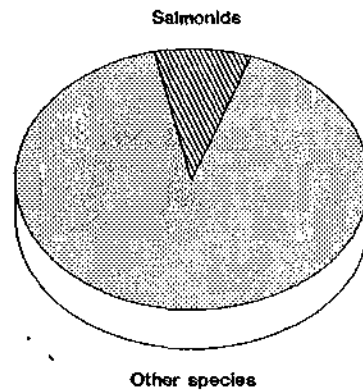


Species.	Density (N/100m ²)
0+ salmon	2.80
Older than 0+ salmon	0.40
0+ brown trout	4.00
Older than 0+ brown trout	0
Brown trout larger than 200mm	0
Total 0+ salmonids	6.80
Total salmonids	7.20
Other species	73.00
Total	80.20

(Not to scale).



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: River Wyre

Site Code:Wy02

Location: At footbridge.

N.G.R.: 544538

Date Fished: 30/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	D	D	D	D

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

Habitat Features

Length: 50m

Mean Width (Range): 8m (6-9m)

Area: 400m²

Mean Depth (Range): 0.3m (0.1-0.4m)

Substrate Composition:

Gravel 30% Cobble 60% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 60% Riffle 30%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture with cattle grazing.

Fishing Rights:

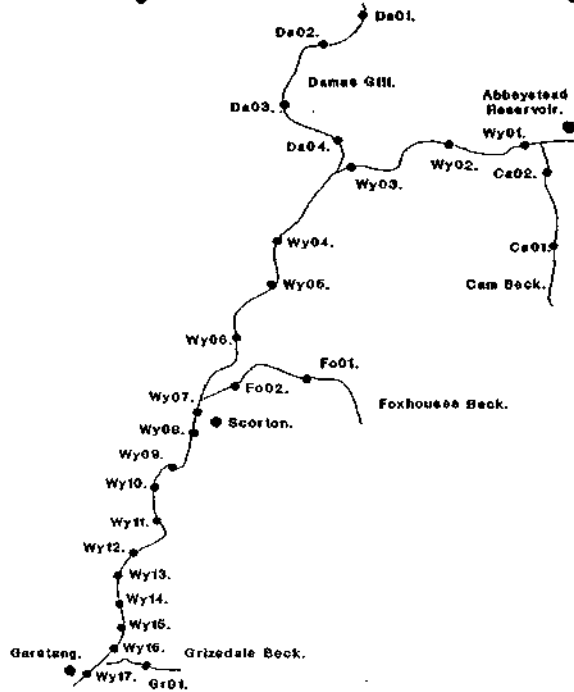
Not known.

Comments:

3 salmon were found at this site. One was a 0+ parr of 70mm. Two were parr of greater than 0+ which measured 125mm and 135mm. Five brown trout were caught of 70-135mm. 27 eels, 6 bullheads, 5 stoneloach and 6 minnows were also caught.

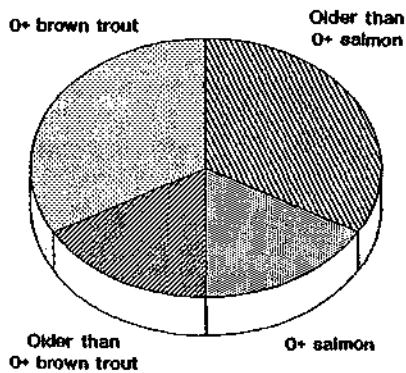
Wy02. NGR. 544538.

Abbeystead to Garstang.

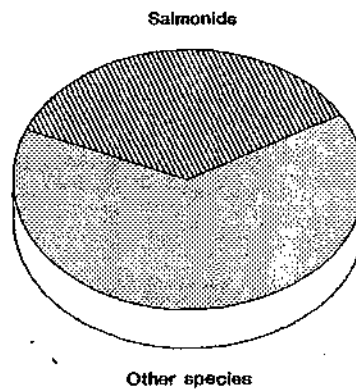


Species.	Density (N/100m ³)
0+ salmon	0.25
Older than 0+ salmon	0.50
0+ brown trout	0.50
Older than 0+ brown trout	0.25
Brown trout larger than 200mm	0
Total 0+ salmonids	0.75
Total salmonids	1.50
Other species	2.75
Total	4.25

(Not to scale).



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: River Wyre

Site Code:Wy03

Location: Damas Gill confluence.

N.G.R.: 523538

Date Fished: 29/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	D	D	E

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

Habitat Features

Length: 50m

Mean Width (Range): 8m (6-9m)

Area: 400m²

Mean Depth (Range): 0.3m (0.1-0.4m)

Substrate Composition:

Gravel 30% Cobble 60% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 60% Riffle 30%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture with cattle grazing.

Fishing Rights:

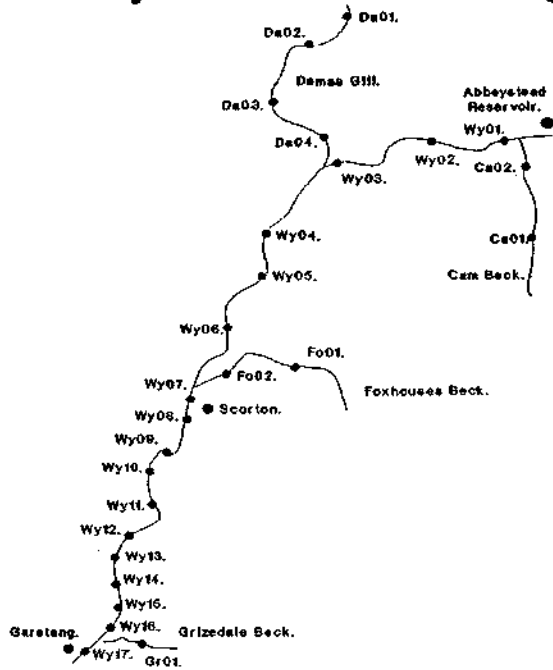
Not known.

Comments:

One salmon parr of 135mm (>0+) was found at this site. 8 brown trout were sighted but only one of these was caught (45mm). 6 eels, and 44 stoneloach were also caught.

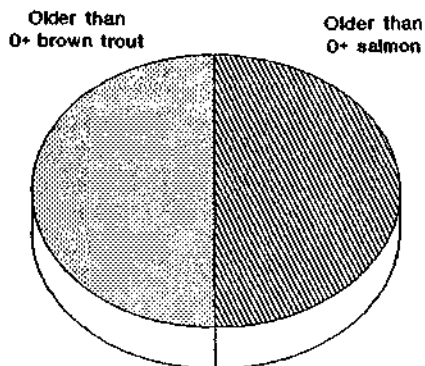
Wy03. NGR. 523538.

Abbeystead to Garstang.

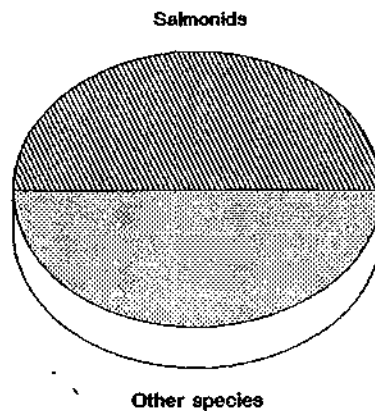


Species.	Density (N/100m ²)
0+ salmon	0
Older than 0+ salmon	0.25
0+ brown trout	0.25
Older than 0+ brown trout	0
Brown trout larger than 200mm	0
Total 0+ salmonids	0.25
Total salmonids	0.50
Other species	0.50
Total	1.00

(Not to scale).



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: Damas Gill

Site Code:Da01

Location: Beside reservoir.

N.G.R.: 527573

Date Fished: 6/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	A	A

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

Habitat Features

Length: 50m

Mean Width (Range): 1.5m (1-2m)

Area: 75m²

Mean Depth (Range): 0.5m (0.1-0.7m)

Substrate Composition:

Gravel 60% Cobble 30% Boulder 10%

Water Level:

Low, summer flow.

Site Description:

Pool 30% Glide 30% Riffle 40%

Area of Riffle and glide interspersed with deeper pools. Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

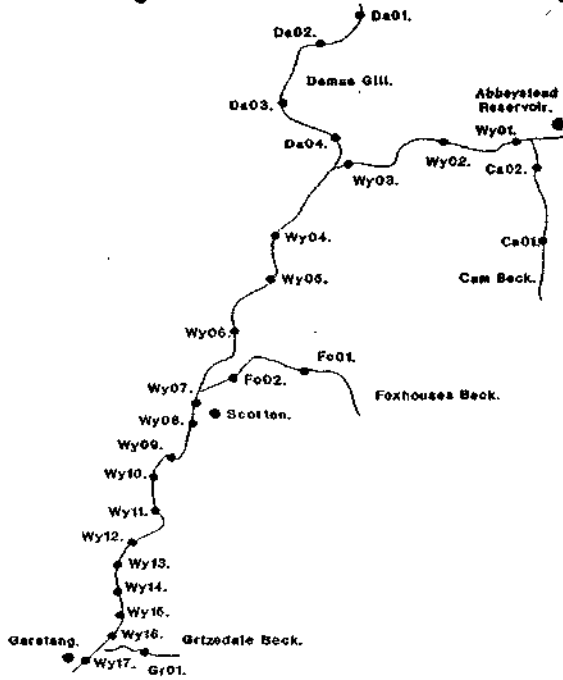
None.

Comments:

No salmon were found at this site. 87 brown trout were caught from 55-225mm. 4 eels were also found but no other fish species.

Da01. NGR. 527573.

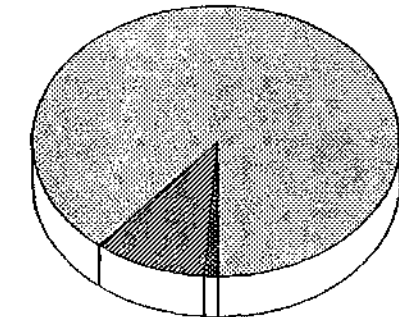
Abbeystead to Garstang.



(Not to scale).

Species.	Density (N/100m ³)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	97.33
Older than 0+ brown trout	10.67
Brown trout larger than 200mm	1.33
Total 0+ salmonids	97.33
Total salmonids	109.33
Other species	0
Total	109.33

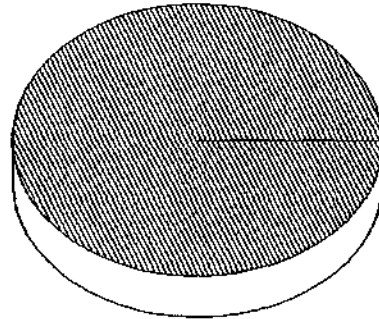
0+ brown trout



Older than 0+ brown trout Brown trout larger than 200mm

Salmonid population composition.

Salmonids



Total population composition.

Site Report.

Watercourse: Damas Gill

Site Code:Da02

Location: Below reservoir.

N.G.R.: 526571

Date Fished: 11/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	A	A

Method: Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, upstream and downstream stopnets.

Habitat Features

Length: 60m

Mean Width (Range): 2m (1-2m)

Area: 120m²

Mean Depth (Range): 0.5m (0.1-0.7m)

Substrate Composition:

Gravel 60% Cobble 30% Boulder 10%

Water Level:

Low, summer flow.

Site Description:

Pool 30% Glide 30% Riffle 40%

Area of Riffle and glide interspersed with deeper pools. Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

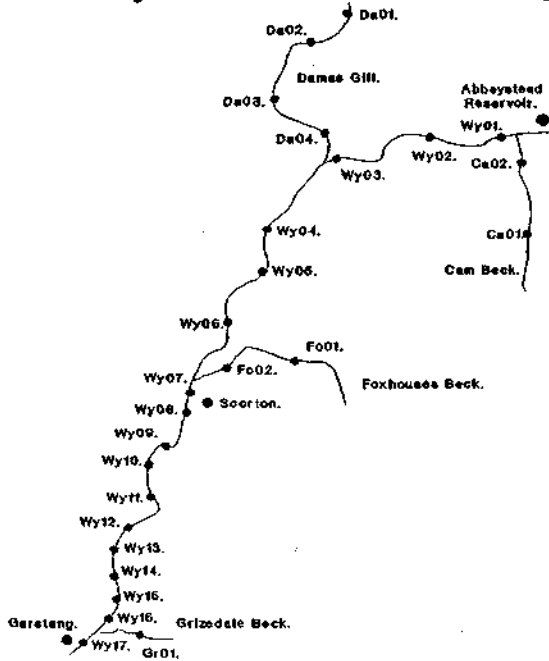
Not known.

Comments:

This site was sampled quantitatively using three fishings. No salmon were found at this site. 133 brown trout were caught of 50-160mm. 3 eels were also found but no other fish species.

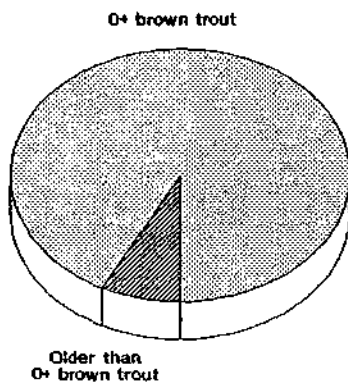
Da02. NGR.526571.

Abbeystead to Garstang.

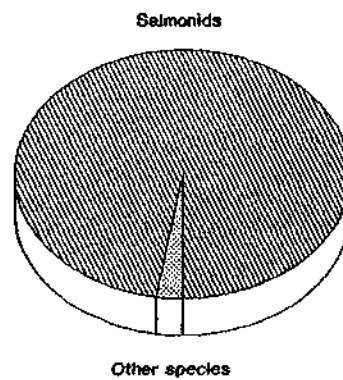


Species.	Density (N/100m ²)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	115.00
Older than 0+ brown trout	9.38
Brown trout larger than 200mm	0
Total 0+ salmonids	115.00
Total salmonids	124.38
Other species	3.30
Total	127.68

(Not to scale).



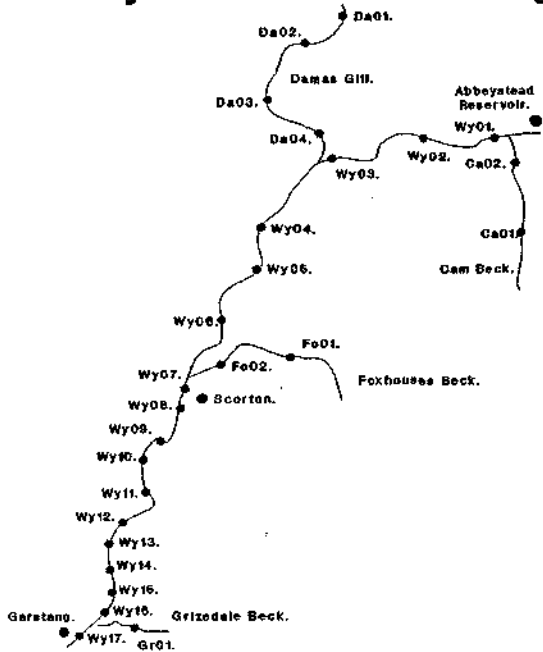
Salmonid population composition.



Total population composition.

Da03. NGR. 518562.

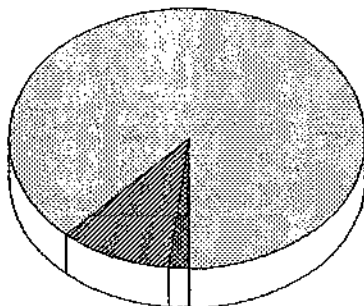
Abbeystead to Garstang.



Species.	Density (N/100m ²)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	198.66
Older than 0+ brown trout	22.67
Brown trout larger than 200mm	4.00
Total 0+ salmonids	198.66
Total salmonids	225.33
Other species	0
Total	225.33

(Not to scale).

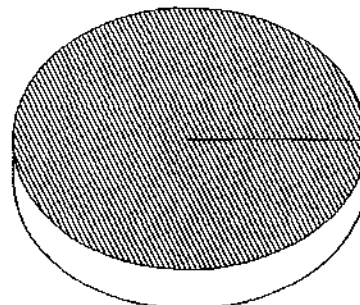
0+ brown trout



Older than 0+ brown trout Brown trout larger than 200mm

Salmonid population composition.

Salmonids



Total population composition.

Site Report.

Watercourse: Damas Gill

Site Code:Da04

Location: Main road bridge upstream of confluence with Wyre.

N.G.R.: 526543

Date Fished: 6/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
<u>Class</u>	E	E	A	A

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

Habitat Features

Length: 25m

Mean Width (Range): 1.5m (1-2m)

Area: 37.5m²

Mean Depth (Range): 0.5m (0.1-0.7m)

Substrate Composition:

Gravel 60% Cobble 30% Silt 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 70% Riffle 20%

Area of glide interspersed with short lengths of riffle and deeper pools.

Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

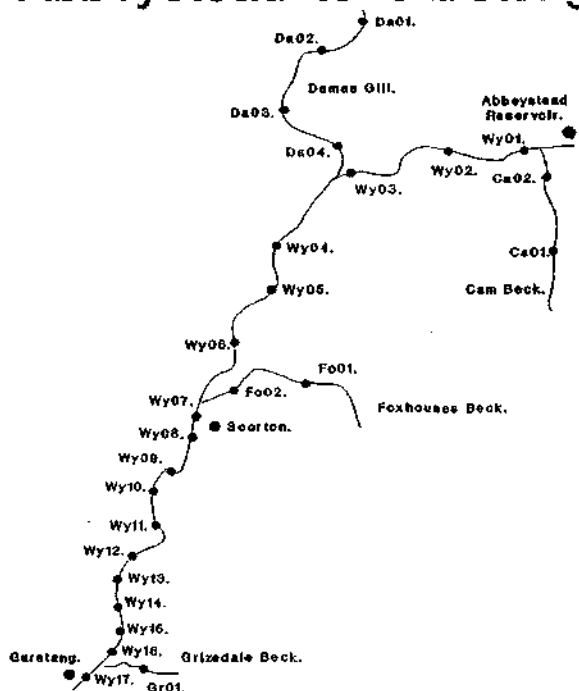
None.

Comments:

No salmon were found at this site. 48 brown trout were caught from 55-160mm. 5 eels, 39 bullheads and 55 stone loach were also found.

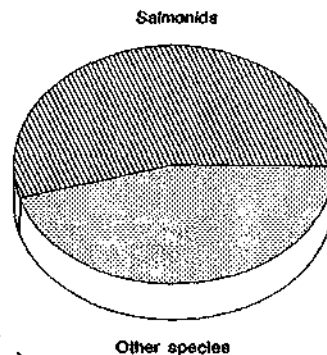
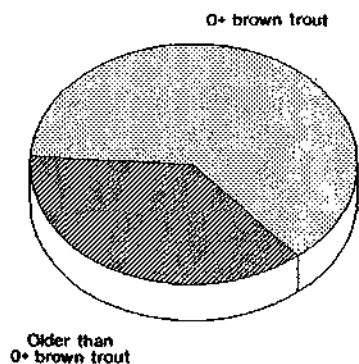
Da04. NGR. 526543.

Abbeystead to Garstang.



Species.	Density (N/100m ³)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	72.00
Older than 0+ brown trout	42.67
Brown trout larger than 200mm	0
Total 0+ salmonids	72.00
Total salmonids	114.67
Other species	96.00
Total	210.67

(Not to scale).



Site Report.

Watercourse: River Wyre

Site Code:Wy04

Location: Upstream of Street bridge.

N.G.R.: 517527

Date Fished: 29/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	D	E	E	D

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

Habitat Features

Length: 50m

Mean Width (Range): 8m (6-9m)

Area: 400m²

Mean Depth (Range): 0.3m (0.1-0.4m)

Substrate Composition:

Gravel 30% Cobble 60% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 60% Riffle 30%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture with cattle grazing.

Fishing Rights:

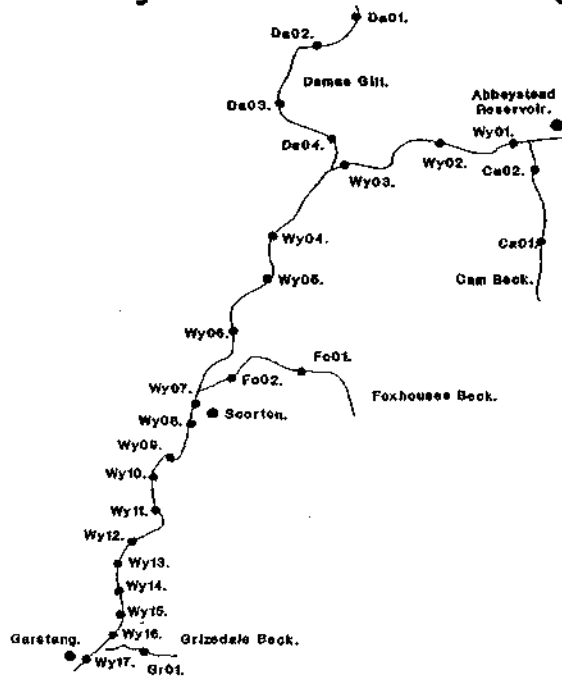
Not known.

Comments:

One salmon parr of 75mm (0+) was found at this site. 7 brown trout were sighted but only one of these was caught. The trout caught measured 310mm. The trout missed were all estimated at less than 100mm. One chub of 435mm, 115 eels, 24 stoneloach and 6 bullheads were also caught.

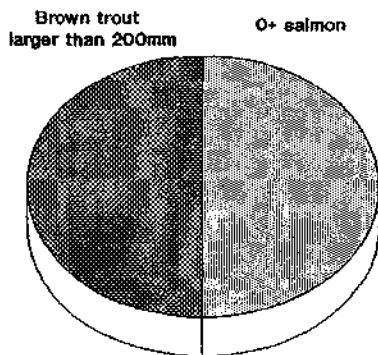
Wy04. NGR. 517527.

Abbeystead to Garstang.

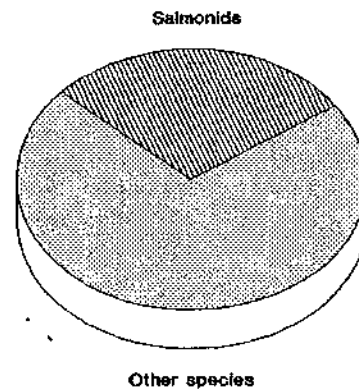


(Not to scale).

Species.	Density (N/100m ³)
0+ salmon	0.25
Older than 0+ salmon	0
0+ brown trout	0
Older than 0+ brown trout	0
Brown trout larger than 200mm	0.25
Total 0+ salmonids	0.25
Total salmonids	0.50
Other species	1.25
Total	1.75



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: River Wyre

Site Code:Wy05

Location: Downstream of Street bridge.

N.G.R.: 516521

Date Fished: 29/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
<u>Class</u>	D	E	D	C

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

Habitat Features

Length: 50m

Mean Width (Range): 8m (6-9m)

Area: 400m²

Mean Depth (Range): 0.3m (0.1-0.4m)

Substrate Composition:

Gravel 30% Cobble 60% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 60% Riffle 30%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture with cattle grazing.

Fishing Rights:

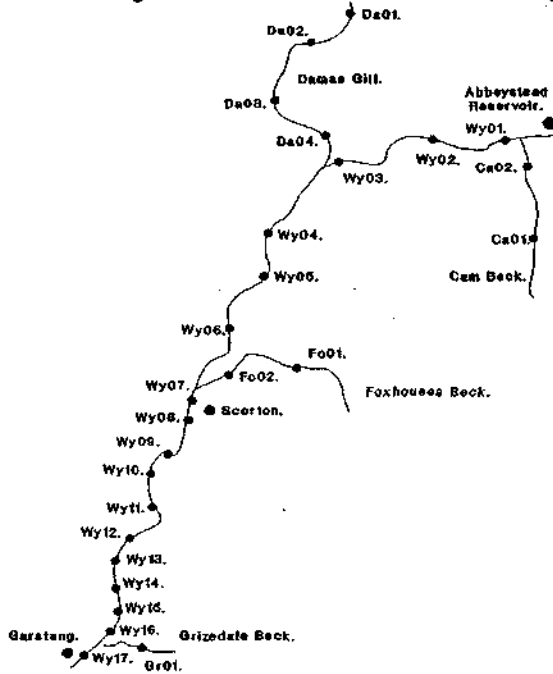
Not known.

Comments:

One salmon parr of 63mm (0+) was found at this site. 30 brown trout were caught of 62-358mm. One chub of 30mm, 49 eels, 51 stoneloach and 5 bullheads were also caught.

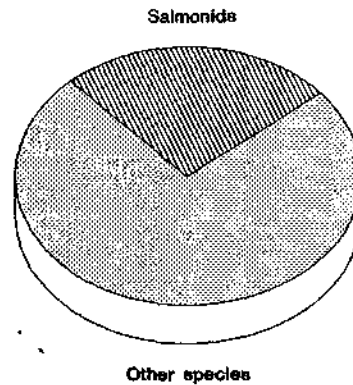
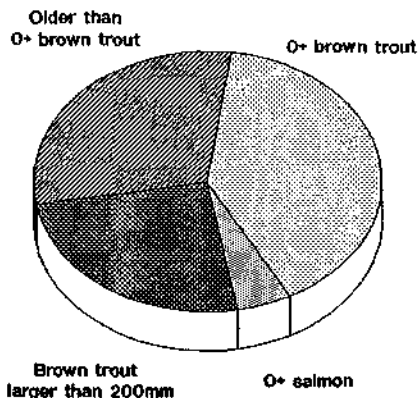
Wy05. NGR. 516521.

Abbeystead to Garstang.



Species.	Density (N/100m')
0+ salmon	0.25
Older than 0+ salmon	0
0+ brown trout	2.00
Older than 0+ brown trout	1.50
Brown trout larger than 200mm	1.25
Total 0+ salmonids	2.25
Total salmonids	5.00
Other species	14.50
Total	19.50

(Not to scale).



Site Report.

Watercourse: River Wyre

Site Code:Wy06

Location: Tarmac Quarries.

N.G.R.: 515515

Date Fished: 15/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	D	D	D	D

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

Habitat Features

Length: 50m

Mean Width (Range): 8m (6-9m)

Area: 400m²

Mean Depth (Range): 0.3m (0.1-0.4m)

Substrate Composition:

Gravel 30% Cobble 60% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 60% Riffle 30%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Quarry workings.

Fishing Rights:

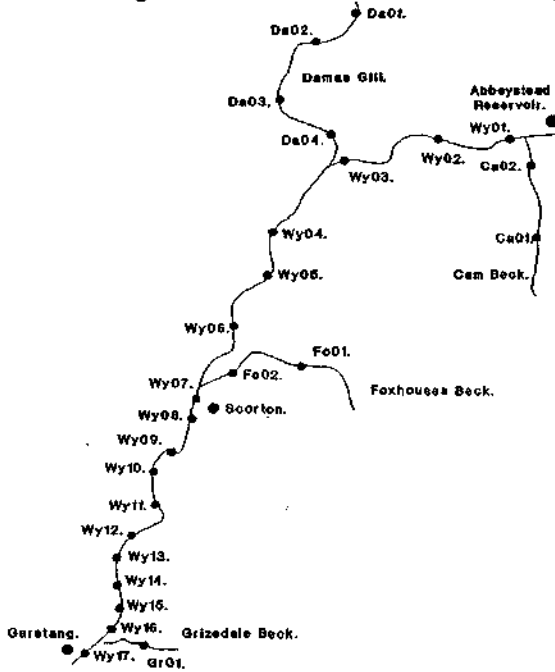
Not known.

Comments:

Two salmon parr of 65mm and 55mm (0+) and three salmon parr of 125mm, 130mm and 140mm (>0+) were found at this site. 32 brown trout were caught of 55-160mm. 31 eels, 35 stone loach, 143 minnows and 26 bullheads were also caught.

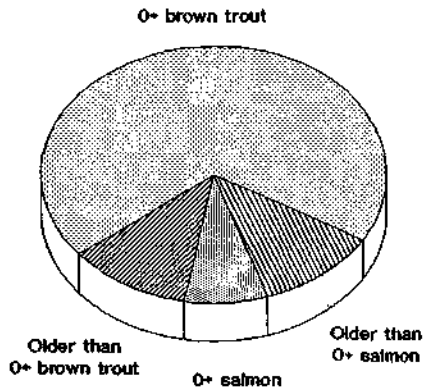
Wy06. NGR. 515515.

Abbeystead to Garstang.

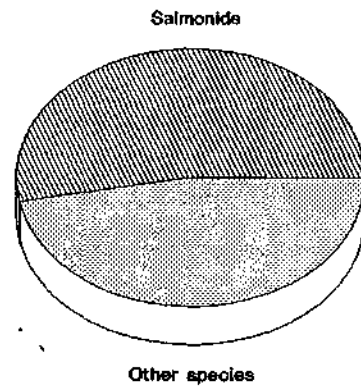


Species.	Density (N/100m ³)
0+ salmon	0.50
Older than 0+ salmon	0.75
0+ brown trout	4.50
Older than 0+ brown trout	0.75
Brown trout larger than 200mm	0
Total 0+ salmonids	5.00
Total salmonids	6.50
Other species	5.75
Total	12.25

(Not to scale).



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: Foxhouses Brook.

Site Code: Fo01

Location: Street.

N.G.R.: 521517

Date Fished: 5/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	D	A

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

Habitat Features

Length: 50m

Mean Width (Range): 3m (1-4m)

Area: 150m²

Mean Depth (Range): 0.1m (0.05-0.1m)

Substrate Composition:

Gravel 50% Cobble 30% Sand 20%

Water Level:

Low, summer flow.

Site Description:

Pool 40% Glide 40% Riffle 20%

Area of glide and pool interspersed with riffle.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved Pasture.

Fishing Rights:

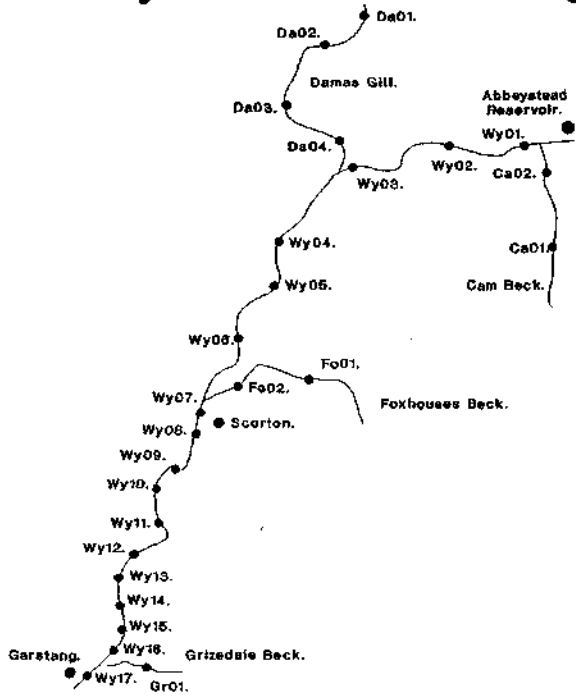
None.

Comments:

No salmon were found at this site. 24 brown trout were caught from 55-155mm. 102 bullheads, 5 eels and 10 stone loach were also found.

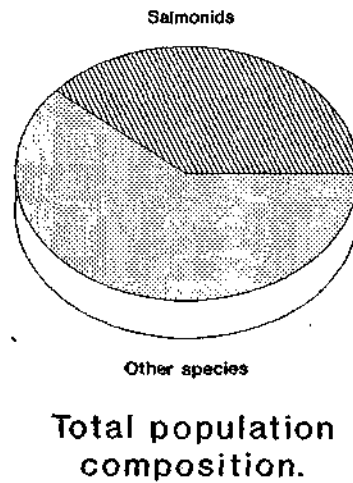
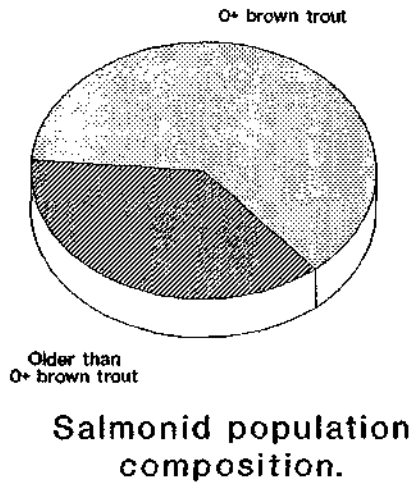
Fo01. NGR. 521517.

Abbeystead to Garstang.



Species.	Density (N/100m ³)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	10.00
Older than 0+ brown trout	6.00
Brown trout larger than 200mm	0
Total 0+ salmonids	10.00
Total salmonids	16.00
Other species	25.33
Total	41.33

(Not to scale).



Site Report.

Watercourse: Foxhouses Brook.

Site Code: Fo02

Location: Scorton Tarmac Quarry. Beside quarry effluent lagoons.

N.G.R.: 518514

Date Fished: 6/08/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	D	B

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

Habitat Features

Length: 50m

Mean Width (Range): 2m (1-4m)

Area: 100m²

Mean Depth (Range): 0.2m (0.05-0.5m)

Substrate Composition:

Gravel 50% Cobble 30% Sand 20%

Water Level:

Low, summer flow.

Site Description:

Pool 60% Glide 20% Riffle 20%

Area of glide and pool interspersed with riffle. Water was a milky white colour.

Accessible to migratory salmonids.

Adjacent Land Use:

Improved Pasture.

Fishing Rights:

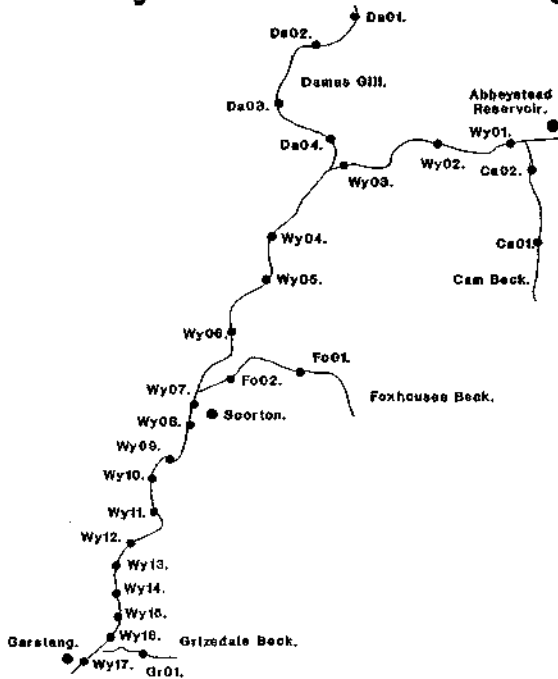
None.

Comments:

No salmon were found at this site. 21 brown trout were caught from 55-260mm. 5 bullheads were also found.

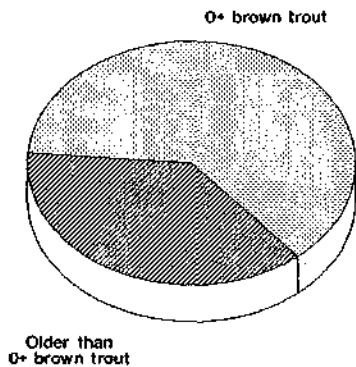
Fo02. NGR. 518514.

Abbeystead to Garstang.

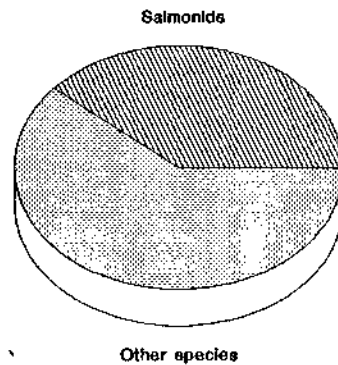


Species.	Density (N/100m ²)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	6.00
Older than 0+ brown trout	12.00
Brown trout larger than 200mm	3.00
Total 0+ salmonids	6.00
Total salmonids	21.00
Other species	5.00
Total	26.00

(Not to scale).



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: River Wyre

Site Code:Wy07

Location: Clevely Bridge.

N.G.R.: 504507

Date Fished: 15/07/92

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

Habitat Features

Length: 50m

Mean Width (Range): 8m (6-9m)

Area: 400m²

Mean Depth (Range): 0.3m (0.1-0.4m)

Substrate Composition:

Gravel 20% Cobble 70% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 50% Riffle 40%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Quarry workings.

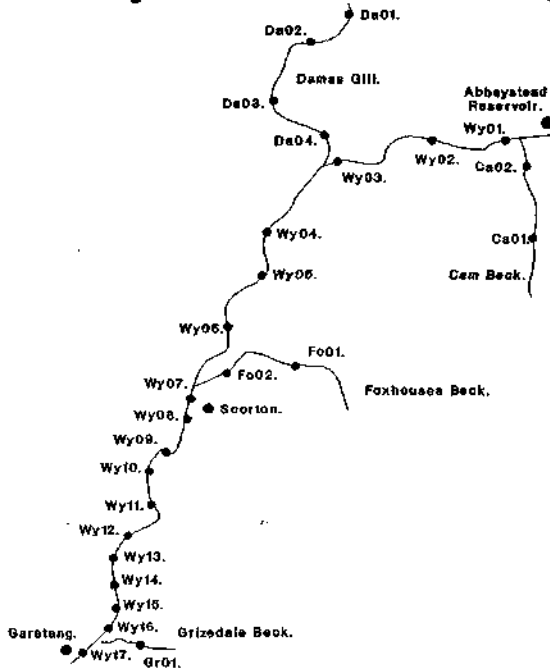
Fishing Rights:

Comments:

Three salmon parr of 50-60mm (0+) and four salmon parr of 120-135mm (>0+) were found at this site. 22 brown trout were caught of 50-140mm. 26 eels, 156 stone loach, >100 minnows and 63 bullheads were also caught.

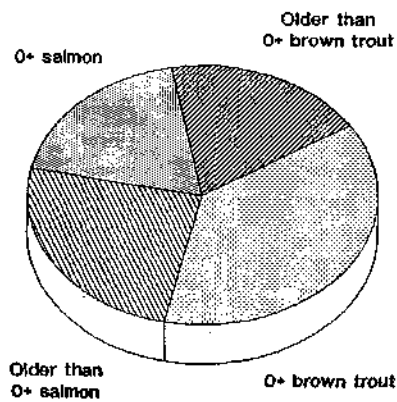
Wy07. NGR. 504507.

Abbeystead to Garstang.

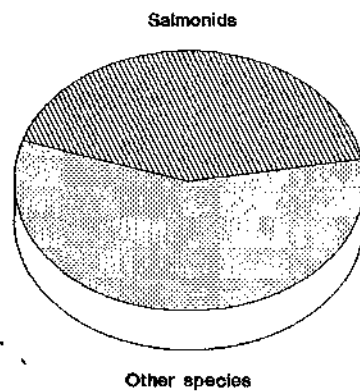


(Not to scale).

Species.	Density (N/100m ³)
0+ salmon	0.75
Older than 0+ salmon	1.00
0+ brown trout	1.50
Older than 0+ brown trout	0.75
Brown trout larger than 200mm	0
Total 0+ salmonids	2.25
Total salmonids	4.00
Other species	5.50
Total	9.50



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: River Wyre

Site Code:Wy08

Location: Upstream of Six Arches caravan site. Below weir pool.

N.G.R.: 501500

Date Fished: 15/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
<u>Class</u>	D	D	D	E

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

Habitat Features

Length: 60m

Mean Width (Range): 8m (6-9m)

Area: 480m²

Mean Depth (Range): 0.3m (0.1-0.4m)

Substrate Composition:

Gravel 20% Cobble 70% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 50% Riffle 40%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Flooded and naturalised gravel workings.

Fishing Rights:

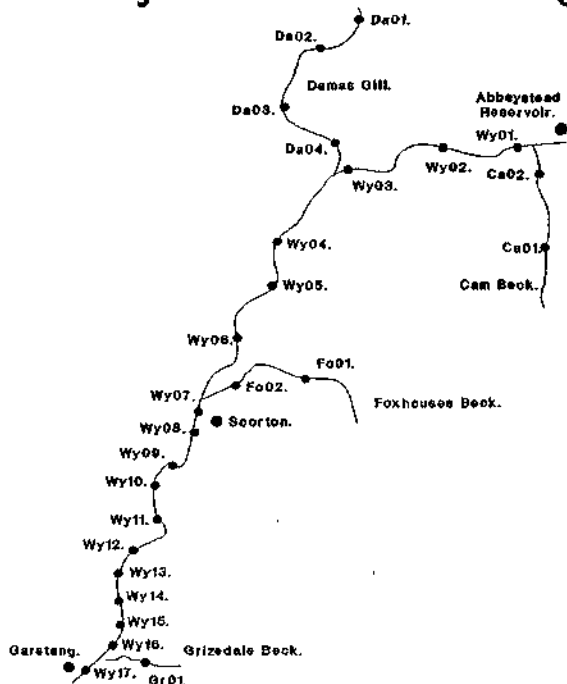
Not known.

Comments:

Thirteen salmon parr of 50-60mm (0+) and one salmon parr of 125 (>0+) were found at this site. 2 brown trout were caught of 50mm and 60mm. 7 chub of 30mm, 31 eels, 12 stoneloach and 13 bullheads were also caught.

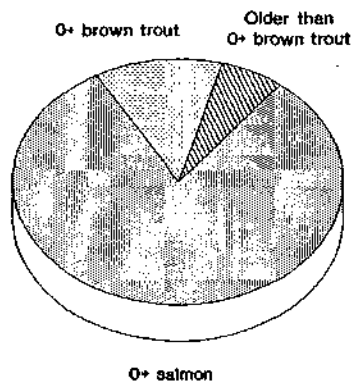
Wy08. NGR. 501500.

Abbeystead to Garstang.

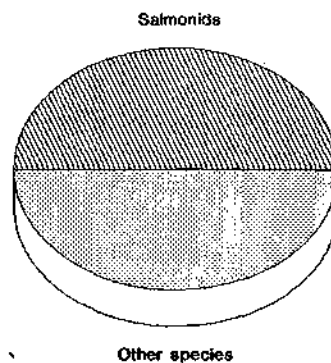


(Not to scale).

Species.	Density (N/100m ³)
0+ salmon	2.71
Older than 0+ salmon	0.21
0+ brown trout	0.42
Older than 0+ brown trout	0
Brown trout larger than 200mm	0
Total 0+ salmonids	3.13
Total salmonids	3.34
Other species	3.33
Total	6.67



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: River Wyre

Site Code:Wy09

Location: 500m upstream of Six Arches caravan site.

N.G.R.: 496497

Date Fished: 15/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	D	D	D	D

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

Habitat Features

Length: 50m

Mean Width (Range): 8m (6-9m)

Area: 480m²

Mean Depth (Range): 0.3m (0.1-0.4m)

Substrate Composition:

Gravel 60% Cobble 30% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 10% Riffle 80%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

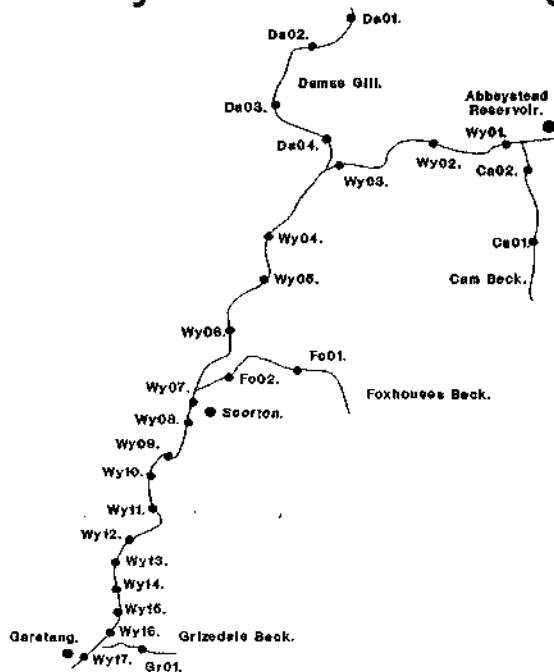
Not known.

Comments:

Seventeen salmon parr of 50-65mm (0+) and five salmon parr of 110-127mm (>0+) were found at this site. 7 brown trout of 65-140mm were found and a further 27 unidentified salmonids missed. 22 eels, 34 minnows, 9 stoneloach and 9 bullheads were also caught.

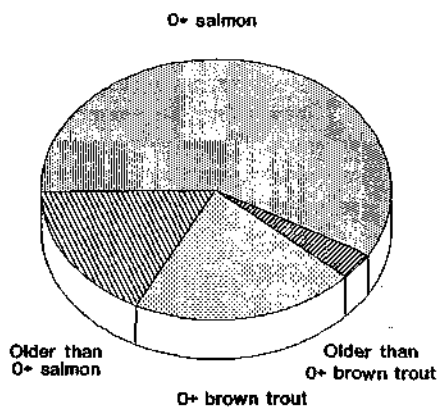
Wy09. NGR. 496497.

Abbeystead to Garstang.

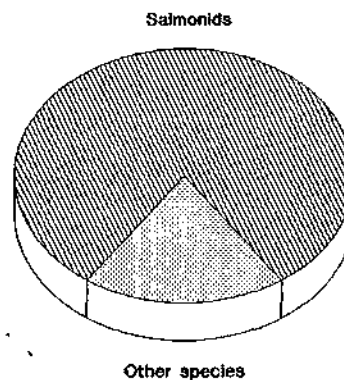


(Not to scale).

Species.	Density (N/100m ²)
0+ salmon	3.54
Older than 0+ salmon	1.04
0+ brown trout	1.25
Older than 0+ brown trout	0.21
Brown trout larger than 200mm	0
Total 0+ salmonids	4.79
Total salmonids	6.04
Other species	1.46
Total	7.52



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: River Wyre

Site Code:Wyl0

Location: Below of Six Arches caravan site. Below weir pool.

N.G.R.: 493493

Date Fished: 14/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	D	E	C

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

Habitat Features

Length: 50m

Mean Width (Range): 8m (6-9m)

Area: 480m²

Mean Depth (Range): 0.3m (0.1-0.4m)

Substrate Composition:

Gravel 20% Cobble 70% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 70% Riffle 20%

Area of glide and riffle between two deeper pools. Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture. Riverbanks stabilised with stone blocks.

Fishing Rights:

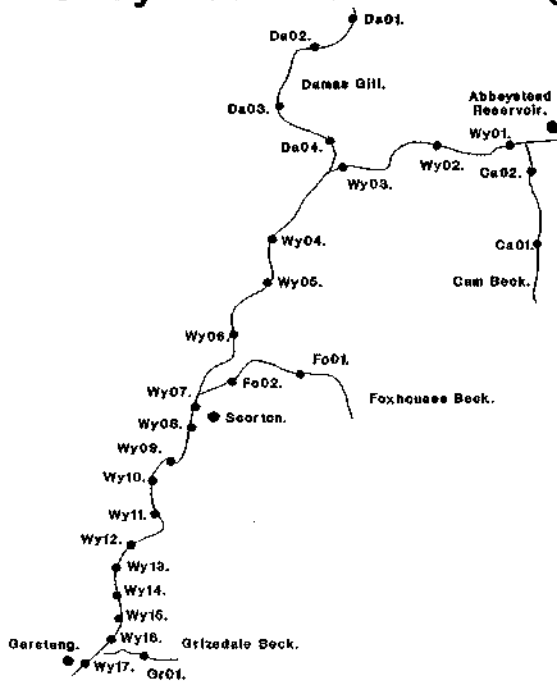
Not known.

Comments:

Eight salmon parr of 130-145mm (>0+) were found at this site. 26 brown trout were found of which 17 were caught of 120-230mm. 7 chub were found of which 3 were caught of 115-360mm. 58 eels, 25 minnows, 1 gudgeon and 1 bullhead were also caught.

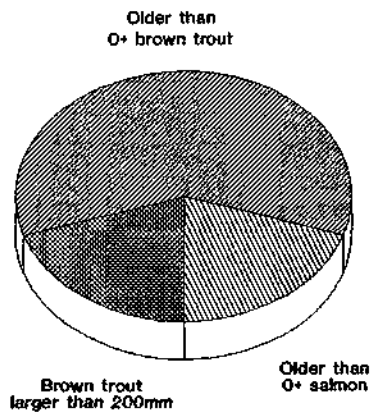
Wy10. NGR. 493493.

Abbeystead to Garstang.

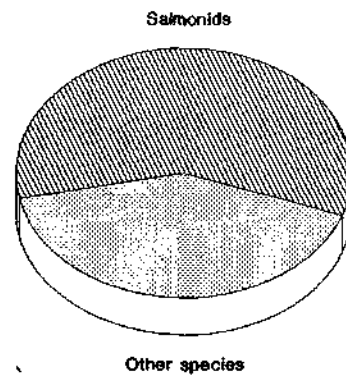


Species.	Density (N/100m ³)
0+ salmon	0
Older than 0+ salmon	0.83
0+ brown trout	0
Older than 0+ brown trout	2.50
Brown trout larger than 200mm	0.83
Total 0+ salmonids	0
Total salmonids	4.16
Other species	2.92
Total	7.08

(Not to scale).



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: River Wyre

Site Code:Wyl1

Location: Upstream of Cabus.

N.G.R.: 496489

Date Fished: 14/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	D	B	D	D

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

Habitat Features

Length: 40m

Mean Width (Range): 8m (6-9m)

Area: 320m²

Mean Depth (Range): 0.3m (0.1-0.4m)

Substrate Composition:

Gravel 20% Cobble 70% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 70% Riffle 20%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

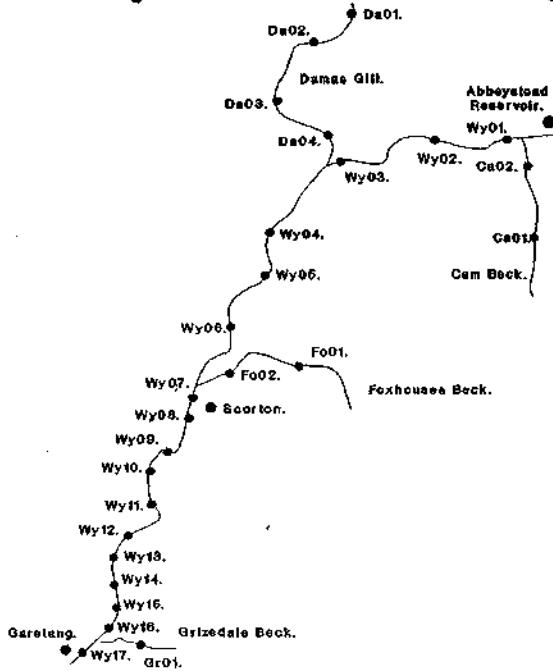
Not known.,

Comments:

Three salmon parr of 55-60mm (0+) and 21 salmon parr of 120-145mm (>0+) were caught at this site. 7 brown trout were found of which 6 were caught of 55-150mm. 46 eels, 6 minnows, 7 stoneloach and 2 bullheads were also caught.

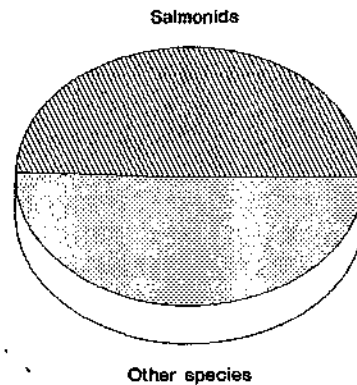
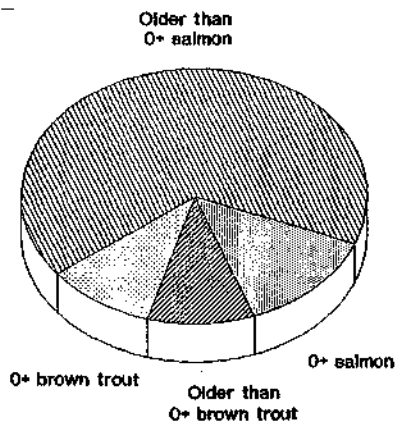
Wy11. NGR. 469489.

Abbeystead to Garstang.



Species.	Density (N/100m ²)
0+ salmon	1.25
Older than 0+ salmon	6.25
0+ brown trout	0.94
Older than 0+ brown trout	0.94
Brown trout larger than 200mm	0
Total 0+ salmonids	2.19
Total salmonids	3.38
Other species	3.44
Total	6.82

(Not to scale).



Site Report.

Watercourse: River Wyre

Site Code:Wy12

Location: Upstream of Gubberford Bridge.

N.G.R.: 499482

Date Fished: 14/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	D	E	D	E

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

Habitat Features

Length: 50m

Mean Width (Range): 9m (6-9m)

Area: 450m²

Mean Depth (Range): 0.3m (0.1-0.5m)

Substrate Composition:

Gravel 20% Cobble 70% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 50% Riffle 40%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

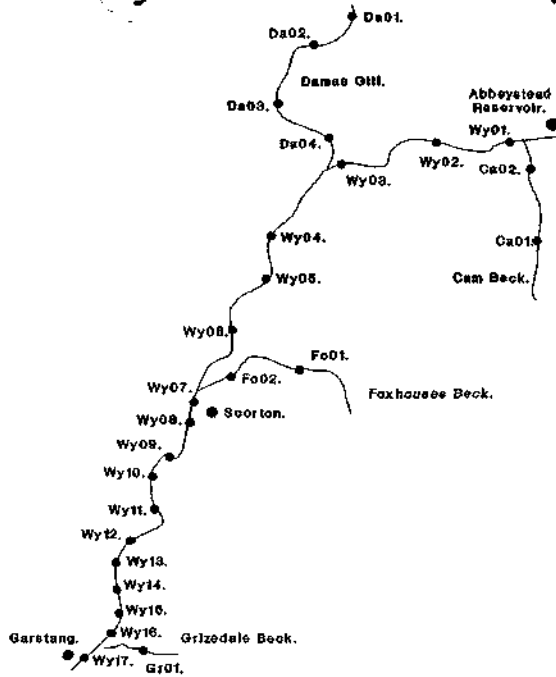
Not known.

Comments:

Fifteen salmon parr of 45-65mm (0+) were caught at this site. 1 brown trout was caught of 55mm. 23 eels, 20 minnows, 6 stoneloach and 5 bullheads were also caught.

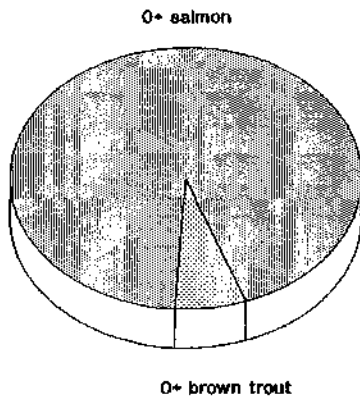
Wy12. NGR. 499482.

Abbeystead to Garstang.

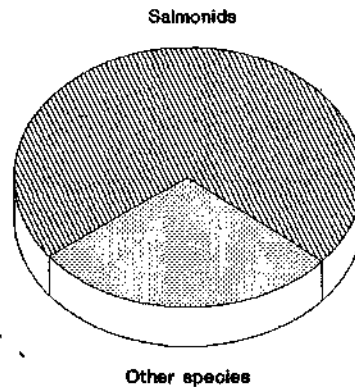


Species.	Density (N/100m')
0+ salmon	3.11
Older than 0+ salmon	0
0+ brown trout	0.22
Older than 0+ brown trout	0
Brown trout larger than 200mm	0
Total 0+ salmonids	3.33
Total salmonids	3.33
Other species	1.33
Total	4.66

(Not to scale).



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: River Wyre

Site Code:Wy13

Location: Upstream of Gubberford Bridge.

N.G.R.: 496479

Date Fished: 14/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	D	D	D	D

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

Habitat Features

Length: 50m

Mean Width (Range): 15m (12-16m)

Area: 750m²

Mean Depth (Range): 0.3m (0.1-0.5m)

Substrate Composition:

Gravel 20% Cobble 70% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 50% Riffle 40%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

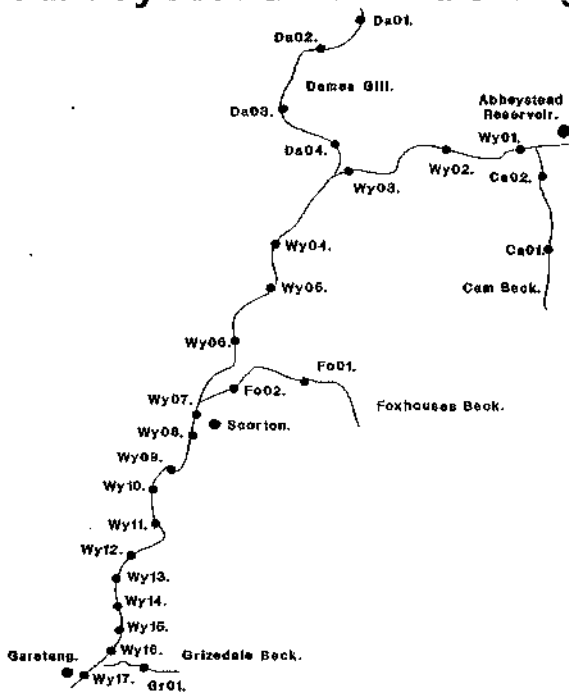
Not known.

Comments:

Ten salmon parr of 40-70mm (0+) and seven salmon parr of 115-175mm (>0+) were caught at this site. Five other salmon parr were seen but evaded capture. 15 brown trout of 45-295mm were caught and 5 others seen. 2 chub were found at the site of which 1 was caught, measuring 120mm. 4 eels, 17 minnows, 8 stone loach and 4 bullheads were also caught.

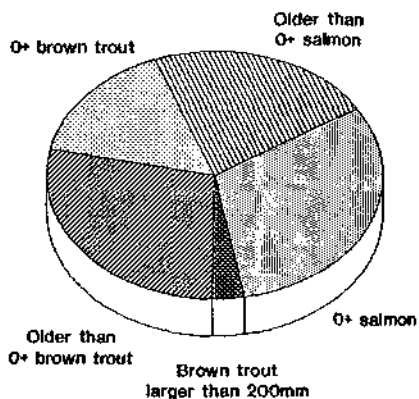
Wy13. NGR. 496479.

Abbeystead to Garstang.

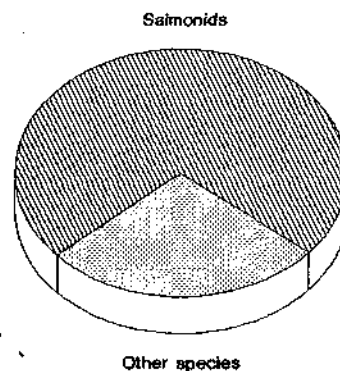


Species.	Density (N/100m ²)
0+ salmon	1.33
Older than 0+ salmon	0.93
0+ brown trout	0.67
Older than 0+ brown trout	1.20
Brown trout larger than 200mm	0.13
Total 0+ salmonids	2.00
Total salmonids	4.26
Other species	1.60
Total	5.86

(Not to scale).



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: River Wyre

Site Code:Wyl4

Location: Gubberford Bridge.

N.G.R.: 495473

Date Fished: 7/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	D	E	D	C

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

Habitat Features

Length: 50m

Mean Width (Range): 10m (9-10m)

Area: 500m²

Mean Depth (Range): 0.3m (0.1-0.5m)

Substrate Composition:

Gravel 50% Cobble 40% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 50% Riffle 40%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

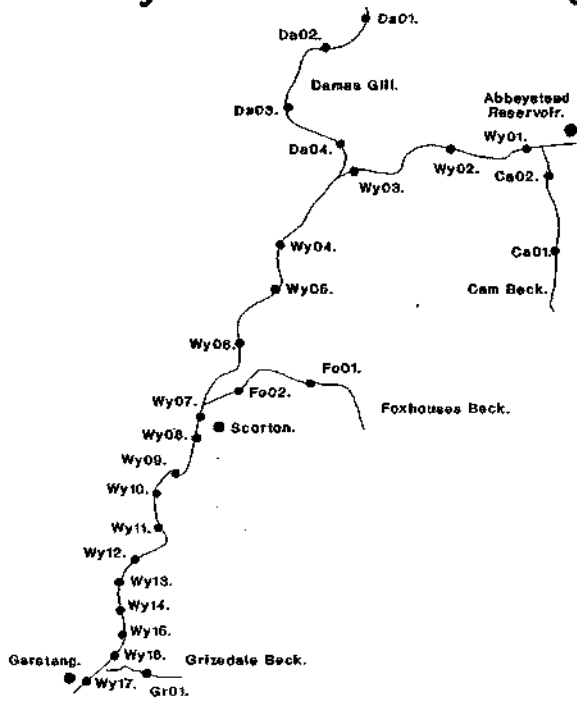
Not known.

Comments:

One salmon parr of 55mm (0+) was caught at this site. 36 brown trout of 45-350mm were caught and 27 others seen. 19 chub were found at the site of which 7 were caught, measuring 40-440mm. 12 eels, 5 minnows, 4 stone loach and 9 bullheads were also caught.

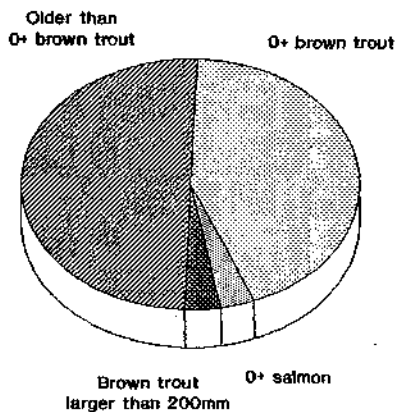
Wy14. NGR. 495473.

Abbeystead to Garstang.

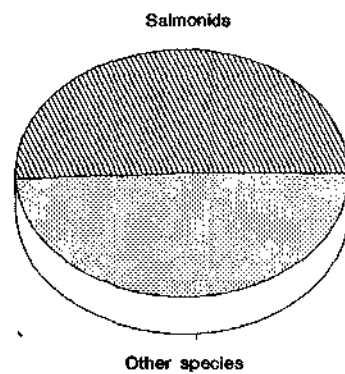


Species.	Density (N/100m ³)
0+ salmon	0.20
Older than 0+ salmon	0
0+ brown trout	2.60
Older than 0+ brown trout	3.00
Brown trout larger than 200mm	0.20
Total 0+ salmonids	2.80
Total salmonids	6.00
Other species	5.80
Total	11.80

(Not to scale).



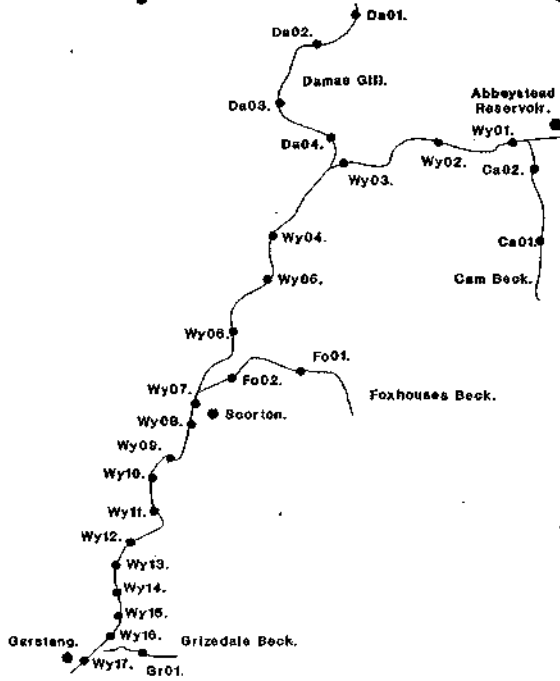
Salmonid Population Composition.



Total Population Composition.

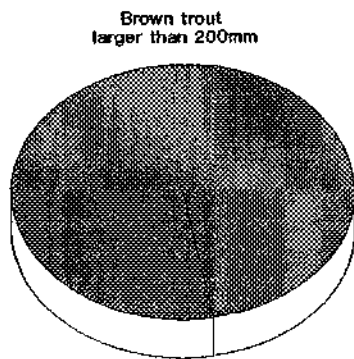
Wy15. NGR. 495467.

Abbeystead to Garstang.

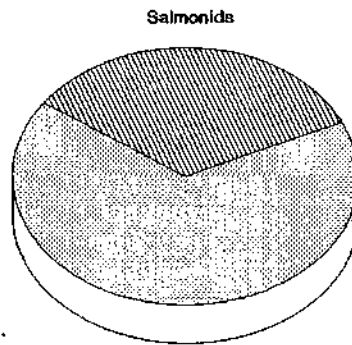


Species.	Density (N/100m ³)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	0
Older than 0+ brown trout	0
Brown trout larger than 200mm	0.20
Total 0+ salmonids	0
Total salmonids	0.20
Other species	0.40
Total	0.60

(Not to scale).



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: River Wyre

Site Code:Wy16

Location: Upstream of Grizedale Brook.

N.G.R.: 497466

Date Fished: 7/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
<u>Class</u>	D	E	D	D

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

Habitat Features

Length: 50m

Mean Width (Range): 10m (9-10m)

Area: 500m²

Mean Depth (Range): 0.5m (0.1-0.8m)

Substrate Composition:

Gravel 50% Cobble 40% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 50% Riffle 40%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

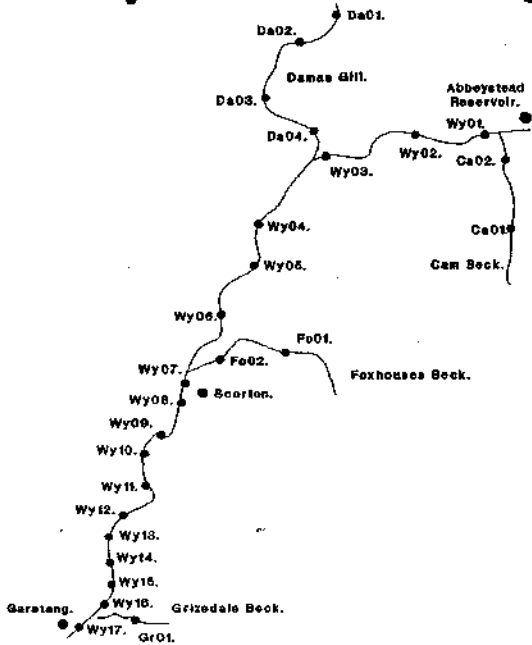
Not known.

Comments:

Six salmon parr of 50-65mm (0+) were caught at this site. 30 brown trout of 40-280mm were caught. 10 chub were found at the site of which 6 were caught, measuring 80-400mm. 6 eels, 16 minnows and 8 stoneloach were also caught.

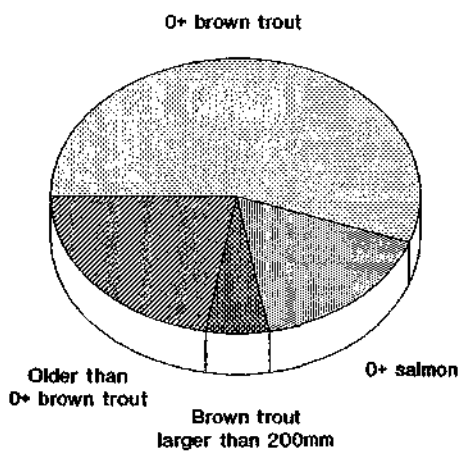
Wy16. NGR. 497466.

Abbeystead to Garstang.

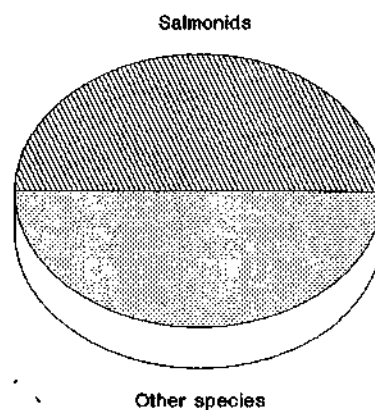


(Not to scale).

Species.	Density (N/100m ³)
0+ salmon	1.20
Older than 0+ salmon	0
0+ brown trout	4.00
Older than 0+ brown trout	1.60
Brown trout larger than 200mm	0.40
Total 0+ salmonids	5.20
Total salmonids	7.20
Other species	7.20
Total	14.40



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: Grizedale Beck.

Site Code:Gr01.

Location: Woodacre Hall.

N.G.R.: 502469

Date Fished: 7/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	D	E	C	C

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

Habitat Features

Length: 30m

Mean Width (Range): 2.0m (1-3m)

Area: 60m²

Mean Depth (Range): 0.05m (0.05-0.1m)

Substrate Composition:

Gravel 70% Cobble 30%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 60% Riffle 30%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture with sheep grazing.

Fishing Rights:

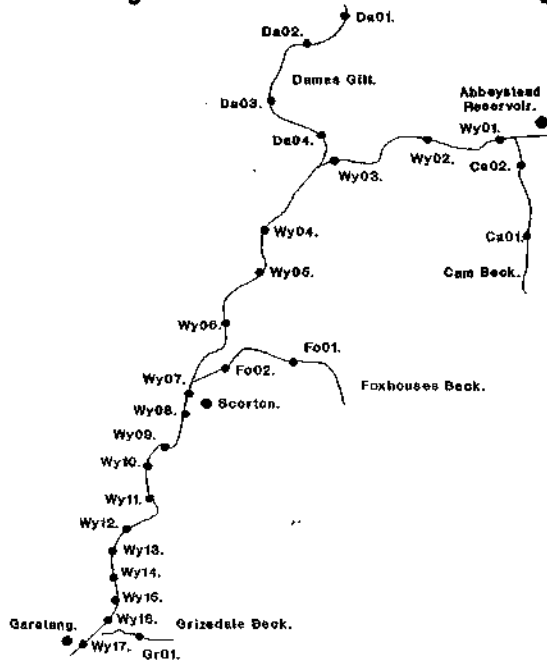
Not Known.

Comments:

4 0+ salmon were found at this site. 5 brown trout were caught from 60-105mm. No other fish species caught.

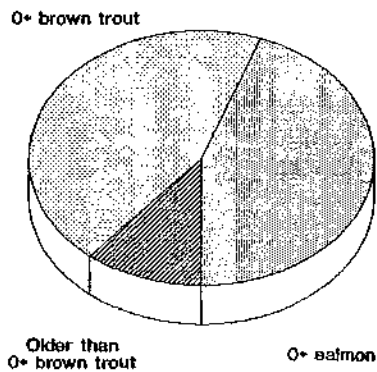
Gr01. NGR. 502469.

Abbeystead to Garstang.

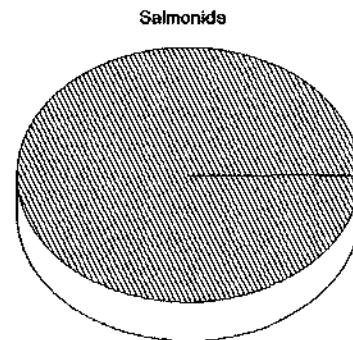


(Not to scale).

Species.	Density (N/100m ²)
0+ salmon	13.33
Older than 0+ salmon	0
0+ brown trout	13.33
Older than 0+ brown trout	3.33
Brown trout larger than 200mm	0
Total 0+ salmonids	26.66
Total salmonids	29.99
Other species	0
Total	29.99



Salmonid population composition.



Total population composition.

Site Report.

Watercourse: River Wyre

Site Code:Wy17

Location: Wyre Lane.

N.G.R.: 498462

Date Fished: 7/07/92

Site classification (salmonids).

	0+ salmon	Older than 0+ salmon	0+ trout	Older than 0+ trout
Class	E	E	E	D

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

Habitat Features

Length: 50m

Mean Width (Range): 10m (9-10m)

Area: 500m²

Mean Depth (Range): 0.5m (0.1-0.8m)

Substrate Composition:

Gravel 40% Cobble 50% Boulders 10%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 50% Riffle 40%

Area of glide and riffle between two deeper pools.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

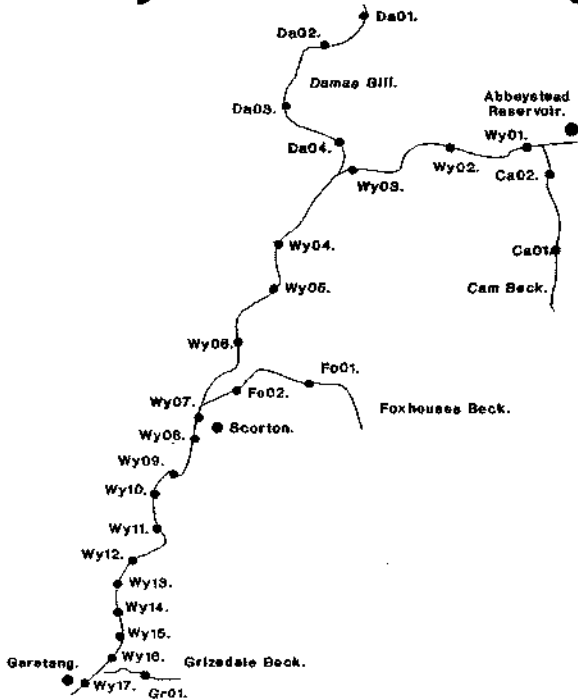
Not known.

Comments:

No salmon parr of were caught at this site. 2 brown trout of 135mm and 260mm were caught. 3 chub were found at the site of 375-410mm. 2 minnows, 3 bullheads and 3 stoneloach were also caught.

W17. NGR. 498462.

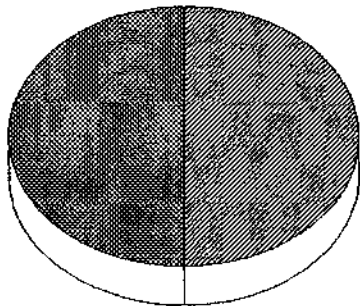
Abbeystead to Garstang.



Species.	Density (N/100m ³)
0+ salmon	0
Older than 0+ salmon	0
0+ brown trout	0
Older than 0+ brown trout	0.20
Brown trout larger than 200mm	0.20
Total 0+ salmonids	0.20
Total salmonids	0.40
Other species	2.20
Total	2.60

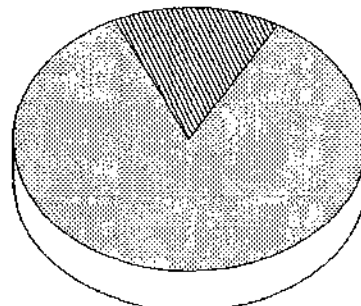
(Not to scale).

Older than 0+ brown trout Brown trout larger than 200mm



Salmonid population composition.

Salmonids



Other species

Total population composition.

Site Report.

Watercourse: River Wyre

Site Code:Wy18

Location: Near Catterall, downstream of A6 road bridge.

N.G.R.: 487429

Date Fished: 2/06/92

Method: Upstream electro-fishing, 2 anodes, pulsed DC (75V), wading, upstream stopnet.

Habitat Features

Length: 50m

Mean Width (Range): 10m (9-10m)

Area: 500m²

Mean Depth (Range): 0.5m (0.1-0.8m)

Substrate Composition:

Gravel 50% Sand 30% Cobble 20%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 90%

Area of glide and pool between two riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

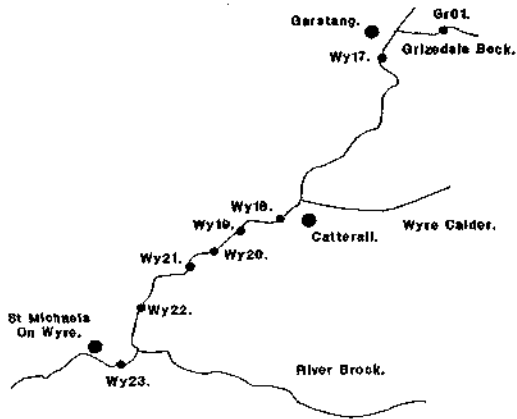
St Michaels AC.

Comments:

One salmon parr of 126mm (>0+) was caught at this site. 2 brown trout were found, one of 134mm and one of 100mm. 5 chub were found at the site of 408-438mm. 1 roach of 295mm, 11 flounder, 50 eels and 3 stoneloach were also caught.

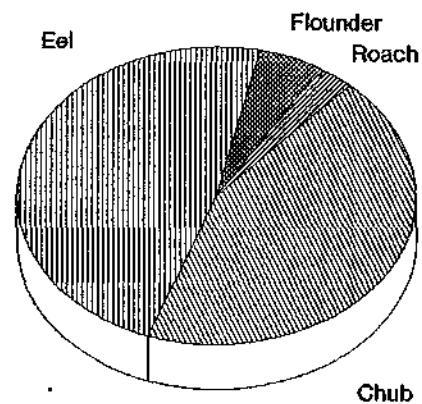
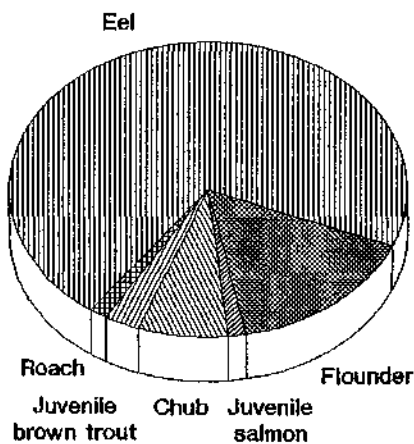
Wy18. NGR. 487429.

Garstang to St Michaels.



Species.	Density (N/100m ³)	Biomass (g/100m ³)
Chub	1.00	1040.0
Dace	0	0
Roach	0.20	70.0
Pike	0	0
Gudgeon	0	0
Flounder	2.20	125.0
Eel	10.00	1136.0
Juvenile salmon	0.20	2.0
Juvenile brown trout	0.40	3.0
Brown trout Larger than 200mm	0	0
Total salmonids	0.60	5.0
Total coarse fish	13.40	2371.0
Total	14.00	2376.0

(Not to scale).



Site Report.

Watercourse: River Wyre

Site Code:Wy19

Location: Churchtown.

N.G.R.: 483428

Date Fished: 3/06/92

Method: Downstream electro-fishing, 2 anodes, pulsed DC (75V), boat, downstream stopnet.

Habitat Features

Length: 50m

Mean Width (Range): 10m (9-10m)

Area: 500m²

Mean Depth (Range): 1.0m (0.3-2.0m)

Substrate Composition:

Gravel 50% Cobble 10% Sand 40%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 90%

Area of glide and pool between two riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture. Upstream of sewage works.

Fishing Rights:

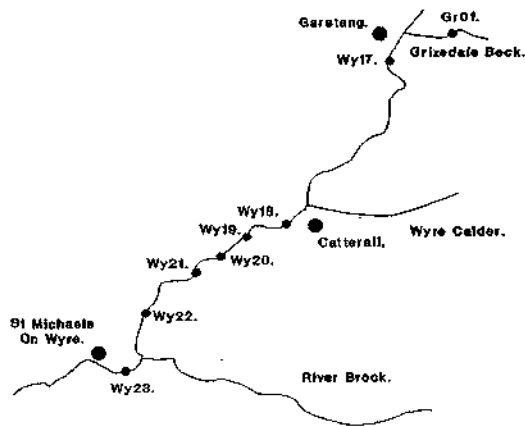
St Michaels AC.

Comments:

14 chub were found at the site of 240-410mm. 3 roach were caught of 294-365mm. 19 dace were caught of 125-225mm. 4 flounder and 14 eels were also caught.

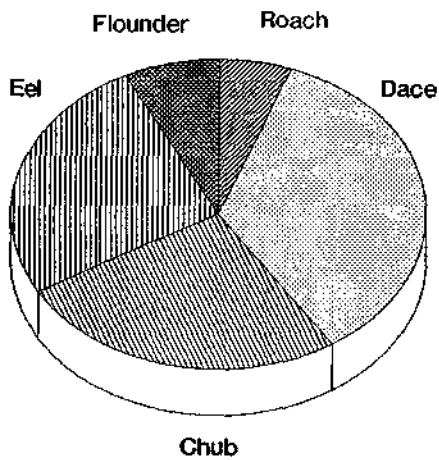
Wy19. NGR. 483428.

Garstang to St Michaels.

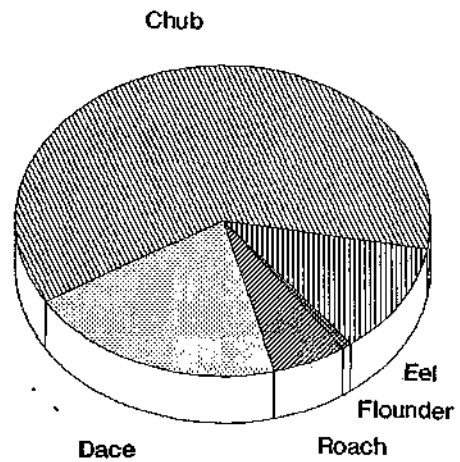


Species.	Density (N/100m ³)	Biomass (g/100m ³)
Chub	2.80	1680.0
Dace	3.80	554.0
Roach	0.60	160.0
Pike	0	0
Gudgeon	0	0
Flounder	0.80	20.0
Eel	2.80	318.0
Juvenile salmon	0	0
Juvenile brown trout	0	0
Brown trout Larger than 200mm	0	0
Total salmonids	0	0
Total coarse fish	10.80	2732.0
Total	10.80	2732.0

(Not to scale).



Population composition.



Biomass composition.

Site Report.

Watercourse: River Wyre

Site Code:Wy20

Location: Churchtown sewage works.

N.G.R.: 479428

Date Fished: 3/06/92

Method: Downstream electro-fishing, 2 anodes, pulsed DC (75V), boat, downstream stopnet.

Habitat Features

Length: 50m

Mean Width (Range): 10m (9-10m)

Area: 500m²

Mean Depth (Range): 1.0m (0.3-2.0m)

Substrate Composition:

Gravel 40% Cobble 20% Sand 40%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 90%

Area of glide and pool between two riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture. Adjacent to sewage works.

Fishing Rights:

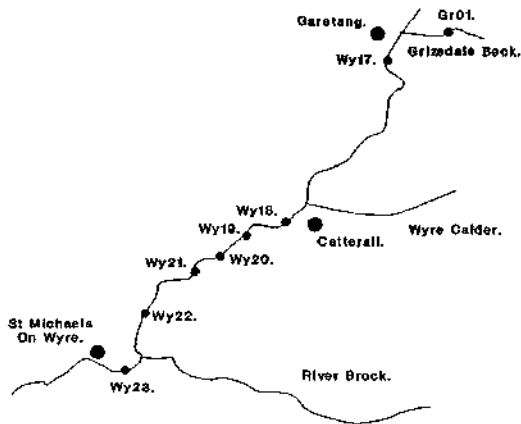
St Michaels AC.

Comments:

1 salmon parr of 100mm (>0+) was found at this site. 21 chub were found at the site of 325-440mm. 1 roach was caught of 146mm. 2 dace were found of 136mm and 140mm. 1 pike of 550mm, 2 gudgeon of 135mm, 1 eel and 1 flounder were also caught.

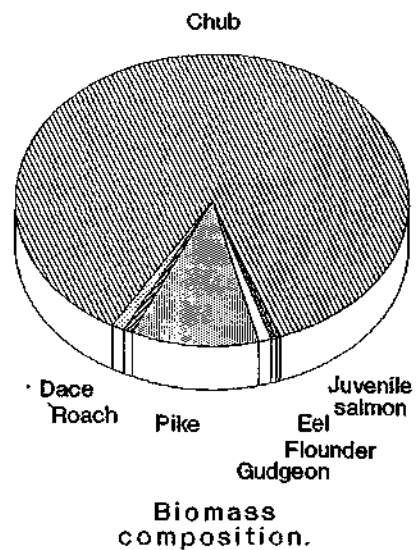
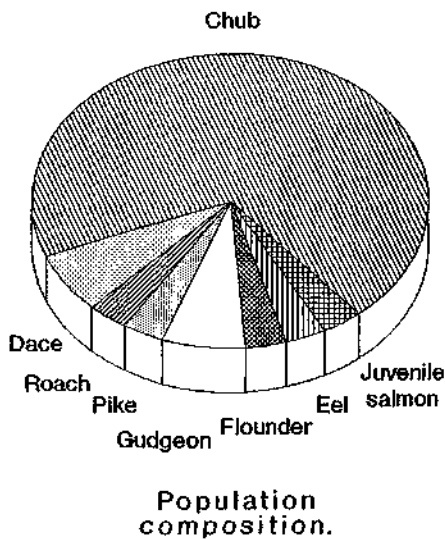
Wy20. NGR. 479428.

Garstang to St Michaels.



Species.	Density (N/100m ³)	Biomass (g/100m ³)
Chub	4.20	3320.0
Dace	0.40	40.0
Roach	0.20	30.0
Pike	0.20	400.0
Gudgeon	0.40	40.0
Flounder	0.20	17.0
Eel	0.20	12.0
Juvenile salmon	0.20	2.0
Juvenile brown trout	0	0
Brown trout Larger than 200mm	0	0
Total salmonids	0.20	2.0
Total coarse fish	5.80	3859.0
Total	6.00	3861.0

(Not to scale).



Site Report.

Watercourse: River Wyre

Site Code:Wy21

Location: Confluence of Tarnacre Brook.

N.G.R.: 472422

Date Fished: 3/06/92

Method: Downstream electro-fishing, 2 anodes, pulsed DC (75V), boat, downstream stopnet.

Habitat Features

Length: 50m

Mean Width (Range): 10m (9-10m)

Area: 500m²

Mean Depth (Range): 1.0m (0.3-2.0m)

Substrate Composition:

Gravel 30% Sand 80%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 90%

Area of glide and pool between two riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

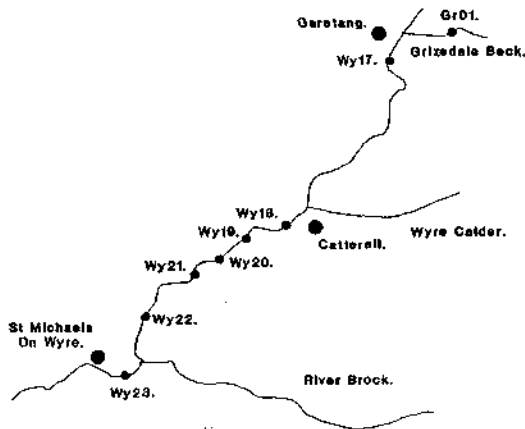
St Michaels AC.

Comments:

7 chub were found at the site of 310-425mm. 2 pike were found of 520mm and 710mm. 18 eels 1 flounder and >300 minnows were also caught.

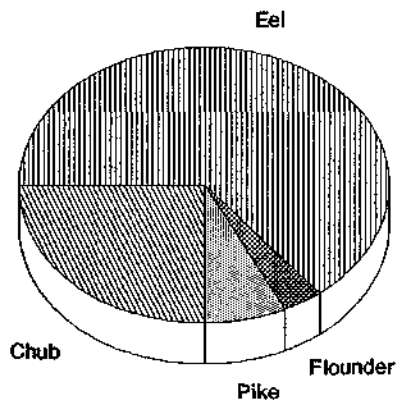
Wy21. NGR. 472422.

Garstang to St Michaels.

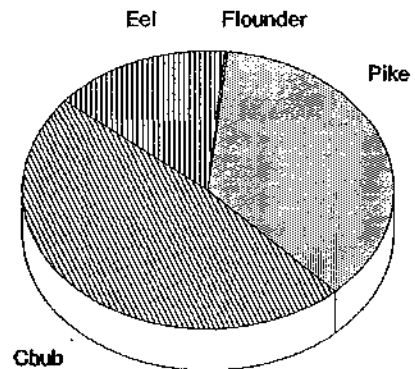


Species.	Density (N/100m ³)	Biomass (g/100m ³)
Chub	1.40	1070.0
Dace	0	0
Roach	0	0
Pike	0.40	806.0
Gudgeon	0	0
Flounder	0.20	6.0
Eel	3.60	342.0
Juvenile salmon	0	0
Juvenile brown trout	0	0
Brown trout Larger than 200mm	0	0
Total salmonids	0	0
Total coarse fish	5.60	2224.0
Total	5.60	2224.0

(Not to scale).



Population
composition.



Biomass
composition.

Site Report.

Watercourse: River Wyre

Site Code:Wy22

Location: Footbridge at St Michaels.

N.G.R.: 466416

Date Fished: 3/06/92

Method: Downstream electro-fishing, 2 anodes, pulsed DC (75V), boat, downstream stopnet.

Habitat Features

Length: 50m

Mean Width (Range): 10m (9-10m)

Area: 500m²

Mean Depth (Range): 1.0m (0.3-2.0m)

Substrate Composition:

Gravel 10% Sand 90%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 90%

Area of glide and pool between two riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

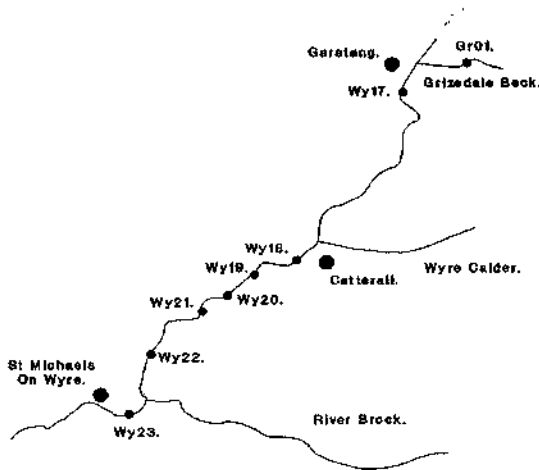
St Michaels AC.

Comments:

10 chub were caught of 310-427mm. 1 roach of 195mm, 1 pike of 495mm, 5 eels and 6 flounder were also found.

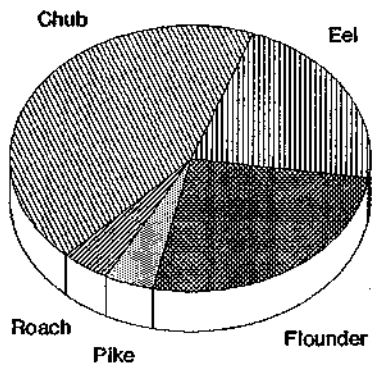
Wy22. NGR. 466416.

Garstang to St Michaels.

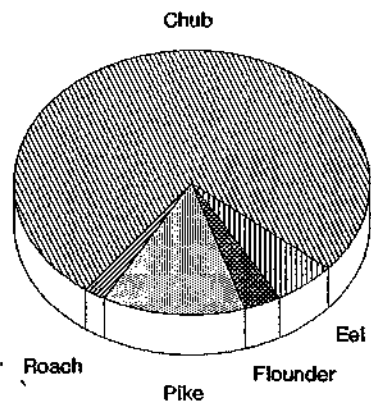


Species.	Density (N/100m ³)	Biomass (g/100m ³)
Chub	2.00	1520.0
Dace	0	0
Roach	0.20	40.0
Pike	0.20	260.0
Gudgeon	0	0
Flounder	1.20	68.0
Eel	1.00	113.0
Juvenile salmon	0	0
Juvenile brown trout	0	0
Brown trout Larger than 200mm	0	0
Total salmonids	0	0
Total coarse fish	4.60	2001.0
Total	4.60	2001.0

(Not to scale).



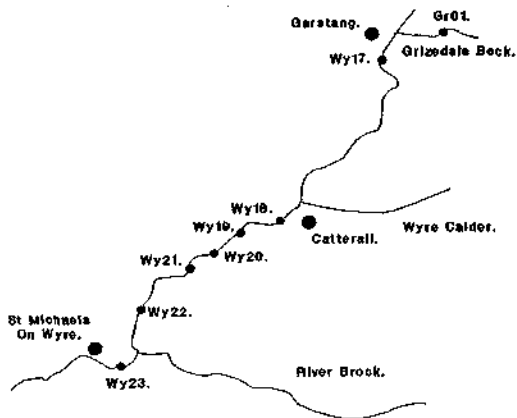
Population composition.



Biomass composition.

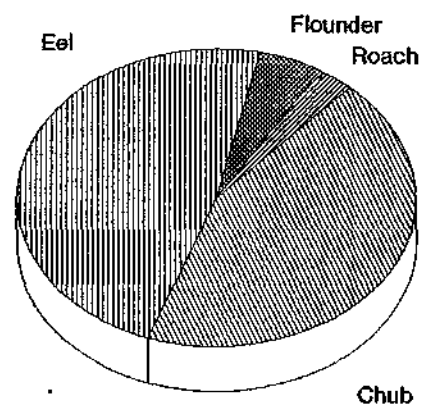
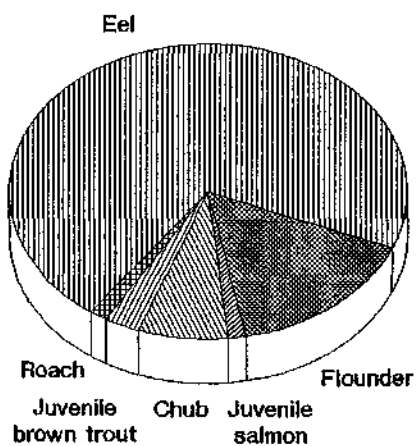
Wy18. NGR. 487429.

Garstang to St Michaels.



Species.	Density (N/100m ³)	Biomass (g/100m ³)
Chub	1.00	1040.0
Dace	0	0
Roach	0.20	70.0
Pike	0	0
Gudgeon	0	0
Flounder	2.20	125.0
Eel	10.00	1136.0
Juvenile salmon	0.20	2.0
Juvenile brown trout	0.40	3.0
Brown trout Larger than 200mm	0	0
Total salmonids	0.60	5.0
Total coarse fish	13.40	2371.0
Total	14.00	2376.0

(Not to scale).



Site Report.

Watercourse: River Wyre

Site Code:Wy19

Location: Churchtown.

N.G.R.: 483428

Date Fished: 3/06/92

Method: Downstream electro-fishing, 2 anodes, pulsed DC (75V), boat, downstream stopnet.

Habitat Features

Length: 50m

Mean Width (Range): 10m (9-10m)

Area: 500m²

Mean Depth (Range): 1.0m (0.3-2.0m)

Substrate Composition:

Gravel 50% Cobble 10% Sand 40%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 90%

Area of glide and pool between two riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture. Upstream of sewage works.

Fishing Rights:

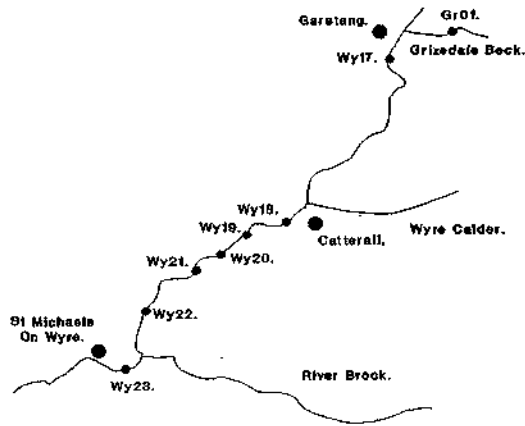
St Michaels AC.

Comments:

14 chub were found at the site of 240-410mm. 3 roach were caught of 294-365mm. 19 dace were caught of 125-225mm. 4 flounder and 14 eels were also caught.

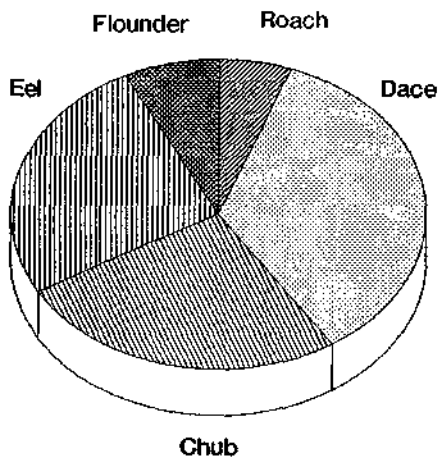
Wy19. NGR. 483428.

Garstang to St Michaels.

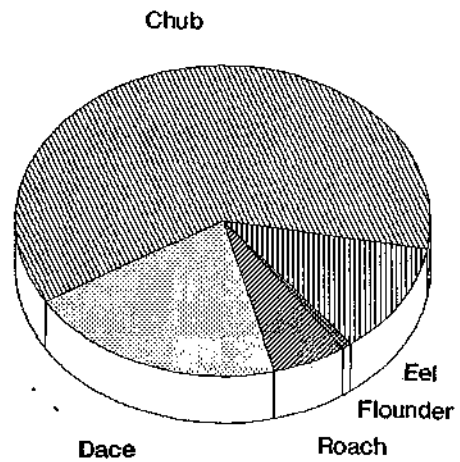


Species.	Density (N/100m ³)	Biomass (g/100m ³)
Chub	2.80	1680.0
Dace	3.80	554.0
Roach	0.60	160.0
Pike	0	0
Gudgeon	0	0
Flounder	0.80	20.0
Eel	2.80	318.0
Juvenile salmon	0	0
Juvenile brown trout	0	0
Brown trout Larger than 200mm	0	0
Total salmonids	0	0
Total coarse fish	10.80	2732.0
Total	10.80	2732.0

(Not to scale).



Population composition.



Biomass composition.

Site Report.

Watercourse: River Wyre

Site Code:Wy20

Location: Churchtown sewage works.

N.G.R.: 479428

Date Fished: 3/06/92

Method: Downstream electro-fishing, 2 anodes, pulsed DC (75V), boat, downstream stopnet.

Habitat Features

Length: 50m

Mean Width (Range): 10m (9-10m)

Area: 500m²

Mean Depth (Range): 1.0m (0.3-2.0m)

Substrate Composition:

Gravel 40% Cobble 20% Sand 40%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 90%

Area of glide and pool between two riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture. Adjacent to sewage works.

Fishing Rights:

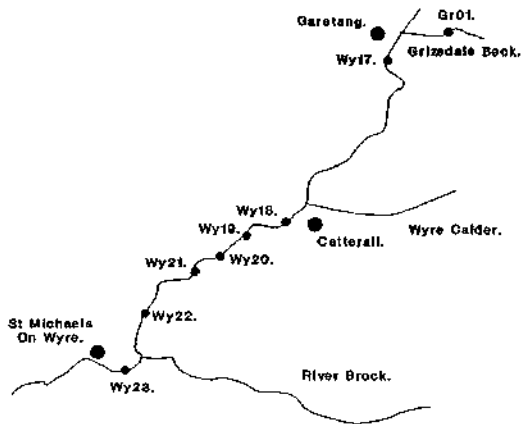
St Michaels AC.

Comments:

1 salmon parr of 100mm (>0+) was found at this site. 21 chub were found at the site of 325-440mm. 1 roach was caught of 146mm. 2 dace were found of 136mm and 140mm. 1 pike of 550mm, 2 gudgeon of 135mm, 1 eel and 1 flounder were also caught.

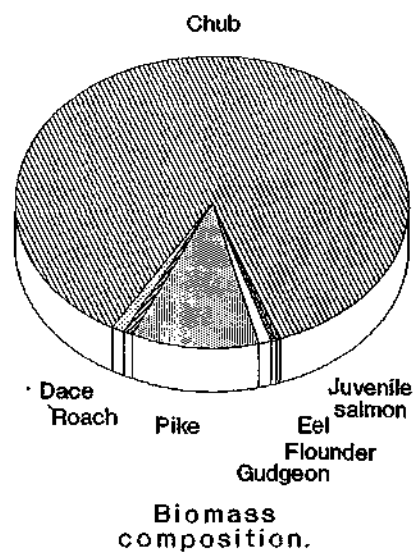
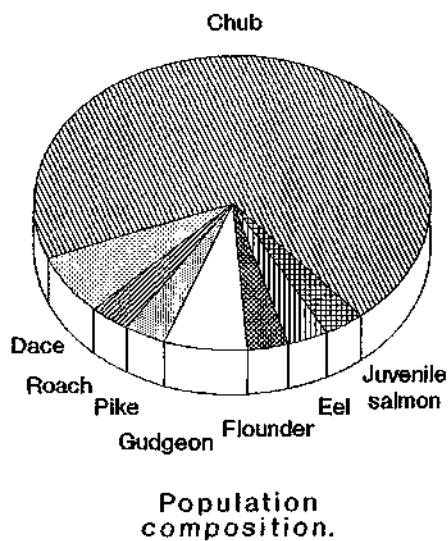
Wy20. NGR. 479428.

Garstang to St Michaels.



Species.	Density (N/100m ³)	Biomass (g/100m ³)
Chub	4.20	3320.0
Dace	0.40	40.0
Roach	0.20	30.0
Pike	0.20	400.0
Gudgeon	0.40	40.0
Flounder	0.20	17.0
Eel	0.20	12.0
Juvenile salmon	0.20	2.0
Juvenile brown trout	0	0
Brown trout Larger than 200mm	0	0
Total salmonids	0.20	2.0
Total coarse fish	5.80	3859.0
Total	6.00	3861.0

(Not to scale).



Site Report.

Watercourse: River Wyre

Site Code:Wy21

Location: Confluence of Tarnacre Brook.

N.G.R.: 472422

Date Fished: 3/06/92

Method: Downstream electro-fishing, 2 anodes, pulsed DC (75V), boat, downstream stopnet.

Habitat Features

Length: 50m

Mean Width (Range): 10m (9-10m)

Area: 500m²

Mean Depth (Range): 1.0m (0.3-2.0m)

Substrate Composition:

Gravel 30% Sand 80%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 90%

Area of glide and pool between two riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

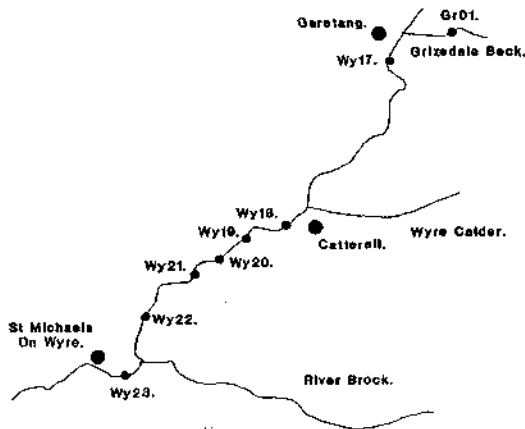
St Michaels AC.

Comments:

7 chub were found at the site of 310-425mm. 2 pike were found of 520mm and 710mm. 18 eels 1 flounder and >300 minnows were also caught.

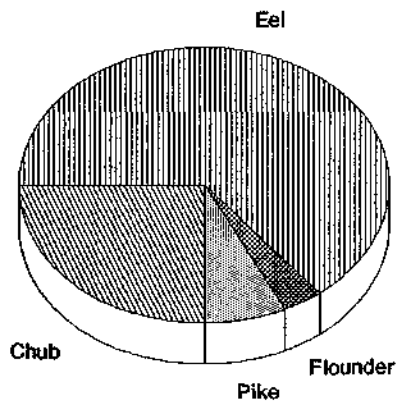
Wy21. NGR. 472422.

Garstang to St Michaels.

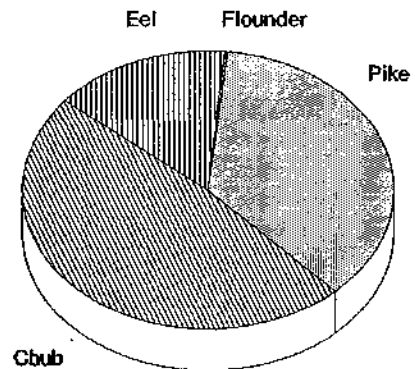


Species.	Density (N/100m ³)	Biomass (g/100m ³)
Chub	1.40	1070.0
Dace	0	0
Roach	0	0
Pike	0.40	806.0
Gudgeon	0	0
Flounder	0.20	6.0
Eel	3.60	342.0
Juvenile salmon	0	0
Juvenile brown trout	0	0
Brown trout Larger than 200mm	0	0
Total salmonids	0	0
Total coarse fish	5.60	2224.0
Total	5.60	2224.0

(Not to scale).



Population
composition.



Biomass
composition.

Site Report.

Watercourse: River Wyre

Site Code:Wy22

Location: Footbridge at St Michaels.

N.G.R.: 466416

Date Fished: 3/06/92

Method: Downstream electro-fishing, 2 anodes, pulsed DC (75V), boat, downstream stopnet.

Habitat Features

Length: 50m

Mean Width (Range): 10m (9-10m)

Area: 500m²

Mean Depth (Range): 1.0m (0.3-2.0m)

Substrate Composition:

Gravel 10% Sand 90%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 90%

Area of glide and pool between two riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

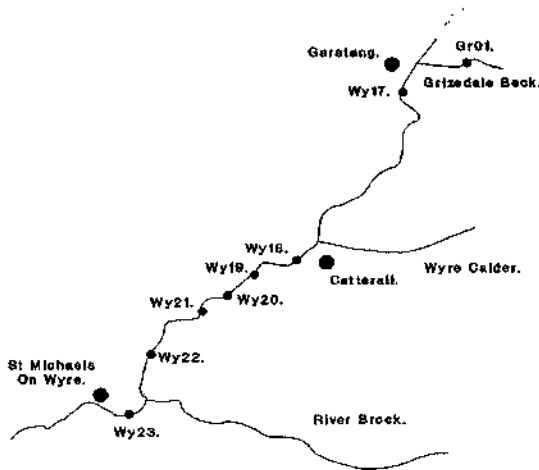
St Michaels AC.

Comments:

10 chub were caught of 310-427mm. 1 roach of 195mm, 1 pike of 495mm, 5 eels and 6 flounder were also found.

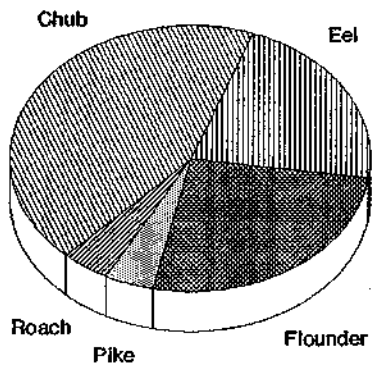
Wy22. NGR. 466416.

Garstang to St Michaels.

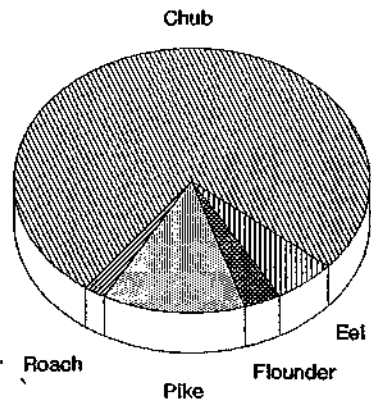


Species.	Density (N/100m ³)	Biomass (g/100m ³)
Chub	2.00	1520.0
Dace	0	0
Roach	0.20	40.0
Pike	0.20	260.0
Gudgeon	0	0
Flounder	1.20	68.0
Eel	1.00	113.0
Juvenile salmon	0	0
Juvenile brown trout	0	0
Brown trout Larger than 200mm	0	0
Total salmonids	0	0
Total coarse fish	4.60	2001.0
Total	4.60	2001.0

(Not to scale).



Population
composition.



Biomass
composition.

Site Report.

Watercourse: River Wyre

Site Code:Wy23

Location: Above St Michaels Weir.

N.G.R.: 465411

Date Fished: 3/06/92

Method: Downstream electro-fishing, 2 anodes, pulsed DC (75V), boat, downstream stopnet.

Habitat Features

Length: 50m

Mean Width (Range): 10m (9-10m)

Area: 500m²

Mean Depth (Range): 1.0m (0.3-2.0m)

Substrate Composition:

Gravel 20% Sand 30% Bedrock 50%

Water Level:

Low, summer flow.

Site Description:

Pool 10% Glide 90%

Area of glide and pool between two riffle areas.
Accessible to migratory salmonids.

Adjacent Land Use:

Improved pasture.

Fishing Rights:

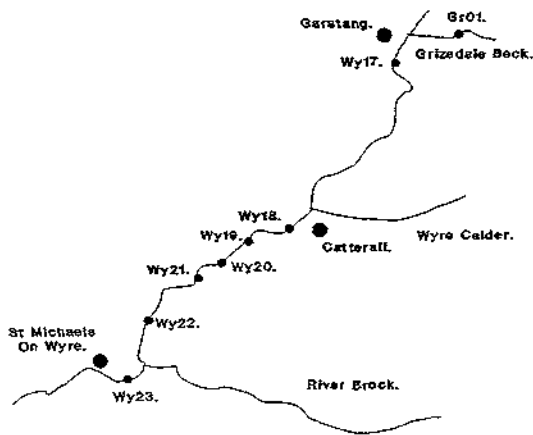
St Michaels AC.

Comments:

12 chub were found at the site, of 240-395mm. 1 dace of 145mm was also caught.

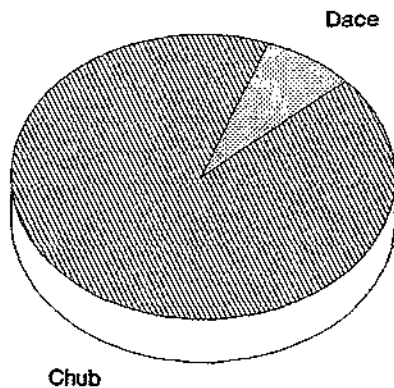
Wy23. NGR. 465411.

Garstang to St Michaels.

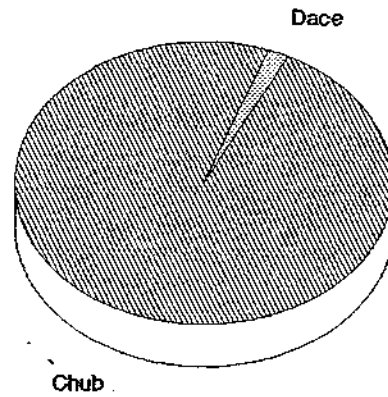


Species.	Density (N/100m ²)	Biomass (g/100m ²)
Chub	2.40	1080.0
Dace	0.20	20.0
Roach	0	0
Pike	0	0
Gudgeon	0	0
Flounder	0	0
Eel	0	0
Juvenile salmon	0	0
Juvenile brown trout	0	0
Brown trout Larger than 200mm	0	0
Total salmonids	0	0
Total coarse fish	2.60	1100.0
Total	2.60	1100.0

(Not to scale).



Population
composition.



Biomass
composition.