

Brown trout stocking in protected rivers:

Recapture and dispersal of stocked brown trout in
southern chalk streams

Chief Scientist's Group research report

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Dr Robert Bradburne
Chief Scientist

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Executive summary

Wild brown trout *Salmo trutta* are widely distributed in rivers and cooler lakes across the UK. The release of farm-reared trout to enhance the angling experience is common practice for many fisheries, including in chalk streams. This practice is known as stocking. Permits to introduce farm-reared brown trout into chalk streams stipulate that the fish must be triploid females. Triploid brown trout have been treated with heat or pressure at the egg stage such that their cells contain three copies of each chromosome rather than two copies as found in wild trout. This renders them infertile and prevents interbreeding with wild populations. However, stocking still requires attentive management because artificially increasing trout numbers may impact wild fish populations. Potential impacts include increased competition for space or food, attraction of predators, or stocked trout directly predating wild fish.

In recent years there have been changes in fishery management practices, including the release of larger trout and over-winter feeding of stocked fish. Ecological impacts were assumed to be short term with stocked fish being removed for the table when caught by anglers. However, catch and release angling has become more popular as anglers' preferences have changed. Fewer stocked trout being removed by anglers may result in an increased ecological impact even if the number of fish stocked remained constant. Accumulations of stocked fish have also been reported in unstocked sections of river.

The aim of this project was to better understand the temporal and spatial extent of potential impacts from trout stocking. This information was needed to help inform the development of best practice stocking, to manage potential ecological impacts associated with the activity. A mark-recapture study was used to investigate the proportion of stocked trout recaptured, the proportion of catch-and-release angling, the time between release and recapture and the extent to which stocked trout dispersed from their release location.

Stocking took place on the River Nadder, River Avon, River Anton and the River Test providing a good representation of trout angling waters on these southern chalk streams. Between May and September 2024, farm-reared triploid brown trout were marked with Floy tags before their release into river fisheries managed by Broadlands Estate, The Piscatorial Society, Salisbury and District Angling Club and The Wylde Fly Fishing Club, with whom we were working collaboratively. In total, 2,707 individually marked trout were available for recapture, distributed between the fisheries. All tagged fish formed part of each fishery's stocking plan for the year, so that the number of trout released did not exceed the number that would ordinarily have been stocked.

Recaptures in the fisheries were limited, ranging between none and 7% of the tagged trout they stocked. Where anglers recorded whether they kept or released their catch, 45% of trout (44 fish) were kept and 55% (53 fish) released.

The number of trout recaptured for which the date of recapture and the tag number was recorded was low; 172 fish out of a possible 2,707. The time between release and recapture ranged from 0.2 weeks to 59 weeks. Catches of tagged fish might have been

expected to peak immediately following fish introduction as a result of the release of fish naïve to their new environment and potentially an increase in angling effort prompted by the stocking. Only slight indications of such peaks were seen. Consequently, the likelihood of stocked trout remaining in the river into autumn and winter appeared to be higher for later season stocking than for introductions in early summer.

Fish displacement, the distance along the main river channel between release and recapture sites, did not increase with increasing length of time in river. For trout where release and recapture locations were available (168 fish), 81% were recaptured less than 5 km from their release point. Notably long displacements were recorded for 4 trout, with estimates for their displacement ranging between 6.7 km and 18.0 km. Estimating displacement was complicated by imprecise recording of release and recapture locations.

The study demonstrated that recapture rates following stocking can be low and that most fish were recaptured within 5 km of their release point. This could mean that there is potential for trout stocking to affect the environment local to the release site.

Displacements greater than 5 km, and over-wintering, were recorded for a few individuals suggesting that trout stocking may also affect the environment temporally and spatially distant from release time and location.

Publication of this study will not introduce any immediate changes to trout stocking regulation, based on this evidence. The information from this study contributes to the evidence base the Environment Agency is using to inform future policy and regulatory decisions relating to the number of trout that can be released, their size, and the timing of release. Measures that could mitigate impacts that fall outside of areas that the Environment Agency can regulate may be included in best practice guidance.

1. Introduction

Brown trout *Salmo trutta* is widely distributed in rivers and cooler lakes across the UK, including in chalk streams and is a popular angling species (Davies et al., 2004).

Enhancement stocking is central to the management of many river and stillwater fisheries and has a long history, dating back to the mid-nineteenth century (Environment Agency, 2003; 54 Dean Street Blog, 2026). Enhancement stocking involves adding fish to a waterbody to supplement its natural fish population where i) production is, or is perceived to be, less than the water body could potentially sustain, or ii) fishery managers desire catches of greater numbers of fish, or of greater sizes, than could be sustained naturally.

Brown trout introduced into rivers in England are currently required to be hatchery-reared triploid females, which are sterile (Environment Agency, 2015). Stocking with triploids prevents interbreeding with native wild trout, which may affect the fitness of progeny (Wollebæk et al., 2012). Exceptionally, diploid brown trout may still be produced in local broodstock schemes for population recovery programmes (Environment Agency, 2015).

Enhancement stocking with triploid brown trout is common practice for many southern chalk stream fisheries and can involve large numbers of fish. For example, up to 53,640 triploid brown trout are permitted to be released annually into the River Test Site of Special Scientific Interest (SSSI) and its tributaries (Environment Agency permitting data).

Non-native rainbow trout, *Onchorynchus mykiss*, may also be stocked to enhance river fisheries, but only where there is a history of stocking this species, or where the introduction of non-breeding rainbow trout can be demonstrated to be a preferred environmental option (Environment Agency, 2003).

Artificially increasing fish numbers, such as through enhancement stocking, may lead to competition for space or food, by attracting predators, or through direct predation of wild fish (Environment Agency, 2021).

Although stocking with trout has been practiced for almost 200 years, the details have varied over time. In recent years the environmental impact of trout stocking may have altered due to changes in fishery management practices, including the release of larger trout and over-winter feeding of stocked fish. Ecological impacts were assumed to be short term with stocked fish being removed for the table when caught by anglers. However, catch and release angling has become more popular as anglers' preferences have changed. Fewer stocked trout being removed by anglers may result in an increased ecological impact even if number of fish stocked remained constant.

2. Project Aim and Outline

The overall aim of this project was to improve our understanding of the temporal and spatial extent of potential impacts from trout stocking. The results were needed to inform the development of future best practice stocking of triploid brown trout.

. We used a mark-recapture study to investigate the:

- i. The fate of stocked trout by determining:
 - The proportion recaptured
 - The proportion of catch-and-release angling
 - The length of time between release and recapture
- ii. The extent to which stocked trout disperse away from their release location

3. Methods

3.1 Tagging and releasing

Between May and September 2024, farm-reared triploid brown trout were marked with 1 $\frac{3}{4}$ " FD-94 Floy tags on the day of their release into fisheries in the River Test and River Avon catchments (Floy Tag & Mfg., Inc, Washington, U.S.A.). Overall, 2,707 Floy tagged trout were released.

Stocking took place on the River Nadder, the River Avon upstream of Salisbury, the River Anton near to its confluence with the River Test, and the River Test downstream of Romsey (Figure 1). The selected fisheries provided a good representation of trout angling waters on these rivers.

The fisheries were managed by Broadlands Estate, The Piscatorial Society, Salisbury and District Angling Club (SADAC) and The Wylde Fly Fishing Club, referred to collectively as 'partner fisheries' below. Tagged fish formed part of each fishery's planned stocking programme for 2024. The number of trout released did not exceed the number that would ordinarily have been stocked. Of the 2,707 triploids released, 2,673 were received directly from fish farms, with 34 having been held over-winter in stew ponds on Broadlands Estate. Samples of trout were measured prior to release. Trout received directly from fish farms measured 44.0 ± 3.7 cm (mean fork length $\pm$ SD, $n = 316$) and overwintered trout 52.9 ± 5.0 cm (mean fork length $\pm$ SD, $n = 34$).

Floy tags were inserted approximately one-third of the way along the base of the dorsal fin, measured from its leading edge (Figure 2). Each Floy tag was marked with a unique four-digit identification number. A contact mobile phone number was also printed on each tag, to which recapture information could be texted (Figure 2). Grey coloured Floy tags were used with the intention that the tags would be visible to anglers when handling captured trout, but inconspicuous when the fish were swimming free in the river. It was not possible to Floy tag all trout stocked by each partner fishery, due to tags not arriving in time for releases early in the trout angling season.

Release locations were recorded by our partners' river keepers or Environment Agency staff. Where possible exact release locations were recorded using publicly accessible mobile phone apps. When small numbers of fish were released at intervals between upstream and downstream points (trickle stocking), river keepers often recorded the upstream and downstream locations rather than specific release sites for each fish, to minimise handling stress.

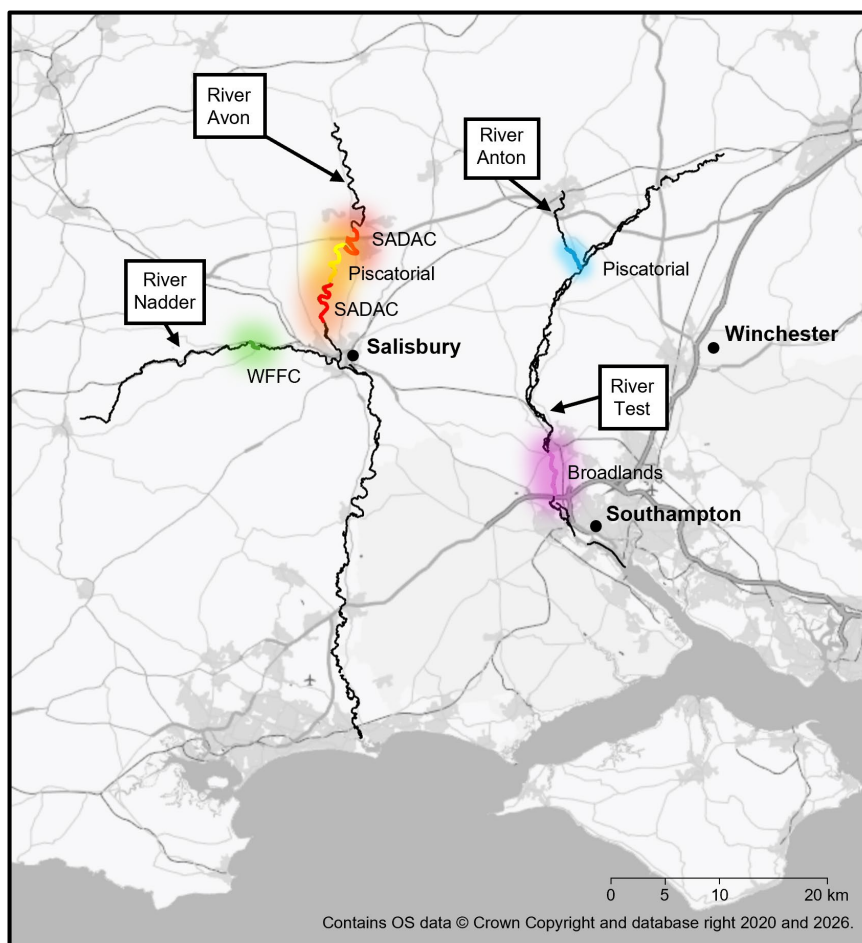


Figure 1. The general location of releases in the Avon catchment by Salisbury & District Angling Club (red), the Piscatorial Society (yellow) and the Wylde Fly Fishing Club (green), and in the Test catchment by The Piscatorial Society (blue) and Broadlands Estate (purple).



Figure 2. FD-94 Floy Tag attached to stocked trout showing the text contact number (left) and four-digit individual identification number (right)

3.2 Number of Floy tagged trout recaptured

Broadlands Estate, The Piscatorial Society, Salisbury and District Angling Club (SADAC) and The Wylfe Fly Fishing Club communicated with their anglers to raise awareness of the presence of tagged trout and the need to record information when these fish were recaptured.

Trout anglers were asked to record recaptures using their organisation's normal reporting processes (catch record books or online forms). This was to ensure each organisation was able to maintain its usual level of record keeping. Posters displayed alongside catch record books in fishing huts provided a visual prompt and described the information needed. Partner fisheries shared their 2024 angling records with the Environment Agency after the trout season closed.

Reporting by text was primarily intended to be used if a tagged trout was caught by an angler outside of the partner fisheries, or as bycatch outside the brown trout angling season. The trout angling season ends in mid to late October and resumes in April, depending upon the fishery.

Some recaptures were reported both to the fishery and by text. Records were scrutinised to ensure that each recapture appeared just once in our analysis.

In addition to recaptures recorded by trout anglers during their normal activities, recaptures were also recorded during the 'trout out' event at Broadlands on Saturday 19 October 2024. On this date, the fishery's coarse anglers were invited to catch and remove stocked trout. Captured stocked trout were transferred to ponds on the Estate for over-wintering prior to their return to the river the following spring.

Several targeted angling sessions took place on SADAC's waters towards the end of the trout angling season. These were primarily intended to catch and keep tagged trout for laboratory analysis and were distinct from normal trout angler activity. Although not identical to the practice on Broadlands Estate, these targeted angling sessions were termed 'trout outs' for the purposes of this study.

Some recaptures occurred after the closure of the 2024 trout season and were reported directly to the Environment Agency. This included some recaptures made during the 2025 trout season. These records provide an insight into survival and dispersal of trout over a longer period. Partner fisheries' own records for the 2025 trout season were not examined as part of this project and so we are unlikely to have a complete record of recaptures beyond the 2024 trout season.

The term 'first recapture' was used to describe fish caught just once, and also the first catch of fish landed on multiple occasions. For fish released and then caught again, subsequent recaptures were to be termed 'second recaptures', 'third recaptures' and so on.

3.3 Time between release and recapture

The number of weeks between release and recapture was calculated for all Floy tagged trout for which the release and recapture dates were known.

The potential for a fish to be recaptured is influenced by angler effort. Angler effort will have varied during the trout season dependent upon factors such as day of the week, public holidays, weather conditions and river discharge. Angler effort was not considered in our analysis, the focus of which was simply to investigate how long stocked fish may remain in rivers. No targeted angling for brown trout took place on the partner fisheries during the trout close season.

3.4 Relative levels of catch-and-release and consumptive fishing

When tagged trout were recaptured, anglers were asked to record whether they kept the fish to eat or returned it to the river. This information was not available for all recaptures because anglers did not always record whether they kept or returned their catch.

The percentages of fish recorded as kept or returned were calculated for each partner fishery.

A small number of trout were retained for laboratory analysis. Trout kept as samples were excluded from the analysis of catch and release as we could not be certain what the fate of the fish would have been, had samples not been needed. Tagged fish caught during 'trout outs' were also excluded from the analysis of catch and release. 'Trout outs' were specific angling sessions designed to remove trout from the water rather than typical angler practice.

3.5 Residency and Dispersal

Recapture locations were reported as precise locations using publicly accessible mobile phone apps or, more often, as descriptions of areas (e.g., Durnford, Beat 15). Where an area description was given, this was translated to upstream and downstream coordinates between which the recapture occurred.

Release and recapture locations were plotted onto digital maps and displacement measured. Displacement was defined as the distance (km) along the main river channel between the release and recapture points. Minimum and maximum displacement distances were calculated for trout where the release and/or recapture locations were recorded as areas rather than precise points. This was achieved by measuring the shortest and longest distances that the fish may have swum along the main river channel between release and recapture areas.

For tagged trout caught on more than one occasion, displacement was measured from the release location to the first recapture area. These displacements were included with analysis of fish recaptured just once. Displacement from the first recapture location to the second recapture location was also measured, as was displacement from the release site to the second recapture location. These values were kept separate from analysis of displacement from release to first recapture location.

4. Results

4.1 Number of Floy tagged trout recaptured

Most Floy tagged fish that were recaptured and identified by number were only recorded as being caught on one occasion ($n = 171$). A smaller number were caught twice ($n = 9$). No fish were recaptured on more than two occasions.

During the 2024 trout season, there were 100 known first recaptures from all fisheries combined (Table 1). This was the minimum estimate of the number of unique individuals recaptured by trout anglers during the season and was 4% of the 2,707 Floy tagged trout stocked.

The actual number of unique individuals recaptured may have been higher, as sometimes tagged fish were recorded but the number was not noted down. Also, sometimes there was some uncertainty as to whether a fish was caught by a trout angler or during a 'trout out'. The maximum estimate for the number of unique individuals recaptured by trout anglers during the 2024 season was 144, equivalent to 5% of the 2,707 trout stocked (Table 1). The calculation of this value is explained in the title for Table 1.

Minimum and maximum numbers of unique individuals recaptured by anglers during the trout season were also calculated separately for each club (Table 1). SADAC saw the greatest return on fish stocked. Recaptures of unique individuals ranged from a minimum of 5% to a maximum of 7% of the Floy tagged fish they released (Table 1).

To calculate the benefit of stocking to fisheries in terms of angler captures of fish, second recaptures were considered in addition to first recaptures. The maximum number of angler captures of tagged trout during the trout season was 151 (Table 1). The calculation of this value is explained in the title for Table 1. Considering individual fisheries, SADAC again saw the greatest return on fish stocked, with a maximum of 90 angler recaptures (Table 1).

Broadlands Estate's 'trout out' on the weekend of 19 and 20 October 2024 was notably affected by its coincidence with Storm Ashley, the first named storm of the season. This resulted in high flows, turbid water, and poor conditions for angling. Only 27 Floy tagged fish were recovered, an atypically low amount for this event (Table 1).

Twenty-one recaptures of tagged fish occurred during the trout close season with 9 recaptures being reported to the Environment Agency during the 2025 trout season (Table 1). These numbers were not included in the analysis above and represent minimum numbers of recaptures outside of the 2024 trout season. Coarse fishing records for the trout close season and partner fishery's records for the 2025 trout season were not examined as part of this project.

Table 1 (Overleaf) The number of tagged stocked trout available for recapture together with total numbers of first and second recaptures recorded in each season, for each partner fishery, and for all fisheries combined. Recaptured Floy tags for which identification numbers were not recorded (NR) are also shown for each fishery.

The minimum estimate for the number of unique individuals recaptured by trout anglers during the 2024 trout season is the same as the number of first recaptures (dark blue font)

The maximum estimate for the number of unique individuals recaptured by trout anglers during the 2024 trout season (bold white font on black background) is:

The number of first recaptures in the season (dark blue font)

plus the number of recaptures in the season where the tag number was not recorded (red font)

plus the number of first recaptures for which the exact date or recapture was unknown, but which were known to have been caught either during the trout season or during a 'trout out' (red font)

plus the number of trout for which tag number was not recorded and exact capture date not known, but which were known to have occurred either during the season or during a 'trout out' (red font)

The maximum number of angler captures of tagged trout during the trout season is:

The maximum estimate for the number of unique individuals recaptured by trout anglers during the 2024 trout season (bold white font on black background)

plus the number of second recaptures during the trout season (light blue font)

plus the number of second recaptures known to have occurred either during the trout season or a 'trout out' (light blue font).

Partner Fishery	SADAC (Avon)			Pisc.Soc. (Avon)			WFFC (Nadder)			Pisc.Soc. (Anton)			Broadlands (Test)			Totals		
No. Floy tagged fish released	1,313			300			75			131			888			2,707		
1 st or 2 nd recapture or NR	1 st	2 nd	NR	1 st	2 nd	NR	1 st	2 nd	NR	1 st	2 nd	NR	1 st	2 nd	NR	1 st	2 nd	NR
2024 trout season	65	4	15	2	0	4	0	0	0	4	0	1	29	1	14	100	5	34
2024 'Trout Out'	18	0	0	0	0	0	-	-	-	-	-	-	26	1	0	44	1	0
2024 trout season or 'Trout Out'	5	1	0	2	0	0	0	0	0	0	0	0	3	1	0	10	2	0
2024/25 trout close season	15	1	2	0	0	0	0	0	0	0	0	0	2	0	1	17	1	3
2025 trout season	6	0	0	2	0	0	0	0	0	0	0	0	1	0	0	9	0	0
Totals	109	6	17	6	0	4	0	0	0	4	0	1	61	3	15	180	9	37
Min. no. unique individuals recaptured during 2024 trout season (% of released)	65 (5%)			2 (1%)			0 (0%)			4 (3%)			29 (3%)			100 (4%)		

Partner Fishery	SADAC (Avon)	Pisc.Soc. (Avon)	WFFC (Nadder)	Pisc.Soc. (Anton)	Broadlands (Test)	Totals
No. Floy tagged fish released	1,313	300	75	131	888	2,707
Max. no. unique individuals recaptured during 2024 trout season (% of released)	(~~65~~ +15+5+0) 85 (7%)	(~~2~~ +4+2+0) 8 (3%)	(~~0~~ +0+0+0) 0 (0%)	(~~4~~ +1+0+0) 5 (4%)	(~~29~~ +14+3+0) 46 (5%)	(~~100~~ +34+10+0) 144 (5%)
Max. no. angler captures during 2024 trout season	90 (~~85~~ +4+1)	8 (~~8~~ +0+0)	0 (~~0~~ +0+0)	5 (~~5~~ +0+0)	48 (~~46~~ +1+1)	151 (~~144~~ +5+2)

4.1.1 Unrecorded and misidentified tag numbers

There were 37 captures of Floy tagged individuals for which the tag number was not recorded (Table 1). The tag was described as 'unreadable' for 15 of these 37 captures, being described as 'covered in algae' for 4 of these 15. One tag was reported to the Environment Agency by text, but the phone number was photographed rather than the tag identification number.

Misidentification was a possibility when recording Floy tag numbers. Of the 37 recaptures for which tag numbers were not available, 2 tags were reported which did not correspond with numbers available for recapture (90681 and 5556). Misidentification may affect the calculation of displacement but would not affect calculations of numbers of tagged fish recaptured.

4.2 Time between release and recapture

Date of recapture and tag number were recorded for 172 recaptures, with times between release and recapture ranging 0.2 weeks and 59 weeks (Q1 = 4.6 weeks, median = 8.9 weeks, Q3 = 18.9 weeks) (Figure 4). The time between release and recapture does not account for fishing effort, or the onset of the close season. High numbers of recaptures 7, 15 and 21 weeks after release are in part due to catches during 'trout outs' a corresponding number of weeks after releases (Figure 3, Table 2).

Although survival rates cannot be quantified using these data, long term survival of some individuals was recorded with recaptures occurring over-winter and during the 2025 trout season (Table 1, Figure 4, Table 2).

Slightly higher numbers of trout were caught in the first week after stocking following the 1 August release on the River Test and the 6 September release on the River Avon (Table 2). However, generally, there were no indications of peaks in catches of tagged fish shortly after their release (Table 2).

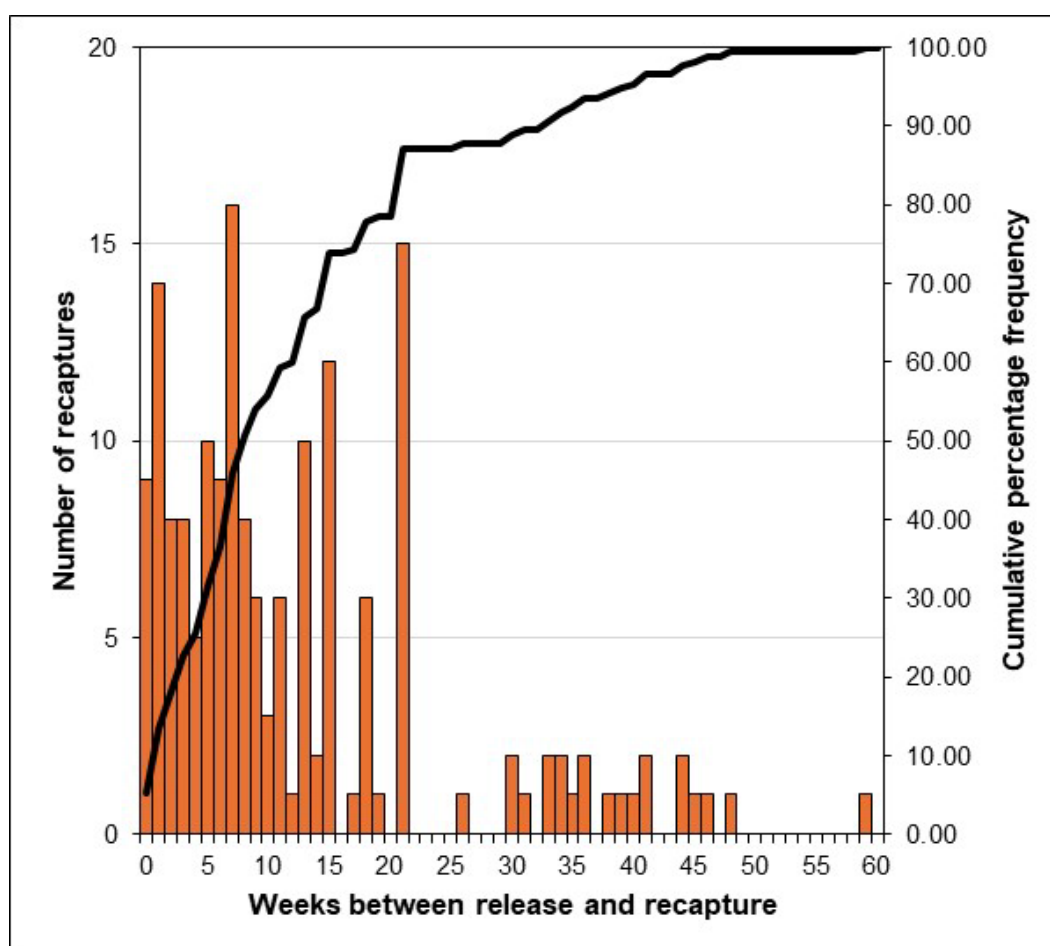


Figure 3 The number of first recaptures of Floy tagged trout, and the cumulative percentage frequency of recaptures, in each successive week after release

Table 2 (overleaf) The numbers of first recaptures of Floy tagged trout reported in successive weeks after each release, by each partner fishery.

Deepening shades of blue in cells denote increasing numbers caught by anglers (trout or coarse). Numbers marked with single asterisks (*) denote Floy tagged trout recaptured in Broadlands 'trout out'. Numbers marked with double asterisks (**) denote Floy tagged trout recaptured in a SADAC 'trout out'. One cell is marked 1/8* indicating 1 recapture during the trout season and 8 during that week's 'trout out'. The end of the 2024 angling season and the start of 2025 angling season are shown by stepped double pink lines (==). Rows marked '...' indicate periods where no fish were recaptured.

[illegible]

4.3 Relative levels of catch-and-release and consumptive fishing

Anglers recorded whether they kept or released their catch for 97 captures (92 known first recaptures and 5 second recaptures). In total, 44 (45%) of these trout were recorded as being kept and 53 (55%) were released (Table 3).

Table 3 Incidence of catch and release fishing for all catches of Floy tagged trout where the fate of the fish was recorded as either kept or returned. Data is from first recaptures, second recaptures and recaptures of Floy tagged fish for which the tag number was not recorded.

Partner Fishery	Fish kept	Fish returned
SADAC	33	28
Piscatorial Society (Avon)	0	5
Wylfe Fly Fishing Club	-	-
Piscatorial Society (Anton)	2	3
Broadlands Estate	9	17
Combined total	44	53
(percentage)	(45%)	(55%)

4.4 Residency and Dispersal

Release and recapture areas were known for 168 first recaptures of Floy tagged trout which allowed minimum and maximum displacements to be calculated for these fish. Most of the tagged trout for which release and first recapture locations were recorded were released by SADAC ($n = 104$) and by Broadlands Estate ($n = 58$). Few displacements could be calculated for the Piscatorial Society on the River Avon ($n = 3$) or the River Anton ($n = 3$).

First recaptures from all partner fisheries were pooled in subsequent analysis due to the similarity in the distributions of minimum displacement distances for SADAC (median = 0.0 km, IQR = 0.0 km to 0.1 km) and Broadlands Estate fish (median = 0.0 km, IQR = 0.0 km to 0.0 km) and maximum displacement distances for the same two fisheries (median = 3.0 km, IQR = 1.6 km to 5.0 km; median = 3.1 km, IQR = 1.5 km to 4.4 km). Minimum and maximum displacements for the River Avon and River Anton Piscatorial Society fish were within the range of values seen for trout released by SADAC and Broadlands Estate fish.

No relationship was seen between the length of time between release and first recapture and maximum displacement (Figure 4). Fish dispersal distance did not increase with increasing length of time in river.

Upstream and downstream maximum displacements were similar. For first recaptures, 96% of upstream displacements were less than 5km and 99% of downstream displacements were less than 6 km (Figure 5). Considering the magnitude of displacement only and not its direction, 81% of maximum displacement estimates were less than 5.0 km, and 98% less than 6.0 km.

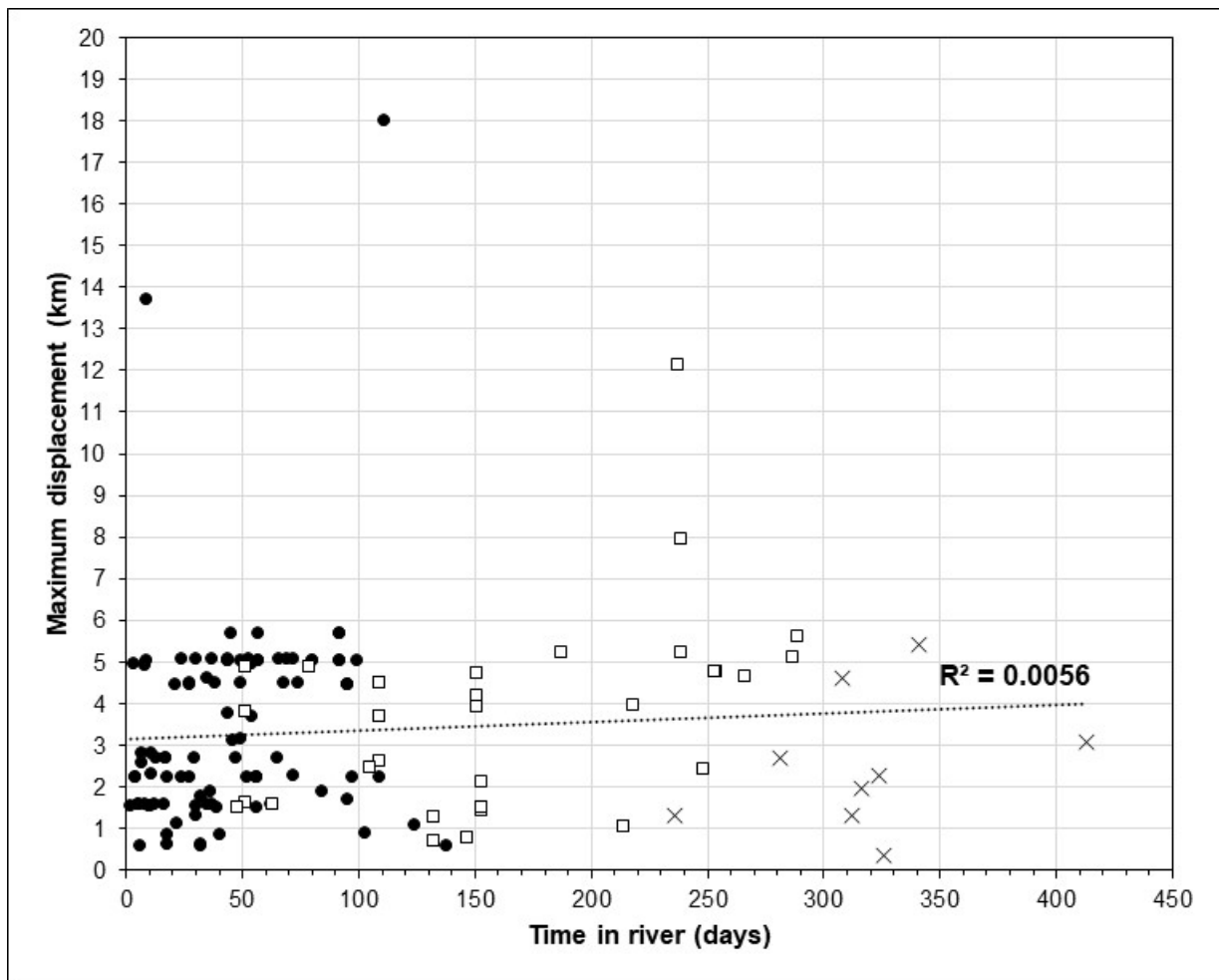


Figure 4 Maximum displacement (km) against time in river (days) for first recaptures in the 2024 trout season (●), autumn/winter 2024/25 (□) and 2025 trout season (x), showing no overall trend in displacement for all first recaptures (....)

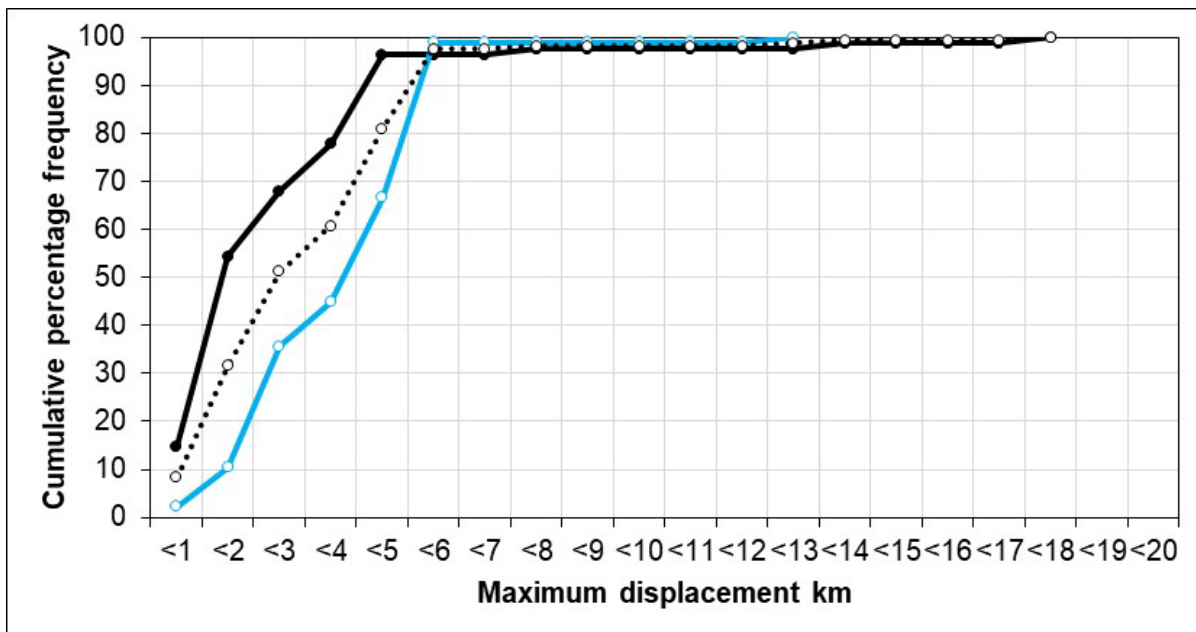


Figure 5 The cumulative percentage frequency of maximum displacements in upstream (—●—) and downstream (—○—) directions, and for both directions combined (- - ○ - -) , for first recaptures of Floy tagged trout.

Examining the minimum and maximum displacement estimates for individual fish shows that, of the 168 first recaptures, 14 fish were displaced less than 1 km (Table 4). For these 14 fish, minimum and maximum displacement estimates were both less than 1 km (Table 4). Similarly, 18 trout were displaced greater than 1 km, their minimum and maximum displacements both being over this distance (Table 4). Of the 18 trout with displacement of greater than 1 km, notably long displacements were recorded for tag numbers 1336, 0565, 1976 and 1220 (Table 5).

Tag numbers 1336 and 0565 were recaptured during the 2024 trout season having been displaced between 10.7 km and 13.7 km upstream, and between 15.9 km and 18.0 km upstream, respectively (Table 5, Appendix One). Although these were sizable displacements, with the displacement for tag number 1336 taking place over only 9 days, both appeared likely to have been genuine records rather than misidentified tags (Appendix Two).

Tag numbers 1976 and 1220 were recaptured in February and March 2025, outside of the trout season, having been displaced 7.9 km upstream (1976) and between 6.7 km and 12.1 km downstream (1220) (Table 5, Appendix One). Of the 18 fish which we know were displaced greater than 1 km, 6 were displaced upstream and 12 downstream (Table 5).

For the remaining 136 trout, information was less clear with 113 of these fish having a minimum displacement of 0 km (Table 4). A minimum displacement of 0 km means that their recapture may have occurred at their release site. However, for these same individuals, recaptures occurred up to 5 km upstream or 6 km downstream of their release

site (Table 4). For these fish, we can only say with confidence that displacement was equal to or less than the maximum estimate for each individual.

It was notable that 7 individuals were recaptured within a roughly 0.6 km length of the River Avon, just to the north of Salisbury during February and March 2025 (tag numbers 0684, 0673, 0325, 1004, 0749, 0313 and 1322) (Appendix One). These fish were recaptured downstream of the SADAC and Piscatorial Society trout fisheries but were first reported and caught in a SADAC coarse fishing competition held at this location. Further coarse angling bycatch occurred and was reported to the Environment Agency following the competition. Displacements for these fish, collectively, ranged between a minimum of 2.7 km and a maximum of 5.6 km.

Table 4 Minimum and maximum displacements for all first recaptures for which release and recapture locations were known (n = 168), with displacements grouped into 1 km categories. Purple shaded cells indicate displacement of less than 1km. Lime green shaded cells indicate displacement of greater than 1 km. For unshaded cells, displacement may have been 0.0km or up to the maximum displacement value associated with that cell.

		Minimum displacement (downstream)					0km	Minimum displacement (upstream)					
		6-7km	4-5km	2-3km	1-2km	0-1km		0-1km	1-2km	2-3km	7-8km	10-11km	15-16km
Maximum displacement (upstream)	17-18km												1
	13-14km											1	
	7-8km										1		
	4-5km						15						
	3-4km						8						
	2-3km					1	7	1		2			
	1-2km						24	7	1				
	0-1km						8	4					
Maximum displacement (downstream)	0km												
	0-1km						2						
	1-2km					1	6						
	2-3km			1	1		20						
	3-4km				1	2	5						
	4-5km		3			1	15						
	5-6km		1	3	1	10	13						
	12-13km	1											

The value in a cell shows the number of first recaptures of tagged trout with that particular combination of minimum and maximum displacements. For example, for 24 marked trout, minimum displacement was 0 km and maximum displacement between 1 km and 2 km. Rows and columns include only displacement distances for which fish were recorded i.e., no fish were recorded with minimum displacements (upstream) between 3 km and 7 km and so columns for upstream minimum displacements of 3-4 km, 4-5 km and 5-6 km are not included in the table.

Table 5. Minimum and maximum displacement (km) together with release and recapture dates and number of days in river for first recaptures known to have been displaced greater than 1 km (arranged in order of earliest to latest recapture date).

Tag	Fishery	River	Release date	Recapture date	Days in river	Displacement km	
						Max	Min
0029	Broadlands	Test	21 May 2024	22 Jun 2024	32	1.8 d/s	2.4 d/s
1699	Piscatorials	Avon	27 Jun 2024	04 Jul 2024	7	2.6 d/s	2.6 d/s
2225	Broadlands	Test	01 Aug 2024	14 Sep 2024	44	1.0 d/s	3.8 d/s
1336	SADAC	Avon	06 Sep 2024	15 Sep 2024	9	10.7 u/s	13.7 u/s
0565	SADAC	Avon	14 Jun 2024	03 Oct 2024	111	15.9 u/s	18.0 u/s
1987	Broadlands	Test	02 July 2024	05 Oct 2024	95	1.1 u/s	1.7 u/s
0684	SADAC	Avon	14 Jun 2024	23 Feb 2025	254	3.7 d/s	4.7 d/s
0673	SADAC	Avon	15 Jun 2024	23 Feb 2025	253	3.7 d/s	4.7 d/s
1976	Broadlands	Test	02 Jul 2024	26 Feb 2025	239	7.9 u/s	7.9 u/s
1220	SADAC	Avon	11 Jul 2024	05 Mar 2025	237	6.7 d/s	12.1 d/s
2032	Broadlands	Test	02 Jul 2024	07 Mar 2025	248	2.4 u/s	2.4 u/s
0325	SADAC	Avon	24 May 2024	07 Mar 2025	287	2.7 d/s	5.1 d/s
1004	SADAC	Avon	11 Jul 2024	07 Mar 2025	239	2.8 d/s	5.2 d/s
0749	SADAC	Avon	14 Jun 2024	07 Mar 2025	266	3.6 d/s	4.7 d/s
0313	SADAC	Avon	24 May 2024	09 Mar 2025	289	3.2 d/s	5.6 d/s

Tag	Fishery	River	Release date	Recapture date	Days in river	Displacement km	
						Max	Min
1322	SADAC	Avon	06 Sep 2024	12 Mar 2025	187	2.7 d/s	5.2 d/s
2192	Piscatorials	Avon	25 Jul 2024	02 May 2025	281	2.0 u/s	2.7 u/s
1475	SADAC	Avon	6 Sep 2024	13 Aug 2025	341	1.1 d/s	5.4 d/s

4.5 Multiple recaptures

Multiple recaptures were reported for 9 tagged trout, each of which was caught on 2 occasions (Table 6). No trout were reported as recaptured for a third time. Five of the second recaptures were recorded by trout anglers during the 2024 trout season, with another occurring during the Broadlands Estate ‘trout out’ event on 19 October 2024 (tag number 1905, Table 6). One fish was recaptured twice during the trout close season (tag number 0849, Table 6). The date of second recapture was unrecorded for 2 further fish, these having been kept for post-mortem analysis (Table 6).

As with first recaptures, uncertainty over exact release and recapture locations limited interpretation. Release and recapture areas were available for 7 of the 9 tagged trout that were caught on more than one occasion.

For 3 trout, the minimum displacement from the release site for both first and second recaptures was 0.0 km and both recaptures occurred within the same length of river (tag numbers 0117, 0931 and 0849, Table 6, Appendix Three). Minimum displacements of 0 km mean that both recaptures may have occurred at the release site. Tag number 0849 was notable for both recaptures having been recorded in the same exact location, with both recaptures being made by the same angler (Table 6, Appendix Three).

Tag number 0931 was released at either Ratfyn or Amesbury beats and recaptured twice within the Ratfyn area (Appendix Three). The Ratfyn fishery is upstream of Amesbury. This fish may have been displaced from Amesbury, but we cannot be certain due to imprecise recording of the release location (Table 6, Appendix Three).

Tag number 0962 was also released in either Ratfyn or Amesbury fisheries but showed a definite displacement downstream. Both recapture areas were downstream of its release area (Table 6, Appendix Three). Downstream displacement was between 0.1 km and 4.6 km (Table 8, Appendix Three).

Tag number 1431 was released either at Amesbury or Ratfyn (Appendix Three). Its first recapture occurred on the Ratfyn beat and, with a minimum displacement of 0 km, could not be confirmed to be different from the release point (Table 6, Appendix Three). The second recapture occurred downstream of Amesbury, between 0.1 km (minimum displacement) and 4.1 km (maximum displacement) downstream of its release point (Table 6, Appendix Three).

Tag 1905 was initially displaced upstream (Table 6, Appendix Three). However, its second recapture location was only recorded as Broadlands so we cannot know the extent of any further movement, except to say that it had not been displaced further than 3.7 km upstream of its release point (Table 6, Appendix Three).

Table 6 Minimum and maximum displacement distances (km) together with dates of release and recapture and number of days between release and recapture for first and second recaptures of Floy tagged trout caught more than once. The table is arranged in order of earliest to latest recapture date.

Tag	Partner Fishery	River	Release date	Date (1 st recapture)	Days in river	Displacement (minimum km)	Displacement (maximum km)	Date (2 nd recapture)	Days in river	Displacement (minimum km)	Displacement (maximum km)
0117	Broadlands	Test	21 May 2024	22 Jun 2024	32	0.0	0.6 u/s	18 Oct 2024	150	0.0	0.6 u/s
0931	SADAC	Avon	14 Jun 2024	22 Jun 2024	8	0.0	4.9 u/s	04 Aug 2024	51	0.0	4.9 u/s
0478	SADAC	Avon	24 May 2024	02 Jul 2024	39	0.0	1.5 d/s	02 Jul 2024	39	0.0	1.7 u/s
0962	SADAC	Avon	14 Jun 2024	19 Jul 2024	35	0.1 d/s	4.6 d/s	14 Sep 2024	92	0.1 d/s	4.6 d/s
2211	Broadlands	Test	1 Aug 2024	5 Aug 2024	4	0.0	2.2 d/d	Unrecorded	n/a	Unrecorded	Unrecorded
1431	SADAC	Avon	06 Sep 2024	09 Sep 2024	3	0.0	4.9 u/s	21 Sep 2024	15	0.1 d/s	4.5 d/s
1318	SADAC	Avon	6 Sep 2024	17 Sep 2024	11	0.0	2.8 d/s	Unrecorded	n/a	Unrecorded	Unrecorded
1905	Broadlands	Test	02 Jul 2024	13 Oct 2024	103	0.3 u/s	0.9 u/s	19 Oct 2024	109	0.0	3.7 u/s
0849	SADAC	Avon	14 Jun 2024	18 Jan 2025	218	0.0	3.9 u/s	14 Mar 2025	273	0.0	3.9 u/s

5. Discussion

Using observations from representative fisheries in southern chalk streams, this study has demonstrated that stocking of triploid trout can result in few recaptures. Of the few fish that were caught by trout anglers, 55% were released back into the river rather than being taken for consumption. Tagged fish were recaptured during the winter following stocking and into the following summer.

Analysis of displacement was complicated by the relatively small proportion of fish recaptured, and by imprecise recording of release and recapture sites. While most fish were recaptured less than 5 km from their release point, notably longer displacements were also recorded. Displacements occurred in upstream and downstream directions and were not related to length of time in river. Recaptures were reported up to 59 weeks after release date.

Low recapture rates and limited dispersal suggest that there is potential for triploid stocking to affect the ecology local to their release point. Longer displacements and recaptures over a year after release suggest that triploid stocking may also affect the environment temporally and spatially distant from release time and location. The nature and extent of potential impacts were largely beyond the scope of the present study.

The information from this study contributes to the evidence base the Environment Agency is using to inform future policy and regulatory decisions relating to the number of trout that can be released, their size, and the timing of release. Measures that could mitigate impacts that fall outside of areas that the Environment Agency can regulate may be included in best practice guidance. Any changes to stocking policy will be consistent with the Regulator's code (Office for Product Safety and Standards, 2014), including engagement with the relevant business sectors.

5.1 Number of Floy tagged trout recaptured

Although 2,707 trout were released, we cannot know survival rates throughout the season, or the proportion that may have dispersed beyond their release fisheries. The exact number available for recapture on any date during the experiment (i.e., the number of surviving fish) was unknown and so recaptures were expressed in terms of the total number of trout released.

The percentage of unique individuals recaptured by trout anglers was low with overall recaptures in the 2024 trout season reported as between 4% ($n = 100$) and 5% ($n = 144$) of the number of tagged fish released ($n = 2,707$). In other words, most trout (95% to 96%) were not recorded as recaptures during the season and provided no benefit to the fishery

in terms of numbers of fish caught by anglers within the study period. Anglers derived little benefit from multiple recaptures as very few fish ($n = 9$) were caught more than once.

The proportion of recaptures of unique individuals varied between fisheries and was highest for Salisbury & District Angling Club (5% to 7%, $n = 1,313$). SADAC has a well-established system for marking the farmed trout it introduces to the river. Each year's stocked fish are marked with different coloured clothes tags. These tags are the plastic T-bar tags used to attach labels to clothes in shops. They are similar in size to Floy tags and deployed in the same way, but do not have identifying numbers. SADAC's anglers are therefore used to identifying tagged fish. The only change for our study was the use of Floy tags rather than clothes tags and the request to record the tag identification number in addition to its colour. As such, it is likely the proportion of recaptures of unique individuals recorded by SADAC is a reliable estimate.

The Wylfe Fly Fishing Club also marks their stocked trout with coloured clothes tags. In 2024, the club released 200 triploid brown trout prior to the delivery of Floy tags. These fish were marked using green clothes tags. Seven of these 200 (4%) were reported recaptured. The familiarity with the marking system, and the low percentage of green tagged fish reported by the Wylfe Fly Fishing Club lends credibility to a 0% recapture rate for their Floy tagged trout ($n = 75$).

Recapture rates for Broadlands Estate (3% to 5%, $n = 888$) and the Piscatorial Society on the Avon (1% to 3%, $n = 300$) and Anton (3% to 4%, $n = 131$) were not as high as for SADAC. These may be genuine results but may also reflect unfamiliarity with recording tags or an unwillingness by anglers to engage with the reporting system at these fisheries.

In chalk rivers, environmental factors influencing angling conditions in chalk rivers will vary from year to year, as may angling effort. High flows may lead to greater displacement of farm-reared fish. In early spring 2024 river discharges were generally higher than in preceding years. However, discharge of the River Avon when Floy tagged fish were released in 2024 was similar to 2023 and not greatly elevated above flows in 2020, 2021 and 2022 (Appendix Four). Discharge is unlikely to have had a major direct effect on the number of SADAC recaptures although higher discharge may result in higher turbidity, which may reduce angling success.

SADAC's recapture rate in the present study was notably lower than in a 2005 mark-recapture exercise conducted in the fishery which recorded recaptures of 17% of the 186 female triploids released, and 11% of 186 farm-reared mixed sex diploids (Chatterji et al., 2007). Trout were marked using coloured Visible Implant Elastomer marks injected into their pelvic fins, coloured gel that hardens into a pliable solid mark visible through translucent tissue above (Chatterji et al., 2007). Although higher than return rates in the present study, Chatterji et al. (2007) noted that the percentage of fish recaptured was lower than expected, attributing this to low water levels and high temperatures. These are adverse conditions for flyfishing and angler effort may have reduced during the study period.

Recapture rates in the present study were also notably lower than reported for a study of 28.0 to 30.5 cm farm-reared stocked trout in the River Meon, a Hampshire chalk stream (Penny, 2015). Here, an overall angler recapture rate of 21% was reported (224 captures from 1,065 marked fish released) (Penny, 2015). This recapture rate may include multiple recaptures as fish were marked with dye rather than Floy tags and could not be distinguished as individuals (Penny, 2015).

SADAC's river keeper noted 2024 as being 'one of our worst for our members catching our stocked fish'. However, even if higher returns occur in some years, the present study demonstrates that low recapture rates of around 5% do also occur. Even in comparable studies with higher recapture rates, large percentages of stocked trout (79% to 83%) were not caught again after release (Chatterji et al., 2007; Penny, 2015).

Fisheries sometimes attempt to enumerate recapture rates based solely upon identifying fish as wild or stocked, based on their external appearance. Such studies are not as robust as mark-recapture exercises; the release site is unknown, multiple recaptures cannot be identified and there is a possibility of misidentification of wild and stocked fish. Without a means of identifying individuals or batches of fish it is impossible to distinguish between fish released by a particular fishery and others that may have been displaced from elsewhere.

5.2 Time between release and recapture

Releases of stocked fish may be expected to result in an increase in fishing effort, as anglers seek to catch the new stock (Baer et al., 2007). Only slight indications of a peak in catches shortly after release were seen in this study. These occurred after a release of 199 trout into the River Test at Broadlands Estate on 1 August 2024, and following a release of 250 trout into the River Avon on 6 September 2024.

The present study was primarily concerned with the persistence of fish in the river system, rather than relating catches to angler effort. Angling effort data have not been examined and so we cannot compare catch per effort in the weeks following release. The small peaks in catches seen after stocking on the 1 August and 6 September may be related to a general increase in angling effort during summer rather than being related to stocking activity itself.

The timing of recaptures was heavily influenced by the onset of the trout close season which occurred between 6 and 21 weeks after individual release dates. Consequently, it is unsurprising that most recaptures (87%) occurred within 21 weeks of release. With little to no peak in angler catch immediately following stocking, the likelihood of introduced triploids persisting into the autumn and winter appeared to be higher for later season stocking than for introductions in early summer.

Long-term survival of at least some stocked trout within the study rivers was shown through coarse anglers' bycatch of tagged trout during the trout close season and by recaptures reported directly to the Environment Agency in 2025. Similarly, long-term

persistence of at least some trout was indicated in SADAC's catch records. SADAC marked their stocked trout with blue clothes tags in 2023, with 3 of these fish being recaptured during the 2024 trout season. Although the Wylfe Fly Fishing Club did not catch any Floy-tagged fish in 2024, they did record 7 recaptures of red clothes tag marked trout, these being fish they released in 2023. A further 7 red tagged trout were recorded by SADAC on their River Wylfe fishing beats in 2024.

Over-wintered stocked trout present a potential pressure to wild fish either through competition for food or habitat, or direct predation on Atlantic salmon, *Salmo salar*, or wild brown trout fry or smolts. Although Riley et al. (2012) did not find evidence of recently stocked triploid brown trout feeding on migrating salmon smolts they noted that the impact of any trout surviving from previous years of stocking should be assessed.

Environment Agency Baited Remote Underwater Vehicle surveys have recorded over-wintered stocked trout in deep, slow sections of the Test and Itchen, especially modified reaches and weir pools (Environment Agency, unpublished data). Fish counter data also confirms their presence (Environment Agency, 2026). Evidence for multi-year survival also comes from observations and catches of 'slob trout', large, silvered trout of stocked origin caught in spring in the lower reaches of the Test and Itchen and the upper reaches of Southampton Water (Environment Agency, 2021).

It was not appropriate to attempt to calculate survival rates from this study due to low recapture numbers, reduced angler effort in the trout close season, and limited reporting during the 2025 trout season. Alternative techniques would be needed to investigate survival rates, potentially radio or acoustic telemetry.

5.3 Relative levels of catch-and-release and consumptive fishing

Catch and release was common with over half of Floy tagged trout being returned to the river, where anglers recorded whether they were kept or released their catch.

The high incidence of catch and release is of particular significance given the low number of recaptures found in this study. Of the 4% to 5% of unique individuals recaptured, around half may have been returned to the river, translating to only 2% to 3% of stocked fish being removed by anglers in 2024. Whilst recognising that percentage recapture may vary between years and that 2024 may have been at the lower end of the scale, this study has shown that very low percentage recaptures do occur, and that around half of the few fish that are caught may be returned to the river by anglers.

The percentage of fish kept and returned will vary between fisheries according to anglers' preferences and the rules of the fishery. Even higher incidence of catch and release may occur. For example, Penny (2015) reported 75% of stocked trout caught on the River Meon being released back into the river.

5.4 Residency and Dispersal

Displacements occurred in upstream and downstream directions and were not related to length of time in river. Displacement was confirmed as greater than 1 km for 18 out of 168 first recaptures for which release and recapture areas were known (11%). The greatest recorded displacement was between 15.9 km and 18.0 km. Displacement of less than 1 km was confirmed for 15 out of 168 first recaptures (9%). Imprecision over release or recapture locations meant that for most recaptures ($n = 135$) fish displacement distances were uncertain.

Percentages given above must be interpreted with caution because:

- 1) The location of fish was only recorded upon release and recapture, and so we have no knowledge of movement between or beyond these times.
- 2) We have no information on displacement for most fish released because of low recapture rates. Displacements could only be calculated for 168 first recaptures (and 9 second recaptures) out of the 2,707 tagged fish available for recapture.
- 3) Fishing effort was concentrated in particular locations. Although every effort was made to publicise the presence of Floy tagged trout throughout the catchment, it is still likely that awareness was greater within our partner fisheries than beyond. This implies a lower chance of recaptures being reported outside of the partner fisheries, and that displacement was likely to be influenced by the river length along which partner fisheries were active.

These limitations are exacerbated by the inexact reporting of release and recapture locations within this study.

Displacement distances reported in the present study are broadly consistent with previous studies in chalk streams. Kemp et al. (2017) radio tracked (presumed) wild brown trout (greater than 23 cm fork length) during winter in the River Lambourne, a Berkshire chalk stream. These fish displayed a high degree of site residency although the length of river studied was short (0.5 km) and 22% of radio tagged trout (18 out of 83 fish) were not detected again (Kemp, 2017). It is likely that these individuals left the study area.

A mark recapture study of a mixture of diploid and triploid brown trout on the River Meon found stocked trout were more often captured by anglers on the beat they were released (74%; $n = 122$) than on other angling beats (26%; $n = 43$), with electric fishing data providing similar results (Penny, 2015). Potential distances travelled from release sites were reported as ≥ 1.5 km upstream and 7.5 km downstream, with these presumably referencing maximum displacement (Penny, 2015). Upstream movement was more common than downstream, accounting for 72% and 28% of recaptures, respectively (Penny, 2015).

A radio tracking study followed female triploid brown trout over winter along approximately 5 km of the River Allen in Dorset (Chatterji et al., 2007). Twenty triploids were released in each of 2 successive years (37.9 ± 1.4 cm in year one and 36.2 ± 1.4 cm in year two, mean $\pm$ SD) (Chatterji et al., 2007). The triploid trout mostly remained within 0.5 km of their

release point (Chatterji et al., 2007). One individual relocated around 2.5 km upstream and a further five relocated to positions around 1 km downstream of their release points (Chatterji et al., 2007).

Electric fishing can be used to estimate the proportion of marked trout remaining close to their release point after a pre-determined time. Proportional residency depends upon many factors. These include the length of the site, emigration from the site and survival of stocked fish. Emigration and survival rates will themselves be influenced by factors such as the habitat quality, the density of stocked and wild fish, levels of competition and predation and the timing of stocking and angler pressure. Environmental factors such as river discharge, and the presence of natural or artificial barriers to migration will also affect proportional residency.

Determining proportional residency at the end of the 2024 trout season was not practical in the present study. The rivers at several partner fisheries were too deep for efficient quantitative electric fishing. Additionally, there was a desire to avoid bycatch of endangered pre-spawning Atlantic salmon. It was hoped that the 'trout out' event on Broadlands Estate would act as a proxy for electric fishing, at least to some degree. However, fishing conditions were poor and the relatively low number of marked trout recaptured ($n = 28$) cannot be considered representative of the proportion of marked trout released and still residing within the Broadlands fishery.

During February and March 2025, numerous recaptures occurred within a short section of river, north of Salisbury. This appears to be a similar phenomenon to the accumulations of large numbers of stocked trout which have been reported in areas of the River Test, for example, at Mottisfont Abbey (Environment Agency, 2023). The 7 individuals that were recaptured near one another, kilometres downstream of their release site, were caught in an area of relatively intense angler activity. Drawing further inference from these results is difficult. It is not possible to say whether this aggregation was atypical, or whether similar aggregations occurred in other locations remote from the stocking areas. Furthermore, as the marking technique we used relies entirely on fish being recaptured, we cannot say how many other stocked trout were present in this location.

6. Conclusions

- The percentage of unique individuals recaptured by trout anglers was low with overall recaptures of between 4% and 5% of the 2,707 tagged fish released. This translates to 95% to 96% of stocked trout making no contribution to the fishery, in terms of numbers of fish caught by anglers.
- Recaptures may have been particularly low in 2024, with SADAC's river keeper noting this was 'one of our worst for our members catching our stocked fish'. Nevertheless, this study has shown that such low recapture rates can and do occur.
- Catch and release was common. Of 93 Floy tagged trout, for which anglers recorded whether they kept or released their catch, 52 (56%) were returned to the river.
- There was no distinct peak in catches immediately after stocking. The likelihood of triploids persisting over-winter appeared to increase with later season stocking. Fish that successfully over-winter may potentially predate upon emerging salmonid fry and migrating smolts the following spring, in rivers where these are present.
- Survival rates cannot be extrapolated from this study, but recaptures were recorded over winter, and in the spring and summer of the year following release. Recapture data from these times were from reports made directly to the Environment Agency and so represent a minimum estimate of over-wintering.
- Further evidence of over-wintering came from partner fisheries' records of recaptures of farm-reared trout in 2023 equipped with coloured clothes tags deployed in the preceding year.
- Overall, most (81%) maximum displacement estimates for first recaptures were less than 5.0 km with nearly all (98%) being less than 6.0 km. Interpretation of displacement data was complicated due to imprecise recording of many release and recapture locations, the overall low number of recaptures, and a bias towards reports originating from partner fisheries.
- Displacements occurred in upstream and downstream directions and were not related to length of time in river.
- Notably long displacements were recorded for 4 trout, with estimates for their displacement ranging between 6.7 km and 18.0 km.
- During February and March 2025, 7 Floy tagged trout were recaptured within close proximity to each other, several kilometres downstream of their release site in the River Avon. The recapture location was an area used in coarse angling

competitions. It was not possible to say whether this aggregation was atypical, or whether similar aggregations occurred in other locations, remote from the stocking areas.

- The study demonstrated that recapture rates following stocking can be low and that most fish were recaptured within 5 km of their release point. This suggests that there is potential for triploid stocking to affect the environment local to the release site. Displacements greater than 5 km, and over-wintering, were recorded for a few individuals suggesting that triploid stocking may also affect the environment temporally and spatially distant from release time and location.

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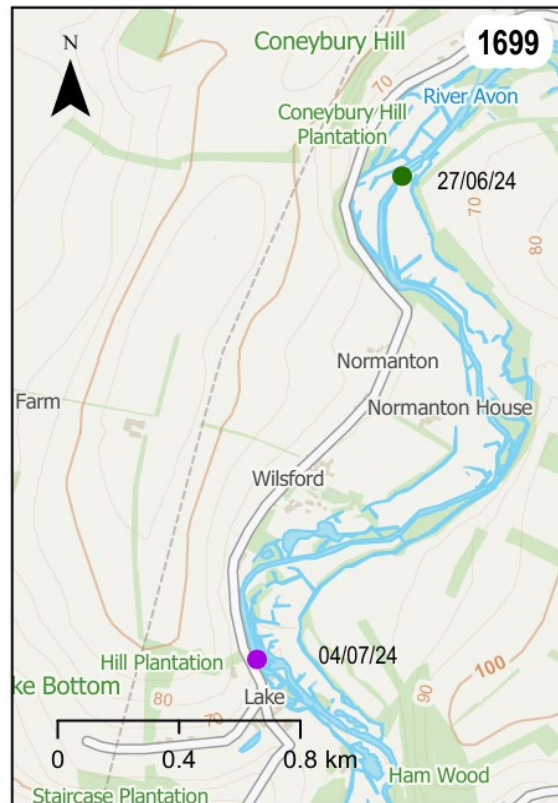
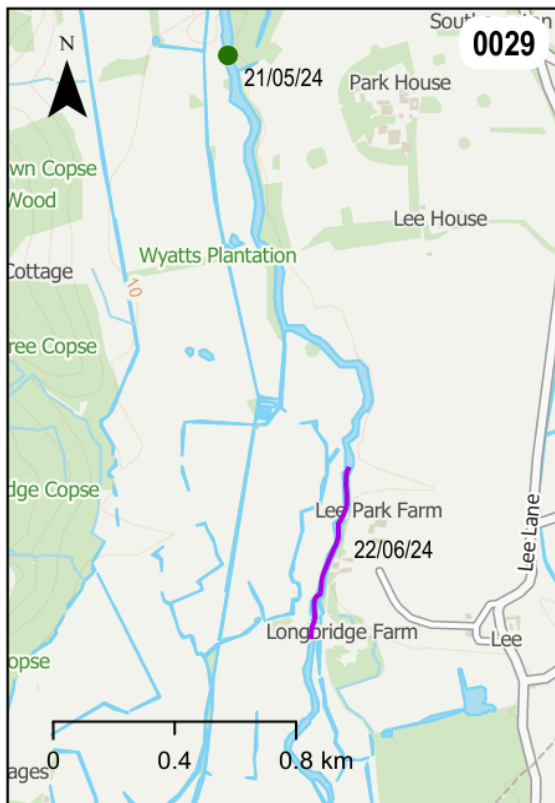
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[Accessed 5 July 2026]

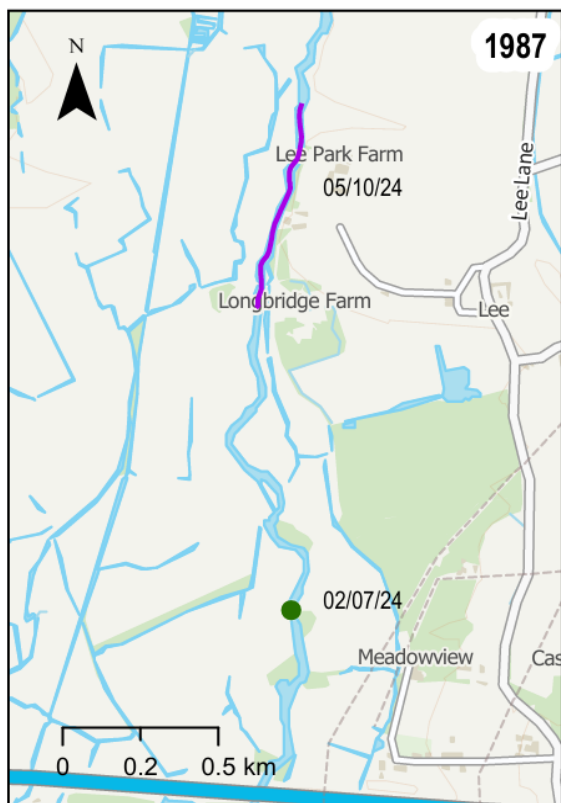
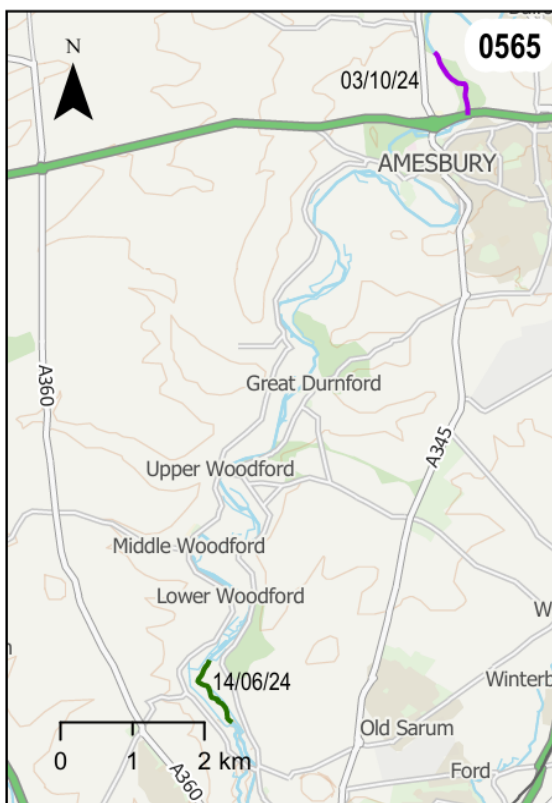
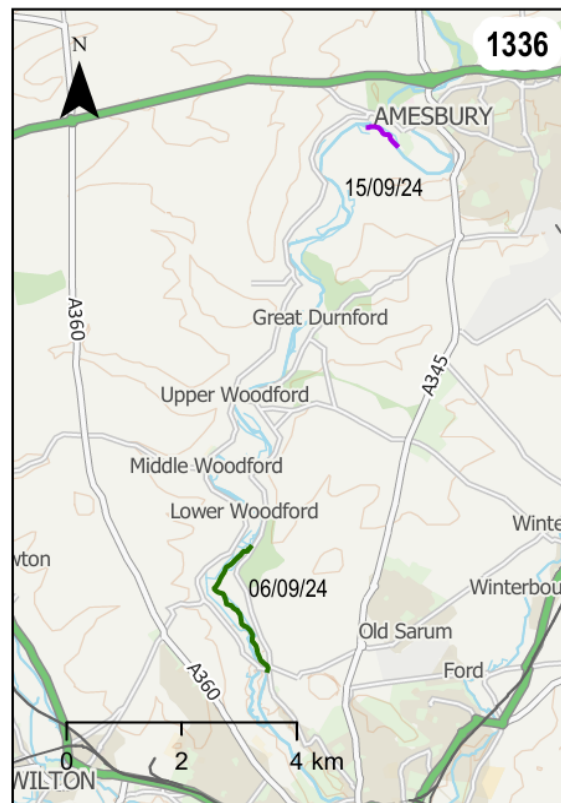
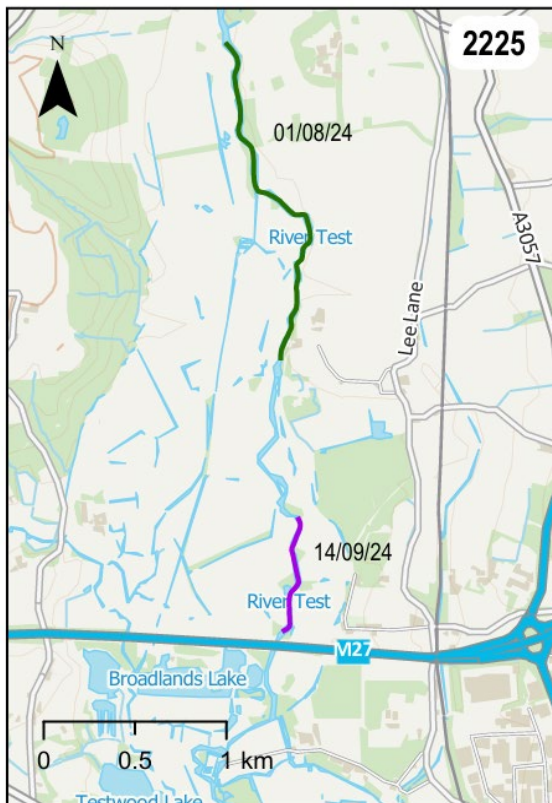
Appendix One

Release and recapture locations for tagged trout recaptured during the 2024 trout season with displacements of >1km. Recaptures are from the River Test (2225, 0029) and River Avon (1699, 1336, 0565). Where exact release or recapture positions were unknown, a line illustrates the stretch of river within which the event occurred. Maps created in ArcGIS Pro 3.3.2 using OS Outdoor Basemapping.

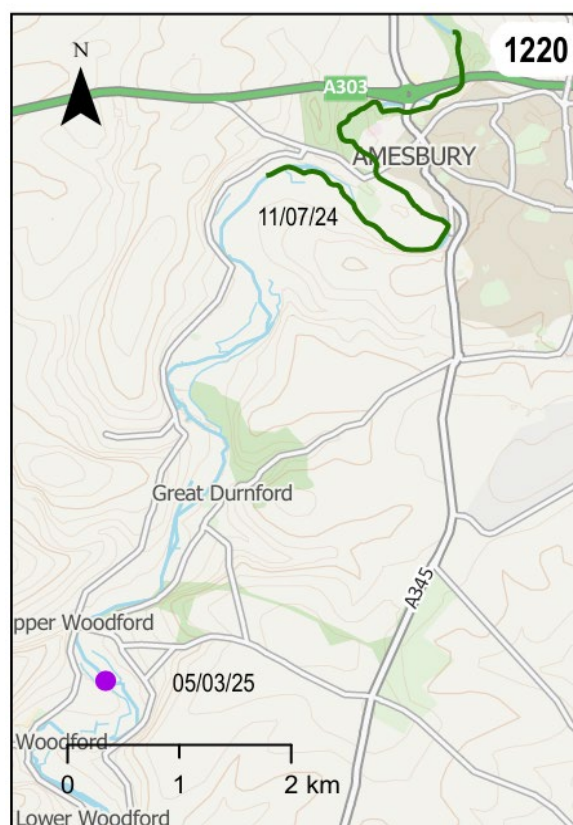
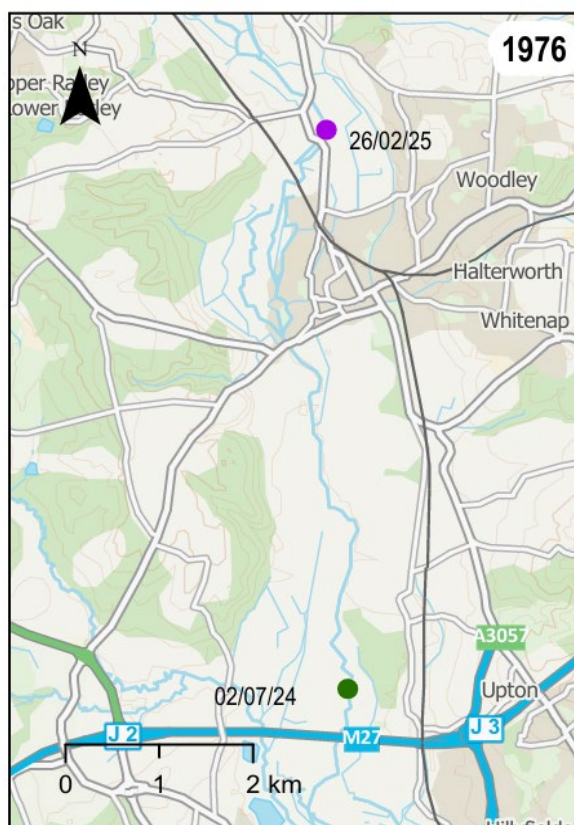
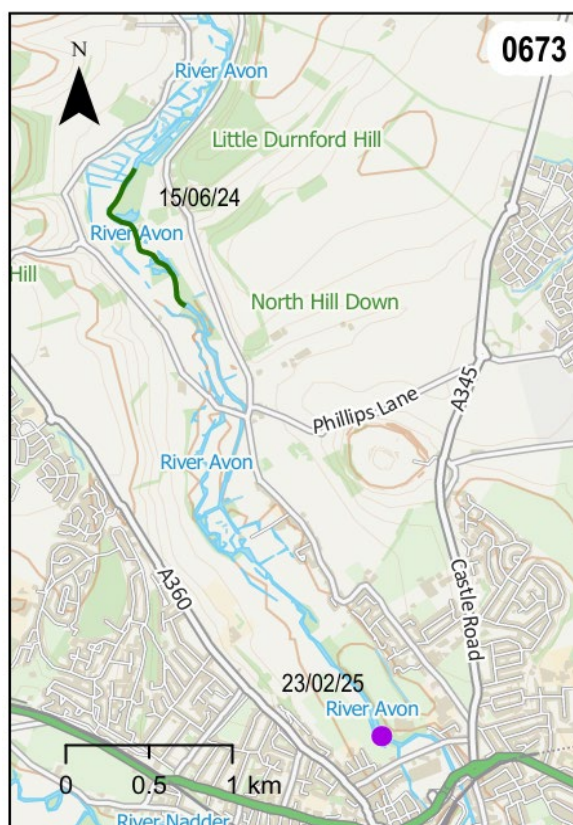
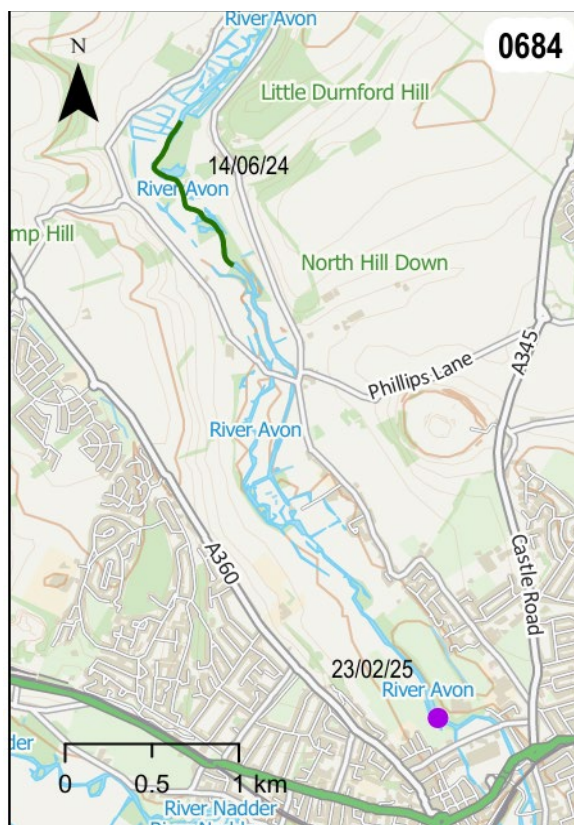
● Release (exact location) 2 Release (within range) ● Recapture (exact location) 2 Recapture (within range)



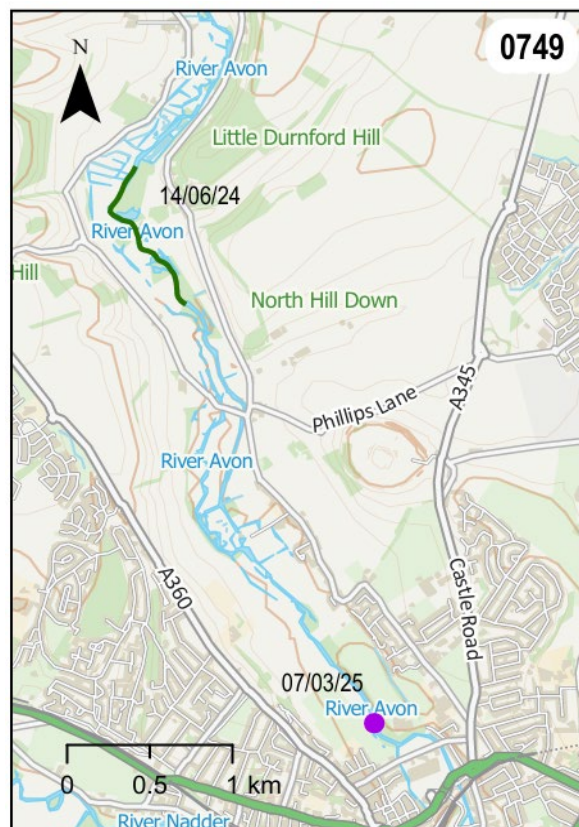
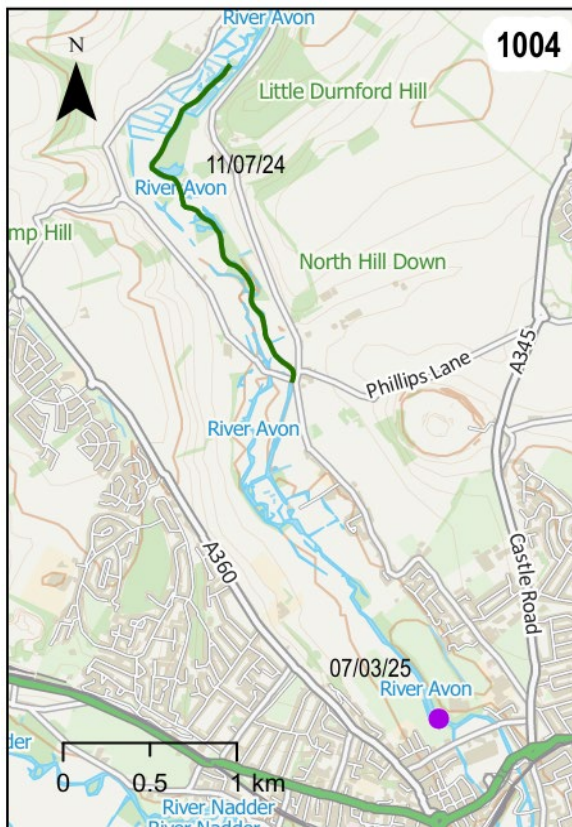
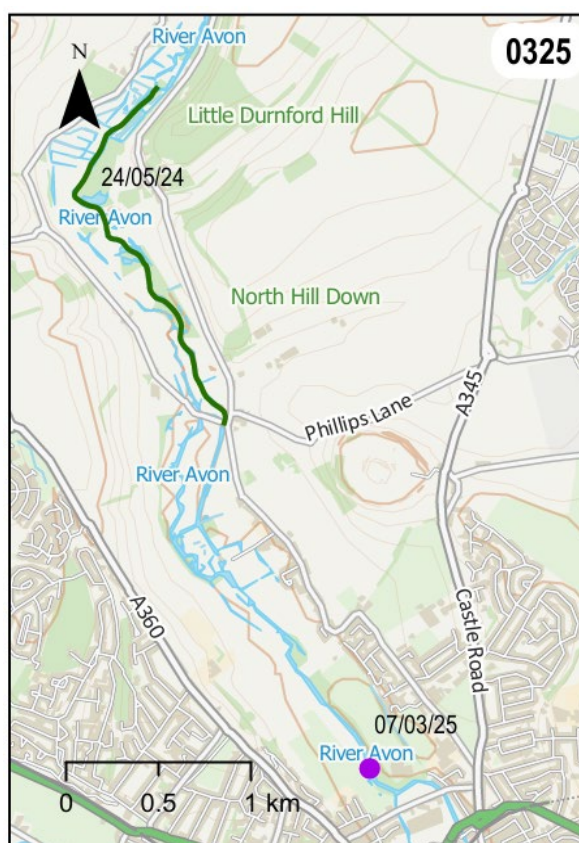
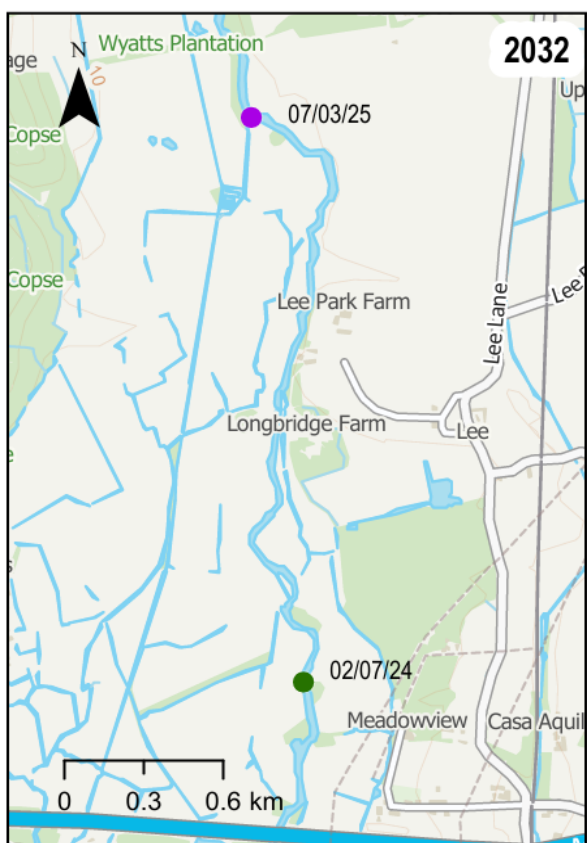
● Release (exact location) 〰 Release (within range) ● Recapture (exact location) 〰 Recapture (within range)



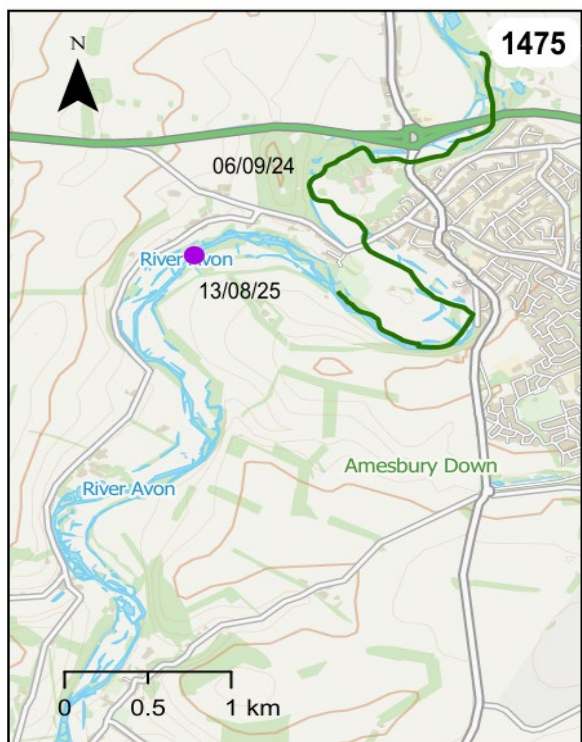
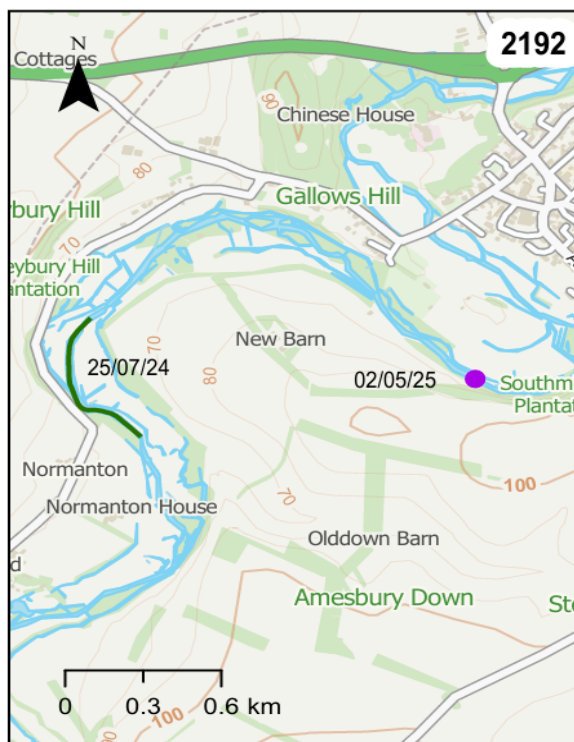
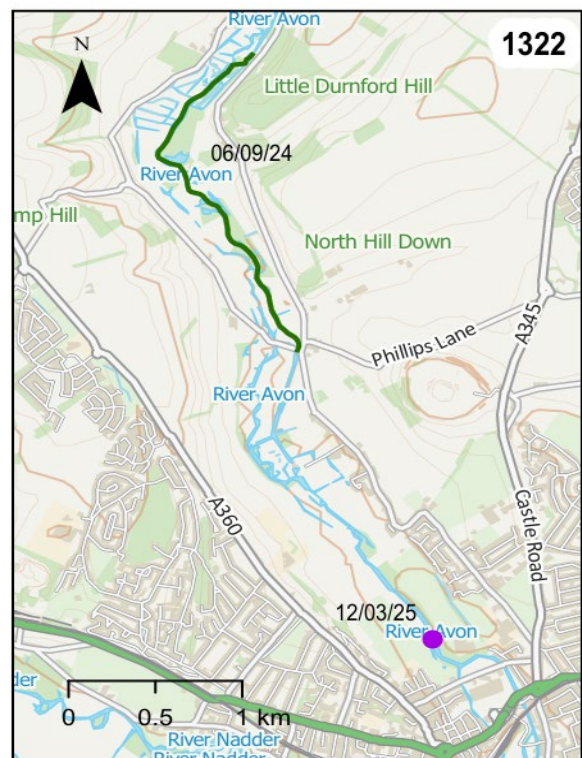
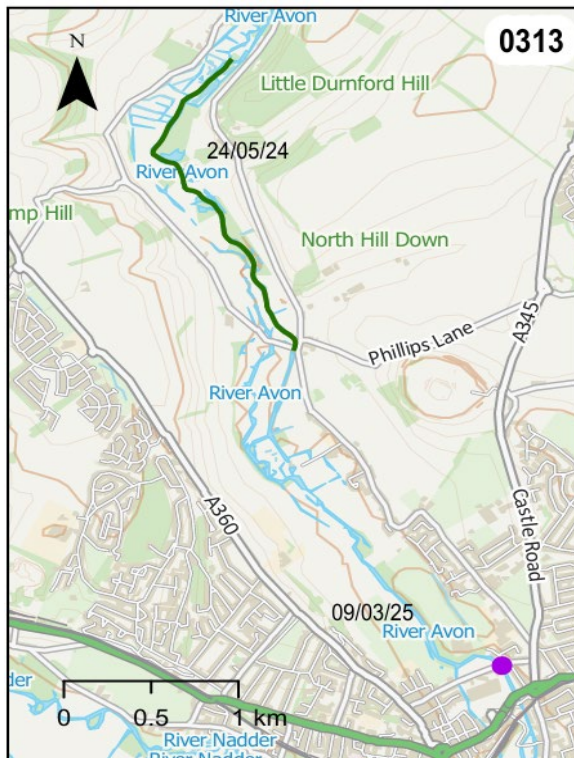
● Release (exact location)
 ~ Release (within range)
 ● Recapture (exact location)
 ~ Recapture (within range)



● Release (exact location) 2 Release (within range) ● Recapture (exact location) 2 Recapture (within range)



● Release (exact location) ㄣ Release (within range) ● Recapture (exact location) ㄣ Recapture (within range)



Appendix Two

The possibility of tag numbers having been misread was considered for the 2 trout showing the greatest displacement, tag numbers 1336 and 0565. Both fish were released and recaptured in the River Avon (see Table 6 and Appendix Two for further information).

Tag number 1336

Tag number	Displacement (minimum km)	Displacement (maximum km)	Release date	Recapture date	Days in river
1336	10.7 u/s	13.7 u/s	06 Sep 2024	15 Sep 2024	9

This fish was notable for the scale of its displacement and the short time over which this occurred. The likeliest misidentification of 1336 would involve the digits 3 and/or 6. If each ‘3’ could be read as 3, 5 or 8 and the ‘6’ could be read as 5, 6 or 8, there would be 26 possible tag numbers, other than 1336. Of these 26 combinations:

- 3 did not appear on tags that were released (1536, 1535, 1538)
- 9 corresponded to tags released within Broadlands Estate on the River Test (1835, 1836, 1838, 1855, 1856, 1858, 1885, 1886, 1888)
- 6 were released on the River Nadder on the 18 June 2024 (1555, 1556, 1558, 1585, 1586, 1588). These could conceivably have moved downstream to the confluence with the River Avon and then upstream to Amesbury. This would still be a sizeable displacement (>20km) but would have occurred over a longer time (89 days)
- 5 were released on the same date, at the same location. If these had been caught and misread as 1336, their true displacement and time in river would have been identical (1335, 1338, 1356, 1355, 1358)
- 3 were released on the same date but their release location was recorded as the Amesbury or Ratfyn fishery, just upstream of Amesbury (1385,1386, 1388). It would not be unreasonable to assume that these may have been caught and misread as 1336. However, tag number 1386 was caught by the same angler, on the same day, in the same location as 1336 (along with a third tagged fish, number 1199). Familiarity with the tags, having caught three in quick succession, would appear to make misidentification less likely. As such, the mark-recapture information for 1336 has been retained in the dataset.

Tag number 0565

Tag number	Displacement (minimum km)	Displacement (maximum km)	Release date	Recapture date	Days in river
0565	15.9 u/s	18.0 u/s	14 Jun 2024	03 Oct 2024	111

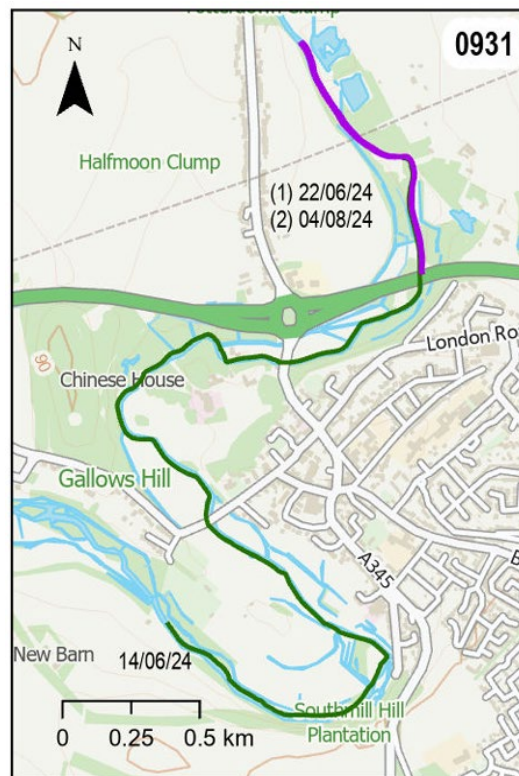
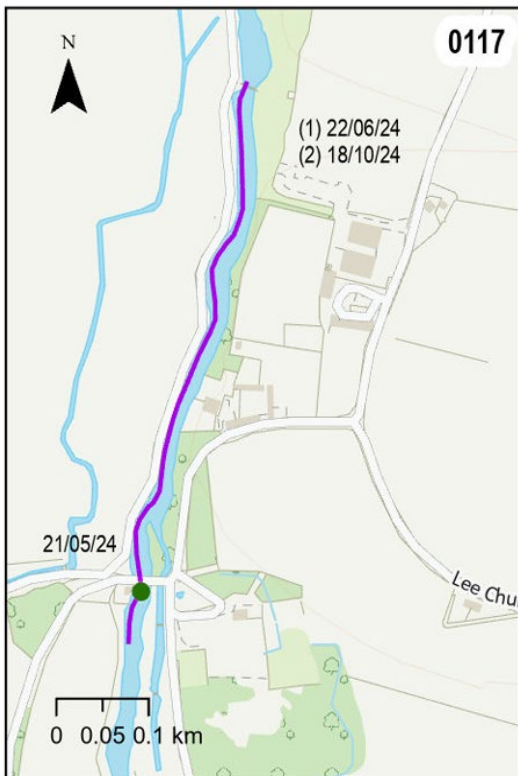
This fish was notable for the magnitude of its displacement. The likeliest misidentification of 0565 would involve the digits '5' and/or '6'. If '5' could be read as 3, 5, 6 or 8 and the '6' could be read as 5, 6 or 8, there would be 47 possible tag numbers, other than 0565. Of these 47 combinations:

- 35 were released also at Durnford (12 on 24 May 2024 and 23 on 14 June 2024) and so would have displacements of a similar magnitude if recaptured at Ratfyn.
- 12 were released at either Ratfyn or Amesbury on 14 June 2024, these being tags in the 0850s, 0860s and 0880s. Half of these tags would have required all 3 non-zero digits to have been misread in order to have been recorded as 0565 (0853, 0856, 0858, 0883, 0886, 0888), 5 would have required 2 digits to be misread (0855, 0863, 0866, 0868, 0885) and only 1 tag could have been misread as 0565 by an error of a single digit (0865). This tag (0865) would have needed its second digit ('8') to be read misread as a '5', with the fourth digit being correctly identified as a '5'. This is not impossible but is considered unlikely. Consequently, the mark-recapture information for 0565 has been retained in the dataset.

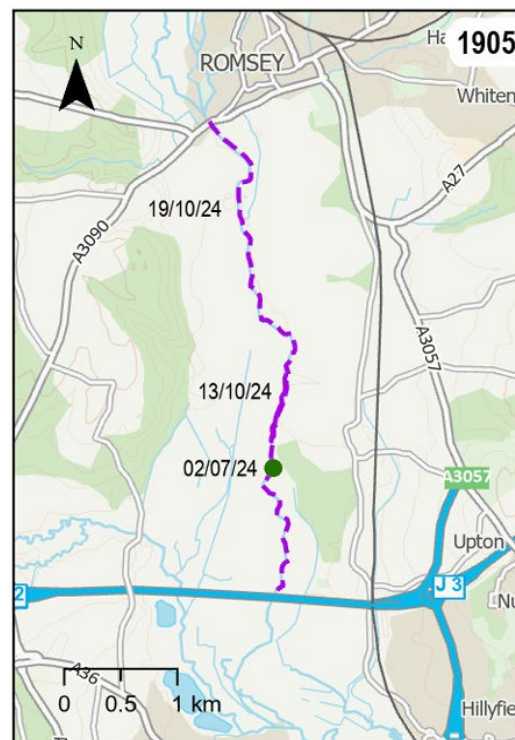
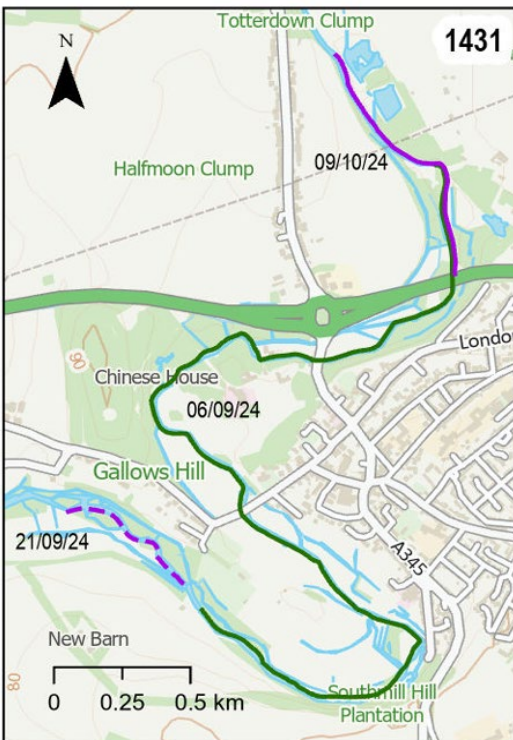
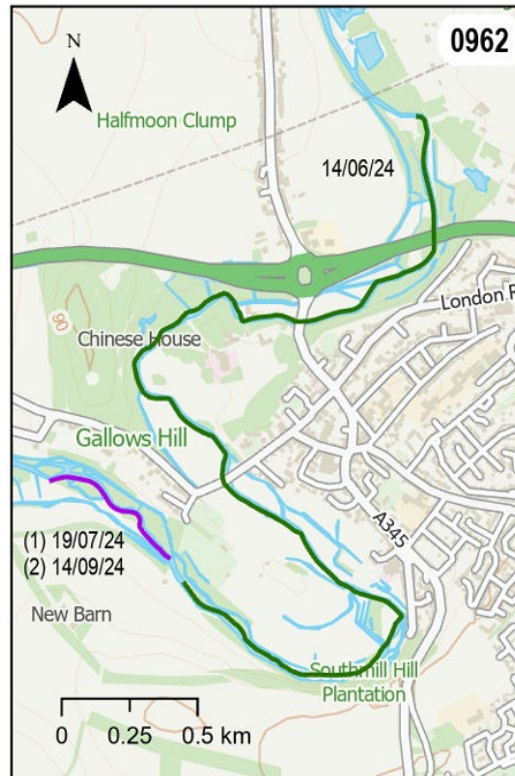
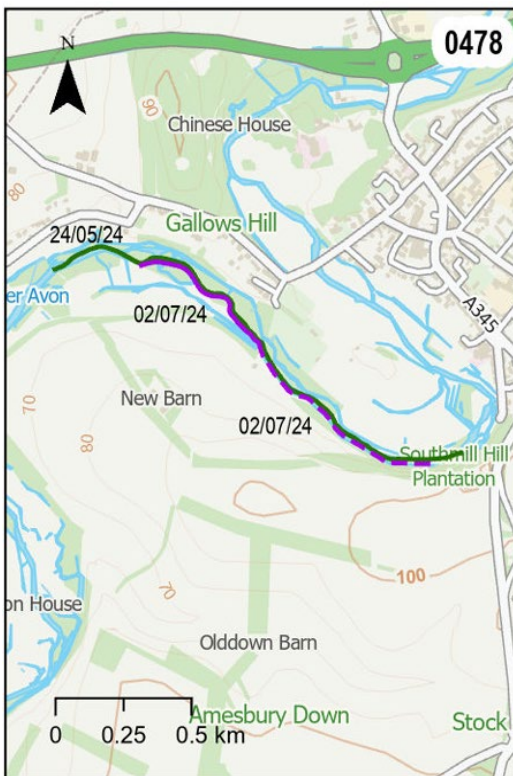
Appendix Three

Release, first recapture and second locations for all tagged trout recaptured on two occasions. Recaptures are from the River Avon (0478, 0931, 0962, 1431, 0849) and the River Test (0117, 1905). Where exact release or recapture positions were unknown, a line illustrates the stretch of river within which the event occurred. Maps created in ArcGIS Pro 3.3.2 using OS Outdoor Basemapping.

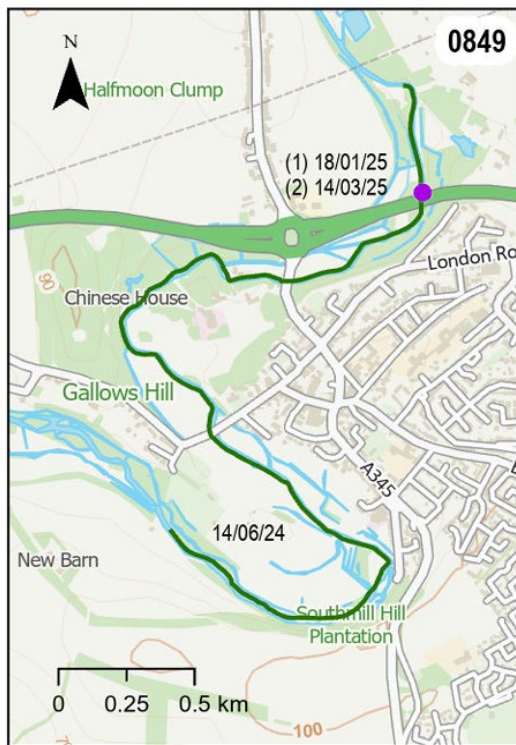
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● Release (exact location)
 ~ Release (within range)
 ~ Recapture (within range)
 ~ Additional Recapture



● Release (exact location) 2 Release (within range) 2 Recapture (within range) 2 Additional Recapture



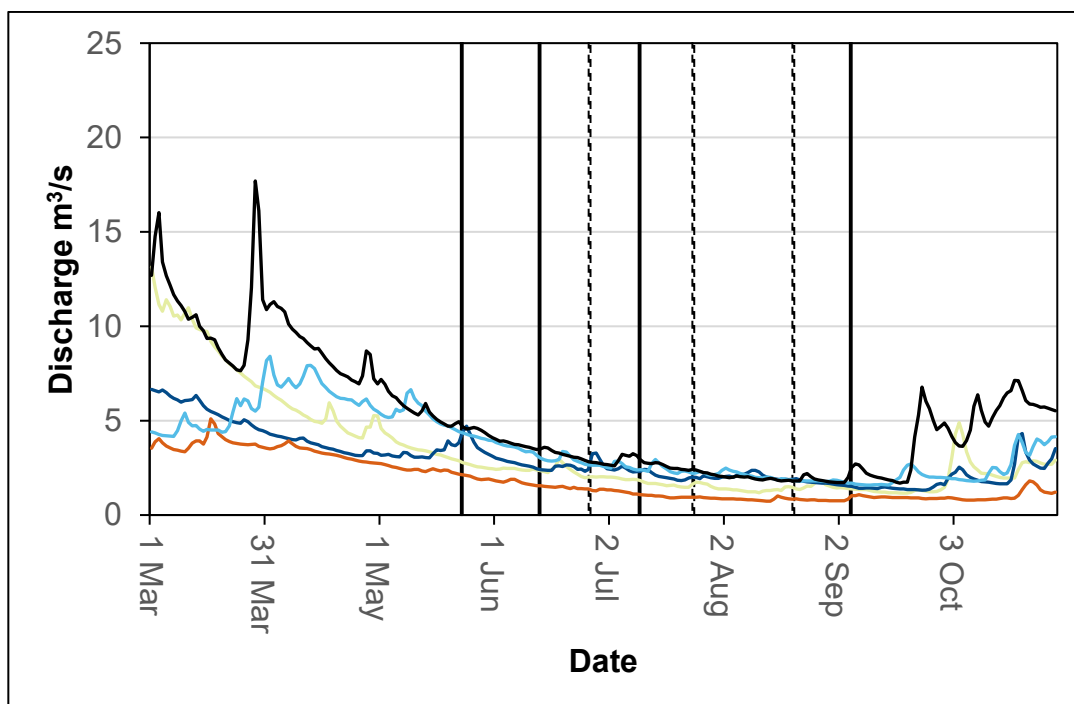
Appendix Four

River discharge data for 2024 and previous seasons were taken from flow gauging stations at a) Amesbury (River Avon, SU 15109 41387), b) Wilton (River Nadder, SU 09725 30794), c) Fullerton Main (River Anton, SU 37898 39256) and d) Testwood (River Test, SU 35430 15248) (Department for Environment, Food and Rural Affairs, 2026). The Testwood gauging station does not gauge the total Test flow as it is bypassed by the Little River Test. It is used here as an index of flow, to compare discharge between years.

In early spring 2024 discharge on the Rivers Avon, Nadder, Test and Anton were generally higher than in immediately preceding years (Figure A7).

In the River Avon and River Nadder, discharges on the dates when Floy tagged trout were released were very similar to 2023 and not greatly elevated above levels in 2022, 2021 or 2020 (Figure A7 a and b). For the River Anton, discharge in July was generally higher than in previous years, but comparable to 2023 for August and September (Figure A7 c). Discharges for the Anton are notably lower than for the Avon, Wylfe or Test. For the River Test, discharge on the first release date was 3m³/s to 7m³/s higher than in preceding years, becoming more comparable to preceding years as the season progressed (Figure A7 d).

a) River Avon



b) River Nadder

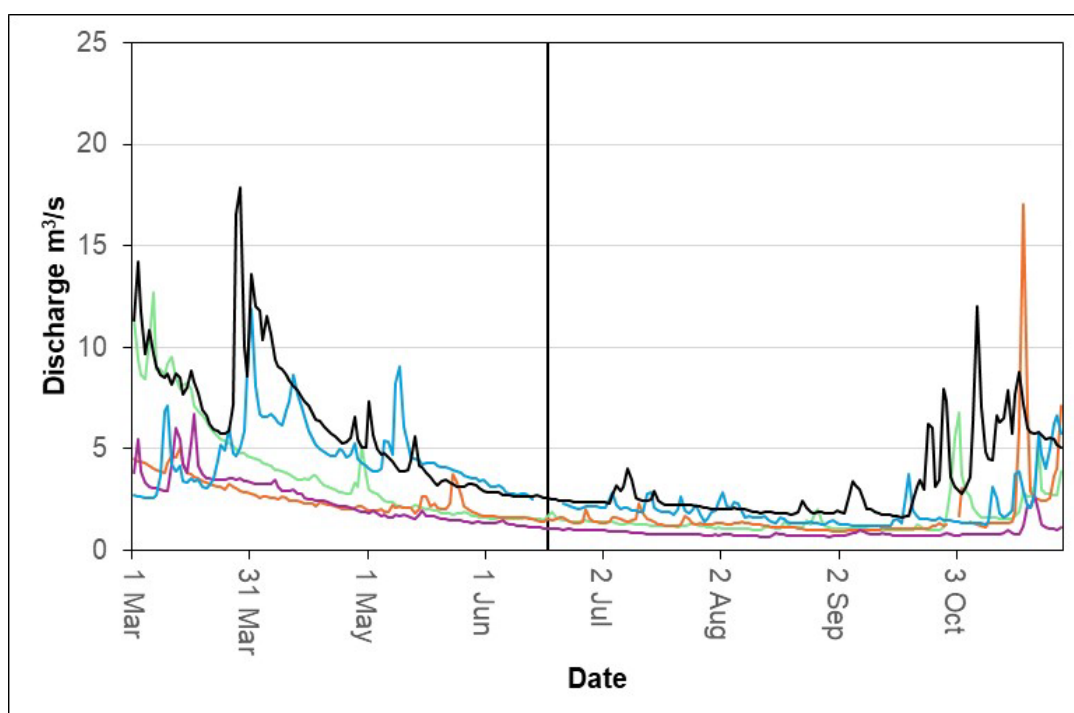
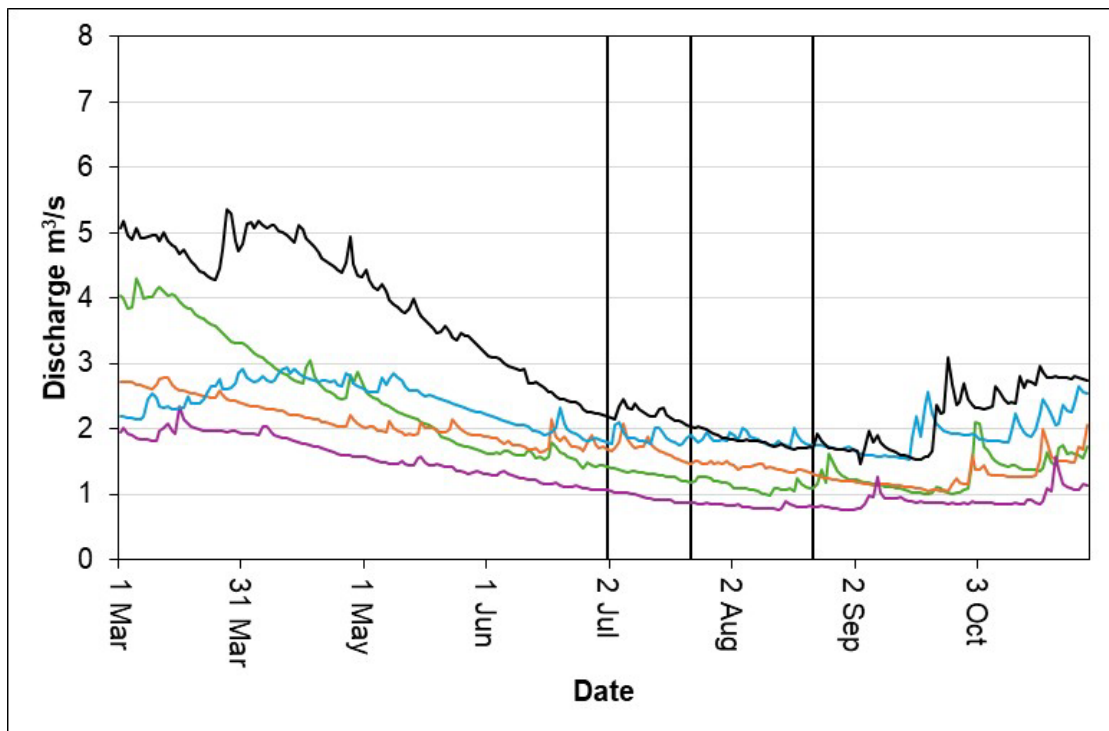


Figure A7 Discharge (m^3/s) from March to October (inclusive) for the Rivers Avon, Nadder, Anton and Test in 2020 (—), 2021 (—), 2022 (—), 2023 (—) and 2024 (—). Dates of releases of Floy tagged trout by partner fisheries are marked by vertical lines. SADAC releases and Piscatorial Society releases for the River Avon are shown by solid and dashed vertical lines, respectively.

c) River Anton



d) River Test

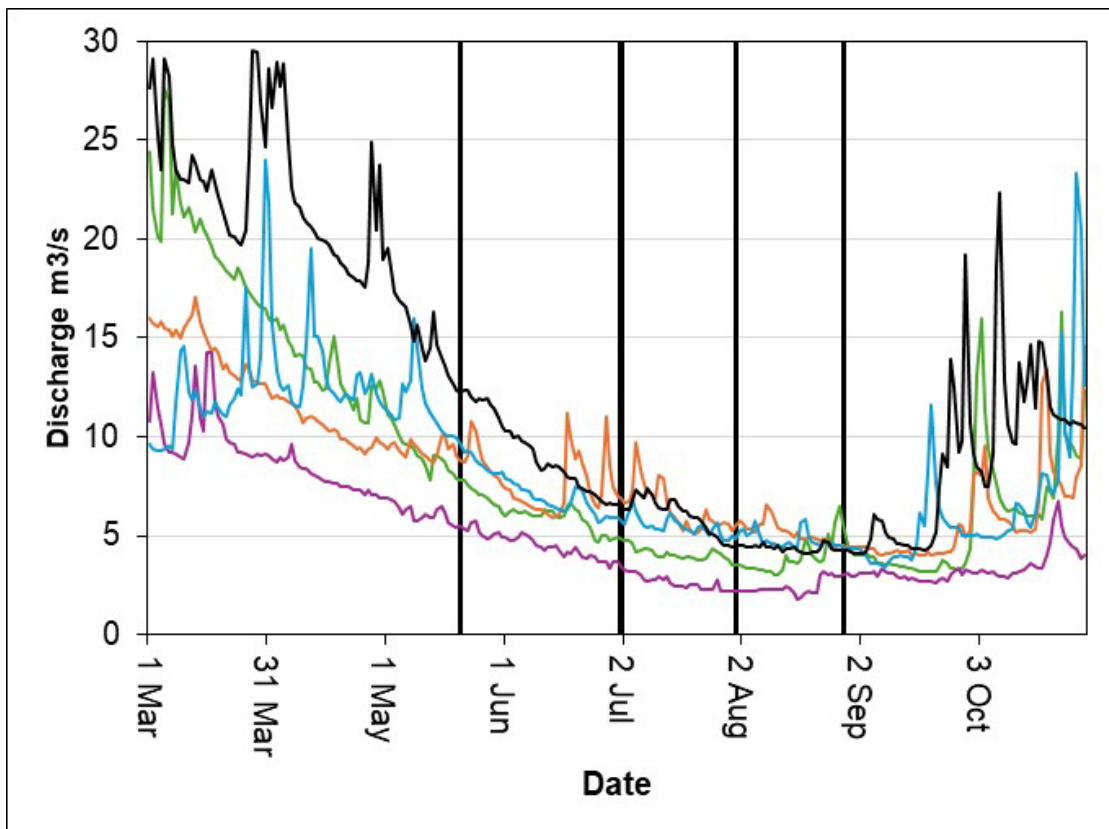


Figure A7 continued

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