SHRImP 2014 Semi-quantitative Electro-fishing Survey

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An Upper Avon Trout fry Salmo trutta from above the Avon dam reservoir

1. Introduction

The Westcountry Rivers Trust (WRT) undertook semi-quantitative fry index electrofishing survey throughout the Rivers Avon, Yealm & Erme in July and August 2014. This was the second year of fish monitoring of this type and goes someway to establishing a longer term data set for the South Hams Rivers.

The surveys were targeted to complement the Environment Agency (EA) electric fishing monitoring undertaken in 2014, although both data sets use different methodologies with the primary difference being the use of fully quantitative depletion methods used by the EA and a semi-quantitative fry index method used by WRT (to be detailed in Field sampling and data analysis methods section). A total of two sites on the Avon, two sites on the Erme and 16 sites on the Yealm were surveyed by the Environment Agency in the 2014 season (see appendix D).

The strength of the fry index survey is to enable a quick, affordable baseline semi-quantitative catchment-wide view of the fry life stage only. As this survey is indicative of a single year, it is important to interpret the results with caution. This electro-fishing survey will aid as a tool to monitoring and inform appropriate habitat restoration works under the South Hams River Improvement Project.

Survival of salmonid fry to the end of the first summer is known to be poor. Up to 90% of the alevins that emerge from redds will not survive. Even in good quality habitat with a rich food supply, high densities of fish will undergo strong competition for resources with each individual trying to gain a profitable feeding station. The fry index surveys are used as a coarse measure of fry numbers/abundance at each particular site. For each single year it also gives a broad indicator of salmonid spawning success across a catchment.

This report focuses on 2014 data but starts to form a longer term data set, being the second year of fish sampling. However, it is worth noting that both 2013 and 2014 data forms the baseline for future monitoring efforts and guidance for actions (see recommendations section).

The semi-quantitative methodology is primarily used as a means of guiding conservation and fisheries actions on the ground (or in the river). It is significantly less accurate than fully-quantitative depletion methodologies or single catch netted semi-quantitative surveys. Nevertheless, what this method lacks in terms of accuracy it makes up for in speed and

efficiency. Using this method fisheries managers are able to trial and test conservation measures to best fit the catchment, using a repeating cycle of affordable monitoring and action, building site-specific knowledge and improvements over time - this flexible and responsive approach is known as '*adaptive management'*.

The Dartmoor rivers are typically short and steep with a spate characteristic; rainfall falls on the oligotrophic moorlands where it flows quickly downstream picking up little in the way of nutrients until it meets with its lowland section, again typically short in relation to other catchments. Both sections (upper and lower) represent challenging environments with their own issues. Typically these rivers have the following issues relating to the success of salmonid fish:

- Barriers to migration.
- Lack of functioning habitats.
- Degraded habitats (particularly at vital life cycle stages).
- Anthropogenic pressures in terms on modifications to aquatic environments, inputs from adjacent land management and in infrastructure.

This report will outline the available fisheries management tools and techniques used in relation to these rivers as well as making suggestions for future conservation efforts.

Examples of the characteristics of Dartmoor rivers, in this case the Avon, upper (left) and lower (right).

2. Summary of 2013 data

Figure 1 and table 1 below both shows a summary of the 2013 fish monitoring efforts. Due to staffing issues there was not a large scale assessment undertaken, although 2013 data provide a starting point for a more detailed coverage of sites in 2014 and some comparisons can be made (see discussion section).

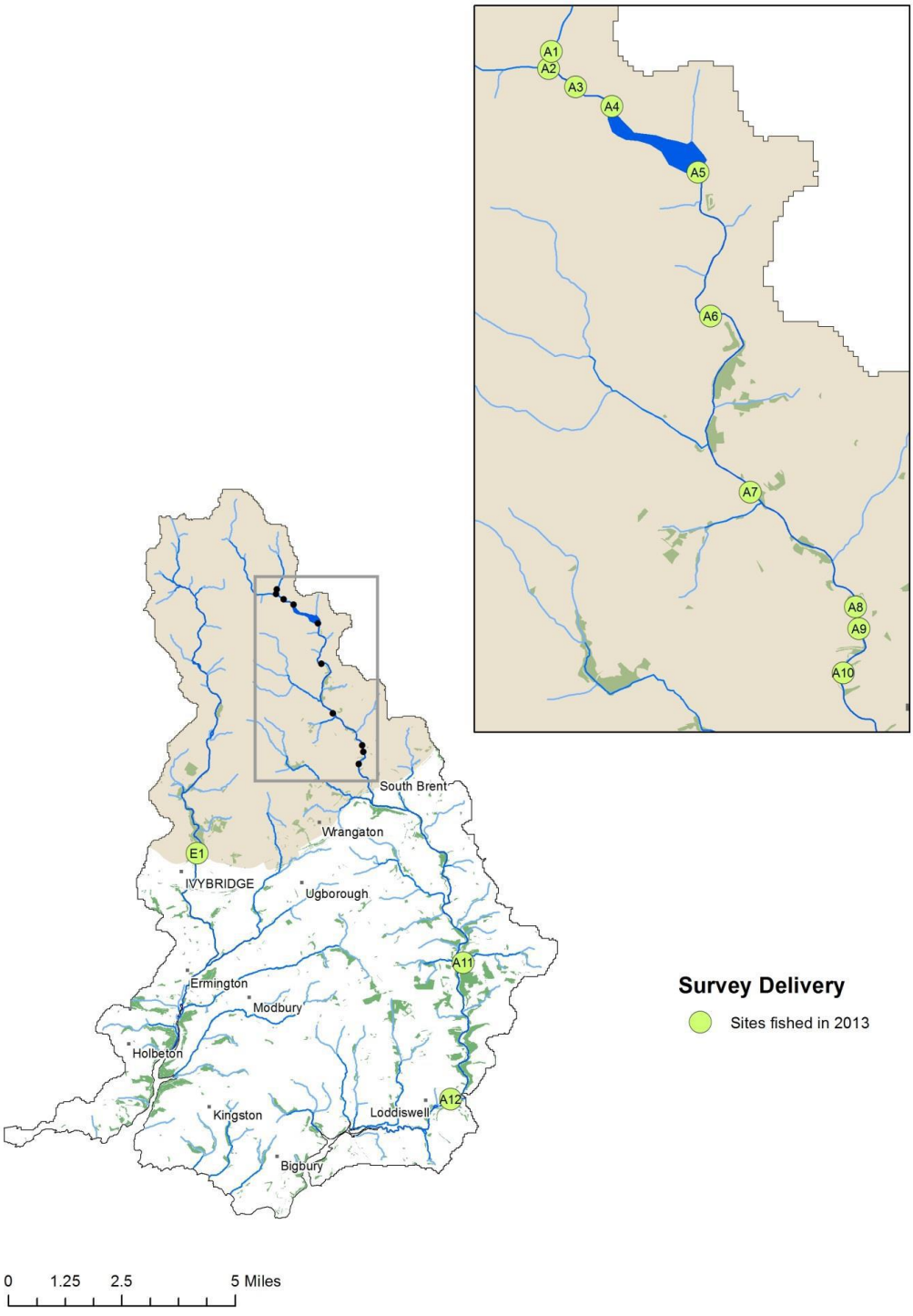


***Figure 1**. Survey sites sampled in 2013 by WRT*

Table 1. *A summary of 2013 electrofishing efforts with salmonid classifications*

Site ID	Site Name	Salmon Fry class	Trout Fry class
A1	US Avon Dam 1	Absent	Good
A2	US Avon Dam 2	Absent	Excellent
A3	US Avon Dam 3	Absent	Fair
A4	US Avon Dam 4	Absent	Good
A5	DS Avon Dam	Absent	Poor
A6	Woolholes	Absent	Poor
A7*	Didworthy	Poor	Poor
A8*	US Lydia	abandoned	abandoned
A9	DS Lydia	Good	Absent
A10	DS Brent Island	Fair	Poor
A11	DS Gara Bridge	Poor	Poor
A12	DS Loddiswell Bridge	Poor	Absent
E1	Erme – US Ivybridge	Poor	Poor

2.1 The Avon Catchment summary

Salmon

Salmon fry were absent from the upper reaches of the Avon above Shipley Falls. Didworthy was the most upstream site at which salmon were recorded. The two sites downstream of Lydia Falls were the most productive and were assigned 'good' and 'fair' classifications at downstream Lydia Falls (Site A9) and downstream Brent Island (Site A10) respectively. All remaining sites were classed as poor, with four or fewer individuals captured per survey. Individual lengths of salmon captured ranged between 50 and 149mm.

Trout

The sites upstream of the Avon dam were the most productive sites for trout with classifications ranging from 'fair' to 'excellent' at Site A3 (upstream Avon Dam 3) and site A2 (upstream Avon Dam 2) respectively. Trout were absent at site A9 (DS Gara Bridge) and site A12 (DS Loddiswell Bridge) and 'poor' at all other sites. Individual lengths of trout captured ranged between 49 and 214mm.

2.2 The Erme Catchment summary

The single site surveyed (E1, US Ivybridge) was classed as ‘Poor’ for both salmon and trout fry. Individual lengths ranged between 73 and 132mm for trout, and 59 and 96mm for salmon.

3. Site Selection and Permissions

Sites (Figure 1) were selected to provide representative samples from distinct river reaches, characterized by habitat type, proximity to barriers and proximity to targeted restoration works under the SHRImP project. The 2013 sites were repeated (where possible) and subsequent sites were sampled based on either planned or delivered work.

Permissions and access to sites was arranged by telephone or cold-calling on landowners. A shallow riffle section was chosen at, or as near as possible to, each selected survey location. Similar to the 2013 sites the walkover data helped target the site selection but more importantly the sites were situated where either work had completed or was due to complete under the SHRImP project.

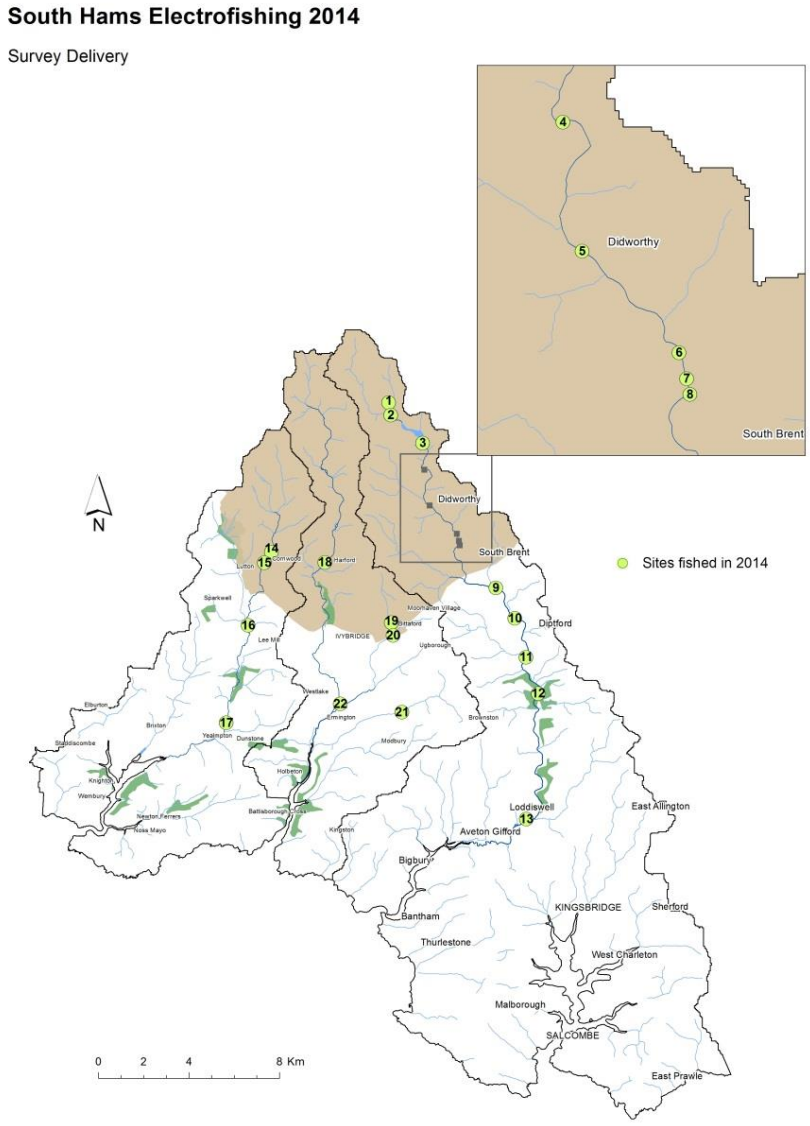


***Figure 2**. Survey delivery 2014 (all sites) on the Rivers Avon, Erme & Yealm*

4. Field sampling and data analysis methods

Each site was electro-fished by a two person team using an E-fish 500W single anode backpack. The unit was predominantly fished at the same settings of (50Hz at 350v), although the frequency was reduced to 40Hz where the conductivity was found to be particularly low, particularly in the headwaters and moorland streams.

The operatives fished continuously for a standard five minutes within fry habitat where sufficient area was available. All salmonids were identified to species and fork length was measured and recorded. Numbers or density estimates were recorded for all other species captured. Habitat features such as land use, substrate type and shading were recorded at each site. A photograph of each site was also taken (see appendix A).

Based on the lengths of fish captured during the survey fry were considered to be any individual that measured less than 80mm. Fry numbers recorded at each site were classified according to the methodology by Crozier & Kennedy (1994) (Table 1). The classification scheme has been taken from the original salmon fry index provided within this paper and was derived through establishing a relationship with equivalent fry numbers captured within quantitative surveys at sample sites within Ireland. Within this assessment report, the salmon fry classification has also been used as a surrogate for trout fry. Results should therefore be treated with some caution. It would increase the robustness of the method to be calibrated to local conditions, and for trout, to conduct the method alongside Environment Agency quantitative electric fishing surveys in future years.

Table 2. *Semi-quantitative abundance categories for salmon fry (Crozier & Kennedy, 1994)*

Density Classification	**Semi-quantitative (n/5min fishing)**	**Quantitative (n 100m·2)**
A (excellent)	>23	>114.7
B (good)	11-23	69.1-114.6
C (fair)	5-10	41.1-69.0
D (poor)	1-4	0.1-41.0
E (absent)	0	0

Any fry that were missed or escaped during electro-fishing were assigned to either trout or salmon groups depending on the relative percentage of each species already recorded at the site.

5. Results

Total catch maps (figures 3-5 below) show both salmon and trout distribution and density. Individual total catch maps can be seen in appendix C.

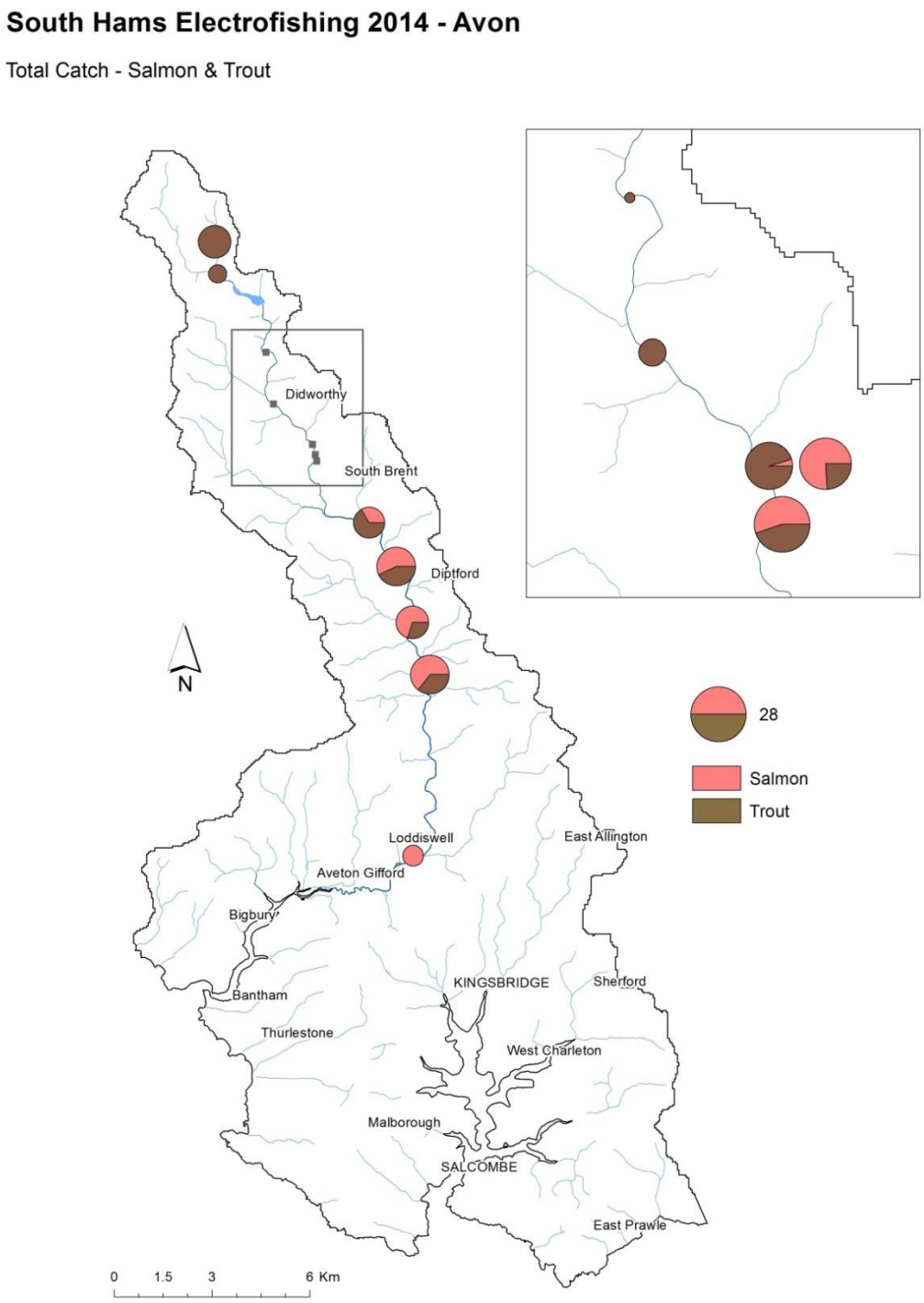


***Figure 3**.Total catch for salmon and trout in the Avon catchment*

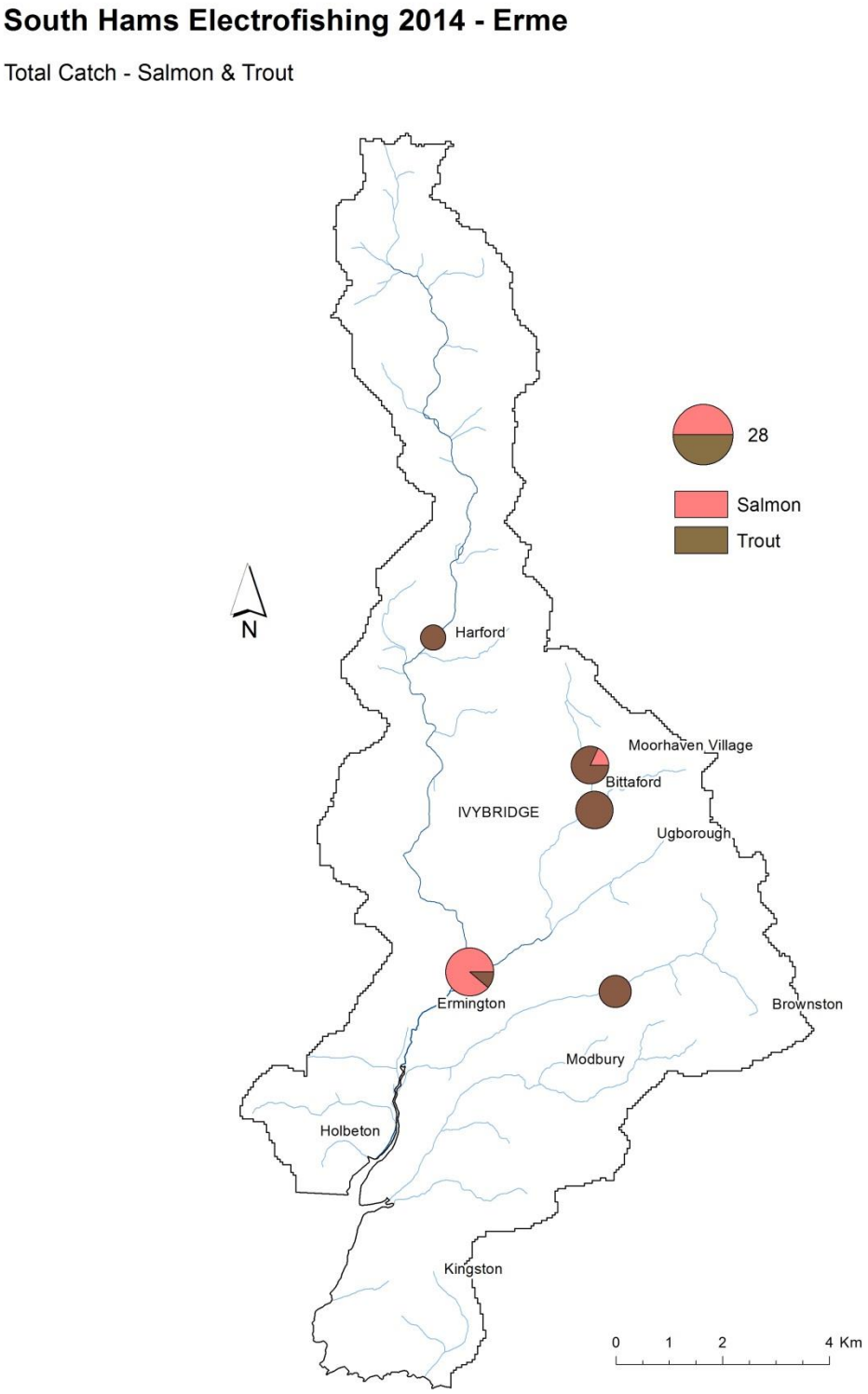


Figure 4*.Total catch for salmon and trout in the Erme catchment*

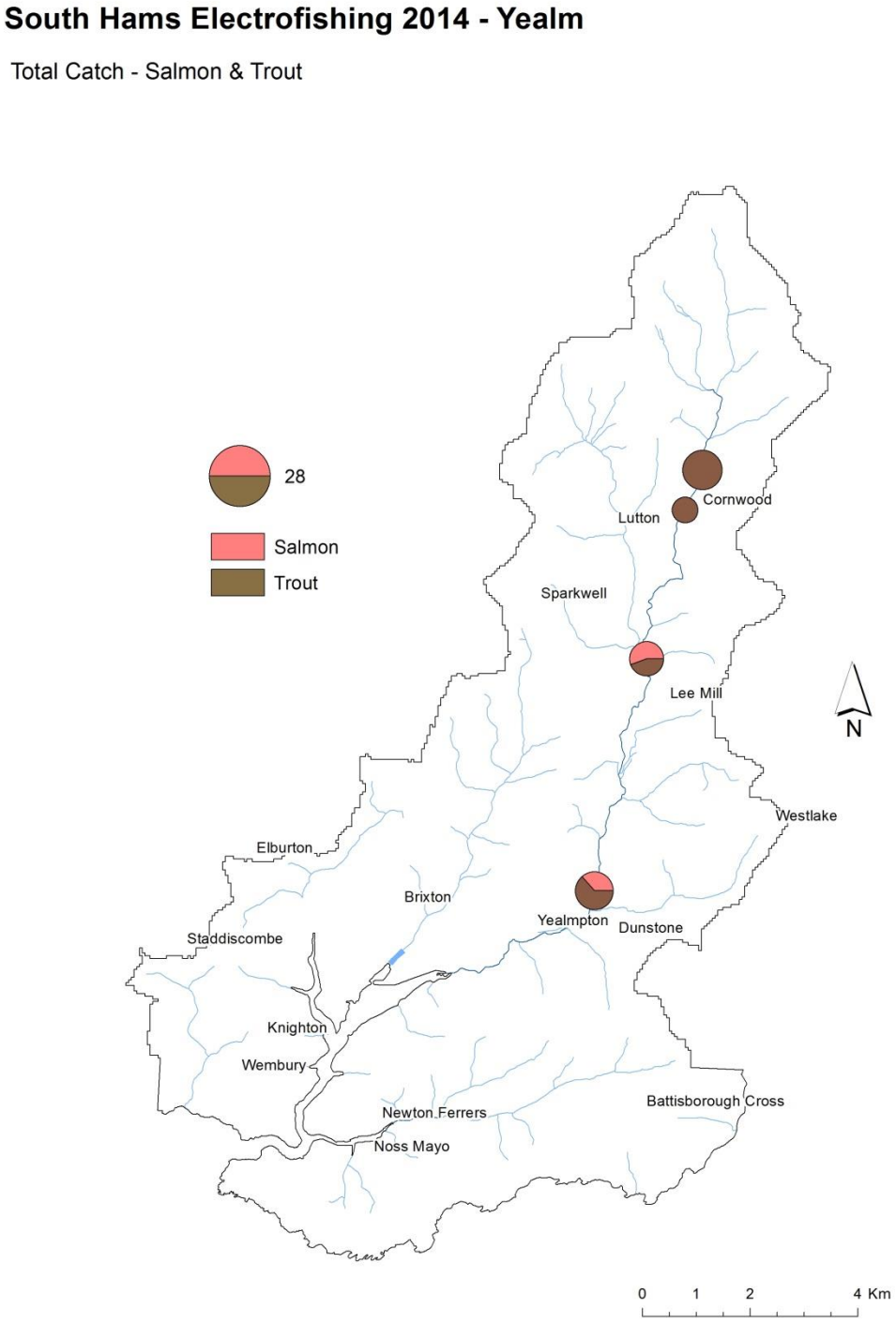


Figure 5. *Total catch for salmon and trout in the Yealm catchment*

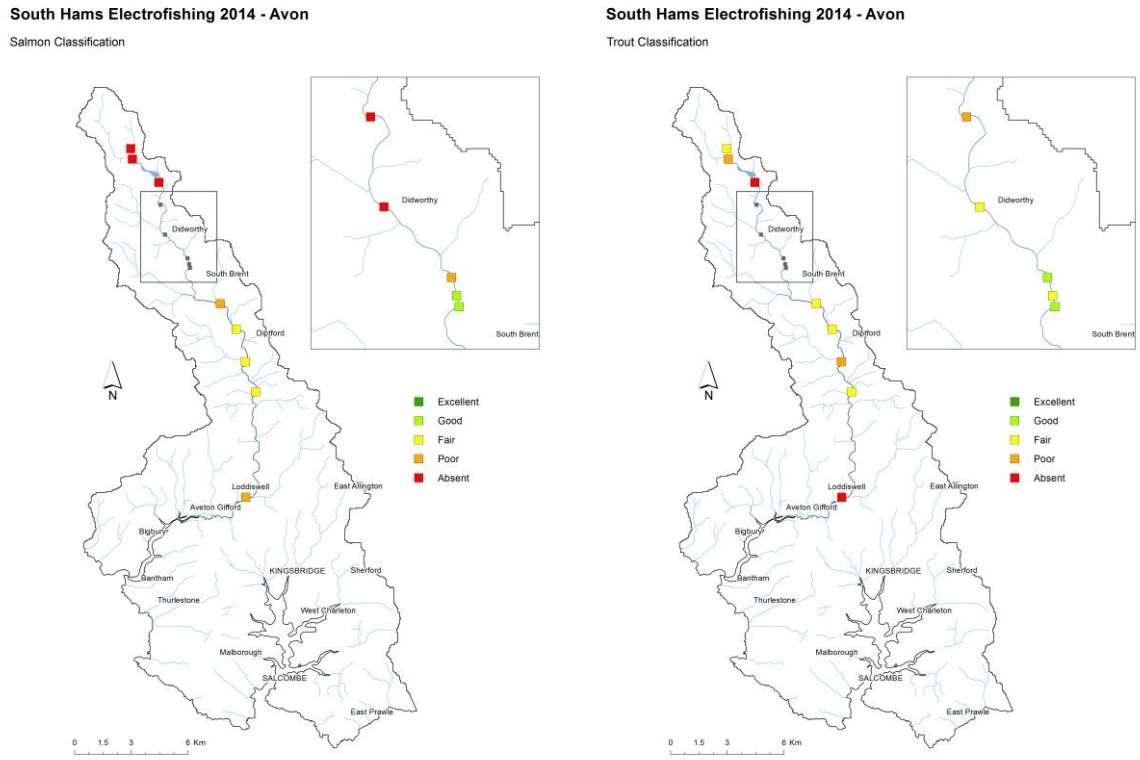


Figure 6. *Salmon classification (left) and trout classification (right) for the Avon*

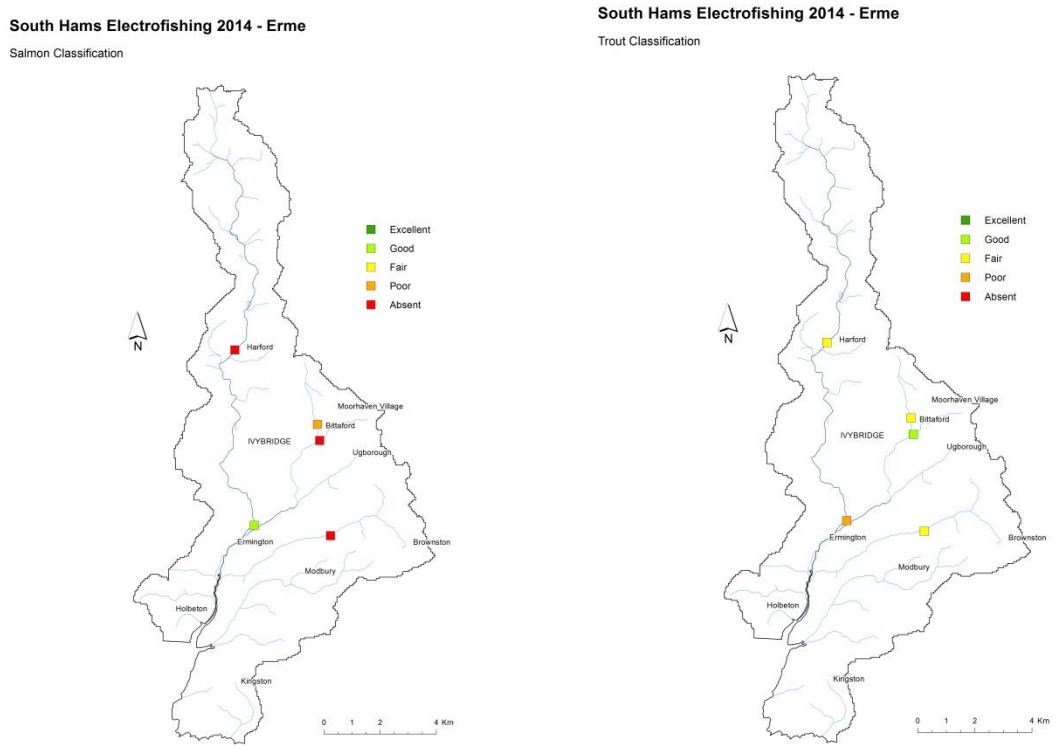


Figure 7*. Salmon classification (left) and trout classification (right) for the Erme*

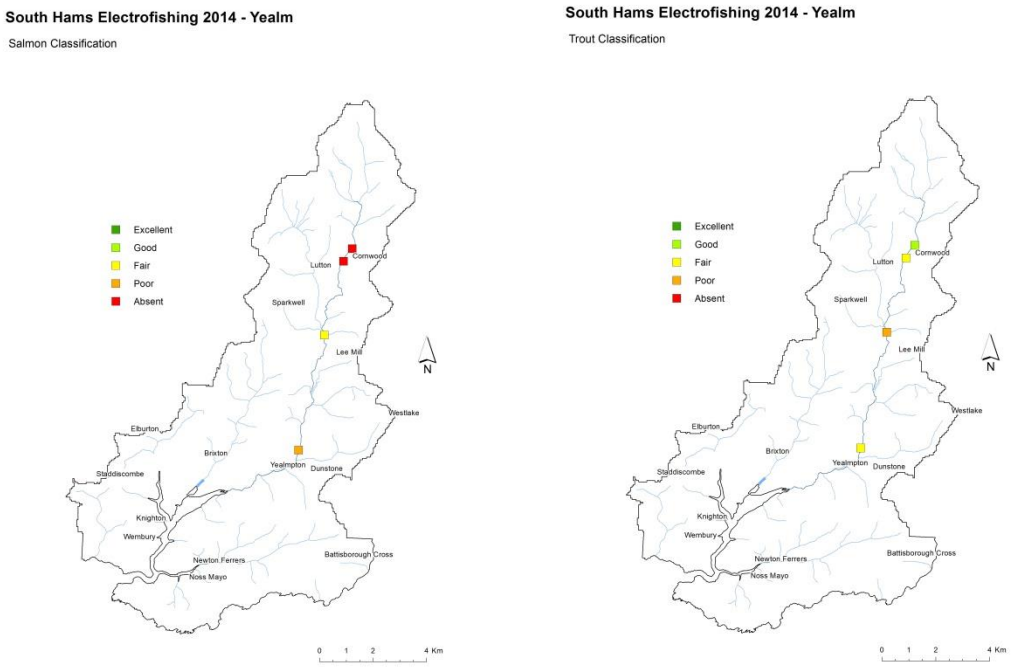


***Figure 8**. Salmon classification (left) and trout classification (right) for the Yealm*

5.1 The Avon Catchment (from source to sea)

Salmon summary

Refer to above figures 6.

Salmon are absent both upstream of the Avon dam and downstream until the hydrological effects of the dam ease (nearer to South Brent). Although Lydia falls could be viewed as a natural barrier to migration, it is clear from this and previous sampling that under certain conditions salmonid fish can ascend this obstacle. Directly below Lydia falls to South Brent exhibits the best fry sites for salmon on the Avon. From here the middle / lower Avon shows all but two sites to hold 'fair' numbers of salmon. The Horsebrook site was 'poor' as was the lowest site on the catchment; both of these lacked the characteristics in terms of fry habitat compared to the river between the A38 and Loddiswell. Individual lengths of salmon ranged between 35-85mm.

Trout summary

Trout fry numbers were generally fair-to-good across most sites, with two area exceptions, one being the main river immediately upstream and downstream of the dam (although the upstream tributary was 'fair'). The second being the lowest site below Lodiswell. Similarly the

salmon sites below the Lydia falls to South Brent area was the most productive. Individual lengths of trout ranged between 40-85mm.

5.2 The Erme Catchment (from source to sea)

Refer to above figures 7.

Salmon summary

Salmon were in general absent on all the majority of sites on the Erme with only one site showing good classification and one with poor. Individual lengths of salmon ranged between 50-76mm.

Trout summary

In contrast the trout numbers on the Erme were fair to good classifications except one site (interestingly the same site which was 'good' for salmon.) The most productive site was just downstream of the A38. Individual lengths of trout ranged between 45-81mm.

5.3 The Yealm Catchment (from source to sea)

Refer to above figures 8.

Salmon summary

Salmon were absent on the higher catchment sites immediately upstream and downstream of Blanchford lake. One middle / higher catchment site was classified as 'fair' and was the most productive and the lower site was considered poor. Individual lengths of salmon ranged between 50-78mm.

Trout summary

The most productive site was upstream of Blanchford Lake and the majority of the sites were 'fair' to 'good' classification with one being poor. Individual lengths of salmon ranged between 52-81mm.

6. Summary of 2014 Environment Agency results

As previously mentioned the EA methodology differs in approach and also has limited site coverage. However, there are some interesting correlations that can be discussed (see discussion section). By using Table 2 adjustments for methodologies the following can be summarised.

6.1 Avon catchment

Two sites were sampled; both were considered poor for salmon and trout using the conversion described above. One being the main river upstream around Diptford (close to one of the 2014 SHRImP sites) and one site on the Glazebrook which was not surveyed in 2014.

6.2 Erme catchment

Two sites were sampled. The upper site on the moors was scored as ‘poor’ for both species (not covered under SHRImP sites) and one ‘fair’ site below the A38 for salmon which matches the SHRImP data.

6.3 Yealm catchment

Sixteen sites were sampled (eight on the main river, eight on the tributaries). These sites were generally scored as ‘poor’ for trout with one area showing ‘fair’ to ‘good’ on the Phiall side-tributary and ‘absent’ to ‘poor’ for salmon, again similar to SHRImP 2014 data.

Examples of the habitat downstream of Blanchford lake where there is signification fish passage and lack of suitable spawning habit issues.

7. Discussion

It is important to note that this surveying provides a snapshot in time and in the absence of any temporal comparisons the scope for detailed interpretation of the results is limited. The survey results support previous EA survey findings and subsequent WFD classifications (2009) that there are fewer than expected salmonids at the majority of sites.

7.1 The Avon Catchment (source to sea)

Salmon are clearly lacking upstream of Avon dam due to the effects of this significant barrier, with trout populations being 'poor' to 'fair' in the moorland environment which is more suitable for trout and lacks competition from other migratory species. Below the dam to Shipley bridge (the most sensitive reach to the effects of the dam) are again lacking in salmon and 'poor' to 'fair' for trout fry.

The most productive sites for salmon and trout ('good' classification) were sites 7 and 8, which are the first riffles downstream of Lydia Falls and the upstream confluence of Brent Island. This agrees with the 2013 results. It is expected these sites should receive high numbers of fry from adults unable to migrate up the high falls and beyond, although fish that do would likely find a lack of suitable spawning habitat and therefore drop back downstream. These sites are the most suitable sites for spawning and fry development in the catchment and therefore need further investigation and protection.

However further downstream fewer than expected salmon were recorded ('fair' or 'poor') despite 'good' status classification of the Avonwick station in the 2009 WFD assessment. The 'fair' sites were centered between the Diptford to Loddiswell with sites 9 and 13 showing 'poor' results. Site 9 on the Horsebrook was heavily tunneled and lacked sufficient light to produce functioning fry sites and site 13 was the lowest site downstream of Loddiswell and was probably too low in the catchment to be a successful salmon fry site. This is similar for trout with 'fair' sites dominating. One 'poor' site was recorded at Bickham Bridge (site 11) which lacked the presence of shallow water in comparison to the other middle-reach sites (although this was the most suitable site) and therefore a 'poor' result is comparable to the site characteristics. Site 13 also showed an absence of trout (as per salmon) and again was the lowest site and subsequently maybe too low in the catchment to be productive for salmonid fry.

7.2 The Erme Catchment (source to sea)

Salmon are absent in all but two sites sampled, Site 2 showed a ‘poor’ result at Bittaford (2 fish captures) but the lowest site (site 5, near Ermington) scored as ‘good’, showing a clear divide in the catchment. This suggests the lower site displayed a larger abundance of suitable fry habitat and emphasises the barriers to migration on the Erme. It would be fair to suggest that these barriers have an accumulative effect promoting the more accessible lower spawning sites. It may be that migratory fish arrive at these lower sites and don’t progress into the middle or higher reaches of the river. Trout are ‘fair’ to ‘good’ through the sites and ‘poor’ on the lowest site. This observation could relate to competition between the species; a lack of salmon in the higher sites allows for better trout numbers and the lowest site which is ‘good’ for salmon and ‘poor’ for trout would suggest the same. It is difficult to relate these findings to barriers as one would expect larger salmon to be able to navigate barriers better than smaller trout but only if there are sufficient numbers to show this.

7.3 The Yealm Catchment (source to sea)

Salmon are absent upstream and downstream of Blanchford Lake which would relate to a lack of available spawning habitat due to the influence of the lake as a block to bedload material. In conjunction with this, fish passage is a key issue at Blanchford Lake downstream which would severely affect passage of migratory salmonids. Site 3 was ‘good’ for salmon and could be related to the work undertaken by the SHRImP project in relation to bank projection and tree management. The lowest site was heavily tunneled and due for coppicing under the SHRImP, project so a ‘poor’ result here was expected and may be expected to improved post works (as per all the work sites under the SHRImP project). Trout numbers were ‘good’ to ‘fair’ through the sites, although the migratory capabilities of those upstream of the lake are questionable. Again the one site which was ‘good’ for salmon was ‘poor’ for trout, suggesting competition may be a regulating factor. Despite the ‘poor’ classification for both species, the presence of both salmon and trout fry is positive given the lack of optimal spawning and rearing habitat available at a reach scale.

7.4 Limitations

Any interpretations drawn from the results should be considered within the context of any limitations of the survey. The primary limitations were a lack of suitable fry habitat in which to conduct surveys within some reaches, although shallow gravel “riffles” could be found in most sections adjacent to SHRImP works (this being the driver for site locations).

7.5 Other species observed

Avon sites showed a good presence of bullheads (>50) throughout the lower catchment (none recorded above the A38) and the majority of sites 10-13 all had eel present (minimum of two per site), with the lowest site showing a dominance of eel in the 200-300mm range (approximately). The same lower sites also produced the occasional stone loach. All Erme and Yealm sites had eel and bullheads present with large number of Bullhead through (>50) and eels (minimum of two per site) in the 200-300mm range (approximately). Downstream of the Blanchford lake site had the highest eel numbers with 10 fish recorded.

The data recorded in 2013 and 2014, where applicable to the same sites and reaches, show similar characteristics and little in the way of charge. This is to be expected given the very short time-scales covered so far and changes over 3-5 years would offer more confidence in making management recommendation based on actions on the ground.

7.6 Genetic study

In addition to recording fish species and numbers genetic samples were also collected on the Avon between Shipley bridge and South Brent (as per 2013). This was targeted to determine genetic comparisons between the trout population up and downstream of the Avon dam and to investigate whether there is successful downstream migration of smolts from above the dam.

Electrofishing in action, picture taken on the Yealm during the 2014 monitoring.

8. Recommendations

As well as establishing a baseline of the river's juvenile salmonids, the results from the electro-fishing surveys completed as part of the SHRImP project, together with EA's electric fishing and walkover survey data are vital in targeting priority areas for habitat creation and improvement works. In future years surveys will provide a crucial tool in monitoring the effectiveness of these works. These recommendations broadly follow the **Defend/Repair/Attack** concept developed by Ronald Campbell of the Tweed Foundation:

Defend

These areas have good stocks and habitat, and need safeguarding actions to ensure no decline occurs.

Repair

These areas have moderate fish stocks, and fish habitat in a moderate condition; these areas need assisted habitat recovery to move them into the Defend category.

Attack

These areas have poor fish stocks, and the habitat is significantly degraded. These areas need drastic intervention such as habitat reengineering in order to improve their status.

Such actions can involve the third and volunteer sectors as well as statutory bodies, for example a fishing club may choose to adopt catch and release in a poorly performing tributary, but only maintain bag limits on those that are doing well, without the EA having to resort to Bylaw restrictions. Equally the work party efforts of angling clubs can be better focused on areas where limited resource can achieve the best outcome. This concept helps divide catchment scale management for fisheries into priories and therefore can help to attack funding through targeted work.

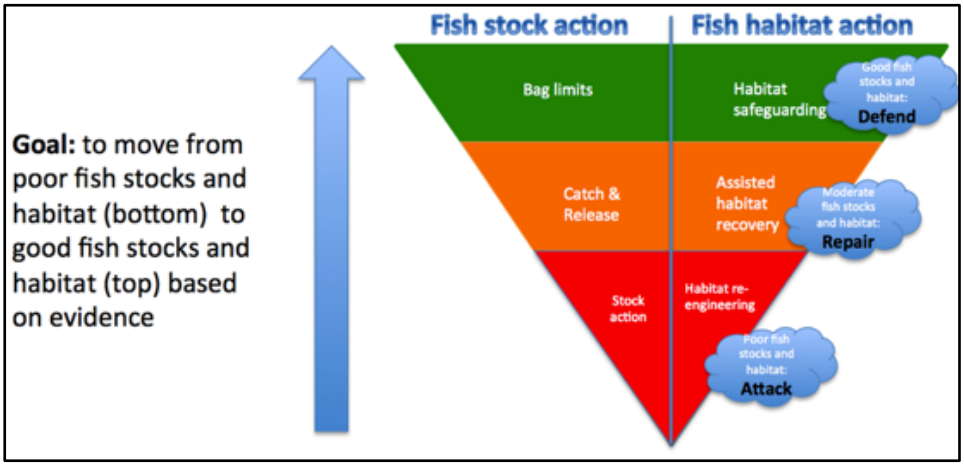


Figure 9. A diagrammatical explanation of Ronald Campbell's theory.

Below are the key recommendations for actions in each catchment

8.1 Avon catchment

Defend

- Protection of spawning habitats between Lydia Falls and South Brent through increasing awareness of the importance of the sites using signage and community events.

Repair

- Targeted river bank management in the middle reaches where walkover surveys show over-shading.
- Explore farm work grants that were developed under SHRImP but not taken up (example Weeks farm, Horsebrook).
- Liaise with Avon Fishing Association to target work party efforts.

Attack

- Continued gravel augmentation and monitoring of this action between the Avon dam and the Bala Brook confluence.
- Undertake a fish-tagging survey to provide data on fish stocks and migration in relation to any water releases from the Avon dam.

8.2 Erme catchment

Defend

- Protection of suitable fry sites where close to public access through awareness (as per Avon recommendations)

Repair

- Targeted river bank management in the middle reaches where walkover surveys show over-shading.

Attack

- Further survey barrier to fish migration
- Complete walkover survey on upper Erme to identify fish habitat issues.

8.3 Yealm catchment

Defend

- Consider more work to re-meander the river and gain natural channel morphology features in the middle reaches.

Repair

- Progress fish passage at Blanchford lake
- Targeted river bank management in the middle reaches where walkover surveys show over-shading.
- Consider invertebrate monitoring and semi-quantitative juvenile fish surveys on the River Piall.

Attack

- Further investigations on copper failures in the River Phiall, following on from the scoping report undertaken by the SHRImP project.
- Consider gravel augmentation below Blanchford Lake.

Following on from these targeted recommendations it is worth noting that in time the works undertaken by the SHRImP project are likely to show improvements in fish catch data. Only continued monitoring will help make these recommendations more strategic.

9. Overall actions

- Continue a means of reminding landowners of river bank management after a period of 7-10 years on sections that have been coppiced.
- Continued and increased land management advice through grant opportunities, where possible.
- Further detailed analysis of other potential priorities for fish passage.
- Maintain catchment group involvement.
- Salmon / sea trout redd counting through volunteer efforts.
- Maintain landowner relations where possible.
- Continue to monitor the work of the SHRImP project for a minimum of 5 years.
- Monitor effectiveness of fish passage works under SHRImP.
- Complete walkover surveys on areas the SHRImP project did not cover.

10. Acknowledgements

Thanks to all landowners and organisations involved for their kind permission to access sites and support the project. We also thank the Environment Agency for providing their fish survey data to work alongside this project.

Thanks to the following WRT staff for their assistance and support:
Giles Richard, Sarah Wigley, Alex Taylor & Annabel Martin.

11. Appendices

11.1 Appendix A- Site photos

Avon site 1

Avon site 2

Avon site 3

Avon site 4

Avon site 5

Avon site 6

Avon site 7

Avon site 8

Avon site 9

Avon site 10

Avon site 11

Avon site 12

Avon site 13

Erme site 1

Erme site 2

Erme site 3

Erme site 4

Erme site 5

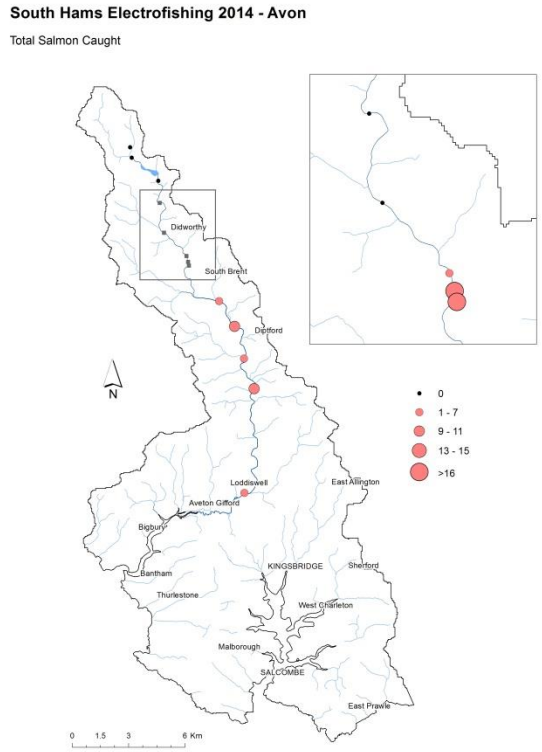
Yealm site 1

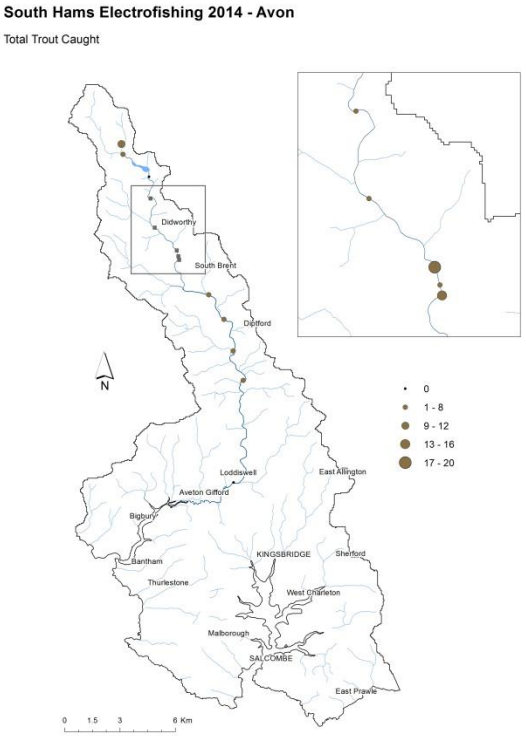
Yealm site 2

Yealm site 3

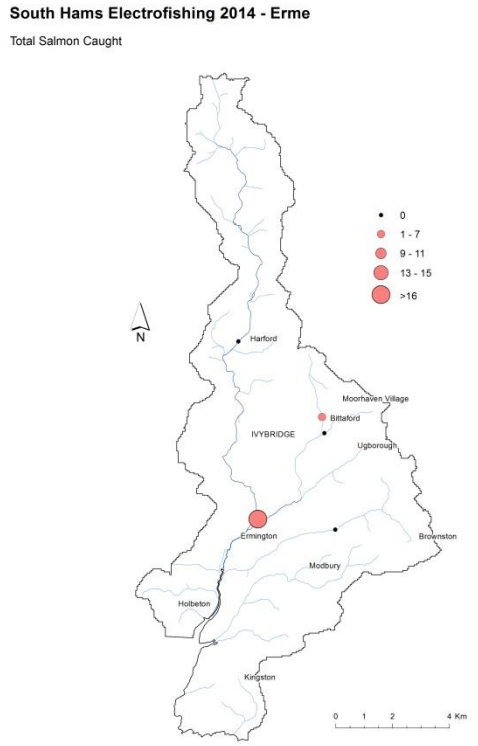
Yealm site 4

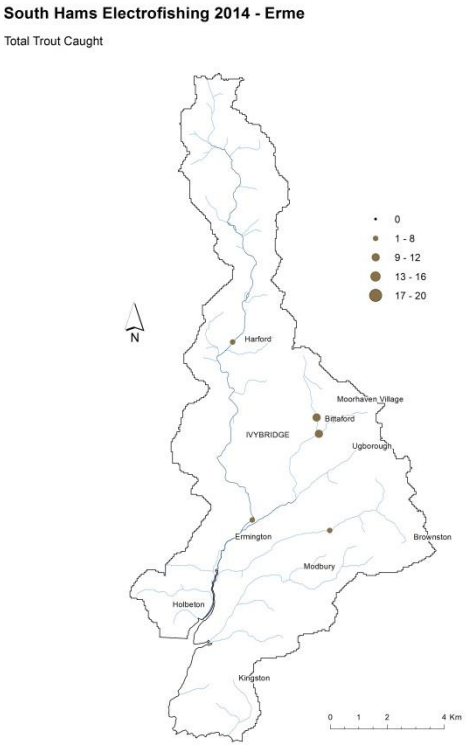
11.3 Appendix B- Total catch maps



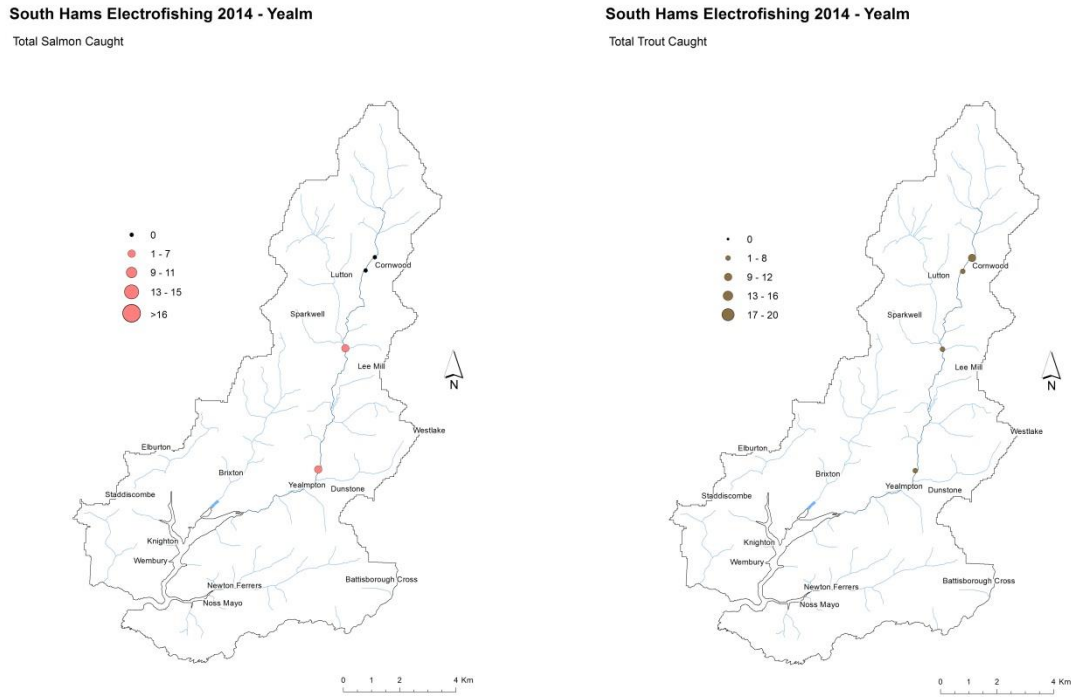


Avon total catch maps for salmon (left) and trout (right)





Erme total catch maps for salmon (left) and trout (right)



Yealm total catch maps for salom (left) and trout (right)

11.4 Appendix C- EA raw data

Avon

RIVER AVON SUMMARY SHEET 2014										
WATERCOURSE	**SITE NAME**	**N.G.R**	**SALMON DENSITY100 m²**		**TROUT DENSITY100 m²**			**OTHER**		
			FRY	**PARR**	**FRY**	**PARR**		**SPECIES**		
AVON	Avonwick St.	SX7177 5752	14.72	3.95	9.72	4.86		B(73), E(10), L(12), SL(12), M(5)		
GLAZEBROOK	Avonwick Mill	SX6981 5884	9.18	6.99	33.65	8.74		E(1), L(8)		
KEY	B = Bullhead		L = Lamprey							
	E = Eel		M = Minnow							
	SL = Stone loach		Actual numbers caught in brackets							

Erme

ERME SUMMARY SHEET 2014							
WATERCOURSE	**SITE NAME**	**SALMON DENSITY100 m²**		**TROUT DENSITY100 m²**			**OTHER**
		FRY	**PARR**	**FRY**	**PARR**		**SPECIES**
ERME	Lower Piles	1.61	1.07	30.27	32.14		@
	D/s Ivybridge STW	64.31	26.57	17.19	14.07		E
	B = Bullhead						
	E = Eel						
	MW = Minnow						
	SL = Stone loach						
	FL = Flounder						

Yealm Trout

SUMMARY OF HISTORICAL ELECTRIC-FISHING RESULTS FOR THE RIVERS YEALM & PIALL			
NUMBERS OF TROUT FRY /100m2			
River	**Site**	**NGR**	**2014**
YEALM	U/S Dendles Wood	SX6172261966	9.0
	Dendles Wood	SX 6160 6180	
	Fernfires Wood	SX6159761373	
	South Hele	SX 6137 6070	26.9
	Blachford U/S	SX 6125 6003	
	Blachford D/S	SX 6090 5960	
	Putta Pool	SX 6080 5900	8.8
	Fardle Mill	SX 602 571	
	Woodburn Farm	SX 6020 5714	
	Potsons Wood	SX 6027 5663	7.8
	Upstream Hitchcombe Tributary	SX6015055987	**P**
	Downstream Hitchcombe Unidentified Outfall	SX6001955907	**P**
	Upstream Lee Mill STW Pumping Station	SX5997955716	**P**
	Downstream Lee Mill STW Outfall	SX5981055367	**P**
	Downstream Strashleigh Hams Landfill Site	SX5987154972	**P**
	Upstream Mackarell Parks Wood Stream	SX5977054703	**P**
	Southwood Wood	SX 5979 5464	4.9
	Treby Ham	SX 5954 5365	4.1
	Spry's Farm	SX 594 531	
	Worston Ford	SX 5943 5262	
	Yealmbridge	SX 590 519	
	Yealmpton Mill	SX 5848 5170	4.5
	Puslinch Bridge	SX 5680 5107	0.0
BROADALL LAKE	u/s Broadall Abs.	SX6129062020	
	d/s Broadall Abs.	SX6130161943	
	Dendles Green	SX 6153 6178	
FORD BROOK	u/s Ford Abs.	SX6120061860	
	d/s Ford Abs.	SX6122161827	
REDAVEN LAKE	Wisdom Mill	SX 6133 6092	
RIVER PIALL	Newpark Wood	SX5927160786	78.4
	Lutton	SX 5966 5965	39.9
	Slades Bridge	SX 6000 5865	
	Marks Bridge u/s	SX 5994 5757	21.8
DELAMORE STREAM	Delamore Farm	SX 6007 5953	
RIDGECOT LAKE	Three Streams	SX 6008 5703	
LEE MILL STREAM	Lee Mill	SX 600 559	22.7
BROOK LAKE	Brook Lake	SX 5985 5426	
LONG BROOK	Long Brook	SX 5950 5217	13.9
SILVERBRIDGE LAKE	Battisford	SX5760 5450	11.6
	Efford	SX 5696 5333	61.1
	Pondfield	SX 5625 5206	45.6
LANGAGE STREAM	Langage	SX 5710 5440	
COFFLETE STREAM	Cofflete	SX 5410 5177	
NEWTON FERRERS	Bridgend	SX 5572 4822	
STREAM	Gnaton	SX 5790 4842	
WEMBURY STREAM	Wembury	SX 5180 4870	
	Densities are given in numbers of fish per 100 square metres.		
	A = Absent (Taken from Dip Survey Results).		
	P = Present (Taken from Dip Survey Results).		

Yealm Salmon

SUMMARY OF HISTORICAL ELECTRIC-FISHING RESULTS FOR THE RIVERS YEALM & PIALL			
NUMBERS OF SALMON FRY /100m2			
River	**Site**	**NGR**	**2014**
YEALM	U/S Dendles Wood	SX 61722 61966	0.0
	Dendles Wood	SX 6160 6180	
	Fernfires Wood	SX6159761373	
	South Hele	SX 6137 6070	0.0
	Blachford U/S	SX 6125 6003	
	Blachford D/s	SX 6090 5960	
	Putta Pool	SX 6080 5900	13.3
	Fardle Mill	SX 602 571	
	Woodburn Farm	SX 6020 5714	
	Potsons Wood	SX 6027 5663	7.6
	Upstream Hitchcombe Tributary	SX6015055987	**P**
	Downstream Hitchcombe Unidentified Outfall	SX6001955907	**P**
	Upstream Lee Mill STW Pumping Station	SX5997955716	**P**
	Downstream Lee Mill STW Outfall	SX5981055367	**P**
	Downstream Strashleigh Hams Landfill Site	SX5987154972	**P**
	Upstream Mackarell Parks Wood Stream	SX5977054703	**P**
	Southwood Wood	SX 5979 5464	9.2
	Treby Ham	SX 5954 5365	33.9
	Spry's Farm	SX 594 531	
	Worston Ford	SX 5943 5262	
	Yealmbridge	SX 590 519	
	Yealmpton Mill	SX 5848 5170	1.4
	Puslinch Bridge	SX 5680 5107	1.1
BROADALL LAKE	u/s Broadall Abs.	SX6129062020	
	d/s Broadall Abs.	SX6130161943	
	Dendles Green	SX 6153 6178	
FORD BROOK	u/s Ford Abs.	SX6120061860	
	d/s Ford Abs.	SX6122161827	
REDAVEN LAKE	Wisdom Mill	SX 6133 6092	
RIVER PIALL	Newpark Wood	SX5927160786	0.0
	Lutton	SX 5966 5965	0.0
	Slades Bridge	SX 6000 5865	
	Marks Bridge u/s	SX 5994 5757	0.9
DELAMORE STREAM	Delamore Farm	SX 6007 5953	
RIDGECOT LAKE	Three Streams	SX 6008 5703	
LEE MILL STREAM	Lee Mill	SX 600 559	0.0
BROOK LAKE	Brook Lake	SX 5985 5426	
LONG BROOK	Long Brook	SX 5950 5217	0.0
SILVERBRIDGE LAKE	Battisford	SX5760 5450	0.0
STREAM	Efford	SX 5696 5333	0.0
	Pondfield	SX 5625 5206	0.0
LANGAGE STREAM	Langage	SX 5710 5440	
COFFLETE STREAM	Cofflete	SX 5410 5177	
NEWTON FERRERS	Bridgend	SX 5572 4822	
STREAM	Gnaton	SX 5790 4842	
WEMBURY STREAM	Wembury	SX 5180 4870	
	Densities are given in numbers of fish per 100 square metres.		
	A = Absent (Taken from Dip Survey Results).		
	P = Present (Taken from Dip Survey Results).		
	NFCS Grade		
	A		
	B		
	C		
	D		
	E		
	F		