

Beneath the surface - chalk streams at risk

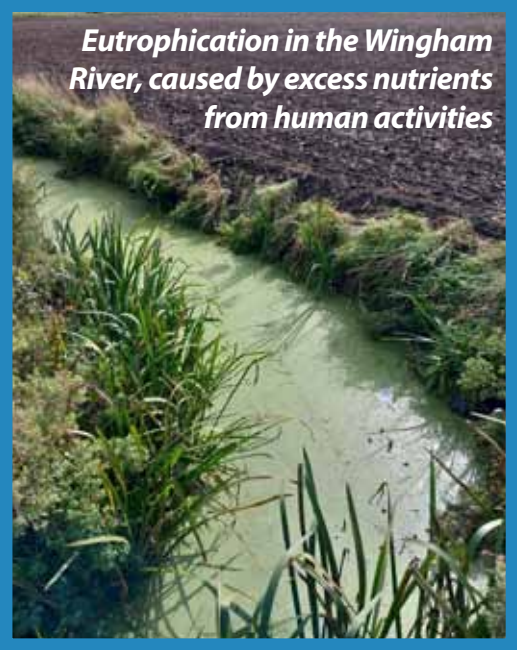
The Little Stour, the Nailbourne, and the Wingham River are chalk streams in the catchment of the Kentish Stour.

England is home to 85% of the world's chalk rivers, a globally rare natural resource which support a diverse array of plant and animal life. Bubbling up from chalk springs fed by underground aquifers, chalk streams are renowned for their steady flows of crystal-clear water, gravel beds, and relatively stable temperatures, making them biodiversity hotspots for wildlife and nature lovers to enjoy.

However, the Little Stour, the Nailbourne, and the Wingham River are under threat. These important chalk streams should provide excellent habitats for wildlife like brown trout, but they are being degraded by pollution and by centuries of human modification. Locals lament that their beautiful river “is now being used as a transport ditch for treated effluent” (Martin Smith, Wingham).

The Kentish Stour Countryside Partnership is working with volunteers, landowners, and other partners to improve these important chalk streams and conserve them into the future.

Visit kentishstour.org.uk to learn more about the work we are doing to improve our local rivers, or email stour@kent.gov.uk to get involved.



Crystal clear section of Little Stour, showing excellent chalk characteristics, with lots of water crowfoot and gravel

Get involved!

There are actions you can take as an individual, and as a community, to help our chalk streams.

Volunteers play an important role in monitoring the health of the river. Join a volunteer group to help monitor your local stretch of river. There are water quality groups, river invertebrate surveyors, and River Wardens helping raise the alarm about pollution.

Visit kentishstour.org.uk for more information or contact: stour@kent.gov.uk



Citizen science volunteers monitoring water quality

Write to your local councillor or member of Parliament to express your concerns about the state of our chalk streams. Demand they support laws and policies that protect our rivers.

If you are a landowner whose property borders a local watercourse, contact KSCP to learn more about river restorations opportunities that might be possible.

Report pollution to the Environment Agency
Hotline: 0800 80 70 60.

Signs of danger include: 1) dead fish or fish gasping for air, 2) a strong sewage odour, 3) wet wipes, toilet paper, or sanitary items visible in the water, or 4) water that appears unexpectedly cloudy, murky, or with a strong oily sheen.

USEFUL CONTACTS

Kentish Stour Countryside Partnership (KSCP)
Working with landowners and local communities to conserve, enhance, and promote rivers, countryside and urban greenspace.
www.kentishstour.org.uk stour@kent.gov.uk 03000 410900

Environment Agency (EA)
The main body responsible for monitoring water quality and managing the risk of flooding from main rivers.
www.gov.uk/government/organisations/environment-agency
enquiries@environment-agency.gov.uk
Incident hotline: 0800 80 70 60

River Stour (Kent) Internal Drainage Board (IDB)
Organisation responsible for land drainage and flood protection.
www.rsdb.org.uk enquiries@rsdb.org.uk 01227 462377

Kent County Council Flooding and Drainage
Responsible for drainage of roads and surface water flooding.
www.kent.gov.uk/environment-waste-and-planning/flood-ing-and-drainage

The 4 Villages Conservation Society
Working to protect the built and natural environment in Ickham, Littlebourne, Stodmarsh, and Wickhambreaux
www.4vconsoc.org

Little Stour & Nailbourne River Group
Working with local authorities to prevent flooding
www.lsnrivergroup.org/

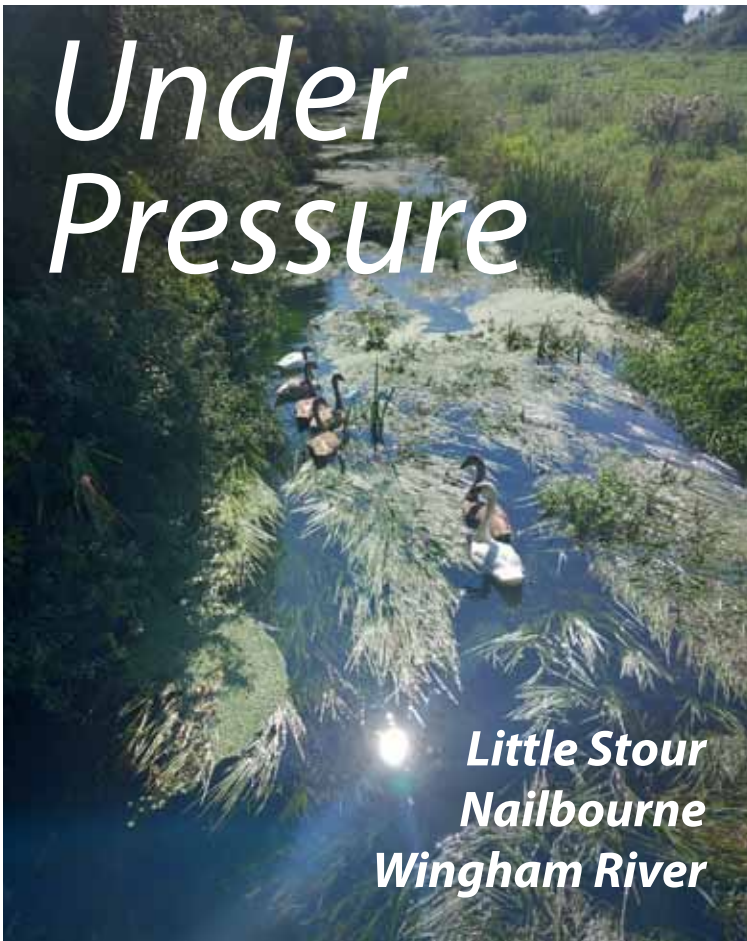
East Kent Catchment Improvement Partnership (EKICIP)
Partnership of organisations using a catchment-based approach to improve the health of our local rivers. Contact via KSCP

South East Rivers Trust (SERT)
Charity working to restore and protect rivers across the South East of England.
www.southeastriverstrust.org info@southeastriverstrust.org
0845 092 0110



Chalk Streams

Under Pressure



Little Stour
Nailbourne
Wingham River



www.kentishstour.org.uk

The Our Stour project: inspiring the next generation



Children exploring the Nailbourne

The Kentish Stour Countryside Partnership hosts river-based education sessions for schools, giving pupils hands-on experiences with aquatic wildlife that will foster lifelong connections with nature. These education sessions are inspiring the next generation of river guardians to care for the river and protect it into the future!

Contact us to book an Our Stour education session for your school or community event: stour@kent.gov.uk



River dipping for invertebrates

The problem with pollution

The Little Stour, the Nailbourne, and the Wingham River are all classified as having poor ecological status under the Water Framework Directive, the main piece of legislation governing water quality. Like many rivers in the UK, they fail to achieve good status due to issues with sewage discharge, lack of flow, agricultural runoff and human modifications, all of which have led to a decline in fish and other wildlife.

Agriculture and discharges from sewage works contribute to high nutrient levels. After major storm events, untreated sewage is known to overflow into the river, and leak from pipes, with locals worrying the problem will only get worse as large scale housing developments and a growing population will put increased pressure on the already strained system.



Evidence of high nutrient levels in the Wingham River

The effects of pollution in the river are worsened during periods of drought, when there is less water to dilute the harmful chemicals. Historic modifications diverted entire sections of river, using artificial clay lined channels which are now eroding and leaking water. Additionally, water is removed from the system for agricultural and domestic uses, which means there is less water available for plants and animals to survive.

Citizen scientist volunteers have been monitoring the health of these streams and play a key role in demonstrating the need for ongoing conservation. Kentish Stour Countryside Partnership, the Environment Agency, and other organisations are working to address the threats facing these vulnerable chalk streams...but we need your help!

Local wildlife (beavers, bullhead, and trout, oh my!)

The chalk streams in this leaflet support a range of native wildlife, including kingfisher, beaver, otter and water vole, as well as a variety of fish.

The kingfisher is an iconic river bird that can be seen with a little patience. Many sightings are a flash of iridescent colour as the bird flies past at speed!



Kingfisher along main River Stour

The Stour Catchment has the largest free-roaming population of beavers anywhere in Britain. Look out for signs of their presence, including gnawed trees next to rivers.



Beaver captured on a trail camera, Wingham River



Water vole on main River Stour

One section of the Little Stour supports brown trout, but the habitat is small and fragmented. European eel, brook lamprey, stone loach, bullhead and pike are found in other sections of these watercourses but in low numbers.

Local fish populations struggle to reproduce when there is excess silt in the water, which is a common problem, especially in the Wingham River. This is because silt smothers gravels required for spawning and reduces the availability of dissolved oxygen that fish and other aquatic animals need to breathe. Additionally, human-made barriers like the pumping station at West Stourmouth, block access for migratory species like eel and sea trout, making it difficult or impossible for them to access the Little Stour and above.

However, in recent years a growing number of farmers are participating in environmental schemes that provide financial incentives for managing their lands in ways that benefit the environment and wildlife.

This is allowing wildlife populations to recover slowly.

River restoration: a work in progress!



River restoration at Seaton used excavators to dig pools in the river and re-engineer the banks to benefit local wildlife

Local conservation projects have sought to restore natural flows and allow fish to move more freely. A fish bypass channel was installed on Littlebourne Mill, and the old weir below Seaton was made more gradual. However, there is still much work to be done to adapt or remove human-made barriers to fish on these rivers.

At other locations along the Little Stour, in-river pools were excavated on the riverbed. The gravel was recycled and placed strategically at the river's edge, creating a more



Kentish Stour staff and volunteers conducting river restoration

natural, meandering flow and a shelf for emergent vegetation to flourish. This makes the channel more varied, benefiting a range of wildlife. Fences were installed to keep cattle from eating the newly planted vegetation. Five years after the restoration, surveys indicated the habitat had greatly improved for wildlife, while also lessening the flood risk downstream!



The Little Stour at Seaton before and after restoration

Recent improvements to the local Dambridge Sewage Treatment Works have decreased the quantity of phosphates entering the stream from that source, exemplifying the importance of investing in technological solutions, alongside environmental restoration projects and volunteer monitoring.

Source of the Little Stour

The source of the Little Stour are the springs near Well Chapel. Flowing through old watercress beds towards Littlebourne, it is joined by the Nailbourne and the Silver Dyke at Garrington Farm. Although it is heavily modified, the Little Stour is a beautiful chalk stream that is much loved by locals.



Well Chapel, the source of the Little Stour

Peaty perimeter

Out of the chalk and into the peat, the Wingham River flows through peaty soil, which is unusual for the Stour catchment. Peat is a special type of soil that forms in waterlogged environments, and it stores carbon which is useful for preventing climate change. As it flows through the valley, the Wingham River is bordered by fruit trees and arable land, giving it a very different landscape characteristic to the Nailbourne and Little Stour.

Chalk-free confluence

Although both are chalk streams, the Little Stour loses much of its chalk stream character at its confluence with the Wingham River near Wenderton Hoath. It flows past important wildlife areas at Seaton Lakes and Preston Marshes, before feeding into the main River Stour near Pluck's Gutter and then into the sea beyond Sandwich.



The Wingham near its confluence with the Little Stour

Source of the Nailbourne

The Nailbourne, which rises at St Eadburt's Well (also known as St Ethelburga's Well) in Lyminge, is a stream steeped in folklore. Tradition states that the Nailbourne flows once every seven years, but some believe the appearance of the stream is a bad omen! Although it is usually flowing between its source and Elham, the Nailbourne is a special type of chalk stream called a winterbourne, which only flows at certain times, often at the end of the winter or during the wettest years. Whether or not the stream is flowing depends on fluctuations in the water table; when water levels are high enough, winterbournes will flow! However, the effects of climate change are having a major impact, increasing the severity of both wet and dry periods. Locals say the Nailbourne now flows every 2-3 years.



St. Eadburt's Well in Lyminge

From source to sea - the journey of our chalk streams



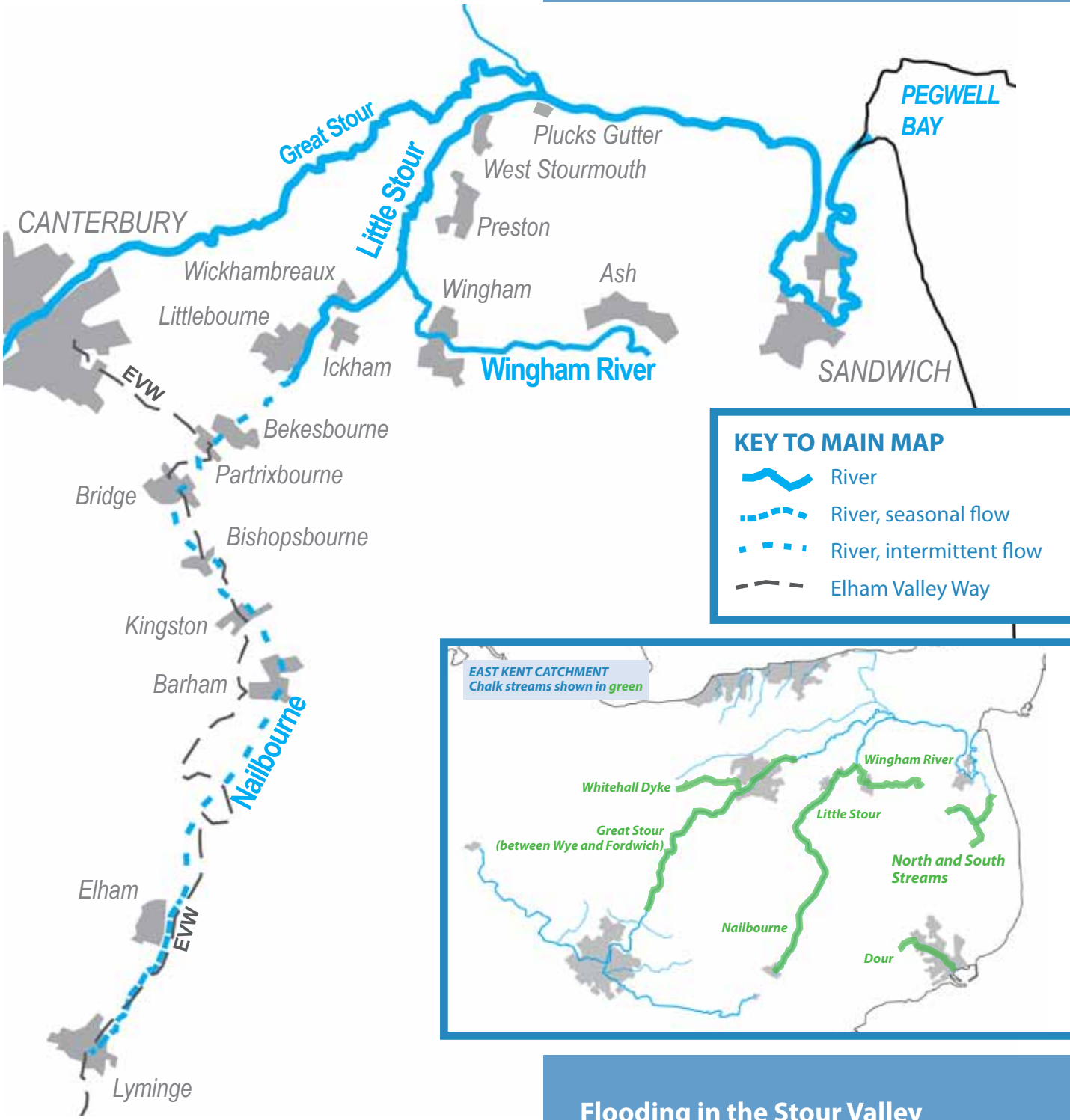
The Little Stour, joined by the Nailbourne at Garrington Farm

Source of the Wingham River

The Wingham River begins its journey near the village of Ash. It emerges from a chalk spring and flows through agricultural land of the North Downs, picking up water from small spring-fed tributaries like the Dambridge Stream. A significant proportion of the flow near the village of Wingham comes from the Dambridge Sewage Treatment Works, as treated water is returned to the river as effluent.



The Wingham river is bordered by agricultural land in many places



Flooding in the Stour Valley

Artificial modifications mean these rivers lack the natural resiliency to respond to major fluctuations in water levels. When the groundwater is high, homes along the Nailbourne and Little Stour can experience significant flooding, and residents along the Wingham River are also at risk. To make matters worse, old deteriorating sewer pipes combined with flooding can cause sewage overflows and leakages, negatively affecting people and wildlife.

Extensive flooding occurred in the Elham Valley in 2001, which led to the creation of the Little Stour and Nailbourne River Management Group. They identify dwellings at risk and work with statutory agencies like the Environment Agency to ensure action is taken to reduce the likelihood and severity of floods. A flood relief channel has also been installed to bypass Littlebourne in periods of high flows.



Literary connections

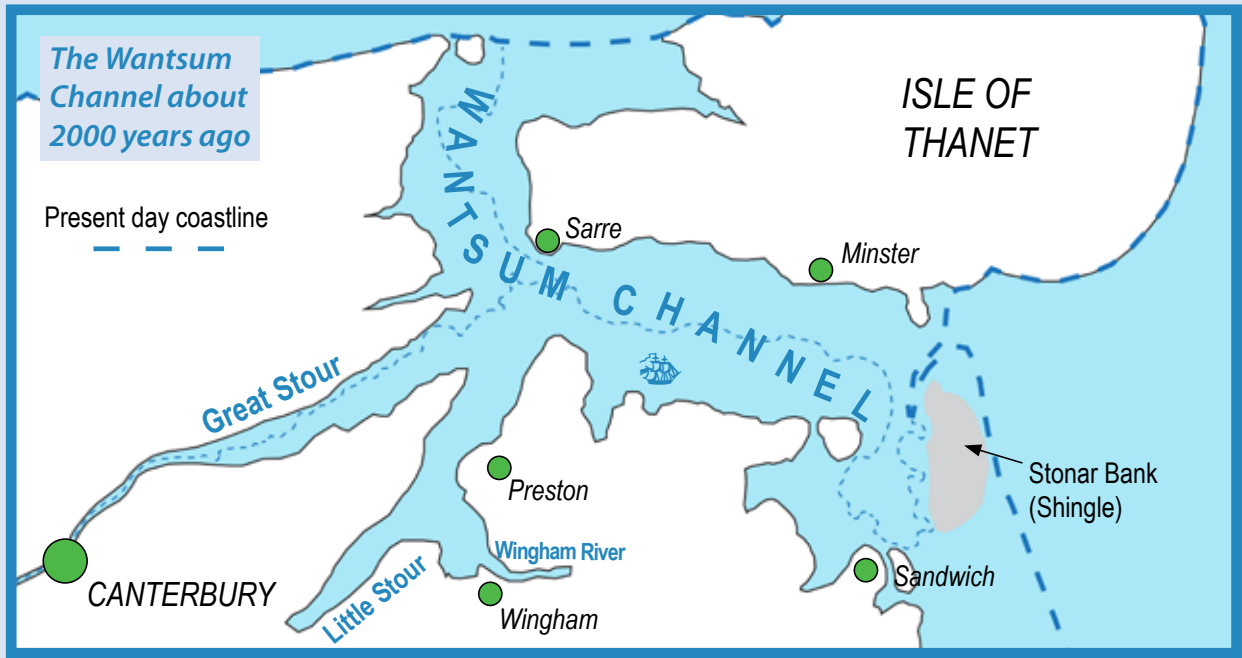
Several internationally renowned authors have sought inspiration along the banks of the Nailbourne. Ian Fleming, author of the James Bond series, lived alongside the Nailbourne for two years, at the Old Palace in Bokesbourne.

Another famous author, Joseph Conrad, lived in Bishopsbourne. He is most famous for his novels Heart of Darkness and Lord Jim.

What's in a name?

The name Nailbourne comes from Old English; Bourne means stream, and Nail could mean intermittent (nahl) or trouble (ail). The village of Littlebourne is similarly named, with its name meaning "little stream".

The Wingham River was once a wide inlet off the Wantsum, a historic sea channel that separated Kent from the Isle of Thanet. In Roman times, the village of Wingham was a port, allowing goods to be transported inland, up the river. Local place names like Port Rill and Snake Island give us a clue about these past uses.

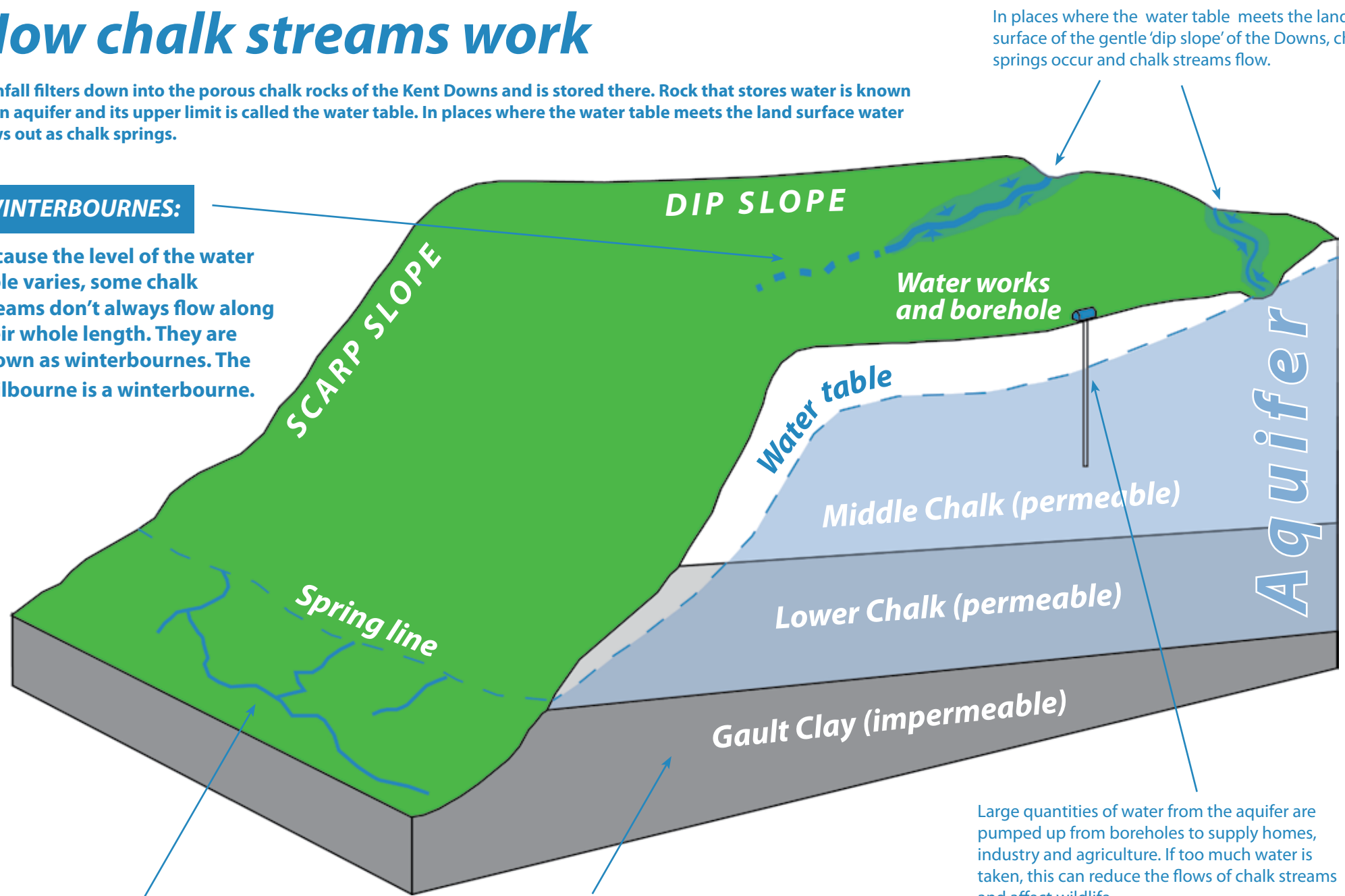


How chalk streams work

Rainfall filters down into the porous chalk rocks of the Kent Downs and is stored there. Rock that stores water is known as an aquifer and its upper limit is called the water table. In places where the water table meets the land surface water flows out as chalk springs.

WINTERBOURNES:

Because the level of the water table varies, some chalk streams don't always flow along their whole length. They are known as winterbournes. The Nailbourne is a winterbourne.



The point where the boundary between the aquifer and impermeable clay meets the surface, is known as the spring line. Chalk springs appear here.

Water cannot seep into the impermeable Gault Clay under the chalk, so this is the lower limit of the aquifer.

History and human uses

Shaped by past uses, the Little Stour, the Nailbourne, and the Wingham River have all been modified to make them more useful to humans.



Ickham Mill in Littlebourne

The Little Stour, which now suffers from low flows, once had enough water to power multiple water mills, including those in Wickhambreaux and Littlebourne. These mills, used primarily for grinding corn, were essential to the local farming industry. The river channel was straightened, dredged and its course was diverted to power the mills, leaving an artificial river with little to no natural characteristics. Local archaeological discoveries have shown that watermills have been in use on the Little Stour since the Roman period.



Artificially straightened channel in Wickhambreaux

In places where the water table meets the land surface of the gentle 'dip slope' of the Downs, chalk springs occur and chalk streams flow.

Large quantities of water from the aquifer are pumped up from boreholes to supply homes, industry and agriculture. If too much water is taken, this can reduce the flows of chalk streams and affect wildlife.