Water Quality Briefing Winchester City Council - July 2023

Environment Agency's regulatory role

We work to create better places for people, wildlife and support sustainable development. In the Environmental Regulation part of our business, we put the climate emergency at the heart of everything we do and help society adapt to environmental challenges. We improve and protect the quality of our air, land and water by tackling pollution.

Our regulatory work includes:

- regulating farms, factories and other businesses to minimise polluting emissions to air, water and land
- regulating waste treatment and disposal sites
- permitting the removal of water from surface and ground water and the discharge of substances to water
- responding to a range of emergencies including pollution of water, illegal dumping of hazardous waste and illegal fishing
- working with conservation organisations to create and restore important habitats
- licensing fishing and monitoring fish health in our rivers and fisheries across England

As the environmental regulator, our ability to protect England's waters depends on having the right powers and resources available. We are making the case for the funding we need to monitor what's happening to our rivers and coastal waters, enforce the rules that protect them, and enhance nature rather than just slow its degradation.

Environment Agency's monitoring role

We monitor the state of the water environment by measuring water quality, water quantity and ecology. This allows us to understand the overall health of aquatic ecosystems and manage the pressures impacting upon them. Much of our monitoring data is now available online. As an example of the data available, here is the link to water quality data from the River Itchen at St Cross Bridge. Open WIMS data

We also welcome the various emerging citizen science initiatives that contribute valuable information on water quality to help everyone involved to identify and prioritise action.

Status of the chalk streams in Winchester City Council's area

Our Catchment Data Explorer summarises information about the water quality status and ecological health of each water body. The chalk stream water bodies of relevance to this query are the River Itchen and its tributaries, River Meon and River Dever.

There are also other chalk springs such as those around Bishops Waltham which feed the headwaters of the River Hamble and chalk springs feeding the River Wallington around Hambledon and Denmead. The Somborne Stream is a chalk winterbourne flowing towards the River Test.

Data about these rivers can be found using the EA's Catchment Data Explorer. Itchen Operational Catchment | Catchment Data Explorer

Environment Agency

Environment Agency Catchment Data Explorer Home Search Help API

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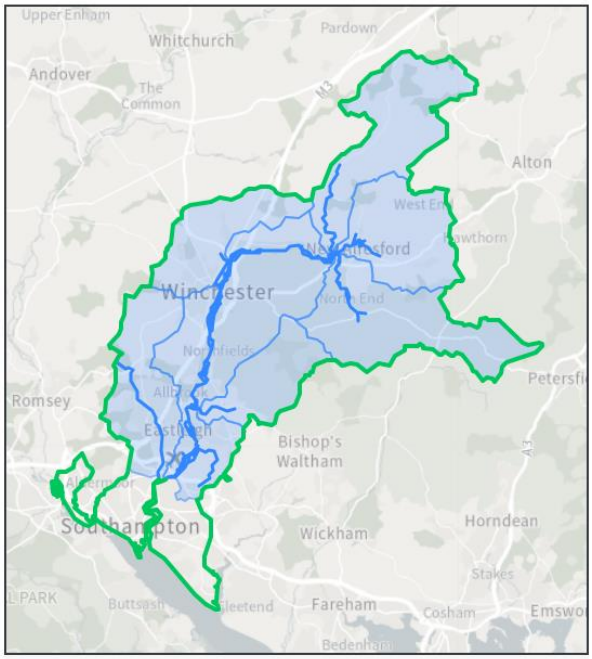
Itchen Operational Catchment

Water bodies

There are 8 water bodies in this operational catchment.

- Arle
- Bow Lake
- Candover Brook
- Itchen
- Itchen (Cheriton Stream)
- Monks Brook
- Nun's Walk Stream
- Old Alresford Pond



Ecological status

Ecological status is assigned using various water quality, habitat and biological quality tests. Failure of any one individual test means that the whole water body fails to achieve good or better ecological status or potential (the 'one out all out' rule). Ecological status is measured in 5 classes (bad, poor, moderate, good and high). Table 1 gives the status for the main chalk streams in Winchester City Council's area.

Water Body	Ecological Status	Comments on any failing elements
River Alre	Moderate	Moderate status attributed to mitigation measures
Cheriton Stream	Good	
Candover Stream	Moderate	Moderate status due to macrophytes being classified as moderate
River Itchen	Good	
Nun's Walk Stream	Good	
Bow Lake	Bad	Bad status attributed to fish classification. Invertebrates classified as moderate. Dissolved Oxygen assessed as poor

River Dever	Good	
River Meon	Good	

Table 1 Ecological status of Chalk Streams in Winchester City Council area

Chemical status

Chemical status is calculated by assessing 52 different chemical elements (individual and groups of chemicals). Water bodies are classified as good or failing.

The chemical status for all water bodies in Winchester City Council's area is defined as failing due to priority hazardous substances. For the 2019 assessment of chemical status, we have changed some methods and increased our evidence base. Due to these changes, all water bodies throughout England now fail chemical status and this assessment is not comparable to previous year's assessments.

There are 4groups of global pollutants (uPBTs) causing these failures: polybrominated diphenyl ethers (PBDEs - a group of brominated flame retardants); Mercury; certain Polycyclic aromatic hydrocarbons (PAHs) and Perfluorooctane sulfonate (PFOS) a group of per-and polyfluoroalkyl substances (PFAS) which is being assessed for the first time.

There is actually little underlying change in chemical status for chemicals that are not uPBTs. If uPBTs are excluded then chemical status assessment is comparable to previous year's assessments.

In common with many rivers, levels of nutrients such as nitrates and phosphates are elevated above natural levels in many chalk streams. Our evidence also shows that run-off can introduce high levels of sediment into the river in certain areas which can smother gravels and affect the associated habitats and species.

Groundwater bodies

Winchester City Council area is also covered by3 chalk groundwater bodies. The status of groundwater bodies is assessed for water quality and water quantity and is defined as either good or poor. The overall status is defined by the worst performing status for water quantity or water quality.

Groundwater Body	Quantitative Status	Qualitative Status	Overall Status
River Itchen	Poor	Poor	Poor
River Test	Good	Poor	Poor
East Hampshire	Poor	Poor	Poor

Table 2 Status of Groundwater Bodies in Winchester City Council's Area

All 3 groundwater bodies are in poor status for groundwater quality and this relates to diffuse pollution. Diffuse pollution arises from widespread activities with no single discrete source. The groundwater body quality failures listed above are attributed to agricultural and land management activities.

Further details are available here - South East GW Management Catchment | Catchment Data Explorer

Sources of pollution

The main sources of potential point source pollution include treated wastewater, storm water from our sewerage systems, privately owned sewage treatment systems, road run-off, other discharges from trade premises, fish farms, watercress beds and accidental losses such as leaking heating oil tanks.

Diffuse pollution comes from non-point source, widespread activities within the current and past rural and urban environments. It particularly affects the chalk groundwater which feeds our chalk streams.

Monitoring and modelling to understand sources of pollution

Using our evidence and monitoring data, we can consider trends across a wide range of parameters and establish reasons for failure or not achieving 'good status'. Our monitoring data also enables us to see the benefits of measures employed to improve water body status. For example, measures such as tightening of environmental permits are already delivering a general reduction in phosphorous in our rivers. However, nitrogen levels are still increasing in some areas as nitrate input to groundwater, as a result of historic application of fertilisers, can take decades to flow through the groundwater system and reach our rivers.

In recent years, we have also been using innovative surveillance techniques to understand the sources of pollution and target our work to improve water quality. One example is working with others to map the risk of sediment entering the Test and Itchen.

We use models to determine where diffuse pollution is coming from and to assess nutrient losses from land. Models can also help us to consider options to reduce pollution risks such as changes in land use, decreases in application of fertilisers and more restrictive conditions on discharges to the environment.

Use of these monitoring and modelling tools ensure that we can target action to the places and activities that will reduce the risk of pollution and provide most benefit to the environment.

What we are doing to improve water quality

Defra's recent Plan for Water: our integrated plan for delivering clean and plentiful water - GOV.UK (www.gov.uk) explains in detail the measures that are being taken by both us and others to improve water quality. It includes further detail and actions on many of the issues raised below.

Our work with water companies

Regulation

The water companies have rightly been condemned by government, us, campaigners and the public for allowing far too many sewage spills into rivers. We are holding water companies to account to reduce pollution, tackle storm overflows and invest more of their profits into the environment. We are prosecuting the most serious polluters. On 9 July 2021 Southern Water was sentenced to pay a record £90 million fine after pleading guilty in court to 6971 unpermitted pollution discharges which polluted rivers and coastal waters in Kent, Hampshire and Sussex.

All water companies have strict conditions around the discharge of treated effluent specified through their permits. We do everything we can with the legal powers and resources we have, to set protective permits and act where there is failure to comply with measures designed to protect our inland and coastal waters.

Investing in improvements

Part of our role is also to ensure water companies invest in improvements to their wastewater treatment systems in line with legislative requirements and this is managed through the Asset Management Process. This is a 5 yearly investment programme which is part of their business plan and is regulated by OFWAT. Improvements have been funded for the main waste water treatment works on the River Itchen and permit

limits have been tightened further than in other river systems as a result of the river's designation as a Special Area of Conservation (SAC). Limits for phosphorus have been added to the permits of the larger discharges to prevent nutrient enrichment of the river's ecosystem to protect and improve the condition of the SAC.

Combined Storm Overflows

We authorise the discharge of storm sewage from sewage works or storm overflows when heavy rainfall overloads the sewer network. This is necessary to prevent the flooding of people's homes, workplaces and neighbourhoods with sewage. Storm overflows are subject to strict conditions which are set out in the environmental permits for each site. These require minimum dilution levels and other measures to protect the environment.

We have significantly driven up monitoring and transparency from water companies in recent years, so that everyone can see what is going on. Through the work of the Storm Overflows Taskforce – made up of Defra, the Environment Agency, Ofwat, Consumer Council for Water, Blueprint for Water and Water UK – water companies have agreed to increase transparency around when and how storm overflows are used.

The Government and regulators have been clear to water companies that the current use of storm overflows is unacceptable. Last year, the Government placed a legally binding duty on water companies in the Environment Act 2021 to progressively reduce the adverse impacts of discharges from storm overflows. The Storm Overflow Discharge Reduction Plan, published in August 2022, set out 2 new targets for water companies:

- by 2035, water companies will have: improved all overflows discharging into or near every designated bathing water; and improved 75% of overflows discharging to high priority sites (including chalk streams)
- by 2050, no storm overflows will be permitted to operate outside of unusually heavy rainfall or to cause any adverse ecological harm.

Our work to regulate other point sources of pollution

We also regulate other businesses and industries - notably large watercress beds and fish farms. Phosphorous limits have recently been tightened for some discharges and measures have previously been installed to reduce sediment input.

Many private wastewater treatment works will also have environmental permits that we regulate. Small sewage discharges serving individual properties in rural areas often fall under the General Binding Rules. General binding rules for small sewage discharges (SSDs) with effect from 2 October 2023 - GOV.UK (www.gov.uk)

Diffuse pollution

Rural sources of diffuse pollution are often associated with farming and other land management practices.

Urban diffuse pollution can arise from run-off from built areas and impermeable surfaces such as roads carparks and industrial areas, leaking sewers, improper use of surface water drainage systems and misconnections.

We are working with farmers and land managers to support environmentally friendly farming and land use that doesn't damage water quality. A dedicated agricultural team has been set up and they have been visiting farms across Hampshire and Sussex. We are providing advice and guidance to ensure that good practice is being followed and any necessary measures to protect the environment are implemented. We work with other agencies including Natural England (Catchment Sensitive Farming Officers) to influence best practice land use to reduce run-off and lower pollution.

We are updating our Diffuse Water Pollution Plans for the Rivers Test and Itchen and The Solent which will guide work to address diffuse pollution and reduce nutrient loads.

Emerging chemicals

Although the main sources of water pollution are agriculture and the water industry, there is a growing threat from plastics and forever chemicals. We have developed a Prioritisation and Early Warning System for emerging chemicals of concerns, so that effective interventions can be undertaken prior to damage being caused to the environment, wildlife or human health.

For over 10 years we have worked with water companies on 3 consecutive Chemical Investigation Programmes. We are currently designing a fourth programme. Among the chemical pressures which have been investigated are those from pharmaceuticals and antimicrobial resistance products. The fourth programme will include an investigation into microplastics in treated effluent. The programme also considers effectiveness of sewage treatment to destroy and remove chemicals. Standard sewage treatment was never designed to remove these sort of trace chemicals. Building a higher degree of treatment, and avoiding diverting these chemicals to sewage sludge, will take huge investment.

Defra are currently working on a chemicals strategy which will consider some of the high-level and challenging questions we face as a society, which is so dependent on chemicals.

Influencing development to protect water quality

In our role as statutory consultee on certain planning applications, we can seek to implement measures to reduce run off from developments and highways and reduce the impact of other urban diffuse pollution sources.

It is important that Local Planning Authorities also play a role in reducing the risk of pollution from developments both through the planning and building control processes. Where there is no mains drainage, to help ensure that the right systems are approved at planning, we have made advice available to local authorities: http://www.planningportal.co.uk/services/authorities/LPA-resources/LPA-advice-drainage/non-mains-drainage

We know that climate change, population growth and increasing urban areas are putting more pressure on sewerage capacity and water supplies. We work with water companies and local authorities to consider future needs for water and disposal of wastewater. Drainage and Wastewater Management Plans identify risks to the environment from wastewater and drainage and identify where improvements need to be made to prevent deterioration or harm. You can find the annex for the Test and Itchen from Southern Water's consultation document here.

Nutrient Neutrality

The recent requirement for nutrient neutrality for new developments draining to The Solent will ensure that there will be no increase in nitrogen load to the local environment and also no increase in phosphorous load for the catchment draining to the River Itchen.

An amendment to the Levelling Up and Regeneration Bill (LURB) has been laid in Parliament which will require Wastewater Treatment Works (WwTW) which are above a certain size (>2000 population equivalent) to be upgraded to treat discharges to the Technically Achievable Limit (TAL) by 31 March 2030 at the latest. Many of our large WwTWs already have high standards as a result of implementation of Urban Waste Water Directive and Habitats Directive driven projects in previous Asset Management Planning cycles.

Working with others to protect chalk streams

We cannot protect chalk streams on our own. We all have our part to play: government policy, regulation and enforcement, planning decisions, actions by water companies, farmers and landowners, as well as the behaviour of individuals in the way they use water.

We have been contributing to the National Chalk Stream Restoration Strategy. Chalk Stream Strategy - CaBA (catchmentbasedapproach.org) which reinforces that to achieve healthy chalk streams, we need to protect river flow and habitat quality as well as water quality.

We work with the Test and Itchen Catchment Partnership to deliver projects and to carry out investigations to seek out potential courses of action for environmental improvements Catchment Management (wessexrt.org.uk). One example of a project that is being led by that partnership is to seek ways to reduce pollution arising as run off from highways. Finding solutions to this issue requires many organisations to work together.

What you can do to help

We respond to environmental incidents to stop and reverse damage to our rivers. We prioritise our resources to incidents that cause the most serious and significant risk to the environment. Information about our response to environmental incidents is published online .

If members of the public see any sign of pollution, they should call our incident hotline on 0800 80 70 60 to report this to us. The information provided to our advisors is logged onto our system. We combine this incident information with other data. This helps us to assess how serious the incident could be.

Conclusions

We continue to work with government, the water industry, land owners, farmers and others to improve water quality in all our rivers. We are making the case for the funding we need to protect the environment in England. Only wider action through water company investment, better farming practices and simple steps taken in the home to prevent sewer misuse will help ensure we have healthier sewers, cleaner rivers and a better environment for all.

Although this briefing focusses on water quality, we are proud of the other work we do in the area which includes reducing flood risk, improving habitats, restoring rivers and reducing pressure from abstraction. Please let us know if you would like to hear more about any of that work.

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