

# Wild River Dart Action Plan 2025-30



**River Dart**  
Catchment Partnership

*CONSULTATION DRAFT*

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[www.riverdart.org](http://www.riverdart.org)

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**NB:** the maps included in this document are all downloadable from the River Dart Catchment Partnership website, for closer scrutiny.

**NBB:** funding sources and policies are rapidly changing; these are correct at time of publication.

# 1. Executive Summary

The River Dart is one of Devon's best-known and most visited rivers. Its catchment covers 475km<sup>2</sup>, including over a quarter of Dartmoor National Park, and features an array of internationally important habitats including blanket bog, peat mires, oak woodland and estuary mudflats together with protected species including the Atlantic salmon and greater horseshoe bat. Around 80,000 people live in the catchment and 1.4m people visit each year to enjoy the varied landscape, in the process supporting a large proportion of the area's economy. However, these population and recreation pressures, together with climate change and agricultural intensification, are having significant and growing impacts on the catchment's habitats and species.

The River Dart's ecological health is the key driver for this Action Plan, because of the need to respond to the wider ecological crisis and because of the decline of local keystone species including Atlantic salmon. It is titled the **Wild River Dart Action Plan** because we need to provide more space for wildlife, and look after our existing wild places better, if the river is to recover.

This Action Plan has been developed by the **River Dart Catchment Partnership** which brings together a host of organisations concerned with the state of the River Dart and provides a framework for collaboration. The Partnership's vision is to achieve:

“A resilient River Dart that is in excellent ecological health, supporting increasing wildlife, better quality of life for people and communities and a sustainable local economy.”

The River Dart is one of Devon's better rivers, relatively speaking, with 9 out of 20 water bodies in the catchment achieving Good ecological status in the Environment Agency's 2022 assessment under the Water Environment Regulations. It also retains a relatively natural geomorphology (ie river process and form) and for this reason it has good prospects for being able to return to a much more natural condition. However, it is currently one of the South West's and the country's worst-performing rivers for Atlantic salmon which indicates a significant decline in river ecology.

This Plan reviews the issues that are putting pressure on the river's ecology and then recommends a coordinated programme of priority actions under the following headings:

- Improving and creating habitats
- Fish recovery
- Waste water management
- Water resource management
- Flood risk management
- Farming
- Engaging and empowering people
- Monitoring
- Research
- Partnership

The actions identified are meant to complement existing activities and fill in gaps where they exist, rather than replacing any existing programmes. The intention is to use this Action Plan to develop relevant projects and secure funding for them as the key next step.

## 2. Background

### 2.1 Context

The River Dart is one of Devon’s highest profile rivers, attracting exceptional interest and attention. High levels of recreational use, many conservation designations, its history as one of Devon’s best salmon rivers and its significant estuary have kept it under the spotlight for many decades. Many different organisations and individuals have done excellent work over this time to conserve and improve the river for both wildlife and people, but often in sporadic or isolated circumstances, rather than as part of a strategic plan, and the condition of the river continues to be of concern. This is the impetus for the creation of the Wild River Dart Action Plan.

A previous Dart Catchment Action Plan, led by Devon Wildlife Trust (DWT) and published in 2004, was project-funded and had a relatively short lifespan. However, it laid many useful foundations and the issues, principles and recommendations made in that plan are still largely relevant today. None more so than its core rationale; “that it is no longer enough just to protect important wildlife sites or specific habitats; conservation requires the integrated management of land, water and living resources, which can only be effectively applied at a catchment-wide level”<sup>1</sup>.

The catchment-based approach taken 20 years ago by DWT is now widespread and as a result a network of Catchment Partnerships now cover all of England’s rivers, coordinated by the Environment Agency. The South Devon Catchment Partnership is the relevant partnership for the River Dart catchment and provides the context for this plan.



*Figure 1. Saltmarsh alongside the estuary*



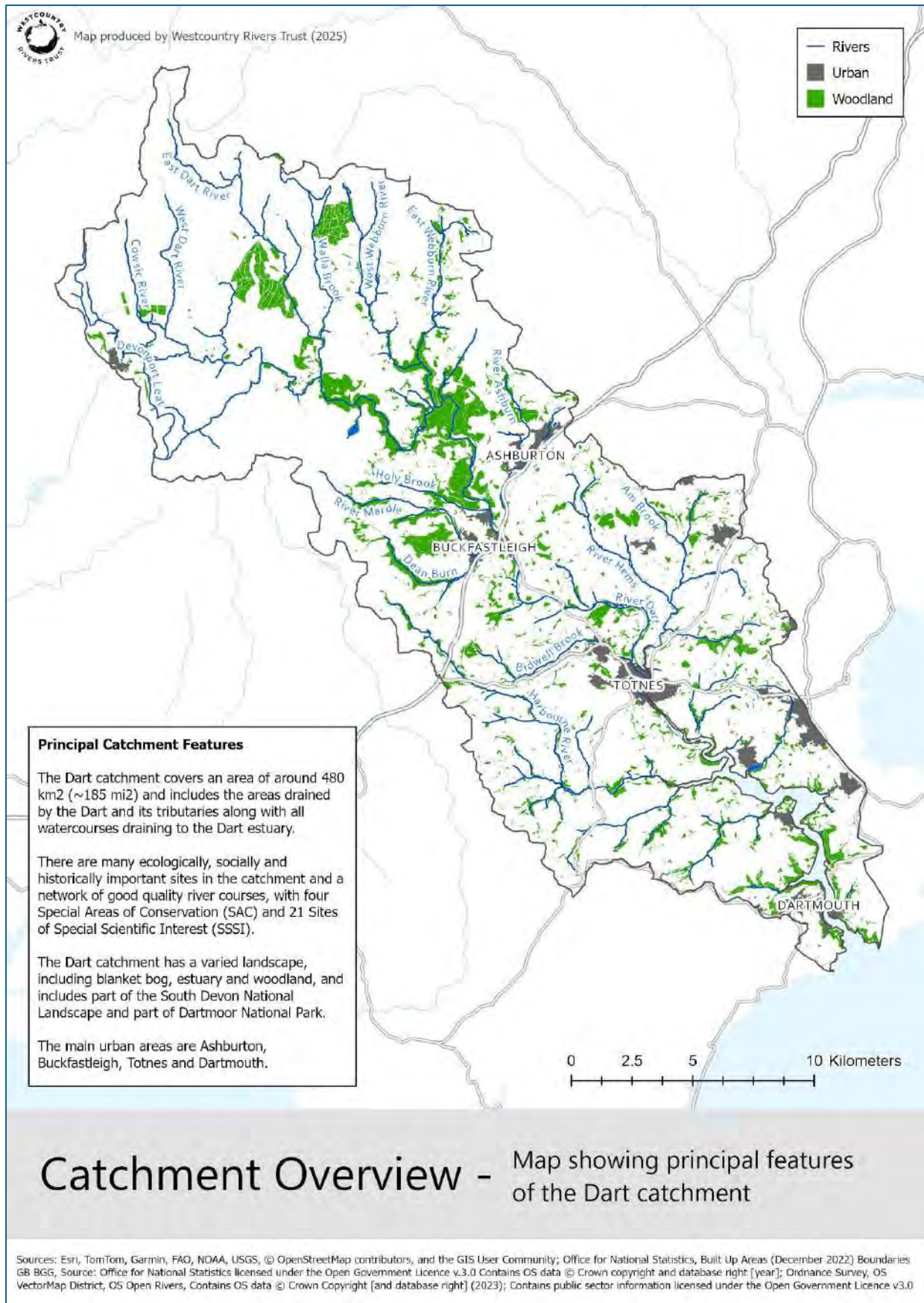


Figure 2. Catchment overview map

## 2.2 How this plan was created

The initial work to develop this Action Plan was funded by the Environment Agency through its Species Recovery Fund. The South Devon National Landscape was the commissioning partner and project enabler. This commission, undertaken in late 2023- early 2024, resulted in the

publication of “Towards a River Dart Catchment Action Plan” in April 2024.



The document was titled “Towards...” because the time and resources available for its creation were not sufficient to enable the level of engagement and feedback that a fully-fledged action plan requires. The document aims to set out the key issues affecting the river, draws conclusions about overall priorities and sets out a process for developing the full Action Plan.

During 2024 a further round of Action Plan development and consultation was commissioned, based on the “Towards” report, to get further feedback on the initial findings and produce a draft Action Plan for wider consultation. This work was funded by the Environment

Agency’s Water Environment Improvement Fund (WEIF), the South Devon National Landscape, Riverford Organic Farmers Ltd, and the Sharpham Trust (the latter through in-kind contributions). The project is hosted by the Sharpham Trust.

A key recommendation of the “Towards” report was the formation of a River Dart Catchment Partnership to provide an umbrella for stakeholder collaboration. This has been established and a Steering Group is now coordinating activities on behalf of the Partnership, supported by the funding package described above. Its makeup is as follows:

### The Steering Group

- Sharpham Trust
- Environment Agency
- Dartmoor National Park Authority
- South Devon National Landscape
- South West Water
- Westcountry Rivers Trust
- Duchy of Cornwall
- Dart Harbour Authority
- Friends of the Dart
- Ambios Ltd

The overall **River Dart Catchment Partnership** includes:

- Marine Management Organisation
- South Hams District Council
- Buglife
- Natural England
- National Trust
- Devon Wildlife Trust
- Bidwell Brook Partnership
- Forestry Commission
- RSPB
- Dart Fisheries and Conservation Association
- Dart Angling Association
- Bioregional Learning Centre
- University of Plymouth
- South West Peatland Partnership
- Riverford Organic Farmers Ltd
- Dartmoor Hill Farming Project
- Plymouth and South Devon Community Forest
- Central Dartmoor Landscape Recovery Scheme

A meeting of the Partnership was held in October 2024 to get feedback on the “Towards” report and fill in some knowledge gaps. A meeting, hosted by Riverford Organic Farmers Ltd, was then held in November 2024 with farmers and landowners from across the catchment, to get input from this important group of stakeholders. Both events were well attended and the information gathered has informed this Action Plan. Alongside this further evidence has been gathered from:

- the South West Peatland Partnership
- the Central Dartmoor Landscape Recovery Scheme
- the Riverfly Survey Coordinator for the Dart
- the Friends of the Dart (results of recent investigations into water quality)
- Dart Angling Association (supplying a PhD thesis researching the impact of pH levels on salmon in the Dart)
- the CEFAS report “Salmon Stocks and Fisheries in England and Wales in 2023”
- a report commissioned by the Catchment Partnership into the key drivers of salmon mortality in the Dart (report produced by Stantec)

This draft Action Plan is now published for wider public consultation.

## 2.3 Scope

This is a plan for water. Water falls on the whole land area of the catchment and is at the heart of all ecosystems. Many, perhaps most, human activities affect its quality and quantity as it flows to and through our watercourses and ultimately reaches the sea. The plan considers those activities so far as they have an impact on water, but it doesn’t attempt to address every impact on the natural world in the catchment. That would be a huge task that is (or will be) addressed through other strategies (amongst them the Devon Carbon Plan and the emerging Devon Local



Nature Recovery Strategy). Drawing the scope too wide would also risk diluting the effectiveness of the plan in improving the state of the River Dart itself.

The plan includes the whole hydrological catchment of the Dart and the Dart Estuary, down to the open sea at the mouth of the Dart, recognising that this is a single, dynamic system. It does not extend into the wider marine environment beyond the estuary.

It does consider the impacts of wider connections, some of them specific (like the extraction of water into - and resupply from - other catchments), some of them social (like the impact of tourism and neighbouring urban populations) and some of them regional or global (like the historic impacts of acid rain, and very current impacts of climate change).

## 2.4 Existing projects, programmes and strategies

The “Towards” report included a review of current activities and projects operating in the catchment that have an impact on the river. This generated an extensive list of organisations and groups, which are captured in a spreadsheet and included in [Appendix A](#) of this report. They are also mapped on the River Dart Catchment Partnership website.

The 2024 report also included a review of the strategic context for the Dart Action Plan; this too is included ([Appendix B](#)).

## 3. Vision, Mission and Principles

**Our Vision** is to achieve:

“A resilient River Dart that is in excellent ecological health, supporting increasing wildlife, better quality of life for people and communities and a sustainable local economy.”

**Our Mission** for 2025-30 is:

“To bring people together to deliver a coherent programme of actions that significantly improve the condition of the River Dart over the next five years.”

The **Principles** that guide our activities are:

- the river is a vitally important ecosystem that is under immense pressure; it needs urgent action to improve its condition and ensure its long-term protection
- our scope includes the whole catchment, from source to sea, via the estuary; and our focus is on actions across the catchment that will deliver our vision for the River Dart

- we need a holistic, partnership-based, catchment-scale approach to address the multiple challenges faced by the river
- we need a dynamic and adaptive plan that embeds monitoring and evaluation and is responsive to rapidly-changing pressures and emerging opportunities
- the national and global issues of biodiversity loss and climate change are being felt on the River Dart and are primary drivers of our work
- the highest possible standards of water quality should be achieved and maintained for wildlife and for people.

## 4. Key Issues

Rivers are particularly complex systems where issues tend to be inter-related and multi-faceted. The issues described below are therefore not isolated and key interdependencies are highlighted throughout.

The highlighted issues are:

- [improving and creating habitats](#)
- [fish recovery](#)
- [water quality](#)
- [water resources](#)
- [flooding](#)
- [farming](#)
- [engaging people and communities](#)
- [monitoring and research](#)
- [partnerships](#)

### 4.1 Improving and creating habitats

This section reviews the condition and current actions for recovery of key river-related habitats in the Dart catchment.

The map below shows landcover across the catchment, indicating that the bulk of semi-natural habitats lie in upland, riverside and coastal settings. The majority of the rest of the catchment is arable or improved grassland.

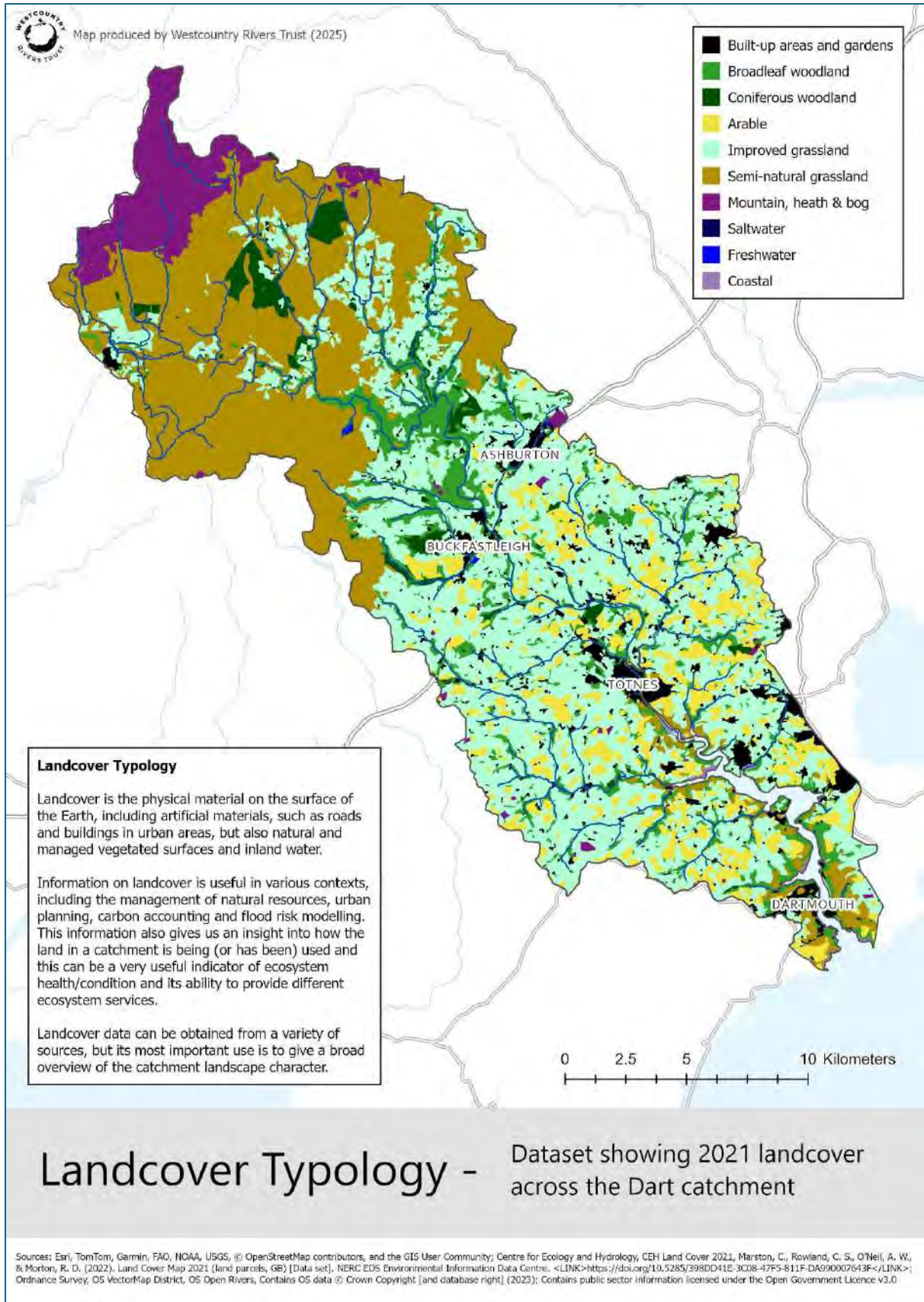


Figure 3. Dart catchment landcover map



The map below shows the location of Priority Habitats; all Ancient Woodlands are also Priority Habitats.

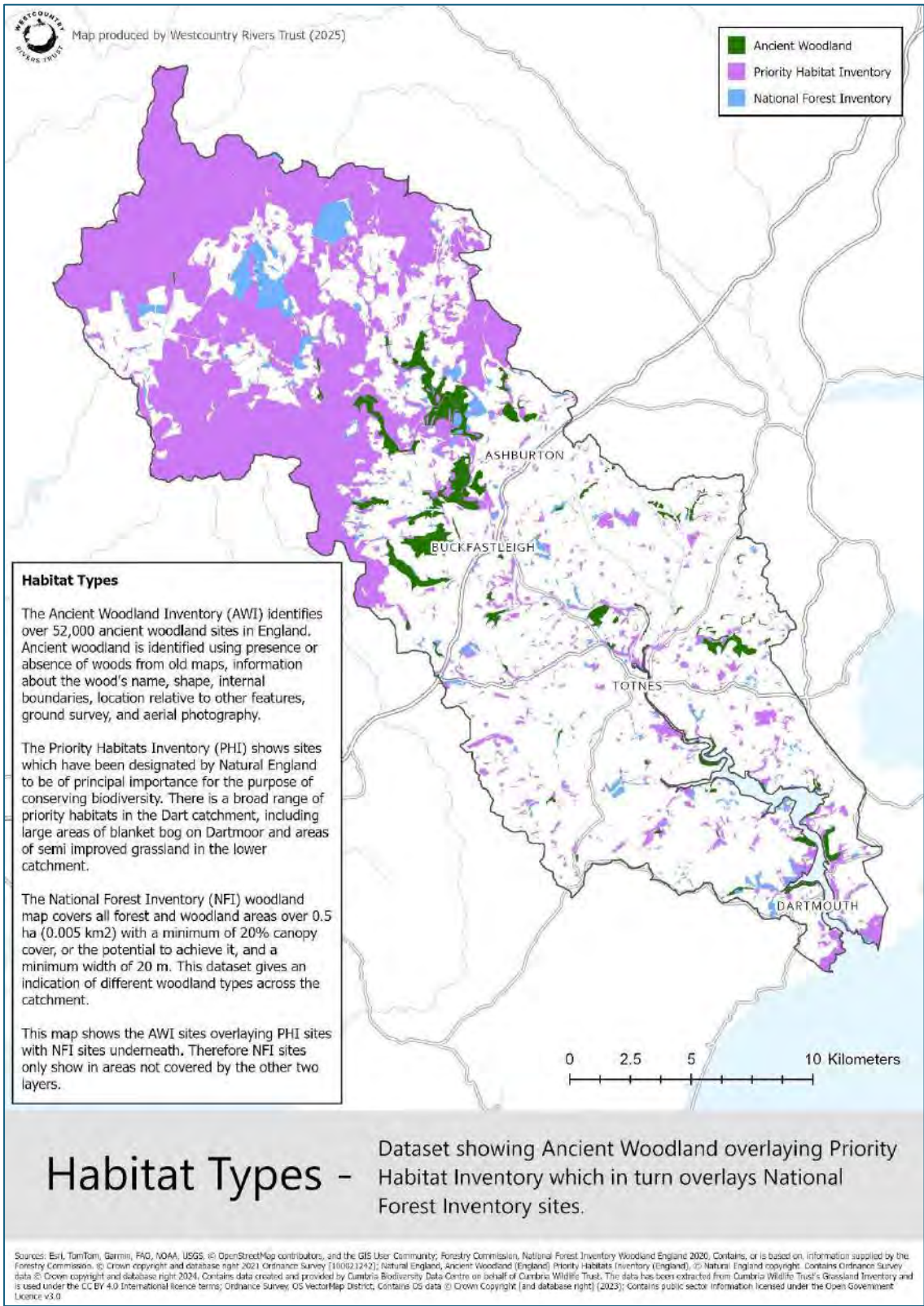


Figure 4. Habitat types map



### 4.1.1 Moorland

The Dart rises on the open moor of Dartmoor and this open moor habitat, along with upland farms, accounts for a significant proportion of the catchment. Much of this area is owned by the Duchy of Cornwall, consisting of a mixture of common land and tenanted land. Large areas of Dartmoor are designated as a Site of Special Scientific Interest (SSSI) and a Special Area of Conservation (SAC) because of their extensive areas of blanket bog, mixed valley mire and unimproved acidic grassland/heathland mosaic. A full description of the wildlife associated with these habitats and their importance can be found on the [DNPA website](#).

The [South West Peatland Partnership](#) has been delivering a significant programme of work since 2010 to restore ecohydrological function to the blanket bogs and mires of Dartmoor. This programme, which has multiple benefits for nature and people including improving water

quality, reducing flood risk and restoring moorland habitats, is ongoing and remains one of the largest interventions in the catchment. The SWPP is working to understand the ongoing impacts from erosion and leaching there might be from the tin streaming remains on the moor.

However, no funding has been secured for continued work by the SWPP in the Dart catchment in the period 2025-30. The project team has identified a potential 1490ha of targeted peatland restoration in the Upper Dart and Cherry Brook area that would cost at least £18m to deliver. An example of their analysis is shown here.

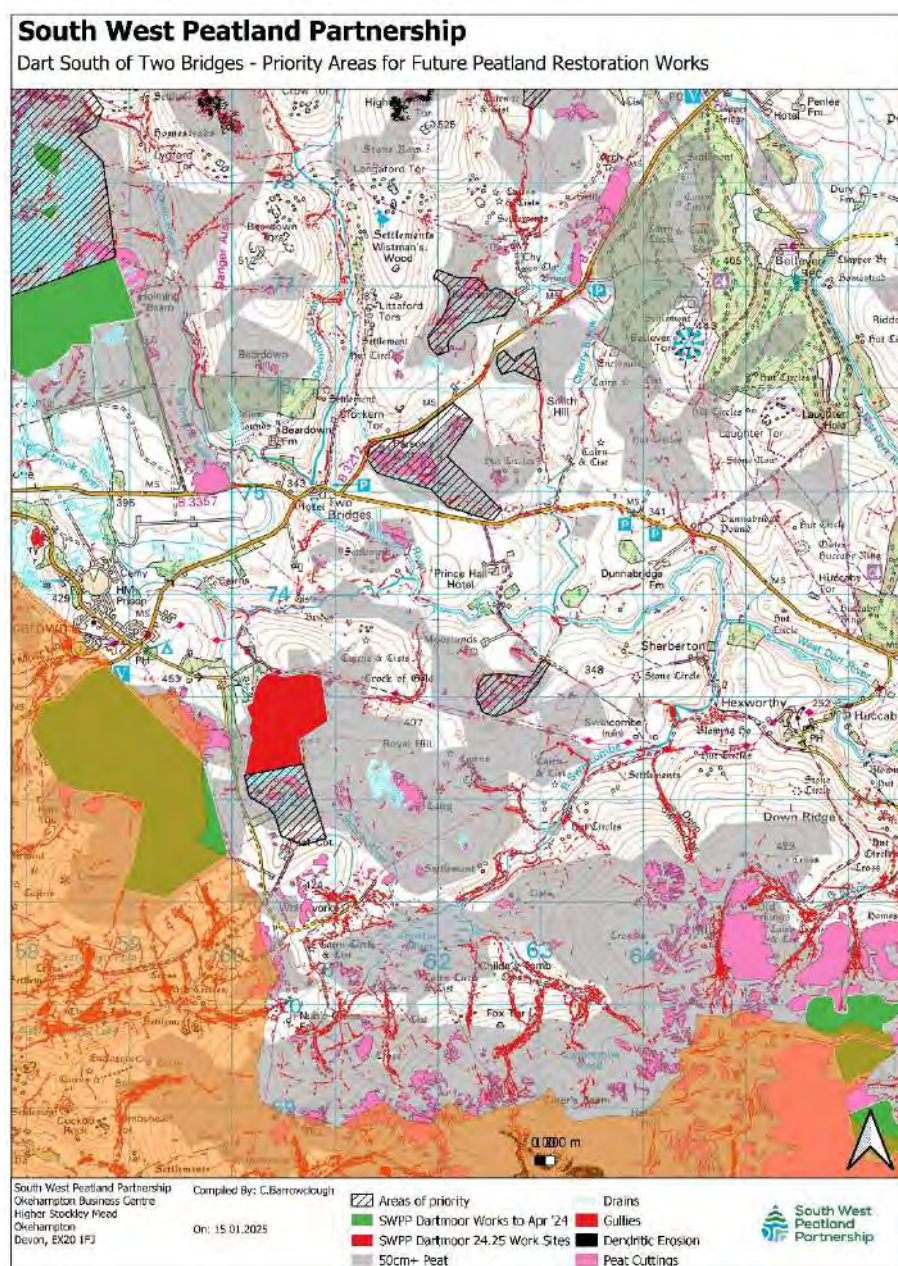


Figure 5. SWPP restoration targeting map



The issues facing Dartmoor’s moorlands have recently been extensively reviewed in the *Independent Evidence Review of Protected Site Management on Dartmoor*<sup>ii</sup> and, although only a relatively small part of the upland area of the Dart falls into the “protected site” category, the issues are relevant to the whole of the moor. The report has been generally well-received and identifies some of the key issues as:

- The loss of peat through erosion and drying out caused by historic drainage schemes. Only 1% of Dartmoor’s peatlands are thought to be in good condition.
- The decline in quality of moorland habitats which are being overtaken by *Molinia* (purple moor grass); this was been driven originally by over-grazing in areas and subsequently by under-grazing in others, together with nitrogen deposition and the drying out of peat bogs caused by historic drainage and climate change. Gorse and bracken are also spreading, and localised over-grazing of heather is occurring.
- Upland farming is typically not profitable and normally requires public subsidy to continue, especially with the need for highly targeted management to overcome the problems described above. Recent changes in subsidies and uncertainties about replacement schemes have led to much concern in the agricultural community.

A [Central Dartmoor Landscape Recovery Scheme](#) is being developed by the Central Dartmoor Farm Cluster, in alliance with the Duchy of Cornwall and Dartmoor National Park Authority. Much of the scheme’s area falls within the Dart catchment and its aim, to “deliver Nature enhancement at a landscape scale, underpinned by the restoration of dynamic natural processes”, is entirely compatible with this Action Plan; indeed, it will be one of the main planks in its delivery.



Figure 6. Peat drainage dams creating new pools

It is also notable that **curlew** numbers on Dartmoor have declined by 85% since 1985 with loss of nesting and feeding habitat and nest predation being significant causes. Other wetland birds affected include snipe and lapwing.

Dartmoor is also a key location for the highly threatened **marsh fritillary** butterfly which needs an extensive network of wet grasslands to survive.

#### 4.1.2 Trees and Woodland

The Dart takes its name from a Celtic word meaning “many oaks”. Substantial areas of upland oak woodland are located in the National Park, many being designated as SSSI/SAC and with several key locations in the ownership of the National Trust, Devon Wildlife Trust, Dartmoor National Park Authority and the Duchy of Cornwall. These woodlands are classified as temperate rainforest, a globally threatened habitat, and these landowners, under the umbrella of the South West Rainforest Alliance, are working to improve and expand their rainforest sites as well as promote awareness of this habitat’s importance and conservation needs.



Figure 7. Upper Dart with woodlands

In the lower catchment, woodland is more fragmented in the landscape until the estuary area is reached, where larger blocks of ancient semi-natural woodland (ASNW) survive adjacent to the river, several in the ownership of conservation organisations. Throughout the catchment conifer plantations are a feature, many being plantations on former ancient woodland sites (PAWS).

Woodlands are home to many species of wildlife but their key role in terms of this plan is their contribution to the water cycle, since they hold water in their humus-rich soils, which helps reduce flood and drought risks. They can also help to improve water quality by capturing pollutants before they reach the watercourse. Conifer plantations also provide these functions to an extent although,

as noted above, they can contribute

to acid conditions and are also liable to trigger soil erosion when harvesting takes place.

The Forestry Commission aims to achieve 16.5% woodland cover across England by 2030 and the Devon Tree and Woodland Strategy (2024) adopts this target, whilst identifying the South Hams as currently having 13% cover. The Commission has established a Devon Woodland Creation Working Group which is supporting advisors to engage with landowners wishing to

plant trees and help access funding from the England Woodland Creation Offer. Funding is also available from the Plymouth and South Devon Community Forest.

Priorities identified for existing and new woodlands are:

- Improving management of existing ASNWs with key interventions being to secure appropriate levels of grazing and remove invasive species.
- Expanding and connecting ASNWs and other blocks of woodland to create a strong network throughout the catchment, which can enable the dispersal and population growth of woodland species.
- Planting broadleaved woodlands adjacent to, or to replace, conifer plantations to buffer acidic run-off.
- Targeting new woodland creation not only to secure nature recovery but also to gain water quality and quantity benefits. The Forestry Commission is keen to help facilitate this work in the Dart catchment.
- Ensuring that a complex mosaic of habitats is given space to become established, rather than a blanket woodland creation approach. This was identified as an issue around the Dart estuary and also for upland woodland creation.
- The Dart Valley between Totnes and Buckfastleigh is a gap between the South Devon National Landscape and Dartmoor National Park and has come under considerable development pressure. There is a need to strengthen the network of woodland and parkland here to improve nature connectivity, with Greater Horseshoe Bat flypaths and migratory birds being a specific concern.
- Capitalising on the growing potential of agro-forestry to add more trees to the landscape whilst enabling food production to continue alongside. This includes modern silvo-pasture approaches as well as re-planting and restoring traditional orchards.

#### 4.1.3 Wetlands and riparian habitats

There is not a great amount of data on the extent and condition of wetland and riparian habitats in the catchment, below the blanket bogs and fens of the upper catchment. Existing wetlands have an important role to play in the recovery of the River Dart as they provide foundation populations for colonisation of new wetland habitats that are created, so their good management and protection are crucial. Identifying these habitats and providing support and guidance to their owners is essential.

Wetlands and other natural habitats in the riparian zone are also critical in helping reduce the impacts on the river of pollutants that may be carried in run-off from surrounding land. Reedbeds, ponds and lakes, scrubby grassland and woodland in the riparian zone / floodplain provide absorbent habitats where many pollutants can settle out and some can be subjected to microbial action.

In common with many Devon rivers, invasive species are impacting on the condition of wetland and riparian habitats. Himalayan balsam and skunk cabbage are known to be present, both of these having the effect of outcompeting local wetland species and destabilising river-banks.



#### 4.1.4 Estuary habitats

The Dart estuary, from Totnes down to Dittisham, is designated as a Marine Conservation Zone (MCZ) and covers approximately 5 km<sup>2</sup>. The protected features of the MCZ are:

- Coastal saltmarshes and saline reedbeds
- Estuarine rocky habitats – rocky shores and estuary bed
- Intertidal mud - mudflats
- Low energy intertidal rock
- Tentacled lagoon-worm (*Alkmaria romijni*)

The following description is taken from the DEFRA factsheet about the MCZ (available [here](#), together with maps of its features):

“The Dart Estuary MCZ supports a diverse array of habitats and species, including a number of rare species. Estuaries are important contributors to a healthy environment and have an important role as a nursery ground for juvenile fish. Large areas of the site consist of intertidal mud, which is a highly productive habitat and provides feeding and resting grounds for wading and migratory birds. This is also an important habitat for the nationally scarce tentacled lagoon worm. This is a tiny bristleworm which grows up to 5 mm in length and creates and lives in tubes within the mud habitats of the estuary. These worms have tentacles around their mouths used for gathering food from the surrounding muddy sediments. The tentacled lagoon worm is particularly vulnerable to activities that cause changes in its habitat.

The north of the site contains areas of coastal saltmarshes and reed beds. These provide a refuge for wading birds during high tide and storms and are home to a wide variety of worms, molluscs and crustaceans living in the damp environment between the vegetation.

Estuarine rocky habitats form in flooded river valleys or ‘rias’, such as the Dart, and provide a hard surface for animals and seaweeds to attach to in areas dominated by sandy and muddy environments. The seaweed species that attach themselves to the rocks form foraging areas for crustaceans (such as crabs) and birds at low tide as well as foraging areas and a refuge for juvenile fish at high tide”.

The Environment Agency’s WFD ecological classification for the estuary, which is designated as a Heavily Modified Water Body (HMWB) is Moderate, with failures for flowering plants and saltmarsh, fish and dissolved inorganic nitrogen. Issues identified by stakeholders for the estuary are:

- Sea-level rise, that threatens fringe habitats like saltmarsh, unless space can be created inland for their expansion.
- Disturbance to wildlife caused by recreation pressures. However, the narrowness of the estuary means that creating quiet spaces for wildlife is difficult.
- Water quality impacts, mainly generated in the wider catchment, which all funnel down into the estuary. Local impacts come from watercraft pumping out their wastewater tanks into the estuary, there being no onshore facilities available (although plans are in place to address this).
- Pacific oyster farms are present in the estuary, but the licences for their operation are being removed. Some wild colonies are believed to have become established outside these farms, but the problem has not yet reached an unmanageable level.

- The carpet sea squirt is another non-native invasive species present in the estuary that needs to be monitored and controlled if necessary.

[The Saltmarsh Project](#) has surveyed surviving saltmarsh areas, drawn up action plans for their protection and recovery, and is now beginning to implement these.

There are also important reedbeds present in the estuary, that need protection and improved management.

The Dart Harbour Authority is taking action to create quiet areas on the estuary where mooring is not allowed; and to install pump-out facilities for wastewater from craft.

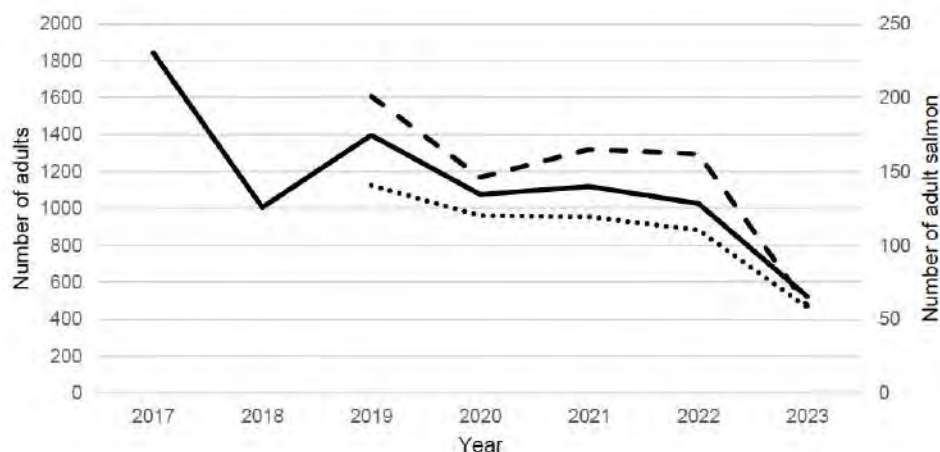
## 4.2 Fish recovery

This section reviews the status of the Atlantic salmon and other fish species.

There is a very real risk that the **Atlantic salmon**, once breeding in the Dart in huge numbers, could become functionally extinct in the river in the next few years. In 2024 the River Dart Catchment Partnership commissioned Stantec to review “The state of Dart salmon and likely reasons for decline”. This report recorded that “adult salmon numbers are at a record low in the Dart catchment and the Dart catchment performs particularly poorly compared to other catchments in the Southwest”. In 2022 the Dart was amongst the worst-performing of 64 Principal Salmon Rivers in England and Wales, achieving only 1% of its target Conservation Limit (CL) for salmon<sup>iii</sup>. 2023 did see an improvement in the Dart, with 18% of its CL achieved<sup>iv</sup>. By contrast, the neighbouring River Teign achieved 41% of its CL in 2023 and 51% in 2022 (NB: this still means the Teign is “at risk”).

In 2022 the fish counter at Totnes Weir recorded 161 fish of a size likely to be salmon migrating upstream, which was very poor but potentially understandable in a severe drought year; however, the decline was seen to continue in 2023 with only 59 salmon recorded despite conditions being suitable for migration for much of the year.





Upstream adult migrating salmonids (solid black line) separated by estimated sea trout (dotted) and Atlantic salmon (dashed), note the Atlantic salmon numbers are on the secondary axis. Data from the FishTek reports on the Totnes resistivity counter.

Figure 8. Graph of Fishtek counter results

The graph below shows trends of salmonid species travelling upstream through the counter at Totnes weir (graph extracted from the Stantec report). The Atlantic salmon is one of the “qualifying features” of the Dartmoor Special Area of Conservation<sup>v</sup> and this provides a statutory lever for its conservation that affects the whole river, because the entire length of the River Dart is the pathway used by Salmon to reach their spawning grounds. In 2023 the Atlantic salmon was classified as “Endangered” in Great Britain by the International Union for the Conservation of Nature, based on a 30-50% decline in British populations since 2006 and a 50-80% decline projected between 2010-2025<sup>vi</sup>.

Some of the issues driving this decline lie beyond the River Dart, including climate change, pathogens and exploitation and survival at sea. More local issues on UK rivers often include land management influences on habitat and water quality, reduced river flows, increased water temperatures and barriers to fish passage.

Salmon have been the focus of conservation action for many years. The EA’s *River Dart Salmon Action Plan Consultation Document* (2003)<sup>vii</sup> details the decline in salmon numbers back to the 1960’s. The document cites (p.22) the most significant factors at that time limiting the population as:

- Reduced marine survival
- Exploitation in the high seas and Irish fisheries
- Siltation of spawning gravel
- Agricultural pollution
- Low flows due to abstractions

[NB: other factors no longer relevant not cited here]

The loss of salmon from the Dart would be tragic indeed but, other than a core group of stakeholders that includes angling groups, riparian owners and the Environment Agency, there is limited awareness of the dire prospects for this iconic fish species on the river. More people need to know about the risk of the loss of this locally-adapted population of salmon, and highlighting its decline would provide further support for conservation actions.

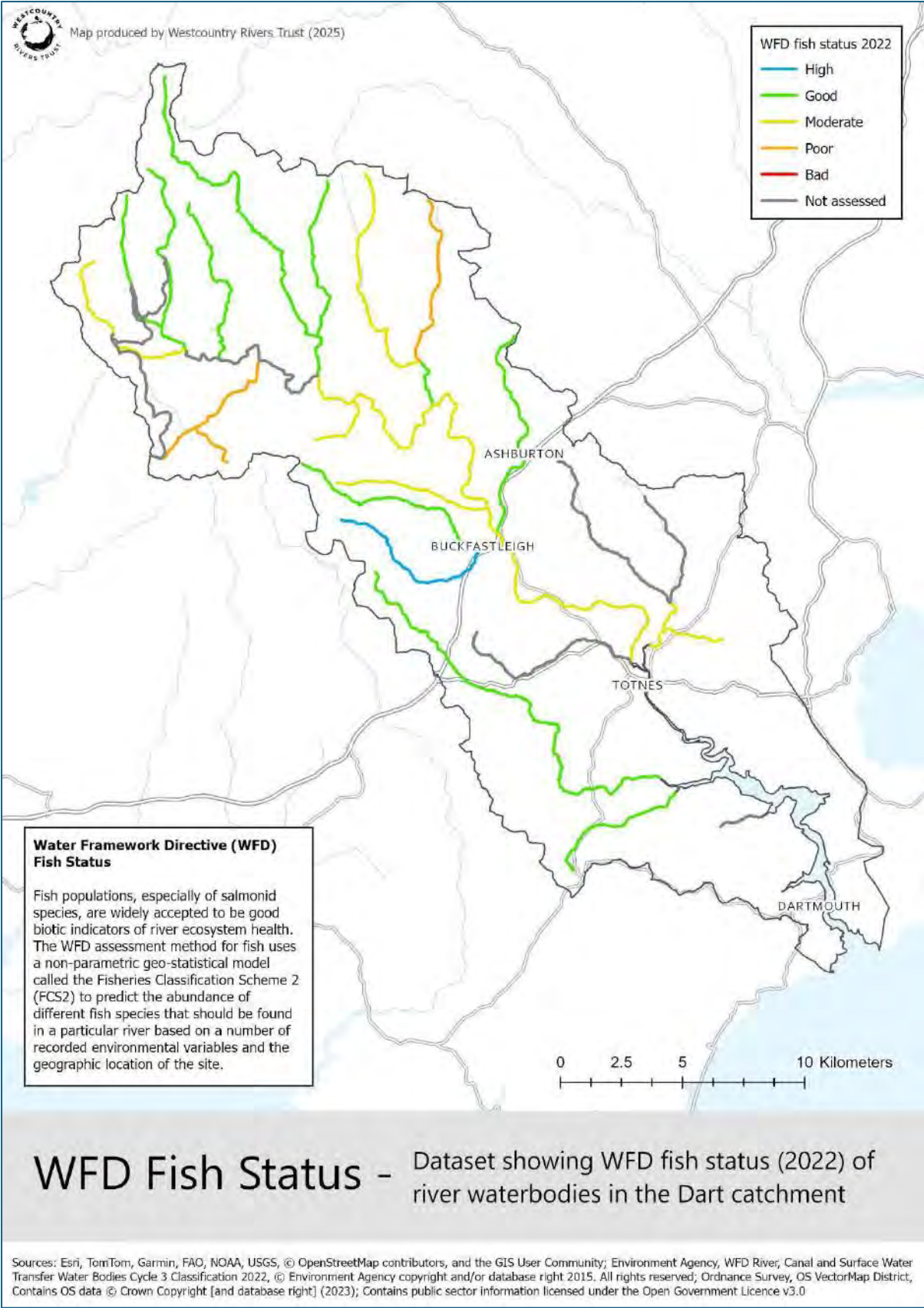


Figure 9. WFD fish status map

Of immediate interest is to understand the key drivers of declines within the Dart and the measures that can be applied to address these. Whilst global and regional drivers are undoubtedly affecting the salmon of the Dart, the Stantec report found that:

“the Dart’s poorer performance compared to other regional populations indicates that local river or marine conditions may also be contributing to mortality”.<sup>viii</sup>

Unfortunately, the Stantec report was not able to identify the priority issues driving this poor performance because of a lack of data. They did identify the need for further research to understand the specific connections between environmental data and biological data. Their conclusions on data gaps are provided in [Appendix C](#).

Whilst further research is certainly needed, the rapid rate of decline of salmon in the Dart mandates urgent action based on the precautionary principle: “Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation” (1992 Rio Declaration).

The reasons for the particularly steep decline in salmon populations on the Dart compared to other rivers are not fully understood but several specific circumstances have been suggested. These are considered below:

a) Low pH

Acidic conditions in the watercourse can mobilise aluminium in its most toxic, inorganic form, and this is known to affect salmon smolt development and their subsequent survival at sea<sup>ix</sup>. Acid rain falling on Dartmoor caused by sulphur dioxide emissions from industry has left a legacy of low pH levels, with levels as low as 4 recorded in streams in the Dart’s upper catchment at times. It is possible that the large area of moorland feeding the Dart (relative to other Dartmoor rivers) is the reason for the low pH levels recorded. Runoff from conifer plantations is also known to be acidic and will contribute to the problem, and the Dart has some large conifer areas in its upper catchment.

Research carried out in the period 2012-13<sup>x</sup> found that whilst sulphate levels in the Dart’s headwaters had gradually declined since the early 1990’s, acid conditions persisted, and nitrate levels were also relatively high. Nitrate deposition via air pollution is likely continuing but despite this, long-term trends are expected to see an increase in pH and as a result improved fish survival.

Another factor thought to cause high acidity in the headwaters is the drying-out of peat. When peat is dry it becomes aquaphobic and oxidises, which is likely to contribute to the spikes in very low pH in the headwaters. By restoring ecohydrological function of the peat through rewetting and upholding the water table in the peat mass (not just the blanket bogs) the frequency of this happening is reduced. The South West Peatland Partnership (SWPP) with the Centre for Resilience in Environment Water and Waste (CREWW) at the University of Exeter are investigating this and it would represent a sustainable way of reducing peaks of acidity in the headwaters.

An additional research PhD that the SWPP and CREWW will be starting soon is to understand what ongoing impacts there might be to the water quality and ecosystem



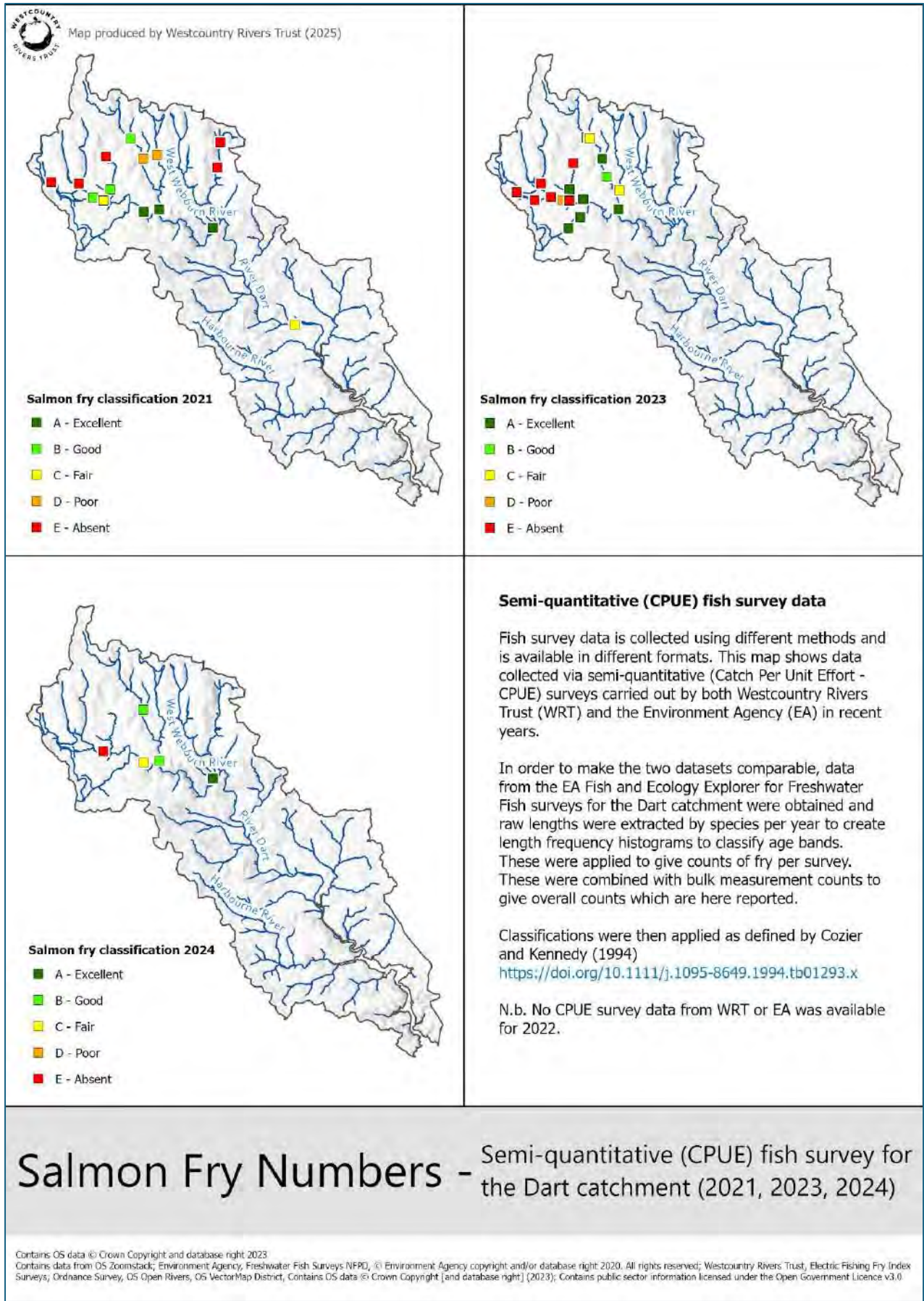


Figure 10. Salmon fry numbers 2021-24 maps

function in the river valleys where tin streaming occurred, that continue to impact on both the peat habitats, and the stream and watercourse integrity.

In the short to medium term, though, the threat of highly acid episodes on the development and future survival of salmon remains extreme and short-term emergency measures have been proposed. Artificially increasing the pH of the watercourse by adding limestone has been trialled by the Westcountry Rivers Trust (WRT) in the West Dart but there are concerns about the impact of this intervention on acid-loving plant species in the river and on the sustainability of the approach. Nonetheless, some consider that this remains one of the most achievable short-term measures to improve the survival of salmon on the Dart where monitoring shows that pH is likely to be a limiting factor.

b) Barriers

The last formal barrier assessment for the Dart is from 2001 (Stantec) but the Environment Agency has carried out informal assessments in 2022 and 2024. It is believed that most significant man-made barriers on the main River Dart have now been removed or remediated with fish passes. Barriers remain on the Ashburn and West Webburn tributaries with work ongoing by the Environment Agency. There is concern amongst the angling sector about the impact of some hydro-power installations, which could damage fish or inhibit their passage, and this needs remedial action wherever possible. A key barrier identified is the Old Walls Hydro-Electric Power installation.

A map of remaining priority barriers would be useful and could be generated through a meeting of relevant EA officers and local groups.

c) Banksides

Protecting the riverbanks from erosion, by people, dogs or livestock, is important to reduce soil erosion and subsequent siltation of and disturbance to spawning gravels, especially in the upper catchment. Additionally, tree planting and/or fencing to encourage a healthy riparian corridor can slow surface water run-off and help provide shade and shelter for fish, whilst coppicing in other areas helps create a patchwork of sunny and shaded stretches to improve juvenile growth and survival. The Dart Fisheries and Conservation Association (DFCA) and Duchy of Cornwall are focused on this work in the upper catchment.

d) Predation

Seal, otter, goosander and cormorant predation of salmon is likely to be a significant pressure at key points in the life cycle of salmon and sea trout. There are potentially issues locally specific to the Dart, such as the presence of problematic individual seals at Totnes weir pool predating adult salmon. This could be considered for mitigation as a migratory pinch point of vulnerability. There remains however little evidence of this direct stressor on the Dart in driving population declines. The consensus is that attention should focus on increasing the size of the salmon population, not reducing the size of predator populations, all of which are themselves protected species. Where there is predation concern, improving refuge habitat and removing migration barriers are generally the most effective means of improving salmonid survival.



e) Leisure activities

Some stakeholders expressed concern that people swimming and paddling in the river may contribute to the pressure on migratory fish through disturbance, either of refuges in deep pools or of spawning gravels. However, other stakeholders have stated that there is no evidence to support this. Within rocky boulder rivers such as the Dart, salmon and sea trout will generally lie beneath boulders or in undercut banks during the day at low flows to evade predation, rather than exit holding pools.

Regardless, it seems likely that a campaign to encourage awareness of the needs of fish in the river, encouraging sensitive behaviours from leisure users, would be beneficial.

f) Water quality and quantity

Water quality in the Dart as evidenced by the Water Framework Directive classifications, is generally better than in many Devon rivers. Conditions in the lower Dart have deteriorated and this is discussed further below. The issue for migratory fish is that poor water quality is an additional stress, on top of the other challenges they face, so any improvements to water quality will improve the prospects for fish.

In the upper Dart silt deposition on spawning beds is an issue. The priority here is to resolve land management approaches to reduce soil erosion, and moorland projects like the South West Peatland Partnership can help reduce soil erosion and the resulting sedimentation in the long term. In the short term, as an interim solution, the DFCA is active in cleaning gravels each year to prepare them for the return of the salmon and trout. Whilst generally beneficial, this work needs to be carried out in a more systematic way, involving partners such as West Country Rivers Trust and the Environment Agency, to ensure the effort is of maximum benefit.

The important pressure of water abstraction and its impacts on water quantity and fish in the Dart is considered in [section 4.4.2](#) below.

Salmon are, of course, not the only fish in the river. **Brown trout** (some of which migrate to sea as **sea trout** and return to spawn in the river) are another high-profile fish. The numbers of sea trout have fallen dramatically alongside the salmon and these mirrored declines suggest common stressors responsible (e.g. fisheries induced at sea mortality). Fish surveys carried out by the Environment Agency provide additional species data, with brook lamprey, bullhead, European eel and minnow recorded.

The **European eel** is listed as “Critically Endangered” by the IUCN. The 2009 Eel Regulations (England and Wales) established measures for eel recovery including close seasons for fishing and, most pertinent to the Dart, requirements to install eel passes and ensure the protection of eels in water abstraction structures. Since 2011 several eel passes have been installed on the Dart and tributaries, with WRT recently completing a series of eel passes on the Ashburn. South West Water (SWW) is currently assessing the installation of eel screens at its abstraction points. In general, eel barrier removal and screening on the Dart is well understood and action is being delivered.

## 4.3 Water quality

Water quality in the Dart is the subject of intense scrutiny. This is partly because it is a drinking water catchment and so South West Water monitors water quality closely. Additionally, in recent years a significant community-led campaign has developed on the Dart to register designated bathing waters, which will compel SWW to improve its wastewater treatment infrastructure in the vicinity of the designated sites. This initiative reflects a wider concern across England and Wales about the condition of rivers and the impacts on them of agricultural pollution, waste water, highways runoff and other pollutant sources.

The Water Framework Directive (WFD) classifications undertaken by the Environment Agency provide a standardised methodology for assessing the condition of our rivers. They consist of an ecological and chemical assessment. All English rivers now fail the chemical assessment following the inclusion of “ubiquitous, persistent, bioaccumulative and toxic substances” (uPBTs) in the framework in 2019. Excluding uPBTs, the River Dart achieves Good chemical status for the whole catchment.

The ecological status of the Dart and its tributaries is assessed using some or all of the following attributes, which together provide a good overall measure of water quality:

**Biological quality elements:** fish, invertebrates, macrophytes (aquatic plants) and phytobenthos (mainly algae).

**Physico-chemical quality elements:** acid neutralising capacity, ammonia, dissolved oxygen, phosphate, temperature and pH.

**Hydromorphological supporting elements:** hydrological regime, morphology.

The current classifications for the Dart and its tributaries are shown below, with the 2019 assessments included, together with the elements that caused the failure, where the status is below Good. NB: In 4 waterbodies, the “hydrological regime does not support good”, which relates to the impact of water abstraction on the river. This is discussed in section 6.3 below.

<b>WFD Ecological Classifications</b>			
<b>Water Body</b>	<b>2019</b>	<b>2022</b>	<b>Reasons for failure</b>
Am Brook	Moderate	Moderate	Phosphate
Ashburn	Good	Good	
Bidwell Brook	Moderate	Moderate	Macrophytes / phytobenthos
<b>Blackbrook River</b>	Good	Moderate	Fish
Cherry Brook	Moderate	Moderate	pH
Dart	Moderate	Moderate	Fish
Dart (Tidal)	Moderate	Moderate	Macrophytes / phytobenthos
Dean Burn	Good	Good	
East Dart River	Good	Good	
<b>East Webburn River</b>	Good	Poor	Fish
Harbourne River	Good	Good	
Hems - Lower	Moderate	Moderate	Fish, phosphate
Hems - Upper	Good	Good	
Mardle	Good	Good	

<b>Swincombe</b>	Moderate	Poor	Fish, invertebrates, pH
Webburn	Good	Good	
West Dart (Blackbrook to Swincombe)	Good	Good	
West Dart River (Lower)	Good	Good	
West Dart River (Upper)	Moderate	Moderate	pH
West Webburn River	Moderate	Moderate	Fish

Ecological status has declined in 3 sub-catchments since 2019 (highlighted above); these are all in the upper parts of the catchment, with fish being the common failing element. The map below shows the current situation.

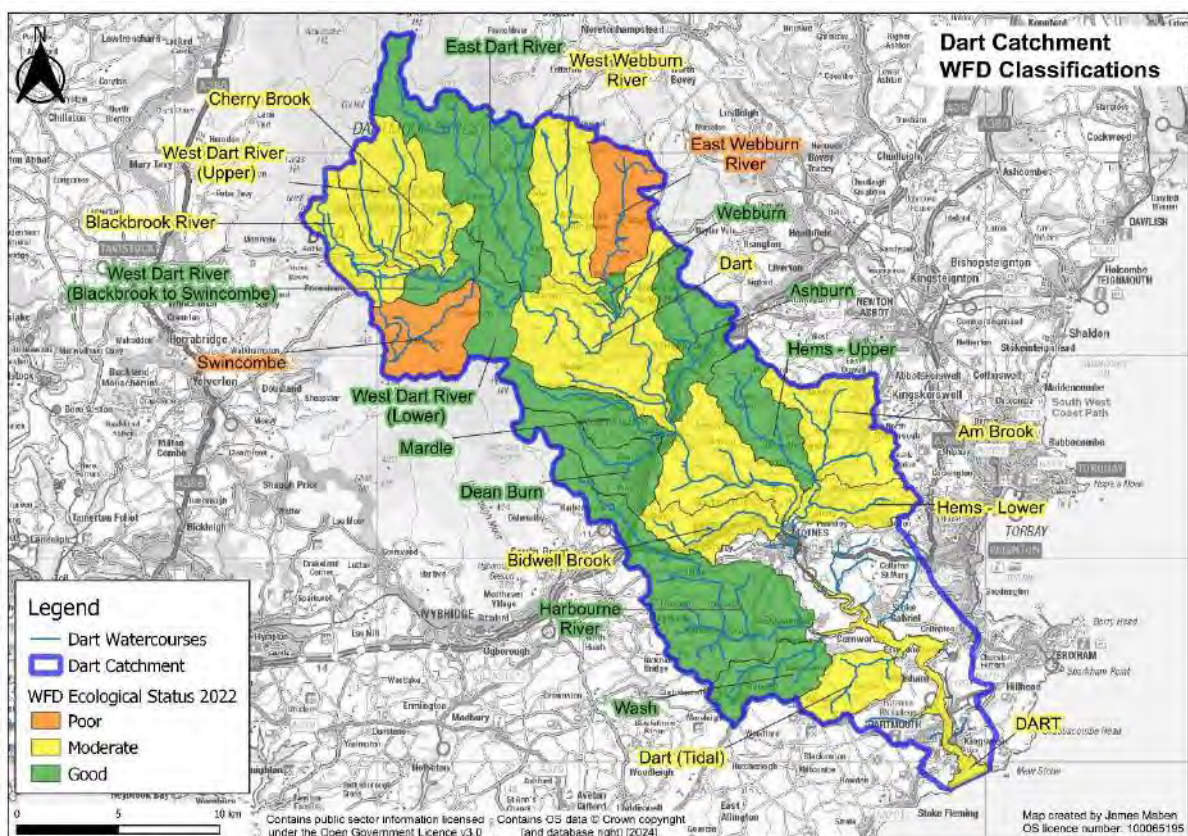


Figure 11. WFD classifications 2022 map

For each waterbody that fails to achieve Good status, the EA identifies the “[Reasons for Not Achieving Good](#)” (RNAG) and lists these. For the catchment as a whole, the RNAGs are as follows (note that these have not yet been updated to include the 2022 classifications):

Water Body	Classification Status 2019	Classification Element	Business Sector	Activity
Am Brook	Moderate	Phosphate	Agriculture - Livestock	Poor Livestock Management
Am Brook	Moderate	Phosphate	Agriculture - Livestock	Poor nutrient management
Am Brook	Moderate	Phosphate	Agriculture - Arable	Poor soil management

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Am Brook	Moderate	Phosphate	Waste water treatment	Sewage discharge (continuous)
Bidwell Brook	Moderate	Macrophytes and Phytobenthos	Agriculture - Livestock	Poor Livestock Management
Bidwell Brook	Moderate	Macrophytes and Phytobenthos	Agriculture - Livestock	Poor nutrient management
Bidwell Brook	Moderate	Macrophytes and Phytobenthos	Agriculture - Arable	Poor soil management
Bidwell Brook	Moderate	Macrophytes and Phytobenthos	Waste water treatment	Sewage discharge (continuous)
Cherry Brook	Moderate	pH	Not applicable	Natural conditions - other
Dart	Moderate	Fish	Not applicable	Not applicable
Dart	Does Not Support Good	Hydrological Regime	Water supply	Surface water abstraction
Dart (Tidal)	Moderate	Macrophytes and Phytobenthos Combined	Agriculture - Livestock	Poor Livestock Management
Dart (Tidal)	Moderate	Macrophytes and Phytobenthos Combined	Waste water treatment	Sewage discharge (continuous)
Hems - Lower	Moderate	Phosphate	Agriculture - Livestock	Poor Livestock Management
Hems - Lower	Moderate	Phosphate	Agriculture - Livestock	Poor nutrient management
Hems - Lower	Moderate	Phosphate	Agriculture - Arable	Poor soil management
Hems - Lower	Moderate	Phosphate	Waste water treatment	Sewage discharge (continuous)
Swincombe	Moderate	pH	Not applicable	Natural conditions - other
Swincombe	Does Not Support Good	Hydrological Regime	Water supply	Surface water abstraction
West Dart River (Lower)	Does Not Support Good	Hydrological Regime	Water supply	Surface water abstraction
West Dart River (Upper)	Moderate	pH	Not applicable	Natural conditions - other
West Dart River (Upper)	Does Not Support Good	Hydrological Regime	Water supply	Surface water abstraction
West Webburn River	Moderate	Fish		Other

These assessments identify agricultural activities as the RNAG in 10 cases, sewage discharge in 4 cases, water abstraction in 4 cases and “not applicable” or blank in 4 cases. Looking at these issues in terms of their position in the catchment, the agricultural and sewage failures are all in the lower catchment whilst the hydrological regime, fish and pH failures are in the upper parts of the catchment.



This gives us a broad overview of the river's health, but can we gain a more detailed understanding to help focus efforts to improve water quality?

In 2013 Westcountry Rivers Trust produced an *Upstream Thinking Catchment Investigation into Littlehempston Water Treatment Works* for SWW and, although it is now over 10 years old, this provides some useful insights into water quality issues on the Dart.

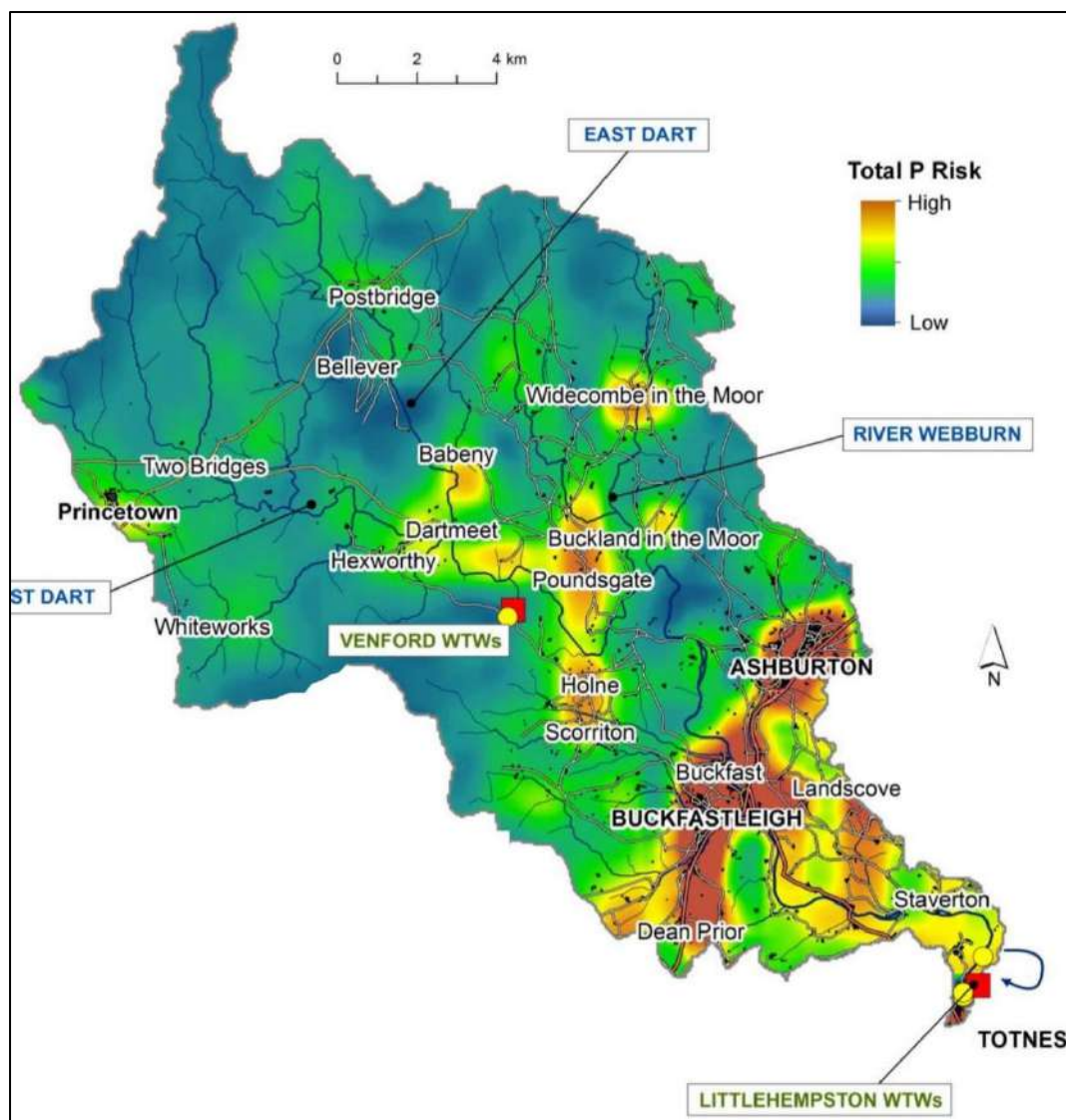


Figure 12. Risk map derived from the PSYCHIC phosphorus risk model (WRT, 2013)

The report used SWW and EA data together with mapping datasets (eg land cover, topography, hydrological pathways), computer modelling and walkover surveys to identify the areas most likely to be causing water quality problems in the drinking water catchment. In summary, it found that:

- Average total phosphorus concentrations in the main River Dart were 35 micrograms/l which is not considered to be problematic, but at times this rose to as much as 251 micrograms/l which does have the potential to cause ecological damage (by stimulating the growth of algae and plants in the river which in turn can reduce oxygen levels) and problems for drinking water treatment.



- Around 800 properties in the catchment are believed to have private septic tanks that discharge to watercourses. These are in addition to the 137 licenced sewage effluent discharge facilities with consents in place in the Littlehempston Water Treatment Works catchment.
- Computer modelling (see Fig. 12) showed that the highest risk factors for phosphorus entering the river were farmland in the lower catchment and point source pollution from sewage treatment works and septic tanks.
- “The Webburn, Ashburn and Mardle streams all experience very high levels of nutrients at certain times. The elevated levels of nutrient in the main River Dart could therefore have the potential to be reduced though the targeted delivery of intervention measures into these sub-catchments” (p.30).
- Fine sediments are recorded in water sampling at high levels in the lower catchment and modelling suggests that this is mainly from agricultural activities, the highest risk activities being intensive livestock or arable farming in the sub-catchments of the River Webburn, the River Ashburn (around Ashburton), the River Mardle (south and west of Buckfastleigh) and along the main stem of the River Dart.
- SWW has occasionally recorded faecal coliforms at a very high concentration in the combined raw water abstracted for treatment at Littlehempston WTWs (maximum 10,600 per 100ml from 2009-2010); the average levels are also quite high, at 1,020 per 100mls from 2009-2010.
- Pesticides from agricultural sources have occasionally been detected at Littlehempston at levels above statutory limits and in 2009 this was seen by SWW as the highest residual risk to the raw water at this location.

As a result, since 2015 SWW has been operating the Upstream Thinking project in the Dart catchment, delivered by Westcountry Rivers Trust and Devon Wildlife Trust, which is focused on improving raw water quality at Littlehempston by supporting farmers to reduce the risk of pollutants entering the river.

Note that the drinking water catchment serving Littlehempston is different from the hydrological catchment of the Dart, omitting most of the catchment west, east and south of Totnes. A whole catchment assessment of pollution sources (using the Source Apportionment GIS (SAGIS) tool) was carried out in 2018 by West Country Rivers Trust, using data from 2010, and the results from this are shown in Fig. 13.

This modelling indicates that point source pollution is the major source of pollution in the river, defined as “a combination of wastewater treatment works, combined sewer overflows and storm tanks, industrial discharges and mine discharges”.

The [Catchment Based Approach Data Hub](#) ran SAGIS in 2021 and found similar results, with the Am Brook remaining the location of the highest pollution loads per litre in the catchment.

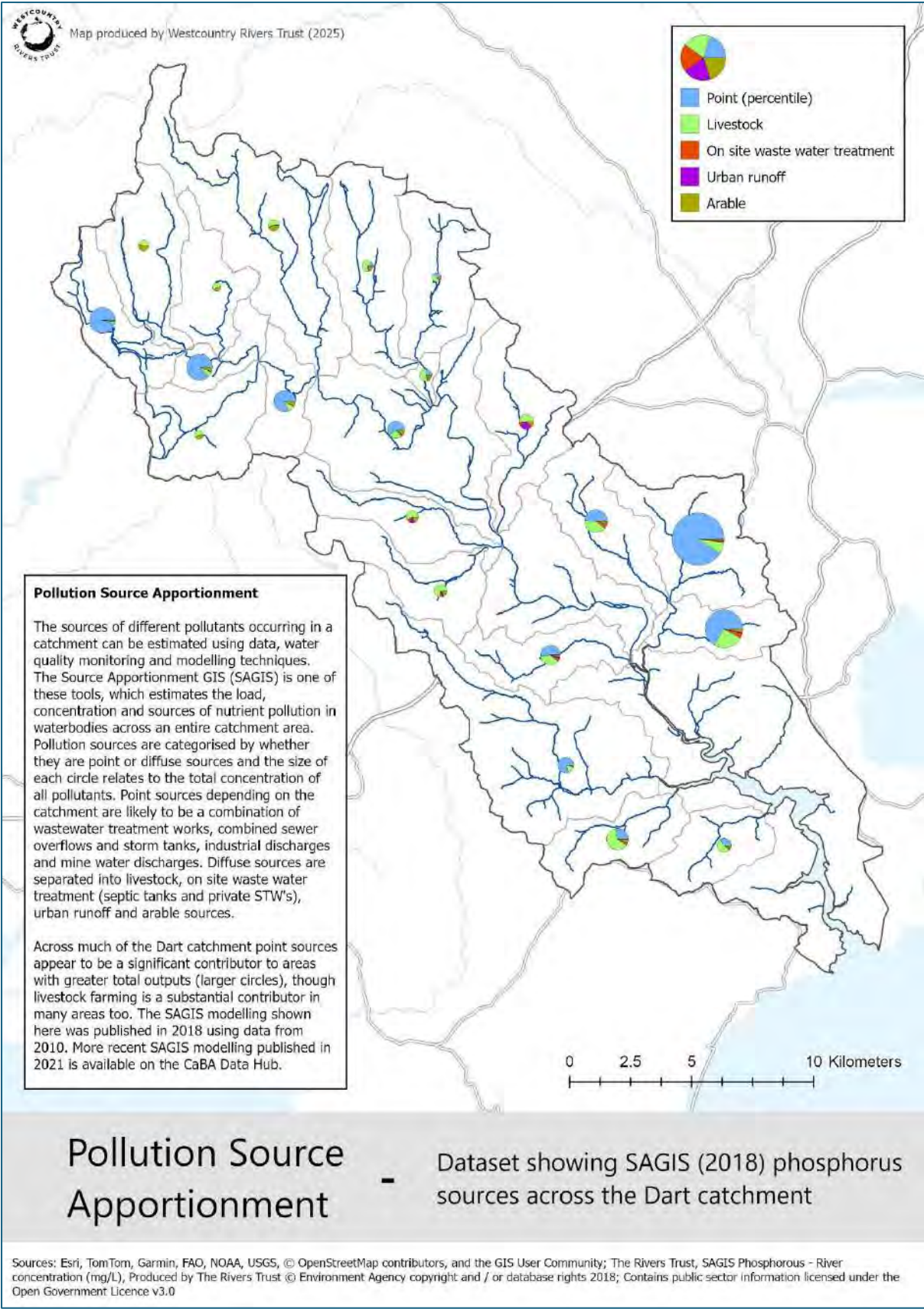


Figure 13. Phosphorus sources map

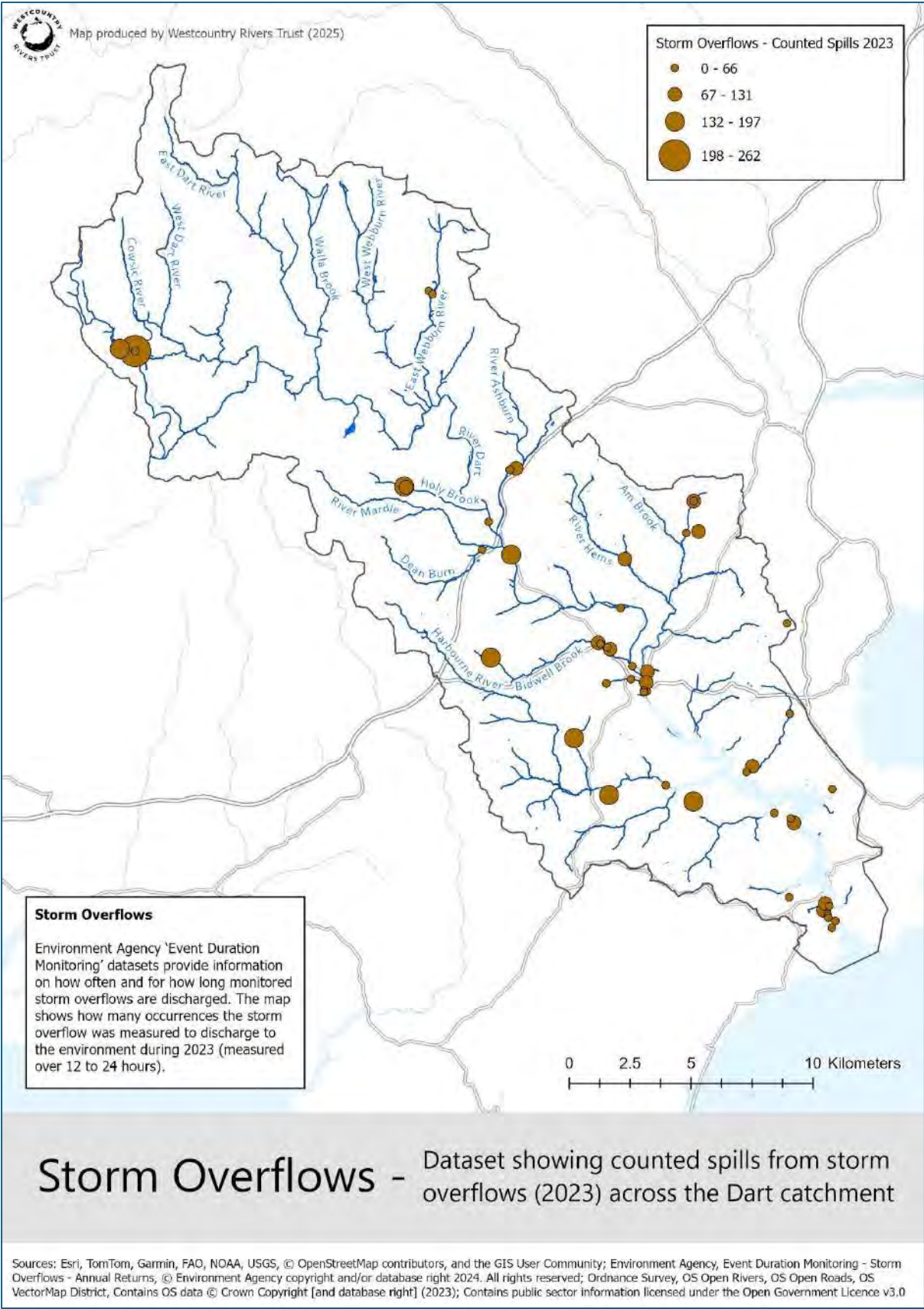


Figure 14. Storm overflows map



In 2022 SWW launched the **Dart and Tavy River Bathing Water Pilot**<sup>xi</sup> which aims to investigate water quality and the drivers for water quality in the two catchments to inform future bathing water designations. Stantec has been carrying out investigations for SWW under the pilot including installing additional monitors and modelling the response of the catchment in different rainfall events. The team reported their findings to date at a stakeholder workshop in January 2024:

- Exceedances of the Bathing Water Standards are widespread downstream of Buckfastleigh to Totnes Weir. (NB: the standards are based on measurements of faecal indicator organisms in water samples - the methodology is described further [here](#).)
- At low flows the final effluent from Kilbury Sewage Treatment Works can be up to 4.5 times higher than the ‘sufficient’ bathing water standard, and this spike in pollution can still be detected at Riverside in Totnes.
- Significant rain during summer (at times of otherwise low flows) means the Dartington CSOs will contribute to exceedances.
- Heavy rain leads to agricultural (and other diffuse) source exceedances.
- “For ‘complete’ compliance, it seems that agricultural, CSO and effluent would need to be mitigated, any single one will not guarantee compliance”.
- Combined Sewer Outfall (CSO) investigations have shown that some of the CSOs have up to 25% groundwater infiltration, which is likely to trigger spills at times of low rainfall.

The **Friends of the Dart** carried out extensive monitoring of water quality in 2024, with a focus on coliform bacteria but also other pollution markers, in partnership with the University of York. They are extending this survey effort in 2025 and partnering with the University of Plymouth to trial new monitoring technology. They have also correlated this work with SWW data, and have found in summary that:

- Kilbury Sewage Treatment Works (treating waste from the population of Buckfastleigh) is polluting the river with high levels of coliform bacteria.
- Microbial source tracking identifies human and cattle sources as the strongest contributors of coliform bacteria.

Issues raised in the consultation process relating to water quality included:

- Concern that the Environment Agency’s monitoring, inspection and enforcement capacities are not sufficient to tackle the scale of the impacts being seen, from the agricultural and (public and private) water sectors.
- The limited capacity of Catchment Sensitive Farming in the catchment, alongside other sources of advice and support to farmers (see 6.7 below).
- The need for more information on the impacts of highways run-off which could be a significant source of pollution.
- Concern that bathing waters designation could distract attention from other impacts on water quality, including agricultural practices.
- The Lower Hems is a high risk waterbody that needs further investigation.
- High sediment deposition is being seen in the estuary after high rainfall events, ie agricultural soils are being eroded at these times.
- Maize and other fodder crops and field scale vegetables are often grown in high risk locations in the lower catchment.



- Sheep dipping in the Upper Dart catchments seems to be increasing and needs proper management. Herbicides in the lower catchment are an ongoing problem.

In late 2024 OfWat, the regulator for the water industry, approved South West Water's plans for investment in the period 2025-30. These plans see a significant increase in investment in measures to tackle water quality, alongside an increase in customer bills to fund the work. Measures approved include an upgrade to Kilbury Sewage Treatment Works and to multiple CSOs. These are described in further detail in the action plan below.

## 4.4 Water quantity

Flooding and water resources are the two faces of water quantity and they are dealt with separately below, although they are intimately connected. The ability of the moorlands of the upper catchment to store water moderates high and low flows equally, and therefore much of the focus for the improvement of water quantity is on the restoration of the eco-hydrological function of the blanket bog peats and valley mires of Dartmoor. There is still discussion over how to restore the hydrology of the huge extent of shallow peats damaged by human activity over centuries which needs to be moved forward into positive action.

However, agricultural land management can also contribute to flooding and drought resilience, because compacted soils cannot allow as much water to infiltrate to ground water; the resulting run-off can lead to soil erosion which not only blocks gullies and drains but can also reach the river and damage water quality and habitats there; and depleted ground waters lead to a higher risk of low flows in the summer.

Flood and drought risk are also increasing because climate change is leading on the one hand to drier, hotter summers, that increase damage to Dartmoor's peat bogs; and on the other to wetter winters and more intense periods of rain at all times of year, that can overwhelm our existing flood defences and systems. Intensifying agricultural practices combine with climate change to exacerbate the problem.

### 4.4.1 Flooding

Property flooding is quite localised on the Dart with issues being addressed or investigated in parts of Ashburton, Buckfastleigh, Rattery, Harbertonford, Broadhempston, Totnes and Dartmouth. Natural flood management (NFM) measures are being adopted in many locations to reduce risks.

One is the Dartmoor Headwaters Project, a partnership of the EA, Devon County Council and Dartmoor National Park Authority, which is working in the Dean and Mardle catchments to encourage landowners, farmers and commoners to slow and store water on their land, before it reaches the town of Buckfastleigh. Other benefits are improved biodiversity and water quality.

Another is the "Rapid Response Catchment Project" in the Ashburton area, part of the Devon Innovation Resilience Project (DRIP) and delivered by Westcountry Rivers Trust, which is seeking NFM measures to tackle two streams in the area that risk flooding over 100 properties. Again, there will be added biodiversity and water quality benefits from this approach.

In general, NFM initiatives are likely to provide multiple benefits for the river as well as properties at risk, but currently funded projects do not cover all of the areas that would be likely to benefit from this approach.

#### 4.4.2 Water resources

As noted in 6.2 above, the Dart supplies drinking water to a large area of South Devon including Totnes, Torbay, Kingsbridge, Newton Abbot and Teignmouth. Much of the catchment is designated as a Drinking Water Protected Area, a designation that chiefly prioritises action on a list of pesticides that are a risk to public health.

South West Water abstracts water from the Blackbrook, Cowsic and West Dart Rivers via the Devonport Leat on Dartmoor to supply Burrator Reservoir. They also abstract from the Swincombe to supply Venford Reservoir and the main Dart and River Webburn, as well as boreholes, to supply the Littlehempston Water Treatment Works. When there is insufficient water in the Dart to meet demand, supplies are pumped in from Burrator, the Tamar and the Erme via the South Devon Spine Main.

As the WRT report for SWW (cited in 6.2 above) explains (p.13), SWW's permitted abstraction volume from the Dart can constitute as much as 30% of the total flow in the river during periods of low flow. Having reviewed the hydrograph for the main river, the report concludes that "there are occasions when the River Dart is unable to provide a reliable source of raw water for Littlehempston WTWs and alternative sources must be found" in order to meet demand. Furthermore:

"At present these alternative sources represent a satisfactory solution to a water shortage in the Dart catchment and, in recent years, this system has not been put under significant pressure. If, however, water resources pressure is increased on these alternative sources, such as Burrator Reservoir and the River Tamar in the Roadford supply area, then the risk that there will be a water shortage at Littlehempston will be significantly increased".(p.44)

SWW's Draft Water Resources Plan (2024) brings the situation up to date. Climate change, growing population and the need to tackle the environmental impacts of abstraction mean that the Dart is now seen as being a high priority for action. The Plan identifies reducing abstraction from the River Dart as a key "Environmental Destination", aiming to reduce abstraction by 17 megalitres/day by 2035. To continue to meet raw water needs in the area served by the Littlehempston WTW, especially in the summer, additional water will be pumped in from Roborough WTW via a new pipeline, because the existing South Devon Spine Main alone will not have sufficient capacity to meet the demand.

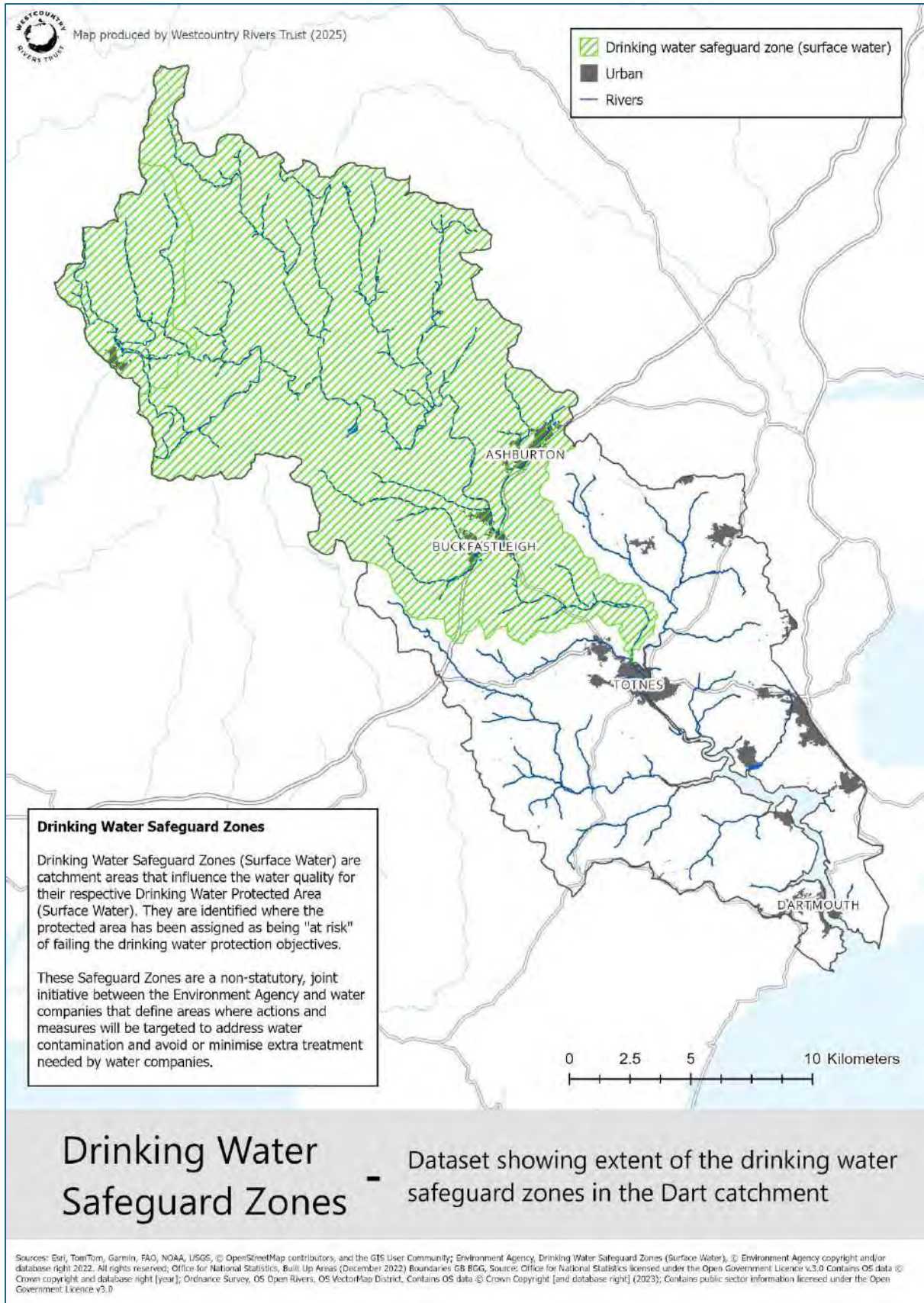


Figure 15. Drinking Water Safeguard Zones map

Low flows tend to mean that dilution effects on pollutants entering the river are reduced, which increases the risk to wildlife and humans. High water temperature effects are also increased. The impacts of the abstraction of water from the Dart are the reason for the hydrological regime failing under EA classification. As a result, in 2026 SWW are planning a review of the sustainability of all SWW abstraction licences located in the headwaters of the Dart, comprising the Devonport Leat offtakes, Venford Reservoir and Swincombe abstraction. An investigation is also planned into the Littlehempston abstraction and, furthermore, a wider investigation into the whole catchment abstraction looking ahead to 2050 and charting the impacts of climate change and population pressures. The first step for SWW in tackling these challenges, as mandated by the Environment Agency, is to reduce demand for drinking water; only then can other solutions (such as the creation of new reservoirs) be considered.

There are a number of private abstraction licences on the Dart which are managed by the EA. The impact of these also needs to be understood, as well as any action that is being planned to reduce risks to the river.

Meanwhile farmers in the lower catchment are reporting the increased impacts of drought on their productivity and there is growing interest in creating new water storage areas on their farms. These could reduce pressure on the river for abstraction as well as provide new wetland habitats.

Continuing to restore Dartmoor's peat, improving the infiltration capacity of agricultural soils, developing on-farm water storage capacity and improving and expanding natural habitats, as well as managing abstractions properly, are all measures that can help build resilience for the Dart's water resources.

## 4.5 Farming

Humans have cultivated the land for thousands of years and, for much of this time, some fortunate wildlife species have been able to exploit the conditions that we created, especially where our farming mimicked conditions previously provided by large herbivores. In South Devon, as in much of the rest of England, pre-industrial farming in the lowlands was characterised by a patchwork of small fields in rotational management, bounded by thick hedges. Horses, and then small tractors, provided the power to work the land and this limited the scale and intensity of activity. The result was a landscape that supported a rich array of traditional farmland-dependent species.

The intensification of agriculture has been an ongoing process since mediaeval times, but it accelerated dramatically after the Second World War and it is the period since then that has seen many of the steepest declines in farmland species. Parts of South Devon were slower to modernise and this may explain why populations of some flagship species, including **cirl bunting** and the **greater horseshoe bat**, managed to retain a foothold here. They need a network of mixed farmland that includes hay meadows, extensively-grazed pasture, winter stubbles, wide field margins and thick hedgerows, field trees and copses. This landscape not only supports these priority species, it also functions well to enable water to infiltrate the soil naturally, which is a critical ecosystem service provided by traditional farmland.



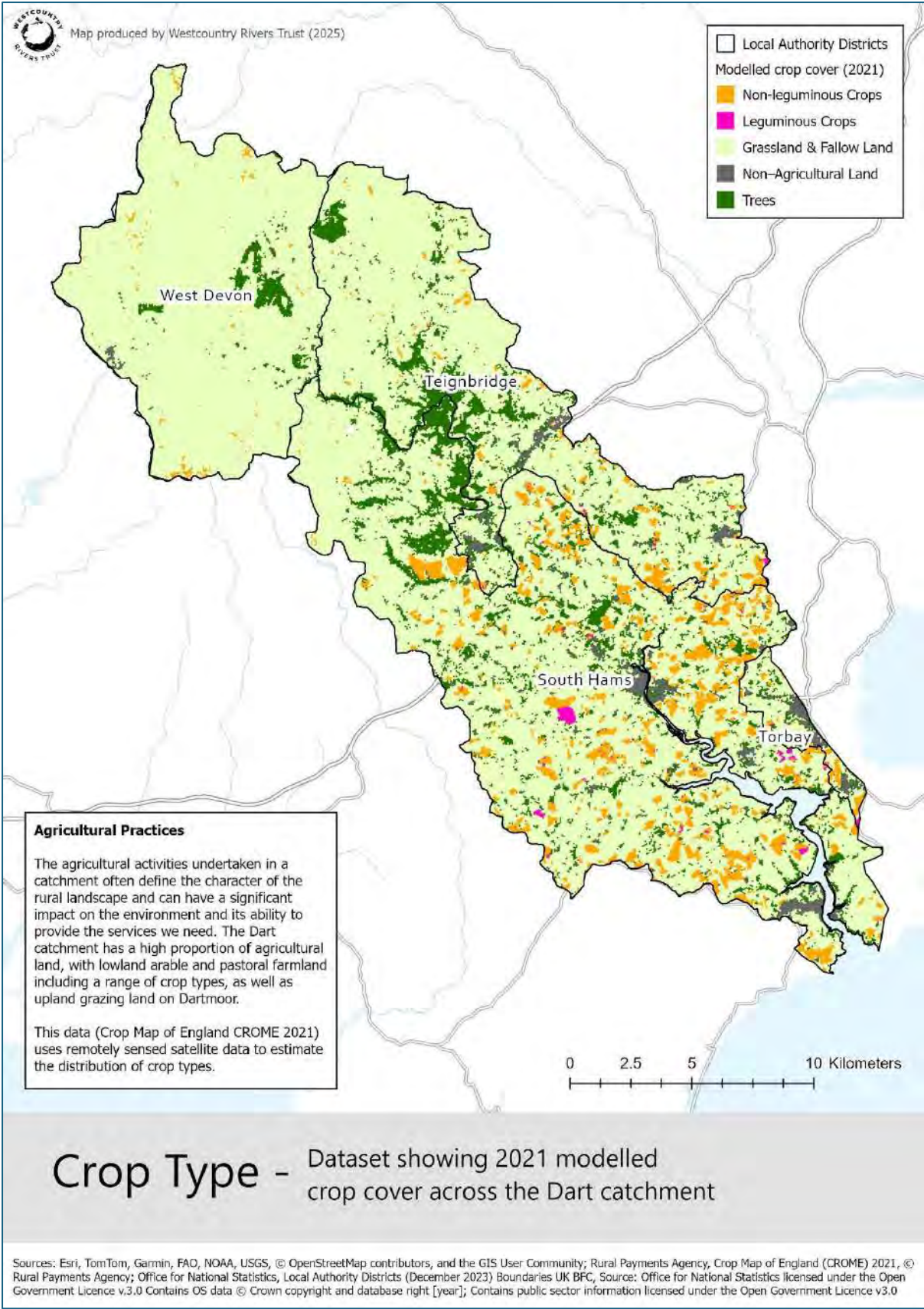


Figure 16. Crop type map

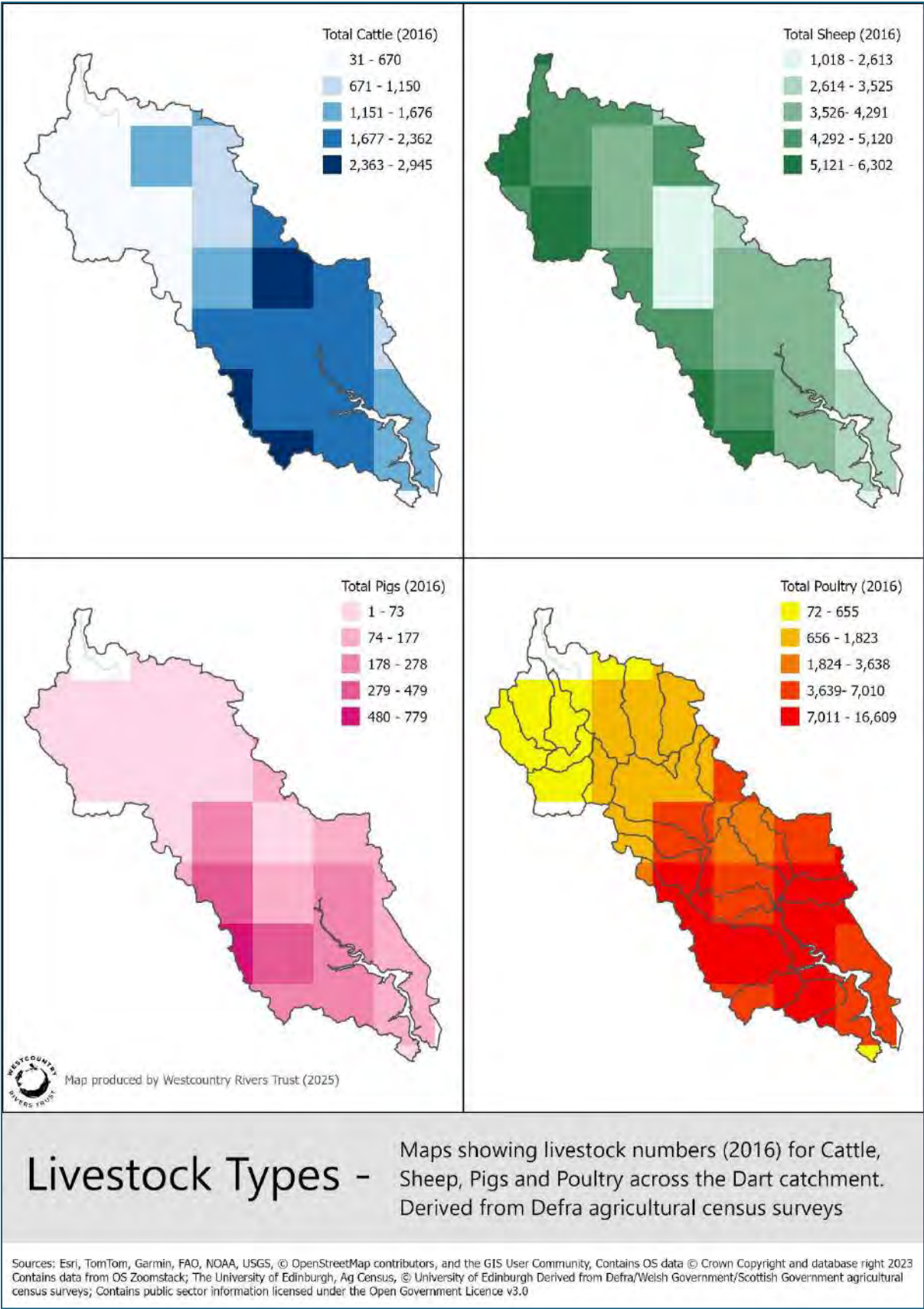


Figure 17. Livestock types maps

The RSPB's Cirl Country initiative has done wonders to bring the cirl bunting back from the brink and its further expansion continues to be supported. Greater horseshoe bat colonies in the catchment and nearby are fully protected as SACs and policies are in place to safeguard flypaths and enhance pinch points. But the surviving fragments of the small-scale, traditional farmed landscape that they depend upon are under great pressure now. Intensification continues and there is a trend for small mixed farms to be bought up, incorporated into neighbouring farms and modernised in the process.

The maps above show the distribution of different farming activities across the catchment, with arable land and the greatest numbers of livestock occurring in the middle to lower catchment, although sheep are weighted more heavily towards the upper catchment.

The post-Brexit Environmental Land Management Scheme was introduced in 2021 to shift agricultural subsidies to payments for public goods, which include support for the widespread restoration of some of the traditional approaches upon which our farmland wildlife depends. The scheme was initially slow to roll out but adoption accelerated rapidly in 2024-25 to the extent that, at the time of writing this action plan, the scheme has been suspended whilst a review of its efficacy / value for money is undertaken.

It is essential for landowners and land managers to be able to access good advice on how to achieve nature recovery on their land. This can be provided alongside advice for good soil management, water quality improvements, water storage, flood risk reduction and tree planting but the availability of this advice is less than adequate across the catchment.

Compared to many other Devon catchments, the Dart is well resourced with advisors with the right understanding of river-focused interventions. However, their capacity may still be an issue and some farmers fall outside of the scope of the projects that are operating. Additionally, landowner and manager engagement with advisory services is on a voluntary basis; this limits advisors' ability to address some known locations of potential high impact land management practices.

Another limitation is that some advisory programmes, driven by funding structures, can be very focused on single outcomes; these may then fail to take a more holistic approach to the farm operation that can identify multiple-benefit outcomes.

The table below shows the range of projects that have a specific nature focus (rather than a purely agronomy or business focus). There is a need to map out the areas these projects operate in more accurately, assess what capacity they each have and identify opportunities for better collaboration.

Farm advice / regulation / coordination		
Project	Location	Lead partner
Catchment Sensitive Farming	Most of the catchment excluding around lower estuary	Natural England
Upstream Thinking	From Littlehempston WTW upwards	SWW funded, delivered by WRT and DWT
Dartmoor Hill Farm Project	Dartmoor	Dartmoor National Park



Connecting People and Landscapes	Pilot sites	Bat Conservation Trust
Agricultural Regulatory Taskforce	Priority catchments (however, South Devon is not a current priority)	Environment Agency
Dart Connectivity Farm Facilitation Group	Dart Estuary area	South Devon NL
Bidwell Brook farmer engagement	Dartington / Rattery	Bidwell Brook Partnership
Training in regen ag / horticulture	Dartington	Apricot Centre
Projects to reduce soil erosion from field-scale vegetable growing, create ponds and reservoirs, tree-planting and rewilding	Various farms	Riverford Organic Farmers Ltd

One of the issues, not just for the Dart but for the whole of Devon, is to train agronomists and other farm advisors in a greater understanding of nature-focused approaches so they can advise their clients accordingly. This is recognised as a priority in the emerging Devon Local Nature Recovery Strategy.

Another issue, noted above in section 4.3, is the need for better awareness of and enforcement of the existing regulations, especially the Farming Rules for Water, to complement the support and advice programmes. The EA has been restricted in the resources it can put to this work in recent years but there are signs that this situation is now improving. An example is the EA's *River Axe N2K Regulatory Project*<sup>xii</sup> which used a combination of regulatory visits to farms and focused support for interventions to deliver rapid improvements in farm practices in the Axe catchment affecting the River Axe SAC. This approach complements the advisory visits already working in the catchment, as some farmers may otherwise be unwilling to contemplate change where it is needed.

## 4.6 Society and economy

The River Dart has an exceptionally high level of public accessibility and use, compared to many other Devon rivers: walking, hiking, running, swimming, white-water kayaking, paddling and boating on the estuary, fishing, nature-watching, dog walking, foraging, cycling, climbing, painting, loafing and picnicking (not an exhaustive list!) beside and in the Dart provides leisure time, nature connection, health and wellbeing benefits to thousands of people every year. The resident population in the catchment of just over 80,000 people is supplemented by at least 150,000 people living just outside the catchment in Torbay, Newton Abbot and other nearby towns. From there and further afield, the catchment attracts an estimated 1.4m visitors each year<sup>xiii</sup>. This goes a long way to explain the levels of interest in the Dart's condition and its future recovery.

Of course, this also leads to conflicts at times, with the interests of different users sometimes clashing and landowners along the river finding their property affected by the levels of recreational use. The high footfall can also, as outlined above, lead to pressures on vulnerable species and habitats. Managing these pressures needs a combination of:



- site management to channel activity away from sensitive sites to more robust areas, or to reinforce areas to accept the pressure.
- increased public awareness of the sensitivities of the environment and how to reduce conflicts.
- a measure of patrolling and supervision to communicate these messages as well as enforce appropriate byelaws.

Because of this degree of public use, the Dart is exceptionally important to the tourism and hospitality industries which provide an economic driver for maintaining and improving its quality. Leisure facilities do also create development pressures, but these can be sensitively managed and can help concentrate impacts on well-managed zones.



*Figure 18. Canoe adventures on the estuary*

The catchment is also under development pressure for housing and, whilst the Protected Landscapes that cover its upper and lower portions have effective controls on inappropriate development, the central area between Totnes and Buckfastleigh / Ashburton is relatively vulnerable. Concern was expressed in the development of this Action Plan that delays in carrying out the Joint Local Plan Review for Plymouth, West Devon and South Hams may inadvertently enable additional housing to be permitted in this central zone, to the detriment of the river and wildlife corridors. In theory planning regulations mean there is no net impact on the river from drainage from new developments, but delivery of appropriate facilities is seen as being inconsistent.

## 4.7 Monitoring

It is striking how much data is being collected on the waters of the River Dart. A list of activity is given below, based on the feedback received in developing this Action Plan.

<b>Water environment survey / monitoring</b>			
<b>Project</b>	<b>Location</b>	<b>Lead partner</b>	<b>Status</b>
Peatland restoration sites outflows	Upper catchment	SWPP / University of Exeter	Active
Invertebrate monitoring above and below CSOs	High-spilling CSOs	SWW	Active
Littlehempston Water Treatment Works	Littlehempston	SWW	Active
STW Final Effluent monitoring	All STWs	SWW	Active
Microbial tracking	Whole river	University of Plymouth for SWW	Active
Testing water quality	Bidwell Brook / Buckfastleigh - Totnes	University of Plymouth	Proposed
River Hems water quality investigation	River Hems	SWW	Proposed
Fish counter at Totnes Weir	Totnes	Fishtek	Active
Riverfly monitoring	Whole of Dart to Totnes	DFCA	Active
Microbial, chemical and invertebrate testing programme	Various locations whole river in due course	Friends of the Dart	Active
Chemical monitoring	Various locations whole river; bathing waters / shellfish waters	EA	Active
Water quality monitoring	Various locations whole river, monthly	Upstream Thinking (SWW-funded)	Active
Westcountry Citizen Science Investigations	Various locations whole river	Westcountry Rivers Trust	Active
Data transparency for SWW	Whole river	Friends of the Dart	Active
SMART sensors	Riverford Farm	Additive Catchments	Active
River water quality blitz	Tbc	Friends of the Dart / WRT	Proposed
Fish surveys (electro-fishing)	Upper catchment	EA	Active
Rod catch reports	Throughout	Dart Angling Association	Active
Bidwell Brook Partnership surveys	Dartington / Rattery	Bidwell Brook Partnership	Active
Bird surveys	BBS, WeBS, Curlew, Moorland birds	RSPB and other NGOs	Active
Seals	Various	The Seal Project	Active
Bacterial sensors on unmanned autonomous vessel	Dart Harbour	Dart Harbour Authority	Proposed
InnWater - data coordination project	Across whole Westcountry	WRT	Active

This diversity of activity indicates the importance of the Dart to many interest groups but there is also a risk of duplication. A Collaborative Monitoring Plan could help focus effort and also integrate findings to build an even stronger case for action. To this end the Friends of the Dart's

initiative to establish an independent Data Trust, aimed initially at SWW's data, could be extended further. In similar vein, WRT's initiative INNWater seeks to combine, analyse and interpret different data sources at multiple scales and holds the prospect of establishing a common data platform. In either case, the resources required to manage, quality control, analyse and share this data are considerable. The national Catchment Systems Thinking Cooperative (CaSTCo) project funded by Ofwat and led by the Rivers Trust is developing a suite of tools to support this work. These include a framework for Collaborative Monitoring Plans, methodology and tools for data sharing and a guide to Citizen Science and Volunteer Monitoring. The CaSTCo project is due to report in 2025.

## 4.8 Partnerships

The diversity of interests and activity on the River Dart has generated many groupings and project partnerships over the years that, in different ways, seek to coordinate a part of the catchment, or a specific sector. Some wider-reaching groupings exist that include the Dart in their purview as one of several related areas of interest or responsibility. These sit alongside and often include organisations with statutory responsibilities such as the two Protected Landscapes, local authorities, parish councils, infrastructure organisations, Natural England, Marine Management Organisation, the Harbour Authority and the Inshore Fisheries and Conservation Authority.

**The South Devon Catchment Partnership** is one of four Catchment Partnerships in Devon sponsored by the Environment Agency to bring together interested parties to collaborate on improving the water environment. South Devon covers five catchments, the Teign, Dart, Avon, Erme and Yealm. It works to a high-level set of strategic goals and encourages projects to come forward that align with these goals. However, it lacks the capacity to take a more operational approach.

**The Dart Estuary Forum** is supported by the Environment Agency and the South Devon National Landscape under the umbrella of the Dart Harbour and Navigation Authority. It brings together stakeholders with an interest in the environment of the estuary.

**The Dart Fishing and Conservation Association** brings together riparian landowners in the upper Dart system with a focus on restoring fish stocks.

Other project-related partnerships include the **South West Peatland Partnership**, **Dartmoor Dynamic Landscapes**, **Sharpham Reintroduction Project**, **Nature for Climate** tree-planting partnership, the **Plymouth and South Devon Community Forest**, the **Dart Saltmarsh project**, and the **Bidwell Brook Partnership**, alongside multiple other organisations that collaborate in different structures and contexts according to need.

In 2018 the Bioregional Learning Centre (BLC) initiated the **Dart Charter**<sup>xiv</sup> as a step towards a citizen-led resource management approach to the river. The initiative focused on the stretch of river passing through the Dartington Estate, engaged over 1,000 people in its creation, and established the role of “River Keeper” to represent the river on behalf of the community. This approach could be useful in providing an integrating overview for the river, although care is needed to engage with landowners who may feel that their property rights are at risk.

All these projects and partnerships have developed in response to specific needs and opportunities, sometimes enabled by national or regional strategic priorities that provide

funding for local implementation. They are often shaped by the people of the place, though, and in this way a patchwork of projects emerges that, in a frankly haphazard way, manages to address many of the issues faced by the River Dart, although not necessarily at the scale, intensity or level of coordination required. This is one of the main drivers for the development of this Action Plan.

A significant issue is that funding for partnership development and maintenance is often hard to secure and the River Dart Catchment Partnership currently has no funding support beyond April 2025. The importance of a catchment-based approach is widely recognised and it is hoped that the government's Water Commission, led by Jon Cunliffe and due to report in summer 2025, will provide mechanisms to support catchment-based partnership working at a local level.

## 5. Discussion

The review of issues above gives an indication of the complexity and scale of the pressures on the River Dart's ecological health. Multiple organisations and projects are already grappling with resolving the majority of these issues and there is an impressive legacy of skills and learning from past and current projects that this Action Plan must build upon. It is over 20 years since the first Dart Catchment Action Plan was drawn up and it is worth celebrating the achievements of all the people who have been working in the catchment, without whose efforts the state of the River Dart would undoubtedly be poorer.



Figure 19. Rewetting peatlands



Nonetheless, the current ecological state of the River Dart is not satisfactory and, in some respects, continues to decline; additionally many of the pressures upon it are increasing in intensity, indicating that further declines in its condition are likely. These include:

- the effects of climate change
- increasing population
- the further intensification of agriculture in some areas
- reduced funding for restorative actions.

Mitigating these are the opportunities presented by:

- increasing public awareness of the ecological and climate crises
- greater community focus and action on the state of our rivers
- the growth of organic, regenerative and agro-ecological farming techniques
- existing and potential Landscape Recovery Schemes in the catchment
- South West Water's commitment to tackle failing waste water assets and reduce the need for water abstraction
- The formation of the River Dart Catchment Partnership and the development of this Action Plan.

The goal of the Partnership, and of this Plan, is to create a framework that enables these opportunities to be realised in a coordinated and systemic way. The actions required are often overlapping and synergistic, so care is needed to deliver them effectively and to monitor the outcomes over time. The plan therefore needs to be flexible and respond to emerging conditions.

A strong thread running through the Plan is the recovery of salmon and sea trout on the River Dart. These species can act as indicators of a healthy river ecosystem and, although many of the factors driving their decline lie outside the catchment and beyond local influence, their recovery can certainly be assisted by local improvements in river health. As a charismatic species that was once a source of pride and a symbol of abundance for the River Dart, the recovery of Atlantic salmon should be at the heart of the Action Plan.

Another principle that needs to be embedded in the Action Plan is the balance between actions taken by individual householders, community organisations, landowners, businesses and statutory organisations. Each has a part to play and responsibilities to deliver and the action Plan needs to identify and coordinate appropriate actions for each. For example, South West Water has a responsibility to ensure its waste water infrastructure is functioning properly; businesses and householders should ensure the same for their own infrastructure; and everyone living in the catchment needs to keep damaging products out of the waste water system.

## 6. Aims and Objectives

This Action Plan aims to focus attention on the work that will be most impactful in achieving the Vision and is reasonably deliverable in the 2025-30 period. There are, naturally enough, differing views on what actions are in fact likely to be most impactful; the Action Plan therefore tries to

include those actions that are generally agreed to be important and does leave out some more disputed actions. Some of these latter actions are identified for trials, or further research.

Over the next five years:

Our **Aims** are to:

- Enable nature to recover
- Improve water supply
- Improve water quality
- Improve resilience to climate change impacts like flood, drought and invasive species
- Involve people and communities

Our **Objectives** (how we will achieve these Aims) are by:

- Sustaining flows
- Increasing infiltration
- Reducing acid flushes
- Reducing sediment loads
- Reducing nutrient levels
- Improving riparian habitats
- Supporting the recovery of migratory fish populations
- Reducing pressure on the public waste water and supply networks
- Engaging and empowering people to take action
- Encouraging sustainable and resilient farming systems
- Managing invasive species
- Understanding the condition of the river and tracking changes
- Commissioning research to fill data gaps
- Supporting partnership working and building capacity

The **priority actions** we want to happen derive from, and follow a similar structure to, the [Key Issues](#) described above. These are set out below under the headings of:

- Improving and creating habitats
- Fish recovery
- Waste water management
- Water resource management
- Flood risk management
- Farming
- Engaging and empowering people
- Monitoring
- Research
- Partnership

## 7. Action Plan

The following table sets out a programme of actions that will drive the delivery of the Aims and Objectives. This sits in the context of considerable existing and / or recent activity (as captured in the Project Register) and recognises that much excellent work needs to continue to be supported. The focus, however, is on what new work needs to be resourced and commissioned to make the most of, and complement, these existing efforts.

This programme is unlikely to be delivered in full through a single project. It is more likely to be implemented through multiple projects happening alongside existing programmes, spatially or over time, depending on the capacity of partners and the ability to draw down funding.

Delivery partners have been identified where possible but, in many cases, need to be discussed and agreed. ‘The River Dart Catchment Partnership’ is used where a collaborative approach between all partners will be required.

*NB: a list of abbreviations is provided at the foot of the table.*



Figure 20. North Quay, lower Dart

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Priority Actions		Objectives	What needs to happen	Key Partners
<b>H</b>	<b>Improving and Creating Habitats</b>			
H1	Restore degraded upland peat	Reduce acid flushes Sustain flows Reduce flooding Support nature recovery	There is no funding in place for the South West Peatland Partnership's work in the Dart beyond March 2025. Funding is needed to support c.1500ha of priority restoration that has been identified in North-West Dart catchment (Blackbrook, Cowsick, Upper West Dart). Cost = £12k/ha, total £18m	SWPP
H2	Convert conifer plantations to broadleaves where biodiversity is the priority	Reduce acid flushes Increase infiltration Support nature recovery	The Forestry Commission has targets for conifer conversion in its <a href="#">Dartmoor Forest Plan 2016-26</a> . These targets should be expanded in the next plan phase, targeting watercourse buffers adjacent to East Dart and Cherry Brook with management designed to reduce acid flushes and prioritise soil and nutrient stability.	Forestry Commission
			The Duchy of Cornwall, Woodland Trust, National Trust and others, supported by the Forestry Commission's EWCO funding, are working on projects. These need ongoing support and expansion, especially alongside watercourses.	Forestry Commission and partners
H3	Encourage natural woodland expansion along upland river valleys	Increase infiltration Support nature recovery	This action links with the expansion of temperate rainforest, a regional priority, which occurs in upland areas of Dartmoor. The South West Rainforest Alliance has set a target of trebling the area of temperate rainforest by 2050, to be delivered by members of the Alliance. This work needs ongoing support and coordination.	SW Rainforest Alliance members
H4	Establish natural riparian margins throughout the catchment	Increase infiltration and water quality Support nature recovery	Habitats in the riparian zone that slow water and capture pollutants need to be managed and created. These include woodland, scrub and rough grassland. ELMS funding is available to support the creation and maintenance of these habitats. An attractive programme is needed to support farmers and landowners in creating these wild margins and	Farm advisors with landowners



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Priority Actions		Objectives	What needs to happen	Key Partners
			targeting the creation of contiguous stretches of habitat. Farm advisors can help deliver this programme but more resource is needed.	
H5	Create new, and expand existing wetlands	Sustain flows / improve water supply Reduce flooding Improve water quality Support nature recovery	Wetland creation and expansion can be supported by ELMS, and more resource is needed for farm advisors to support farmers.	Farm advisors with landowners
H6	Prepare for the arrival of beavers in the catchment	Sustain flows Reduce flooding Improve water quality Support nature recovery	Controlled releases of beavers are to be allowed, whilst natural spread across Devon is occurring. Development of a beaver management group will be necessary to help manage any permitted releases and impacts on landowners.	Devon Wildlife Trust
H7	Restore surviving saltmarsh in the estuary	Support nature recovery Improve climate change resilience	A programme of actions has been identified and salt marsh restoration commenced. Project funding for further restoration / trial creation is needed.	Dart Saltmarsh Project
H8	Reduce the impact of invasive species	Support nature recovery	A catchment (or sub-catchment) scale effort is needed to target invasive species such as Himalayan balsam, Japanese knotweed and skunk cabbage.	River Dart Catchment Partnership
<b>F</b>	<b>Fish Recovery</b>			
F1	Remove barriers to fish migration	Support the recovery of migratory fish populations	Priorities for salmon are tackling issues at Old Walls Hydro-Electric Power and Ashburn Falls. Funding is needed to enable this.	EA
			SWW plan to upgrade Blackbrook/Cowsic/W. Dart offtakes by 2030 to enable eel passage and funding has been identified for this work.	SWW

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Priority Actions		Objectives	What needs to happen	Key Partners
			A map of priority barriers needs drawing up to bring our data up to date and target further action.	EA / DFCA
F2	Protect and restore spawning gravels and associated riparian habitats	Support the recovery of migratory fish populations	DFCA is already delivering work on these lines but a more formal plan and approach needs developing. The main spawning gravels need to be mapped, and detailed plans developed, and then implemented, for gravel conservation and enhancing the headwaters riparian zone.	DFCA / Duchy of Cornwall
F3	Reduce occurrence of low pH flushes in headwaters	Support the recovery of migratory fish populations	<p>Further research is needed to establish a causal link with salmon survival, given evidence of local salmonid population tolerance of acid conditions. Meanwhile further liming trials should be carried out to test the efficacy and sustainability of this approach and impacts on calcifuge species (EA permissions required).</p> <p>Other measures to reduce acid flushes include peat restoration and conifer reduction – see Habitats section.</p> <p><i>See also Research section</i></p>	UoP / WRT
<b>Ww</b>	<b>Waste Water Management</b>			
Ww1	Upgrade sewage treatment works	Improve water quality Reduce phosphate levels	SWW has plans and funding to upgrade STWs at Widecombe, Rattery, Kilbury, Totnes and Dittisham by 2030.	SWW
Ww2	Upgrade priority CSOs throughout	Improve water quality Reduce phosphate levels	Several high-spilling CSOs are due for upgrade by 2030 and all CSOs should be upgraded by 2035.	SWW
			The Bidwell Brook Partnership has identified a project to install NBS treatment in the brook's water meadows.	Bidwell Brook Partnership

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Priority Actions		Objectives	What needs to happen	Key Partners
Ww3	Promote “Love your Loo” and “Think Sink” campaigns	Reduce pressures on public waste water network Improve water quality	SWW delivers a campaign focused on how people can reduce their impacts on the Dart and the messages of this campaign need to be communicated more widely. A campaign is needed that other organisations can adopt and support, alongside SWW or independently from it.  <i>See also People section</i>	River Dart Catchment Partnership
Ww4	Encourage better maintenance of private sewage systems	Improve water quality Reduce phosphate levels	Greater awareness is needed of the impact of private sewage systems. This should be delivered as part of the campaign focused on how people can reduce their impacts on the Dart. To include septic tank maintenance, misconnections.  <i>See also People section</i>	River Dart Catchment Partnership
<b>Wr</b>	<b>Water Resource Management</b>			
Wr1	Investigate impacts of abstraction and implement actions where defined.	Sustain flows. Support the recovery of migratory fish populations.	Abstraction impacts need to be reduced. A SWW investigation into Littlehempston abstraction is due 2026; the findings from this will inform actions in PR29.  SWW is also carrying out an investigation into the impacts of abstraction on the ecology of the Swincombe – to be completed by 2027; implementing findings by 2030.	SWW
Wr2	Review private abstractions and identify opportunities for reductions		Data on private abstractions is held by the Environment Agency. There is a need to clarify the scale of the problem, identify what the potential mechanisms are to reduce this pressure, and share the results more widely. This would then inform further action, if appropriate.	EA

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Priority Actions		Objectives	What needs to happen	Key Partners
Wr3	Promote campaign to reduce domestic and business water consumption		Greater awareness is needed of the impact of domestic and business water consumption. This should be delivered as part of the campaign focused on how people can reduce their impacts on the Dart. Residents, tourists and local businesses to be targeted.	River Dart Catchment Partnership
<b>Fl</b>	<b>Flood risk management</b>			
Fl1	Deliver Natural Flood Management projects above communities at risk of flooding	Improve riparian habitats. Increase infiltration and catchment storage capacity	Existing NFM projects have been established in the main locations subject to flooding, where NFM can help reduce the impact. These projects are variously funded and those requiring additional resources need to be further supported.	DNPA/WRT/ DCC/EA
<b>Fa</b>	<b>Farming</b>			
Fa1	Reduce diffuse and point source agricultural pollution	Improve water quality Reduce phosphate levels. Reduce sediment loads. Encourage sustainable farming systems.	The evidence shows that the central and lower parts of the catchment are the priorities for addressing agricultural impacts. Existing programmes need ongoing support and ensuring outcomes align to this Action Plan. A key element is to provide integrated, consistent advice and signposting, supported by funding and regulation.  A wide range of potential interventions on farms are involved in delivering this priority and these are not all listed here.	Farm advisors and landowners
Fa2	Support farmers and landowners, including agronomists and advisors, to implement	Improve water quality Reduce phosphate levels. Reduce sediment loads. Encourage sustainable farming systems.	There is a need to develop materials and guidance with a Wild River Dart focus, to support farmers to make suitable changes in infrastructure and management.  Farmers also need a signposting service to the various sources of support available.	Farm advisors



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Priority Actions		Objectives	What needs to happen	Key Partners
	sustainable farming solutions		<p>Advisors need additional capacity to enable them to collaborate so that farmers and landowners receive coordinated support.</p> <p>Business / agronomist advisors need to integrate nature into their advice and specifically the actions identified in this Action Plan. This could be supported by organising workshops and providing best practice guidance.</p>	
Fa3	Develop a Wild River Dart accreditation scheme and brand to celebrate appropriate farming practices	Encourage sustainable farming systems.	<p>There's a need to recognise and celebrate farmers and landowners who are taking positive steps to help achieve the Action Plan's aims. For farmers and growers, this recognition could help their produce reach new markets. A Wild River Dart brand needs to be developed that can support this function.</p> <p>The brand identity would also be available to non-farming organisations and businesses taking action for the river. <i>See People section.</i></p>	River Dart Catchment Partnership
<b>Ee</b>	<b>Engaging and Empowering People</b>			
Ee1	Develop a powerful Wild River Dart brand to support public engagement.	Engage and empower people to take action	The existing logo is sufficient for current purpose but needs to be more impactful and designed for multiple formats / contexts.	River Dart Catchment Partnership
Ee2	Develop a grassroots campaign to engage and empower people to improve the river.		There is a need to coordinate communications activity via a simple communications plan including website, social media and library or resources. The organisations involved in delivering the Action Plan then collaborate in delivering this plan.	River Dart Catchment Partnership

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Priority Actions		Objectives	What needs to happen	Key Partners
			Part of the plan will be to engage with Parish Councils and other community groups to reach new audiences and promote messages about taking action at home.	
Ee3	Deliver training, learning, environmental monitoring, practical conservation projects, events and celebrations throughout the catchment.		<p>There's a need for a far-reaching activities programme to fulfil WRD objectives, and fill gaps and reach new audiences. Delivery needs to be coordinated, using the WRD brand alongside organisations' own brands.</p> <p>A key step is to understand the learning and training needs of potential audiences and how they are currently being met, and where the gaps lie; this should assess existing and potential L&amp;T opportunities, reviewing physical facilities and activities, together with funding needs and opportunities.</p>	River Dart Catchment Partnership
<b>M</b>	<b>Monitoring</b>			
M1	Develop a Monitoring Plan to coordinate activity.	Understand the condition of the river and track changes.	<p>A huge variety of monitoring takes place but is not proactively coordinated. A Monitoring Plan is needed to provide this and ensure best use of resources. See <a href="#">CastCo</a> project for guidance.</p> <p>The Monitoring Plan needs to be developed in line with identified and prioritised knowledge and data gaps..</p> <p>There is a need to establish a public platform for the data and communicate findings in accessible formats via WRD website and partners. Partners are already working on this challenge, which is considerable, and a national solution may be the best way to secure progress here.</p>	FOD / WRT / EA

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Priority Actions		Objectives	What needs to happen	Key Partners
M2	Agree methodology for gathering data on spawning areas, egg deposition and survival and monitor.		There is a need to ensure consistent and annual monitoring at key sites to enable population trend monitoring. This work needs to be resourced and coordinated.	DFCA / WRT / EA
M3	Analyse video footage from Fishtek to calculate smolt numbers.		According to Stantec, video footage exists but needs to be analysed. This provides useful baseline information on smolt survival and might reveal a population bottleneck. Funding is needed to carry out this work on an annual basis.	EA / DFCA
M4	Install temperature monitoring equipment in headwaters in spawning locations		Temperature monitoring is a data gap identified by Stantec that needs to be filled. There is a potential that high temperatures are affecting spawning success.	DFCA / WRT
M5	Monitor occurrence of chemicals in the river and keep a watching brief on emerging research.		SWW / EA monitor a range of chemicals closely, as a drinking water catchment. FOD has recently carried out detailed testing and WRT have prioritised this issue. Run-off from roads and moorland wildfires are likely to be key new research areas, potentially adding to acidification problem. Funding for ongoing sampling and testing for chemicals is needed.	SWW / EA / FOD / WRT
R	Research			
R1	Understand and prioritise national/local research gaps that work in the Dart	Commission research to fill data gaps	There is a need to engage students at all levels in carrying out research and building evidence. PhD level research is most likely to yield actionable results.  Funding is needed to support this work.	River Dart Catchment Partnership

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Priority Actions		Objectives	What needs to happen	Key Partners
	could help fill through collaboration with local universities.			
R2	Identify any correlation between low pH, metals and salmonid survival.		A Masters thesis has been published providing some evidence and data loggers remain in situ, but need further funding. Aligning data loggers and monitoring with survey sites for electrofishing is needed, to inform further research.	DFCA / UoP
R3	Support fisheries research into likely causes of salmon mortality in the Dart.		Population bottlenecks and appropriate mitigation measures need further research.	River Dart Catchment Partnership
P	Partnership			
P1	Maintain an active River Dart Catchment Partnership	Support partnership working and build capacity	<p>The Partnership needs to engage stakeholder groups throughout the catchment, which it can do by:</p> <ul style="list-style-type: none"><li>● Organising an annual Forum and other events</li><li>● Maintaining a website and disseminating newsletters</li><li>● Organising the Steering Group and working groups under specific themes as required</li><li>● Facilitating collaborative projects as required</li></ul> <p>This work needs funding, through the employment of a part-time coordinator.</p>	River Dart Catchment Partnership



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Priority Actions		Objectives	What needs to happen	Key Partners
P2	Disseminate learning	Support partnership working and build capacity	The Partnership needs to be outward-facing and engaged with other similar partnerships in the region and nationally, sharing learning and learning from others.	River Dart Catchment Partnership
P3	Embed the WRD Action Plan in partners' strategies and policies	Support partnership working and build capacity	The Partnership needs to engage with partners as they develop their strategies and policies, to ensure alignment with WRD vision, aims and objectives.	River Dart Catchment Partnership

Abbreviations:

- DCC – Devon County Council
- DFCA – Dart Fisheries and Conservation Association
- DNPA – Dartmoor National Park Authority
- EA – Environment Agency
- FOD – Friends of the Dart
- SWPP – South West Peatland Partnership
- WRT – Westcountry Rivers Trust
- UoP – University of Plymouth

## Appendix A: Table of active projects and programmes relevant to the River Dart

The following table can also be viewed in map format on the River Dart Catchment Partnership website.

Theme	Project	Location	Lead partner	Status
<b>Species and habitats</b>				
<b>Landscape-scale nature recovery</b>				
	Central Dartmoor Landscape Recovery Scheme	Central Dartmoor	Duchy of Cornwall	Active
	Dartmoor Dynamic Landscapes	Upper Dart Catchment (amongst others)	Dartmoor National Park	Active
	South West Peatland Partnership	Dartmoor bogs and mires	Dartmoor National Park	Active
	Sharpham Rewilding	Sharpham Estate	Sharpham Trust / Ambios	Active
	Species Reintroduction Project	Dart catchment landowners	Sharpham Trust / Ambios	Proposed
	Connecting People and Landscapes	Pilot site on the Dart	Bat Conservation Trust	Active
	River management plan	Upper Dart and tribs	Duchy plus DFCA	Proposed
<b>Wetlands</b>				
	Sharpham Rewetting Project	Sharpham Estate	Sharpham Trust / Ambios	Proposed
	Lake creation	Riverford Farm	Riverford Dairy	Proposed
	Water Net Gain	Various	Westcountry Rivers Trust	Active
<b>Woodland / wood pasture creation / restoration</b>				
	Nature for Climate woodland creation	Catchment-wide (in suitable locations)	Forestry Commission and delivery partners via EWCO	Active
	Woodland creation	Bowden Pillars Farm	Devon Wildlife Trust	Active
	Sharpham Community Forest woodland project	Sharpham Estate	Sharpham Trust	Active
	National Trust ancient woodland mngmnt	Holne, Hembury, Ausewell Woods	National Trust	Active
	Dittisham Plum Orchard Project	Dittisham area	South Devon NL	Proposed
	Apricot Centre agroforestry	Dartington	Apricot Centre	Active
	Wistmans Wood expansion	Dartmoor	Duchy of Cornwall	Active
	Woodland Trust conifer to broadleaf planting	Spitchwick	Woodland Trust	Active

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Theme	Project	Location	Lead partner	Status
	Woodland creation	Riverford Farm	Riverford Organics	Active
<b>Saltmarsh</b>				
	Dart Saltmarsh Project	Estuary	Bioregional Learning Centre / Dart Harbour Authority	Active
<b>Fish</b>				
	Gravel cleaning, bank repairs, tree planting	Upper catchment	Dart Fisheries & Conservation Ass.	Active
	Improve protection for salmon at hydroelectric schemes	At hydroelectric schemes	Dart Fisheries & Conservation Ass.	Proposed
	Barriers to eel passage	Log of locations throughout river system maintained	Environment Agency	Active
	Eel passage associated with SWW assets	Improvements planned in AMP8 at Blackbrook, Cowsic and W Dart abstraction points. Plus investigations into cost benefit of screening at these points.	SWW	Proposed
	Investigation into low pH - 10 data loggers deployed	Upper catchment	University of Plymouth	Active
<b>Invasive non-native species</b>				
	Pacific Oyster licences wind-down	Estuary	Duchy of Cornwall	Active
	Estuary biosecurity campaign	Estuary	Dart Harbour Authority	Active
	Himalayan balsam removal	National Trust estate	National Trust	Active
<b>Agriculture</b>				
<b>Traditional mixed farming systems</b>				
	Cirl Country	Coastal strip merging inland	RSPB	Active
	Chough project	Coastal strip	RSPB	Active
<b>Farm advice / regulation / coordination</b>				
	Catchment Sensitive Farming	Most of the catchment excluding around lower estuary	Natural England	Active

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Theme	Project	Location	Lead partner	Status
	Upstream Thinking	From Littlehempston WTW upwards	SWW funded, delivered by WRT and DWT	Active
	Dartmoor Hill Farm Project	Dartmoor	Dartmoor National Park	Active
	Educate / influence the conventional agronomists mostly used by farmers	Throughout	Devon County Council (via LNRS)	Proposed
	Dart Connectivity Farm Facilitation Group	Dart Estuary area	South Devon NL	Active
	Bidwell Brook farmer engagement	Dartington / Rattery	Bidwell Brook Partnership	Active
<b>Horticulture</b>				
	Training in regen ag / horticulture	Dartington	Apricot Centre	Active
	Projects to reduce soil erosion from field-scale vegetable growing, create ponds and reservoirs, tree-planting and rewilding	Various farms	Riverford Organic Farmers Ltd	Active
<b>Water quality</b>				
	Reduce the frequency of CSO spills	Initially within 5km of bathing waters	SWW	Planned
	Upgrade Sewage Treatment Works	Kilbury SWT	SWW	UV / reedbeds in planning
	Designate Bathing Waters	4 in estuary initially	Friends of the Dart	Active
	Notification service for GPs and vets	Throughout	Friends of the Dart	Proposed
	Catchment Sensitive Farming	Most of the catchment excluding around lower estuary	Natural England	Active
	Upstream Thinking	From Totnes upwards	SWW funded, delivered by WRT and DWT	Active
	Agricultural Regulatory Taskforce	Priority catchments	Environment Agency	Active
	Bidwell Brook Partnership projects	Dartington / Rattery	Bidwell Brook Partnership	Active
<b>Water quantity</b>				
	Assess impact of abstraction on Swincombe ecology/fish and deliver mitigation if required	River Swincombe	SWW	Planned (Amp8)



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Theme	Project	Location	Lead partner	Status
	Investigate abstraction impacts for main Dart, Devonport leat offtakes, Venford reservoir and Littlehempston	Main Dart, Devonport leat offtakes, Venford reservoir and Littlehempston	SWW	Planned by 2026
	South West Peatland Partnership	Tor Royal Bog restoration planned	Dartmoor National Park	Active
	Our Upland Commons	Holne Moor	Dartmoor National Park	Active
	Dartmoor Headwaters Project	Rivers Dean and Mardle	Dartmoor National Park	Active
	River Balland flood risk	Ashburton	Westcountry Rivers Trust	Active
	Palmer's dam flood risk	Harbertonford	Devon County Council / EA	Active
	Bayards Cove flood risk	Dartmouth	Devon County Council / EA	Active
	Broadhempston property flood resilience project	Broadhempston	Devon County Council	Active
<b>Water environment survey / monitoring</b>				
	Invertebrate monitoring above and below CSOs	High-spilling CSOs	SWW	Active
	Littlehempston Water Treatment Works	Littlehempston	SWW	Active
	STW Final Effluent monitoring	All STWs	SWW	Active
	Microbial tracking	Whole river?	University of Plymouth for SWW	Active
	Testing water quality	Bidwell Brook / Buckfast - Totnes	University of Plymouth	Proposed
	River Hems water quality investigation	River Hems	SWW	Proposed
	Fish counter at Totnes Weir	Totnes	Fishtek	Active
	Riverfly monitoring	Whole of Dart to Totnes	DFCA	Active
	Microbial, chemical and invertebrate testing programme	Various locations whole river in due course	Friends of the Dart	Active
	Chemical monitoring	Various locations whole river	EA	Active
	Water quality monitoring	Various locations whole river	Upstream Thinking - SWW	Active
	Westcountry Citizen Science Investigations	Various locations whole river	Westcountry Rivers Trust	Active
	Data transparency for SWW	Whole river?	Friends of the Dart	Active
	SMART sensors	Riverford Farm	Additive Catchments	Active
	River water quality blitz	Unknown	Friends of the Dart / WRT	Proposed
	Fish surveys (electro-fishing)	Upper catchment	EA	Active

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Theme	Project	Location	Lead partner	Status
	Rod catch reports	Throughout	Dart Angling Association	Active
	Bidwell Brook Partnership projects	Dartington / Rattery	Bidwell Brook Partnership	Active
	Bird surveys	BBS, WeBS, Curlew, Moorland birds	RSPB and other NGOs	Active
	Seals	Various	The Seal Project	Active
	Bacterial sensors on unmanned autonomous vessel	Dart Harbour	Dart Harbour Authority	Proposed
	InnWater - data coordination project	Across whole Westcountry	WRT	Active
<b>Community, business</b>				
	Local plans - housing allocations - neutral impact on the river. But pressure on STWs.	Totnes / Dartington	South Hams DC / EA	Active
	Local plans - leisure developments. Pressure on STWs.	Mainly lower river	South Hams DC / DNP / EA	Active
	Dogs on Dartmoor project	Dartmoor	National Trust	Active
	Access improvements to the water	Estuary	Dart Harbour Authority	Active
	Cruise ships levy to fund engagement	Estuary	Dart Harbour Authority	Proposed
	Relocate moorings to create quiet area	Estuary	Dart Harbour Authority	Active
	Community education workshops / visits	SWW issues / assets	SWW/WRT	Proposed
	Education / engagement projects	Tbc	Friends of the Dart	Proposed
	Mapping community groups and developing a framework	Whole river	Friends of the Dart	Active
	Dart, River of Life - climate adaptation	Whole river?	Bioregional Learning Centre	Proposed
	Dart Charter	Whole river	Bioregional Learning Centre	Proposed
	Dart Harbour Community Fund	Communities around the estuary	Dart Harbour Authority	Active
	Education and events programme	Sharpham Estate	Sharpham Trust	Active
	Conservation skills programme	Sharpham Estate	Ambios	Active
	Macro plastics - the Coast is Clear	Whole river	Friends of the Dart	Proposed

## Appendix B: Strategic Context

This section reviews some of the relevant strategies that provide the context for work to improve the condition of the River Dart. The list is not exhaustive as there is a myriad of plans and strategies that influence the natural environment, so the most relevant are included here.

The UK government’s **25-year Environment Plan**<sup>xv</sup> (EIP) was published in 2018 and sets ambitious targets for nature. Of these, the most relevant are:

- “Clean and plentiful water” targets to reduce “damaging abstraction” and improve the cleanliness of waters.
- “Thriving plants and wildlife” targets to restore protected sites, create new habitat, recovering threatened species and increasing woodland cover.
- “Using resources from nature more sustainably and efficiently” targets to tackle soil management, recover fish stocks and produce food sustainably.

DEFRA’s **Plan for Water**<sup>xvi</sup> (2023) is designed to implement relevant parts of the EIP. It espouses an integrated catchment management approach and promises more funding for catchment-scale partnerships. Other measures include improved regulation of water companies, accelerated action on storm overflows and improving water supply, stronger targets to reduce pollution from farming, wastewater and metal mines, supporting farmers to store water and clarifying farming laws.

The **Environment Agency’s** suite of plans includes River Basin Management Plans, Shoreline Management Plans and Flood Risk Management Plans. There are no flood risk priority areas in the Dart catchment.

The **South West River Basin Management Plan**<sup>xvii</sup> sets the following objectives:

- preventing deterioration of the status of surface waters and groundwater
- achieving objectives and standards for protected areas
- aiming to achieve good status for all water bodies
- reversing any significant and sustained upward trends in pollutant concentrations in groundwater
- cessation of discharges, emissions and losses of priority hazardous substances into surface waters
- progressively reducing the pollution of groundwater and preventing or limiting the entry of pollutants

The RBMP also sets biodiversity objectives that include protecting marine conservation zones and protected species including salmon.

The **Shoreline Management Plan** sets out the approach to managing sea level rise and coastal erosion. For the Dart Estuary, the policy is “to allow continued defence along currently defended areas to reduce the risk of flooding, but for the majority of the currently undefended, natural estuary to function under a policy of No Active Intervention” (6.3.11)<sup>xviii</sup>.

The **South Devon Catchment Plan**<sup>xix</sup>, created by the South Devon Catchment Partnership, addresses 4 key themes: Water Quality; Species and Habitats; Value to People; and Water Quantity. Each of these has a set of key issues, that match closely the issues that have emerged for the River Dart, including pollution, falling fish populations, recreational access to sensitive environments, development pressures, abstraction and flooding.

South West Water's (SWW) **Drainage and Waste Water Management Plan**<sup>xx</sup> (2023) aims to tackle key priorities of the EIP, which it summarises as:

- Investigating and reducing storm overflow discharges.
- Investigating and improving bathing water and shellfish water quality, usually through a reduction in storm overflow discharges.
- Investigating and protecting high priority sites such as SSSIs and SACs that are impacted by our drainage and wastewater treatment activities.
- Investigating and reducing the impact of nutrients and chemicals from our WwTW discharges, especially Phosphorus, usually by increasing treatment capacity to meet more stringent permit levels.
- Investments at WwTWs to meet more stringent requirements under the Urban Waste Water Treatment (England and Wales) Regulations 1994, driven by population growth and to provide increased treatment capacity at septic tanks.
- Increased monitoring at WwTWs, SPSs, emergency overflows, and in rivers close to our storm overflow discharge points.

SWW's **Draft Water Resources Management Plan 2024**<sup>xxi</sup> is currently being developed with the aim of ensuring a "secure, sufficient and safe supply of water for customers and businesses". Climate change, environmental impacts (that require reduced abstraction) and population growth mean that there is a growing risk of a water deficit in the region and demand reduction combined with new supplies will be needed to close a gap of over 200 million extra litres of water a day by 2050. The plan identifies the River Dart as one of the priority rivers for reduced abstraction in the region.

The **Plymouth and South West Devon Joint Local Plan 2014-34** is the area's key land use plan. With 160 policies it cannot be fully reviewed here, but its policy SO1<sup>xxii</sup> sets out the strategic spatial strategy. In relation to the Dart catchment, it focuses growth on Totnes, provides for "sufficient" development in smaller towns and larger rural villages to enable them to act as local service centres, and "positively protects, conserves, enhances and celebrates the Plan Area's high quality natural and historic environments".

The **South Devon National Landscape Management Plan** provides a comprehensive framework of policies to conserve and enhance the natural beauty of the National Landscape. Within this sits the **South Devon Estuaries Environmental Management Plan 2018 – 2024**<sup>xxiii</sup> which sets out comprehensive objectives for the conservation of the five estuaries covered by the National Landscape. For the Dart Estuary these include saltmarsh conservation, recreation management, marine biosecurity, wastewater management and conserving Sharpham Marsh.

The **Dartmoor Partnership Plan 2021-26**<sup>xxiv</sup> includes detailed action plans across many cross-cutting themes. Most relevant to the Dart catchment are actions to achieve better soil



management, hydrological function, habitat improvement and connectivity, species abundance and diversity, recreation management and support for agricultural transition. Also relevant to Dartmoor's moorlands is the recently published *Independent Evidence Review of Protected Site Management on Dartmoor* which is addressed in section 6 below.

The **Dart Harbour Strategy**<sup>xxv</sup> has Stewardship as one of its five Strategic Pillars, including aims to safeguard and improve habitats, maintain and restore the Marine Conservation Zone, and reduce the impact of invasive non-native species. Short term priorities include supporting SWW's Bathing Water Quality Plan and reducing litter and plastic waste.

Published in April 2024, the **Devon Tree and Woodland Strategy**<sup>xxvi</sup> sets a target of achieving 16.5% canopy cover across Devon by 2050 (from the current position of 11.8% cover), improving and protecting existing sites and inspiring people to get involved.

The **Devon Carbon Plan**<sup>xxvii</sup> sets a target of achieving net zero emissions in Devon by 2050 at the latest. One of the themes is *Food, Land and Sea*, under which are goals to improve demand for sustainably produced food and improve carbon storage on farms and in the wider environment; these goals will all support a better River Dart.

Finally, the emerging **Devon Local Nature Recovery Strategy**<sup>xxviii</sup>, due for publication by March 2025, will identify priority areas for nature recovery and the measures needed in those areas. Rivers are likely to be a major theme for the LNRS because of their connectivity function and the important ecosystem services they provide.

## Appendix C: The state of Dart salmon and likely reasons for decline

The following table is extracted from the Stantec report December 2024. The table is a summary of the state of the salmon (by life stage) and likely impacts showing whether the level of currently available data is a total gap (no data), poor data or enough to make a modest assessment. With details on what research would be required to fill the gap. The report is available in full from the River Dart Catchment Partnership website.

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State of the Salmon (life stages)	Level of data	Research required
<b>Egg</b>	No data	There is currently no specific data on egg deposition or egg survival for the catchment and the knowledge of spawning areas are over 20 years old without a referenced method for their collection. Egg deposition estimates calculated by CEFAS are based on wetted accessible areas, but these GIS files were not publicly available. Having this data is essential to identify mortality rates within the Dart and could be collected by redd counts, walkover surveys and in situ determination of survival with Vibert boxes.
<b>Fry</b>	Modest assessment	These are surveyed through fish monitoring by the Environment Agency, with methods varying over time and not all sites are monitored in consecutive years. There are also some records from Westcountry Rivers Trust (2012 – 2021) that are available on request. Ensuring that several sites have consistent consecutive years of monitoring across the catchment and in alignment with environmental monitoring would allow for a fuller understanding of the salmon population and their impacts.
<b>Parr</b>	Modest assessment	These are surveyed through fish monitoring on by the Environment Agency, with methods varying over time and not all sites are monitored in consecutive years. There are also some records from Westcountry Rivers Trust that are available on request, from 2013 to 2021. Inclusion of parr at all fish monitoring allows for an understanding of survival beyond the first year.
<b>Smolts / Survival</b>	No data	Currently there is only video footage data of smolts which has not been extracted into data format, as far as we are aware. Understanding the number of smolts migrating through the catchment gives key knowledge on the total number of salmon surviving from the catchment, and as this is the time when mortality is likely to occur, it may reveal a significant population bottleneck. Using tags can inform mortality, environmental conditions and routes of travel, further data is needed.
<b>Adults</b>	Poor	Whilst annual reports are available on the adults based on a resistivity counter, the data are not openly accessible, and they are not being used in stock assessments. Making these data openly available and ensuring they are as rigorous as other national monitoring datasets could improve the stock assessment that currently relies on limited catch data. Other adult count data has been supplied from net and rod fisheries but with these being restricted and reduced they do not provide consistent effort and no netting will occur until at least 2028.
<b>Population assessment</b>	No data	Limited data is available, and lack of consistency makes it difficult to compare data and would be unreliable to do so. Consistent and annual monitoring at key sites would enable population trend monitoring. Making data openly available and ensuring they are as rigorous as other national monitoring datasets could improve the stock assessment that currently relies on limited catch data. As far as we are aware there is currently no mechanism linking together all the existing life stage data, and without key stages such as the smolts it would not be possible.
<b>Migration routes</b>	No data	No studies were found on the migration routes of adults at sea for either the Dart or other South West salmon, which is an important knowledge gap to fill. As there are many marine threats to salmon, being able to spatially match threats to populations is the first step to understanding impacts and then designing mitigation.

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Likely freshwater reasons for decline		
Competition	Poor	For the freshwater conditions, we were not able to compile data for the many possible competitors for food at the varying life stages which can include everything from other fish to birds and even potentially large macroinvertebrates competing for prey with fry. Even if dietary overlap with other species could be determined from stable isotope analysis there is only competition if the food resource is limiting, this is a very difficult thing to determine in the wild.
Reduced prey	Poor	It may be possible to review available prey in the river through EA macroinvertebrates monitoring, which was not possible in the scope of this work.
Predation	No data	Quantitative data is not available on the various predators, that we are aware of, but studying this through either mortality tags on the salmon or just quantifying predator populations or activity would be informative.
Loss of genetic diversity	Moderate assessment	The salmon in the Southwest are genetically unique in comparison to the rest of the UK stock and therefore preserving this level of diversity should be considered. Genetic diversity can be altered through stocking, so careful consideration of this risk would need considering if that option were to be discussed.
Freshwater fishing	Modest assessment	There are currently relatively good levels of data on freshwater fishing through mandatory catch returns.
Temperature	Poor	Climate changes impacts on temperature are not currently exceeding or near to the upper critical limits for Dart salmon in the summer or winter, suggesting this is not currently leading to mortality. However, there are a lack of temperature recording locations in the headwaters where spawning has been observed and to be able to make predictions about where and when temperatures will become limiting, new temperature monitoring should be included. This is recommended to provide insight into climate change / impacting mortality and sublethal effects.
Water Quality	Poor	An analysis on water quality was not possible in the scope of this report, however chemical pollution was the cause of WFD failure in 2019 highlighting priority hazardous substances, such as mercury, in high amounts which is known to have sublethal effects on salmon. The chemical status of waterbodies to longer requires assessment (2022), without the data, assessment the likelihood of the threat is not possible. Regular water quality monitoring is essential to identify the conditions of the River Dart and whether it is healthy enough to support salmon populations or if there are toxic levels of metals or pollutants leading to their mortality.
Connectivity/ Barriers	Poor	There is lacking data on the connectivity of the catchment and recent improvements need documenting on a catchment scale alongside a robust assessment of their passability for salmon.
pH	Poor	Further temporal and spatial coverage for pH is required to understand this complex issue alongside the relevant metals, and monitoring sites should be co-ordinated with fish monitoring sites. This should be paired with catchment specific experimental work on salmon as there may be local tolerances.

<b>Land Use and Siltation</b>	Poor	Determining land use, erosion patterns and in river habitat quality would be an important data gap to fill as siltation can drive high proportions of egg and larval mortality.
<b>Water levels and flow</b>	Poor	An analysis of river flows was carried out for the catchment based on three gauging stations, but years with the lowest flows were not correlated with low juvenile salmon abundances. A new gauging station has been added at Buckfastleigh, this will potentially add some flow relation ability to the River Mardle. There are several tributaries currently lacking any flow gauging such as the River Ashburn.
<b>Disease</b>	Poor	Historic angler reports of ulcerative dermal necrosis were found to be Saprolegnia infections. Environment Agency National Fish Laboratory records are not openly accessible, and reporting is done on an ad hoc basis. Increasing reporting advice for disease and parasites could improve knowledge on the conditions of the salmon in the catchment, although this doesn't currently seem to be of great concern. Regular monitoring would highlight if disease were present and how this is impacting salmon populations.
<b>Recreation</b>	Poor	The River Dart is very popular for recreation, and this can pose threats to salmon from disturbance, being a potential conduit for invasive species and damaging key habitats. No studies or data were available to assess the impacts of recreation on the Dart salmon.

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