Uck Adaptation Project

Landscape Resilience in a Changing Climate

Uck Adaptation Project

Delivering Positive Action

Rivers and streams support a huge amount of biodiversity and evoke emotional wellbeing but can also impact communities through flooding and water quality issues. Over time our rivers and landscapes have been modified for many different purposes, each adding to the modern-day picture of a degraded ecosystem with diminished resilience to contemporary pressures.

As climate change and population growth increase the impact of both recognized and emerging pressures on our water environment, we must work at scale, taking an approach which tackles multiple issues at the same time but enables us to adapt for the future, thinking not only what we need today but also building resilience into the future. This requires ambitious thinking and the delivery of enhancements which provide a wide range of benefits.

The Uck Adur Adaptation project aims to respond to these pressures, significantly improving the resilience of the River Uck with a specific focus on flood, drought, water quality, and nature recovery. It uses an evidence-based approach in identifying priority areas which has enabled the creation of a series of workstreams which interconnect, ensuring joined up approaches to multiple topics and delivering the most appropriate solution at each opportunity.

The Ouse & Adur Rivers Trust has the knowledge, commitment and experience in delivering projects of this nature and ensuring that co-design and delivery with a range of partners underpins the future of our local environment. This document sets out the core workstreams along with the aims, priorities, and expected outcomes until 2030.

We welcome the opportunity to discuss the project and can be contacted at info@oart.org.uk.

Project Workstreams

- Natural Flood Management
- Urban Wetland Network
- Drought Resilience
- Water Quality
- Non-native Invasive Species
- Connectivity & Nature Recovery
- Community Connections

The Ouse & Adur Rivers Trust

Leading Action for Healthy Rivers

Our local rivers, and those across the country, continue to be under serious threat from a range of pressures. However, never has their health been more in the public eye and it is fantastic to be a part of the community making a difference, pressing for and committed to taking positive action. It is, after all, the foundations on which OART has been built.

The Ouse & Adur Rivers Trust has established itself as one of the primary organisations delivering river and wetland restoration projects across the catchment. From putting the wiggles back and daylighting channels to removing or mitigating barriers to fish passage, creating in-channel habitat, constructing wetlands and delivering natural flood management solutions in urban and rural settings, our work has not only seen substantial improvements to the river network but also to the knowledge and expertise across local communities and within our own team.

Looking forward, the needs of the catchment require a greater level of strategic thinking, developing longer-term delivery periods and attracting a wider range of funding and income streams. This will enable "bigger, better and more joined up" thinking in terms of catchment restoration and delivery of long-term projects which address the bigger issues facing the local water environment.

What is clear is that we need to work faster, be bolder, and expand our collaborations, in short, we need more action, and this plan sets out our aims, priorities, and mechanisms to enable a leap forward in improving our water environment.

Our Values

Dedicated
To delivering high quality, evidence-based solutions

Open-minded
To innovative solutions and methods

Enthusiastic
About working with others and learning ourselves

Honest
Being upfront with information, insight & processes

Inclusive
Collaborating and engaging effectively with people from every background

Curious
Hungry to learn, and share, never being complacent in our work

The River Uck

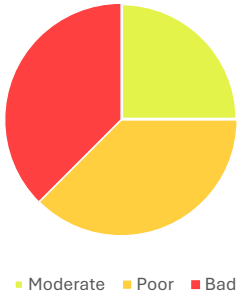
The River Uck, the main tributary of the River Ouse, covers a primarily rural area of approximately 100km^2. The river rises as small streams at Crowborough in the North, Hadlow Down to the East and Laughton to the South. The town of Uckfield is situated to the downstream end of the catchment and has been severely impacted by river flooding during the 2000 floods but also more recently in 2007 and 2010.

The river system is divided into eight waterbodies ranging in area from the Lephams Bridge Stream (7.5km^2) to the Uck, Upstream of Buxted (32km^2). Each of these waterbodies has unique characteristics, some rising in the High Weald and some in the lowland areas to the south.

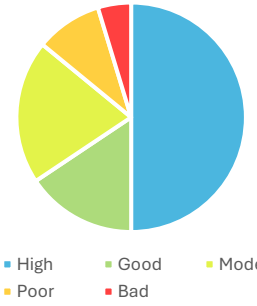
The condition of rivers is reported according to the Water Framework Directive (WFD) which uses several indicators covering both ecological (fish populations, freshwater invertebrates, plants) and water quality (phosphate, ammonia, dissolved oxygen). Classified as Bad, Poor, Moderate, Good, or High, the overall aim is to get all waterbodies to a minimum of Good.

Across the River Ouse there is currently no sub-catchments meeting that Good status with the River Uck containing all three of those classified as "Bad" with causes ranging from low fish populations to high levels of phosphate and low levels of Dissolved Oxygen. Analysis of the 64 individually assessed elements shows that 44 (66%) are at or exceed Good Status and the 22 below this are primarily associated with ecological rater than water quality elements.

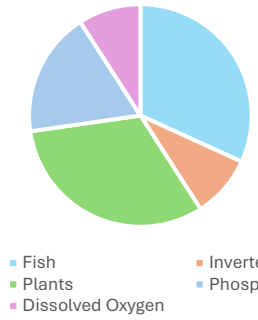
River Uck
Overall WFD Status

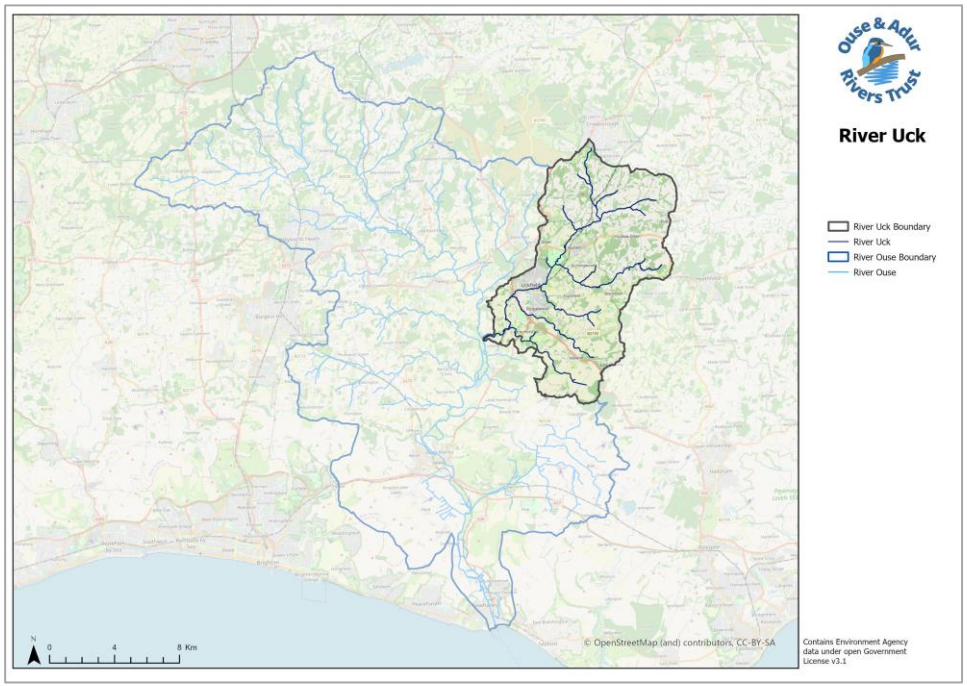


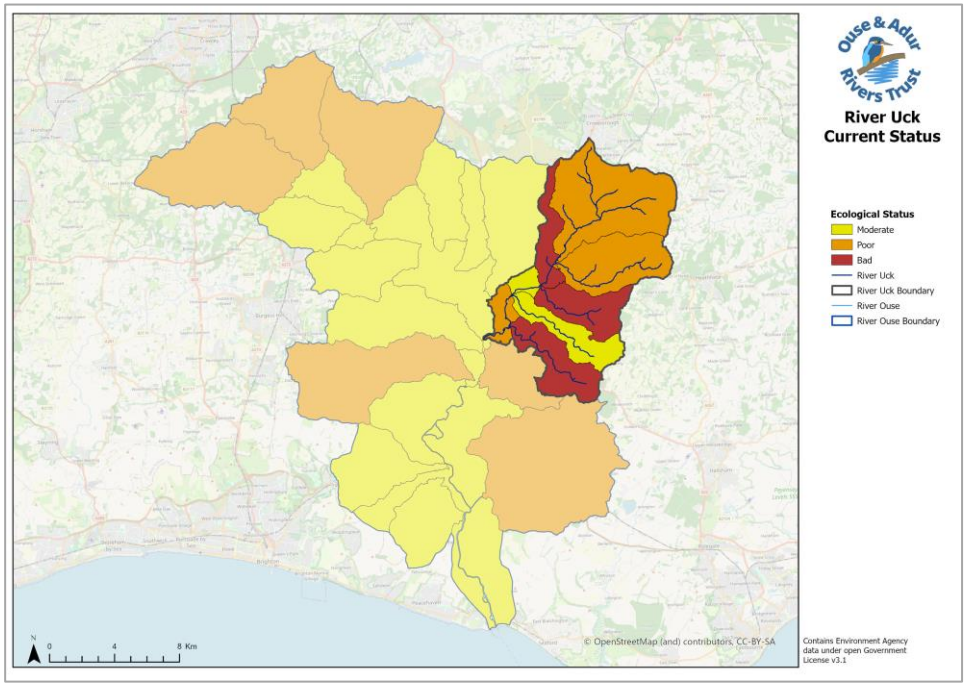
River Uck
Element Status



River Uck
Failing Elements







Pressures

The pressures on our water environments are diverse and we must take an integrated approach to tackling these issues to ensure that not only do we fix the immediate issues but are creating resilient ecosystems for the future. The Uck Adaptation Project will not accomplish this alone, it will take a partnership of organisations, communities, and projects collaborating their individual skills and knowledge, and committing to long-term thinking in developing innovative approaches to achieve the scale of impact required to enhance our rivers.

Below we outline the main pressures on the River Uck considered in the development of this project. Many of these are linked, for example increasing population size intensifies pressure on public water supply, sewage infrastructure, and reduces landscape connectivity.

What

It is widely recognized that our rivers and wetlands are in poor health and need to be improved.

Why

There is a broad appreciation of why this is the case, climate change, water quality, quantity, and invasive species for example.

How

The Ouse & Adur Rivers Trust understand the complexity of freshwater systems and are experienced in delivering wide-ranging benefits.

Climate Change Pressures

More frequent periods of heavy rainfall increases the risk of runoff/discharge of pollutants into our rivers and wetlands, further degrading the quality of habitat for freshwater species.

Warmer, drier summers are likely to increase the risk of low flows in our rivers. Reduced water levels will exacerbate the impact of pollutants on freshwater species.

Many freshwater species are unable to regulate their body temperature independently making them sensitive to changes in water temperature.

Increased rainfall intensity will increase the risk of flooding to local communities, risking further hard engineering and further deterioration of freshwater ecosystems.

Ecological Pressures

In-channel barriers, such as weirs, impact species movement, limiting gene flow and access to breeding grounds, making them less resilient to change.

With 42 known freshwater non-native species in the catchment our native biodiversity is under pressure along with our riverbanks and recreational use.

Historical straightening, culverting and embanking of our rivers reduces connectivity, removes habitat, and speeds up water increasing the risk of flooding.

Water Quality Pressures

Sewage entering rivers and streams from storm overflows and private treatment works increase levels of phosphate, fecal coliforms and introduce pharmaceuticals to our water.

Agricultural runoff can create unnatural sediment loads within rivers. It can also contain high levels of phosphate, nitrate and fecal coliforms.

Increased nutrients from sewage and agriculture raises the risk of algal blooms, reducing oxygen and sunlight for other species.

Run off from roads often directly enters our waterways, introducing heavy metals, petrochemicals, rubber compounds and salt, all of which exert negative effects on freshwater ecosystems.

Water Quantity Pressures

Hotter, drier summers combined with increasing population size and changing behaviors increases pressure on the public supply network

Increasing density of boreholes and unlicensed abstraction above the daily allowance impacts groundwater recharge, baseflows of rivers and public supply availability.

Data shows that there is only “restricted” availability for water resources across the River Ouse for more than 50% of flow conditions. This will reduce as temperatures increase and rainfall patterns change.

Natural Flood Management

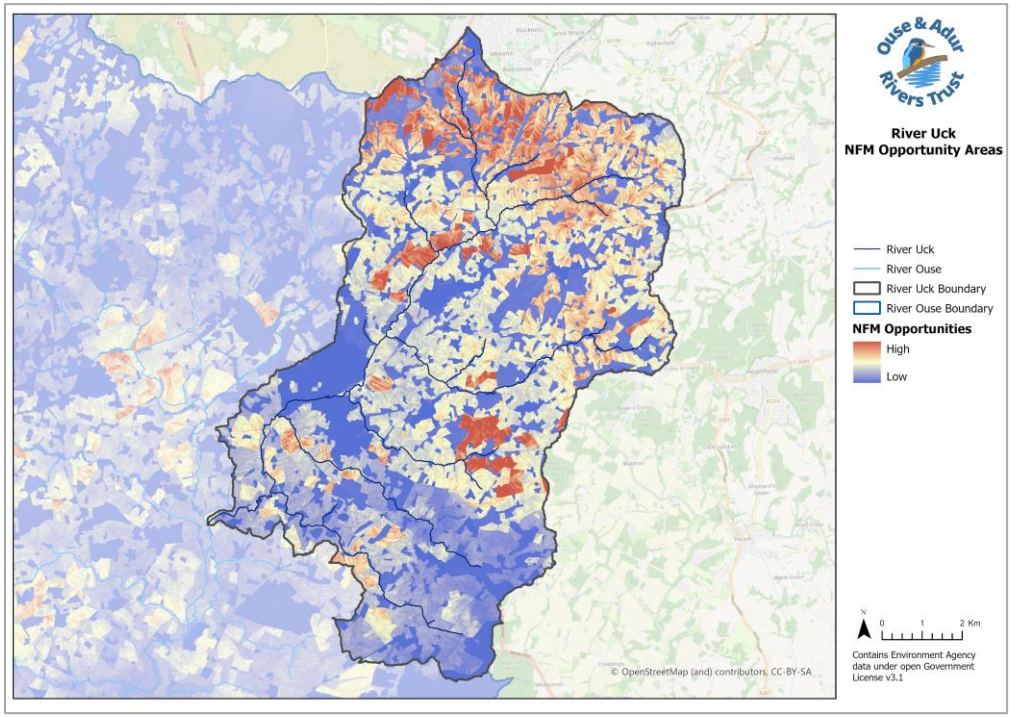
Reducing Peak Flow

Our focus in rural areas is on natural flood management (NFM), from slowing the flow with ditch blocking and leaky dams to temporarily retaining water through floodplain connectivity and wetland habitat. River restoration has a key role in reducing flood risk. Re-naturalising and re-wiggling the straightened, over deep channels are two ways to help downstream communities. Tree planting and hedgerow creation form part of our programme of flood management whilst also increasing connectivity, providing river shade and improving carbon sequestration.

Working with natural processes such as the implementation of NFM techniques is based on the principle of working with the river system and its floodplains to slow and store water in a more natural way. This can also provide multiple benefits to landowners, farmers, communities, and wildlife. We will be taking a strategic approach, based on the outputs of computer modelling and hydrological monitoring, to ensure the right intervention in the right place.

Examples of NFM techniques include

- Introducing leaky woody dams to slow the flow and create in-channel habitat.
- Introducing wetlands, ponds, and scrapes in the floodplain to provide increased water storage, providing both flood and drought resilience.
- Seeking opportunities to create floodplain woodland or reinstate historic cross-slope hedgerows, both known to benefit flood risk management.
- Supporting improvements to soil structure and rebuilding levels of organic matter to increase landscape permeability.
- Modifying flood embankments to improve channel diversity, water holding capacity and/or re-connecting rivers with their floodplains.
- Creating Urban Wetlands to reduce the impact of runoff, reducing localised flooding and pollutants entering the river.



Urban Wetland Network

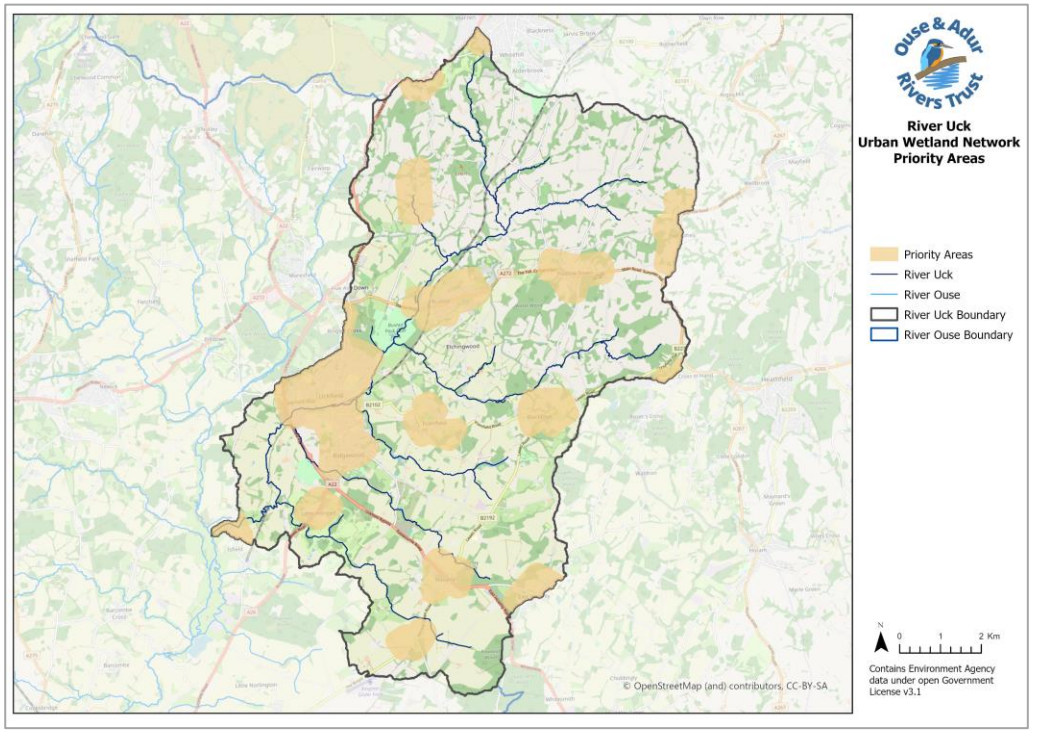
Managing Surface Water with Nature

Surface water movement and drainage through urban areas can create a number of issues for local communities and water-based ecosystems. From property flooding and inundation of the sewage network to road runoff directly entering our watercourses there is a pressing need to work across the towns and villages of the River Uck to manage the impacts of climate change and improve the health of our rivers.

Our Urban Wetland Network project is creating an influential network of nature-based solutions to tackle flooding and water quality across the urban environment whilst aiding natures recovery, providing opportunity for co-design and delivery with local communities and building connectivity between the urban and rural environments.

We will deliver more resilient urban areas through the following actions.

- Delivery of functional wetland habitats within urban areas and across a 500m buffer area around their edges.
- Creating in-community features such as retention wetlands and scrapes alongside river restoration, and re-naturalising ditch networks.
- Through our Storing the Storm! SuDS initiative we are working with schools and local communities, installing urban ponds, raingardens, and rainbox planters, inspiring involvement in their design and delivery.
- Reviewing existing surface water management plans to highlight where nature-based solutions may offer higher benefits and lower cost to traditional hard engineering and concrete.



Part of the River Ouse Urban Wetland Network; retention ponds in Ringmer and rainbox planters in Lewes

Drought Resilience

Sustainable Water Resource

The Southeast of England is classified as being in serious water stress and as the impacts of climate change increase, shifting weather patterns will put additional stress on our environments with the additional pressures of a growing population and increasing demand during hot, dry periods, threaten the supply of clean drinking water. It is easy to look to reductions in abstraction from rivers and aquifers as the solution, however, the need for water in our homes and businesses will always be a priority.

Therefore, we must look to alternatives, working alongside those who supply our drinking water, to create a sustainable approach to water management which balances the needs of humans and the natural world.

Much of this approach aligns with the theories of natural flood management as we look to increase water storage within a permeable landscape, providing slow release of water into our waterways and capturing it for longer where needed such as in agricultural settings.

Our Approach

Building on the success of the Ouse & Adur Rivers Trust pilot project WaFER, (Water & Future Environmental Resilience), on the River Ouse we are expanding this approach to the River Uck through the following measures

- Working with landowners and managers to identify sustainable alternatives to unlicensed borehole abstractions. Providing opportunities for the installation of rainwater harvesting systems to reduce reliance on public supply and reduce runoff during periods of heavy rainfall.
- Create on-farm water storage where it is most needed for livestock and providing natural water sources within the landscape
- Investigating and monitoring groundwater levels across the catchment alongside delivering pilot projects to increase soil permeability to the benefit of recharging rivers over longer periods.

Garfield Weston FOUNDATION

Lewes District Council

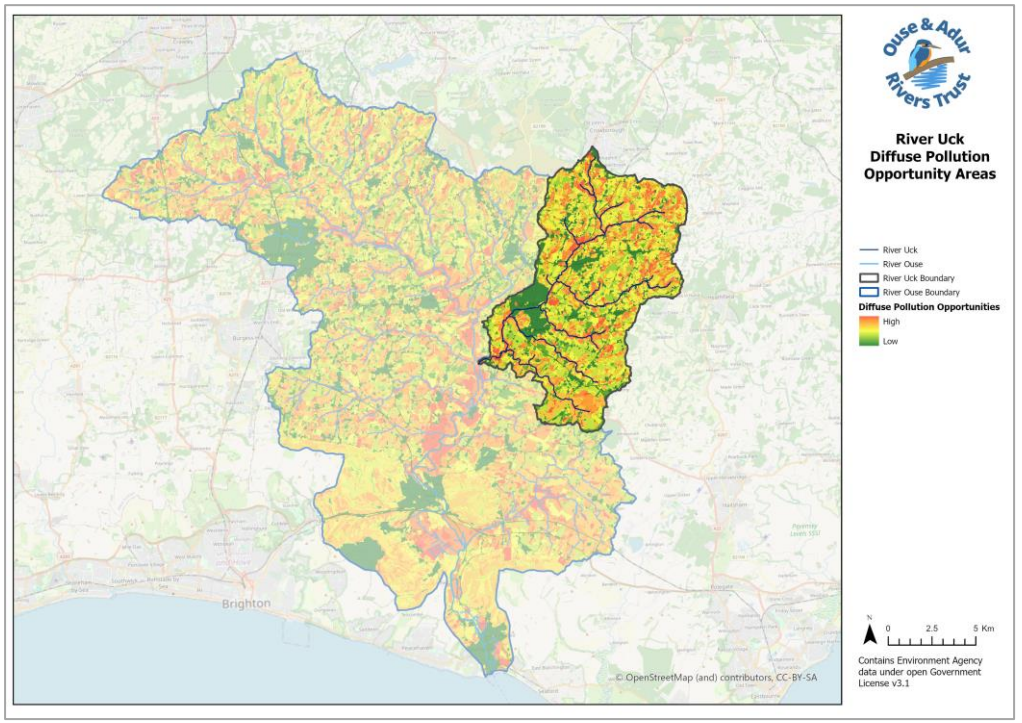
Cleaner Rivers & Streams

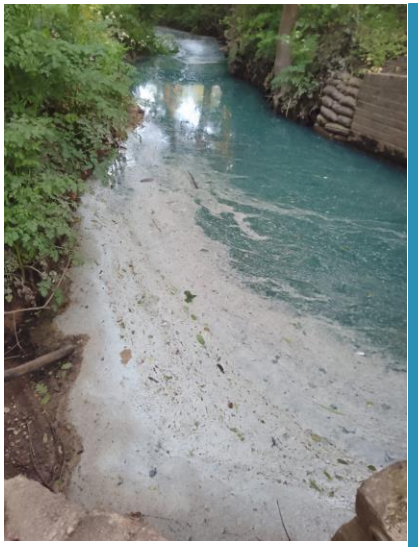
We've assessed where opportunities exist across the catchment to tackle issues from diffuse pollution using a combination of environmental variables, soil data, topography and hydrological connectivity. The maps show not where the problems are occurring but where mitigation points are located, therefore where we should focus on preventing pollutants entering the watercourses. These maps give us an overview of the catchment at a 5m scale and can be used to target options for landowners for grant schemes and stewardship payments.

One of the simplest ways to reduce diffuse pollution from entering our waterways is through the creation of effective buffer strips. These can be next to the river (riparian buffer strips) or across the middle or around the edge of fields. Creating buffer strips of rough vegetation provides a physical barrier that slows the flow of surface water, increases infiltration and prevents soil, sediment and nutrient loss from fields.

Buffer strips provide additional benefits within agricultural landscapes, providing shelter and shade for livestock and habitat for beneficial insects, such as pollinators and predators of pests. Buffer strips also help farmers comply with the Farming Rules for Water (2018) by reducing the area alongside a river where there is potential soil poaching by livestock.

The Uck Adaptation Project will target priority areas where opportunities exist to affect tangible improvement. We will work with landowners and managers to identify and obtain appropriate funding from implementation of 12km of functional buffer strips by 2030 and monitor the effectiveness of these in terms of river health alongside the economic benefits to farm businesses.





Improving water quality is at the heart of everything we do. We believe it vital to consider water quality holistically, and our approach is supported by effective monitoring, engagement, and awareness raising, alongside delivering nature-based solutions which provide multiple benefits.

The detriment of sewage in rivers is widely understood, and we are committed to working with water companies, owners of septic tanks, and private sewage treatment works to establish sustainable solutions which consider not just the current problem but better development & reducing inputs through the Urban Wetland Network.

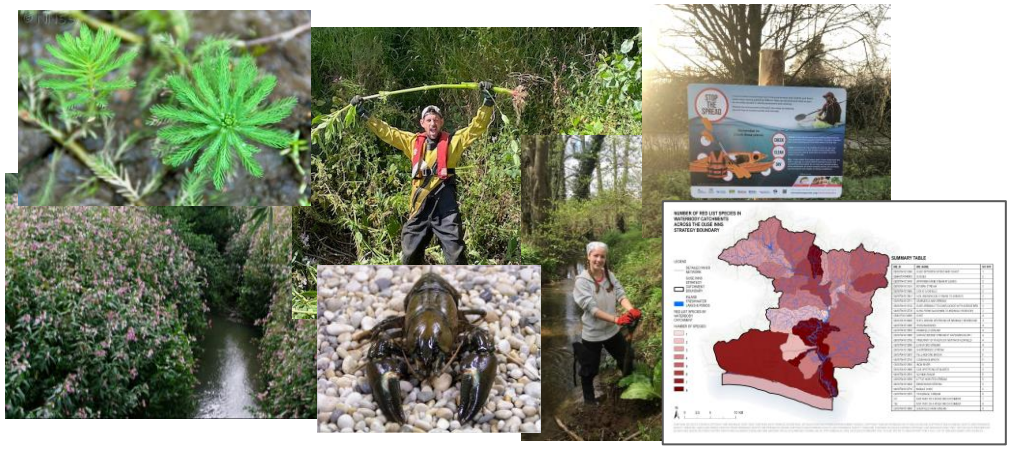
Along with pollutants from sewage and agriculture we are investigating the impact of pharmaceuticals and emerging toxic uPBT substances, which persist and accumulate in the environment. These are likely having a significant impact on our wildlife but are less understood.

Boosting Native Wildlife

Rivers and streams are particularly vulnerable to Invasive Non-Native Species (INNS) as they serve as natural wildlife and dispersion corridors combined with the fact that many of our waterbodies are becoming unfavourable for our native species increasing the risk that INNS will thrive along our watercourses. This threatens the natural heritage of our river catchments through modification of the physical environment and out-competing native species.

Many INNS can also have a significant impact on how we live and interact with natural spaces. The benefits of public engagement with nature are well documented and INNS can restrict access to recreational activities, damage fisheries, and cause harm to human health. In the UK, the estimated economic cost of INNS is approximately £2-billion per annum considering the cost of control alongside the economic impact across business sectors.

In 2022, the Adur & Ouse Catchment Partnership produced the INNS Strategy[1] for the Ouse Catchment. This document sets out the ambition, priorities, and actions for the control of existing INNS along with the prevention of new species entering the Catchment.



Our Approach

Implementing the recommendations of the Catchment Strategy will underpin works to eradicate, control, and monitor species within the River Uck as follows;

- Targeting the 13 identified priority species for control within the River Uck, focusing on controlling their spread and where possible eradicating them from sites, starting at the most upstream point of their current distribution.
- Formation of active and accessible work parties of community volunteers to control appropriate species through proactive intervention at sites.
- Establish robust, citizen science-based monitoring at identified hotspots of the catchment boundary where watchlist species are most likely to colonise from.
- Work in partnership with local clubs and community groups, raising awareness of biosecurity measures in both rural and urban environments.

Recognition for Best Practice

AQUA – Biosecurity Accreditation Award

In 2024 the Ouse & Adur Rivers Trust were instrumental in bringing the Aqua Awards for Biosecurity to the Southeast of England. Previously restricted to the southwest, the recognition of best practice process at clubs and societies resulted in a Bronze award being presented to Newhaven & Seaford Sailing club following advice from our INNS Officer. Inspired by this we now aim to expand these awards through all those clubs and societies who use our rivers for recreation.

[1] The Ouse INNS Strategy was created through a sub-group of the Adur & Ouse Catchment Partnership consisting of Ouse & Adur Rivers Trust, South East Water, Environment Agency, South Downs National Park Authority and University of Brighton and is available on request.

STOP THE SPREAD OF INVASIVE PLANTS AND ANIMALS
CHECK CLEAN DRY
invasivespeciesni.co.uk

Aiding Nature Recovery

Nature recovery depends on enhancing landscape connectivity along with ensuring future resilience of those habitats. Rivers are the natural corridors along which nature recovery can be expanded across landscapes and the natural basis to inform on wider landscape change.

Our Approach

From increasing in-channel connectivity through the removal of barriers, to increasing the value of riparian habitat (that within10m of the bank top), and creating resilient landscapes which filter, store, and recharge water into the riverine ecosystem.

The Uck Adaptation Project is engaging with landowners and managers, offering free visits and advice focused on the creation of diverse habitat both in- and out-of-channel. By working strategically, using all available data and evidence, this project will improve the physical shape, spatial functionality and connectivity of the landscape of the River Uck whilst supporting sustainable agriculture and food production.

In-Channel Priorities

Focused across 21 weir structures, we will engage landowners across the River Uck, developing opportunities for removal or mitigation, and gaining understanding of constraints to connectivity.

Targets (2025 – 2030)

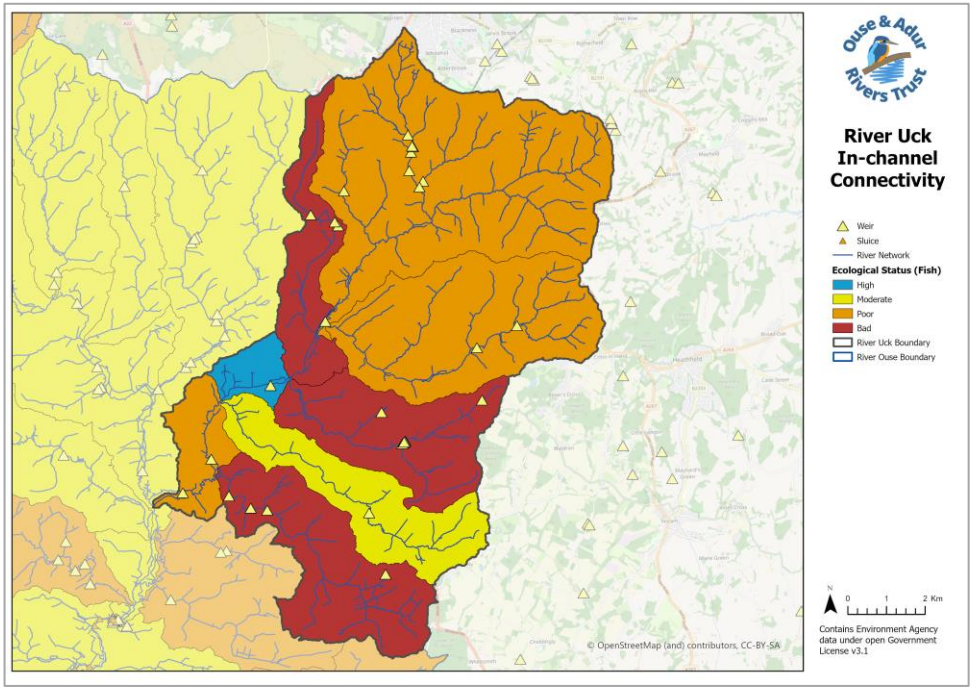
- Connect 20km of river to multiple fish species whilst ensuring suitable upstream habitat is available.
- Minimum of three priority barriers removed.

Landscape Priorities

Taking a whole catchment approach to restoring natural processes across the river corridor and surrounding landscape. From ponds to wetland creation, river restoration to tree and hedgerow planting, the project is providing advice to, and working with, landowners to deliver meaningful change across the catchment.

Targets (2025 – 2030)

- 5ha of priority wetland habitat created (ponds, scrapes etc)
- Create a resilient and connected riparian zone covering 10m from the bank top across 5% of the watercourse network.
- Develop and deliver a minimum of one large scale wetland creation/river enhancement project every 3 years to aid in natures recovery.



Inspiring Resilient Communities

The Ouse & Adur Rivers Trust has grown from the local community and remains committed to providing opportunities for people of all ages and abilities to get involved, connect with nature, become more aware, and ultimately have the ability and confidence to be part of the solution.

River Rangers are our eyes and ears on the ground and invaluable to our success. From assisting with delivery of projects, to onsite management and long-term monitoring, our highly valued volunteer force not only helps us deliver but is instrumental in focusing our attention where most needed for future projects.

Citizen Science

We provide training and co-ordination across a range of activities which enable individuals and local communities to get involved in monitoring the health of their local river.

Riverfly Monitoring Initiative

The Riverfly Monitoring Initiative (RMI) has been pioneered by the Riverfly Partnership to provide a simple, standardised monitoring technique which can be used to detect any severe distresses in river water quality and directly communicate with their local ecological contact at the Environment Agency (EA). Used alongside routine monitoring by the Environment Agency, the RMI scheme ensures that water quality is checked more widely, and remedial action is taken at the earliest opportunity, it can also act as a deterrent to polluters, knowing the local area is being monitored.

Chemical Testing

Water quality underpins all aspects of river health and pollutants come in various forms and from a wide range of places. Our Chemical Testing provides training in the use of field kit such as handheld spectrometers, conductivity meters (for road run off), turbidity tubes and dissolved oxygen meters to enable our teams to conduct a full suite of water analysis. Using handheld kit enables trained volunteers to provide a rapid response to reported pollution incidents along with undertaking regular sampling at potential “hotspots” identified through OARTs previous work.

Sea Trout Watch

Described as the “Jewel in the Crown” of the River Ouse and shown to have different morphological characteristics to those in other rivers along the south coast. We have been coordinating an annual “Sea Trout Watch” since then and we will expand the number of sites, allocating volunteers a section of river to survey and report back on the presence of “redds”, the areas of disturbed gravel where sea trout have spawned. These surveys allow us to analyse populations through time, providing an early warning as to any significant decrease in numbers.

Project Outcomes

Floods, Drought & Climate

- Monitor the impact of nature-based solutions with a targe to reduce peak flow at Uckfield by 5% within 5 years.
- 2 million litres of additional, natural water storage created across the landscape.
- Developed a comprehensive understanding of groundwater and its impacts across the River Uck catchment.
- Contributed towards a wet corridor to aid natures recovery, ensuring alignment with emerging strategic plans.
- Increased water storage across farm infrastructure, achieving a measurable reduction in agricultural borehole abstraction.
- Minimum of 25 urban wetland features installed, capturing water, reducing heat stress, and increasing landscape permeability.

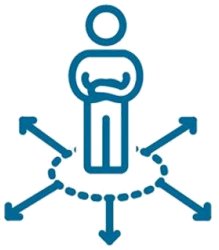
Habitat, Land, and Wildlife

- Removal of mitigation of three priority barriers, opening a minimum of 27km of river to fish passage and monitoring populations
- Create a network of resilient riparian habitat covering with an additional 12km of functional buffer strips created
- Deliver a minimum of one large scale (2ha+) habitat creation project every three years contributing to nature recovery networks
- Established biosecurity protocols across the catchment, reducing the risk of new non-native species colonisation
- Establish effective eradication, control and monitoring of existing non-native species with a focus on Signal Crayfish.

Water Quality

- One waterbody moved to Good Ecological Potential for Phosphate in five-years
- Two waterbodies moved to Good Ecological Status for Dissolved Oxygen within five-years
- Create a minimum of four urban wetlands in locations appropriate to reduce pressure on the combined sewer network
- Reduction in the occurrence of surface water drainage exceedance in in Uckfield
- Work with partners to reduce impact of road run off from major highways

Community Connections



- Five primary schools actively participating in the Urban Wetland Network initiative
- Ten schools undertaken field visits to engage with their local river through structured, curriculum relevant, activities
- A minimum of 500 volunteering opportunities to encourage active participation in river recovery.
- A minimum of 100 people undertaken structured citizen science training with 60% actively collecting date for at least 12-months
- Ten talks to community groups
- An engaged, aware and active community of land managers, community groups, Councils and individuals collaborating for river health

Support Our Work

Inspire Positive Change

Our love for rivers unites us, and by supporting the Ouse & Adur Rivers Trust, you become part of an organisation playing a vital role in enhancing and protecting the water environment in our area. Together, we can enhance the beauty of Sussex for generations to come.

Project Funding

Our projects get stronger the more we invest in them. We regularly apply for grant funding to assist with our aims or work through a diverse range of partners. We are pleased to have joined 1% for the Planet® as an environmental partner. This partnership is intended to advance our impact as well as involve more businesses in the environmental movement and we are delighted to be able to work alongside corporate partners who have been certified for reputable giving.

Donations

Donations lie at the heart of maintaining the Trust and drive a wide range of projects and activities that ultimately enhance and protect river habitats for both wildlife and people. Each donation, whether it's a one-off gift or regular support, directly contributes to the improvement of our rivers and streams and their associated ecosystems.

Corporate Days

Want to get out and get involved in one of our activities? We offer corporate days across the catchment from practical conservation to river cleans and balsam bashing. It's a great way to connect with your local river and have great fun at the same time.

Volunteering

Join our River Rangers team to help monitor the rivers or get involved in our practical activities. We are an inclusive Trust and there are activities for people of all ages, abilities and backgrounds. All and any help is welcome. We provide all the equipment and training you need along with seriously delicious cakes and biscuits and, of course, tea.

Membership

Inspired by the splendor of Sussex rivers? Want to see our water environment get better? Join us as a valued member of OART and you will be proactively helping to improve these precious waters.

Want to find out more? Visit our website www.oart.org.uk or get in touch via info@oart.org.uk