Restored by Everyone - Cambridge University, March 2023

CaBA chalk stream restoration strategy A national plan for the conservation and restoration of chalk streams



River Tarrant, Dorset 1995





- 1991 National Rivers Authority Alleviation of Low Flows
- 1999 English Nature Chalk rivers: conservation and management
- 2004 UK BAP The State of England's chalk streams
- 2009 WWF Rivers on the Edge
- 2013 Angling Trust & partners A Chalk Stream Charter
- 2014 WWF The State of England's Chalk Streams
- 2017 WWF Water for Wildlife: tackling drought and unsustainable abstraction
- 2019 The Angling Trust Chalk Streams in Crisis
- 2020 NGOs Chalk Streams First



What is the CaBA chalk stream restoration strategy?

"A plan, strategy and set of recommendations for how to restore good ecological health to the unique chalk streams of England and to the landscapes which support them."

It represents a collaborative approach between regulators, industry, NGO's and independent stakeholders.

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Who was involved?

- CaBA CSRG main panel
- CaBA CSRG expert panel \bullet
- CaBA CSRG stakeholders ightarrow

Consultation during 2021

- numerous meetings of all panels
- formal consultation to stakeholders 100s formal responses / 1000s of emails and phone calls
- stakeholder river walks

All adding up to a consensus strategy with 30+ recommendations to Defra, industry and NGOs

- Launched in October 2021
- The first timetabled implementation plan published November 2022.

This CaBA Chalk Stream Restoration Strategy was written and collated by Charles Rangeley-Wilson, chair of the CaBA chalk stream restoration group, (CSRG) in consultation with:

The CaBA CSRG Panel

Sarah Powell, Environment Agency, Chalk Stream Manager Sophie Broadfield and Affie Panayiotou, Defra Anne Dacey, Environment Agency Rose O'Neill & Charlotte Rose, Natural England Fayza Benlamkadem & Magda Styles, Ofwat Dave Tickner, WWF Stuart Singleton-White, Angling Trust Ali Morse, The Wildlife Trusts Barry Bendall, Rivers Trust Janina Gray, Salmon & Trout Conservation Andy Thomas, Wild Trout Trust Richard Aylard & Yvette de Garis, Thames Water Jake Rigg, Affinity Water Ian Colley, Wessex Water James Wallace, Beaver Trust Jake Fiennes. NFU

The CaBA CSRG Expert Panel

Chris Mainstone, Natural England David Sear, Southampton University Kate Heppell, Queen Mary University Geraldine Wharton, Queen Mary University Steve Brooks, Natural History Museum John Lawson, independent water-engineering consultant Vaughan Lewis, independent river restoration consultant Tim Sykes, Southampton University Carl Sayer, University College London Jonathan Fisher, independent environmental economist Alan Woods, Cam Valley Forum Owen Turpin, Environment Agency

In addition, a **wider stakeholder group** (see acknowledgements page 137) comprising individuals, academics, river keepers, fishery managers, farmers and landowners, chalk-stream associations, angling clubs and staff from numerous regulatory, independent and third-sector organisations have made contributions at the draft consultation stage and during river walks in June and August 2021 and in direct correspondence with the CaBA CSRG.

Numerous Environment Agency and Natural England staff have contributed their expertise with passion and enthusiasm, as have representatives from the water companies covering chalk catchments.

Why do chalk streams need this strategy?

Because they are:

- globally unique
- culturally & historically special
- the most biodiverse of all English rivers



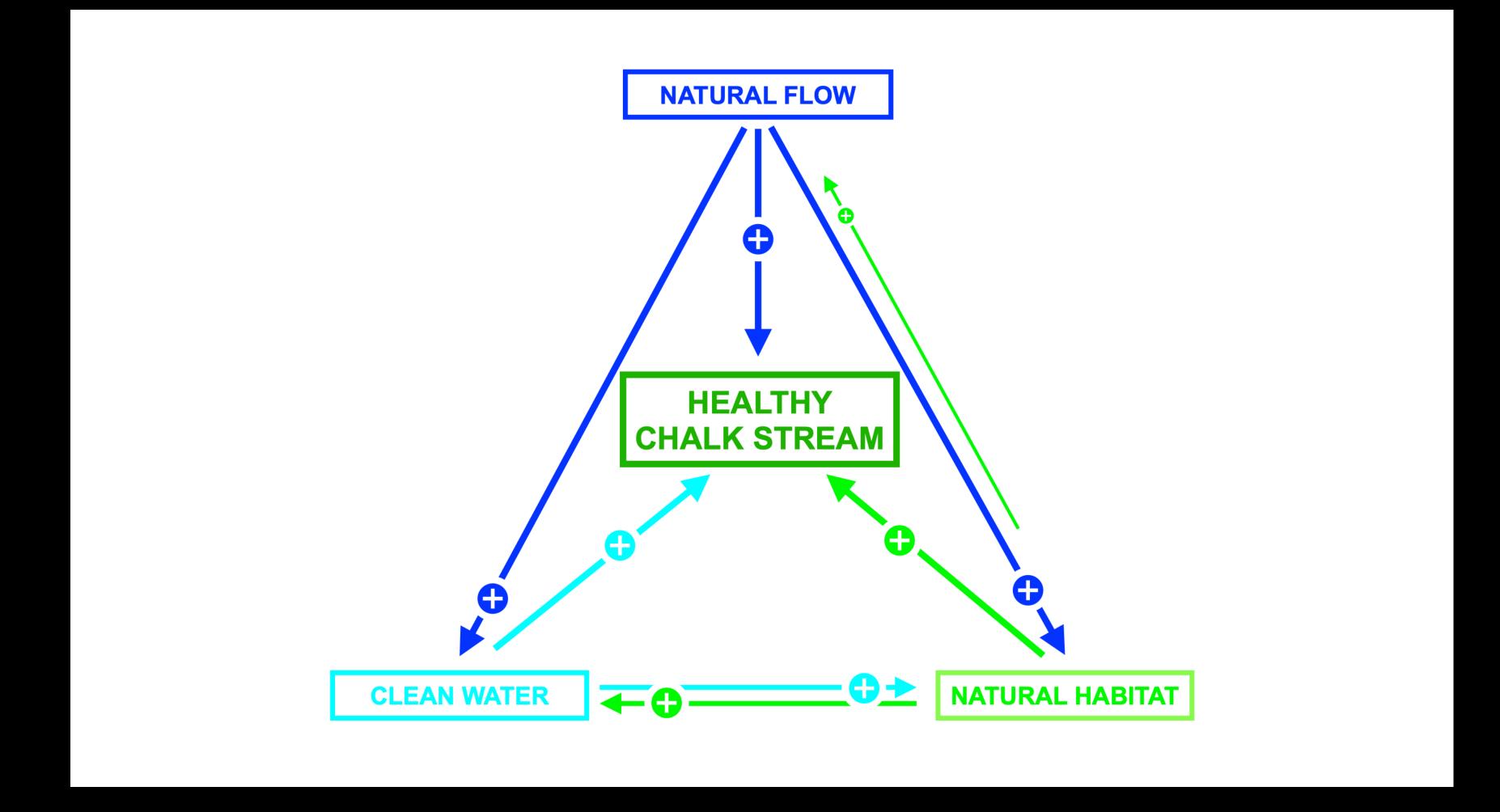
... but also because they are under intense p through the most urbanised, industrialised a the UK ...

e under intense pressure: chalk streams flow d, industrialised and intensely farmed parts of

... and sometimes they don't flow at all



How the strategy is structured:



Gains in any one component will benefit the other two, but the greatest gains and best value are achieved by addressing all three components together.

30 + recommendations to Defra, the Environment Agency, Natural England, the water companies, NGOs and stakeholders.

Covering:

- an agreed definition of (finally!) and time-bound goals for achieving sustainable abstraction
- protect chalk streams, especially their headwaters
- upgraded sewage treatment in small works in headwaters
- priority for resolution of storm overflows
- the use of integrated wetlands
- farming rules for chalk streams ightarrow
- knowledge sharing, open data, information hubs
- physical habitat restoration

the need to review WFD assessment points and waterbody boundaries to better

And because we can't do everything all at once on all chalk streams ...

... a national network of flagship catchment restoration projects to:

- develop and demonstrating the art of the possible
- inspire others
- show what river restoration can achieve

 make the case for the application of the strategy on all chalk streams



Frome headwaters The River Anton The River Ems The River Pang The River Chess The River Beane The River Lark The River Granta The Great Stour The Driffield Beck



- Oct 21-22 recommendations investigated by various lead partners.
- The first implementation plan was published 25th November 2022.
- Launch of the plan in June 2023.
- terms of delivery.
- exist.
- It will be iterative and will evolve over time.

 The implementation plan will be revisited and updated annually so that we can assess and challenge our progress and hold the various lead partners to task in

• It is not a once-and-for-all fix-all, because no such thing exists or even could

- an agreed **definition** of and **target** for **sustainable abstraction**.
- national framework and WRMPs
- "water stressed" enabling the role out of universal metering
- pressure on chalk streams
- between surface flows and groundwater abstraction

• An undertaking to set and publish **time-bound goals** to achieve this target:

• all water resource supply regions dependent on chalk aquifers now defined as

• an independent review of abstraction as a % of recharge to map out, in a simple and accessible way, the spatial distribution and intensity of abstraction

democratising data and sharing knowledge especially of the interaction

- a collaborative review of abstraction sensitivity banding, waterbody especially small chalk streams and headwaters.
- recovery in the Chilterns / GUC water transfers / licence relocation
- these overflows.

boundaries and assessment points: better protection for chalk streams,

 Chalk Streams First: a "flagship flow recovery project": the development of a water resources strategic option based on abstraction reduction and flow-

defining chalk streams as "high priority sites" in the Storm Overflows

Reduction Plan: Chalk streams flows do not respond to rainfall in the same way as surface-fed rivers. In drought conditions - autumn 2022 - intense rainstorms send raw sewage discharges into drought-stricken chalk streams. Chalk streams must be prioritised for the investment needed to minimise or eliminate

• a revised official map of ALL the chalk streams of England:

https://naturalengland-defra.opendata.arcgis.com/search?q=chalk

 sharing best practice / pooling expertise including a CaBA chalk stream online data and information hub to help empower and facilitate grass-roots catchment advocacy and develop river restoration science / best practice

https://catchmentbasedapproach.org/learn/chalk-streams-hub/ https://chalkstreams.org

The Environment Agency has also

- chalk catchments where there are known abstraction issues.
- develop the evidence base and engagement.
- **Strategy and Partnerships team**

• launched the Water Resources Chalk Partnership Fund: £1 million funding will be made available annually to partnership projects that deliver a flow benefit in

 created 30 new posts across operational teams nationally and locally "to work on water resources issues impacting chalk streams". Delivering a national water resources chalk programme, planning and coordination, technical work to

appointed a full-time chalk stream manager – Richard Handley – in the Water

"One Big Wish" for chalk streams

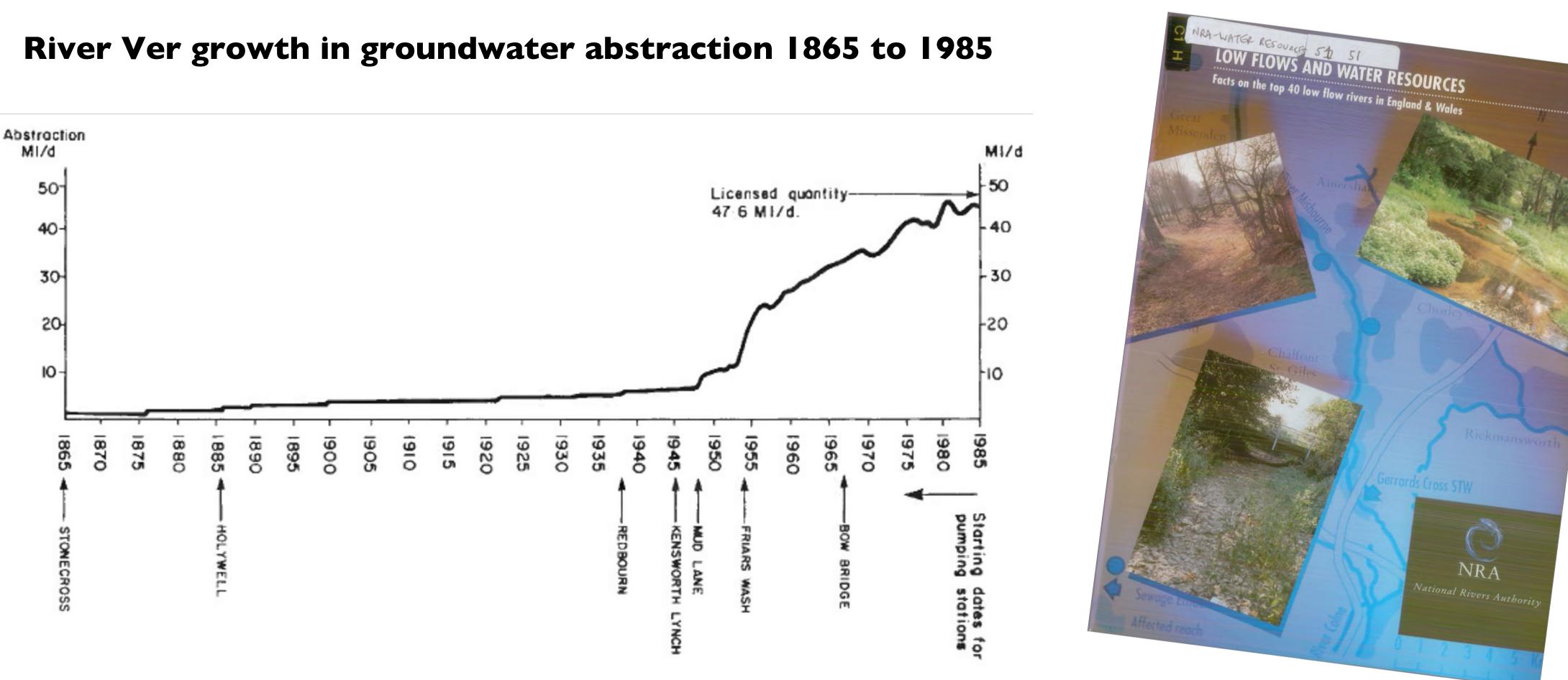
To effect real, lasting improvements chalk streams need a greater level of protection and investment

> The central recommendation in the strategy is for greater protection and an economic lever which would: take the brakes off investment in the cost-benefit analysis process

biodiversity net-gain etc.

• release funding from schemes such as landscape recovery, local nature recovery,



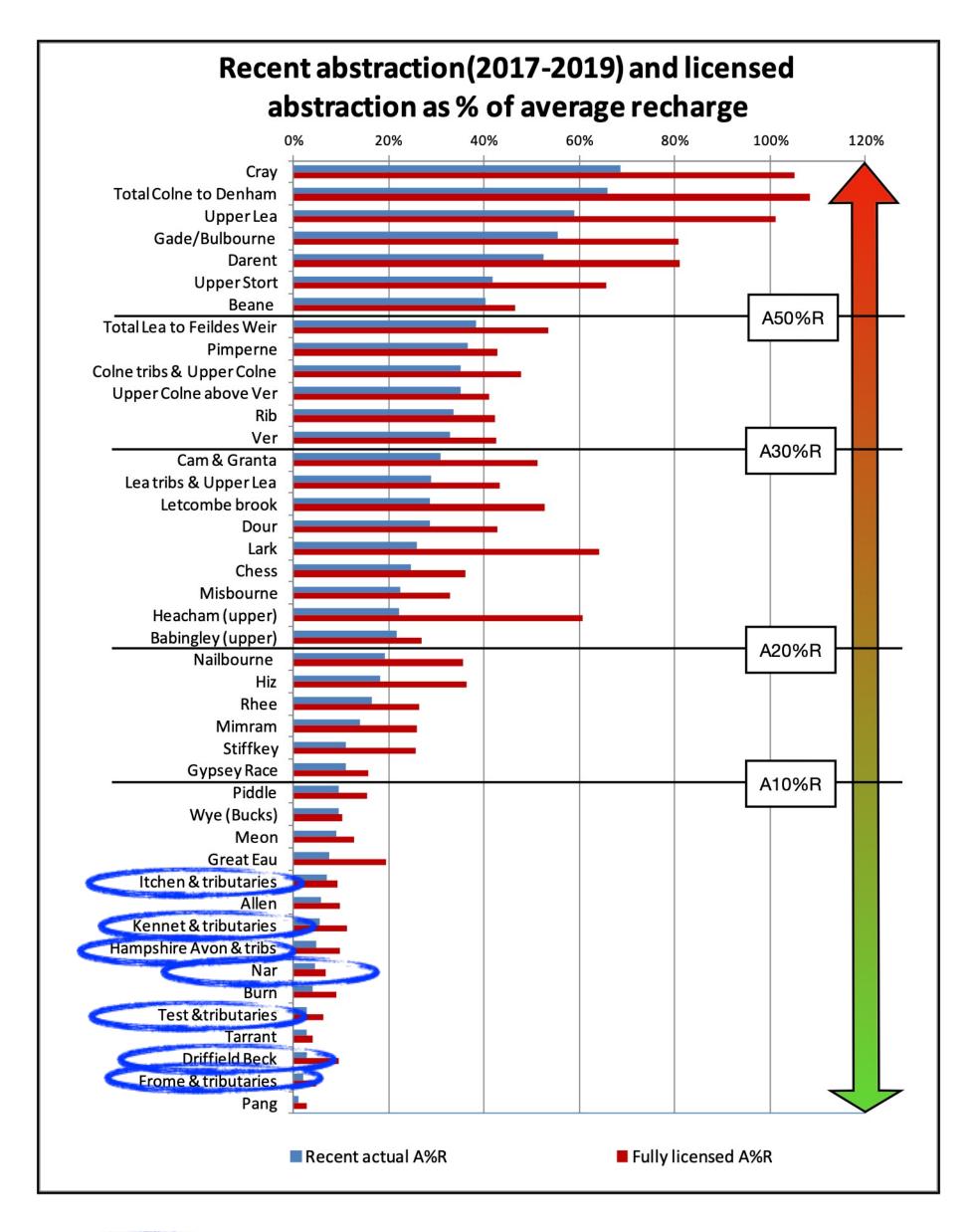


• from almost nothing to a peak 56% of the average annual catchment recharge of 85 MI/d

(abstraction is now 32.8% of average annual recharge)



The River Wey in Dorset The River Piddle The River Allen The Wallop Brook The Bourne Rivulet The River Meon The River Wey in Surrey **The River Pang The Letcombe Brook The River Ver The River Misbourne The River Darent** The Little Stour **The River Hiz The Hoffer Brook**



Designated chalk streams: SAC or SSSI



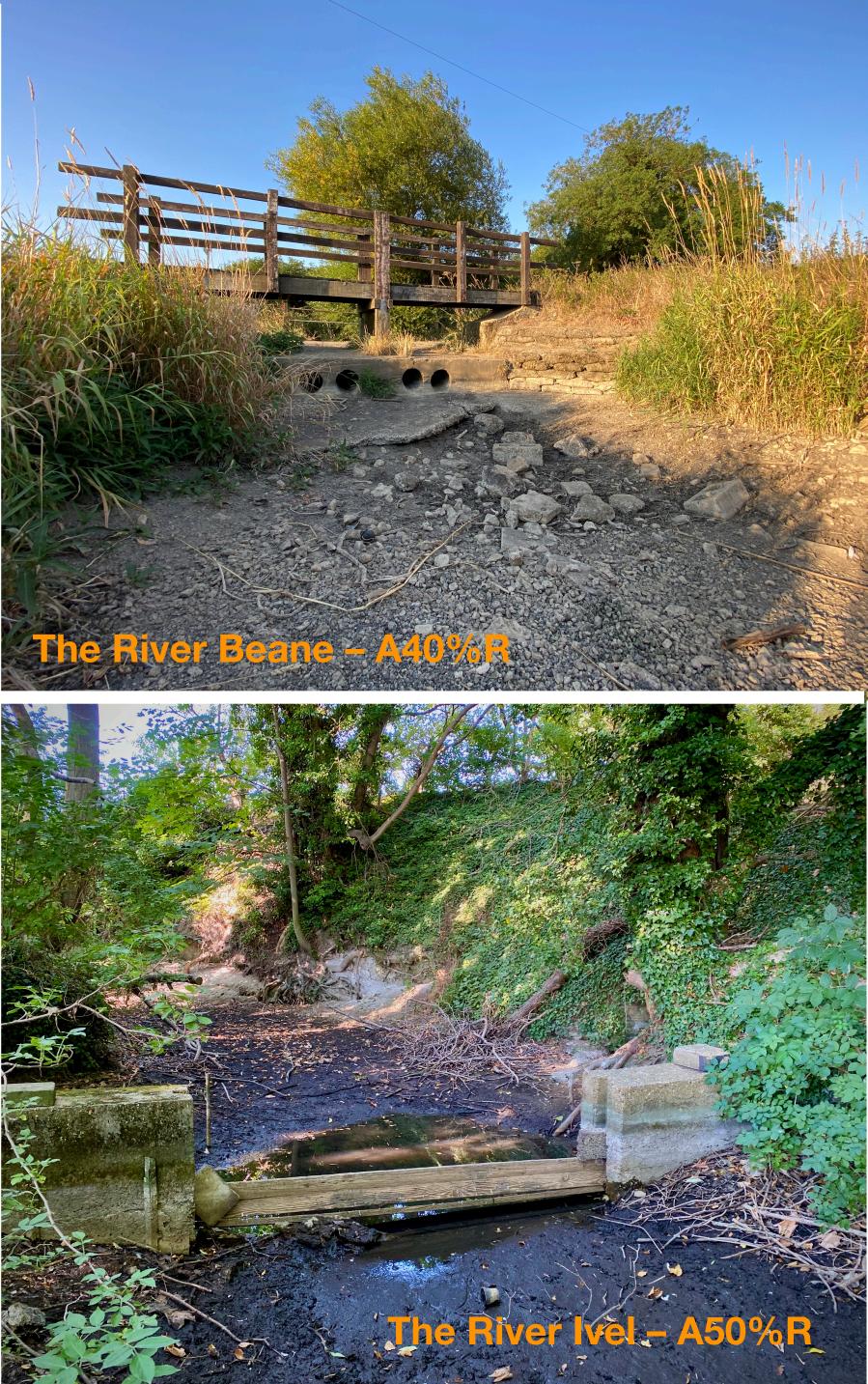
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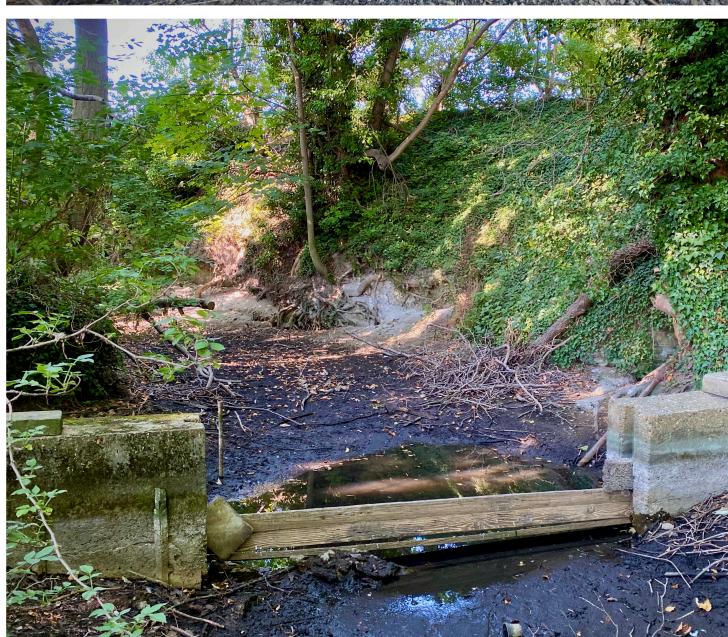


SAME DAY SAME DROUGHT AUGUST 2022

The River Mimram – A15%R



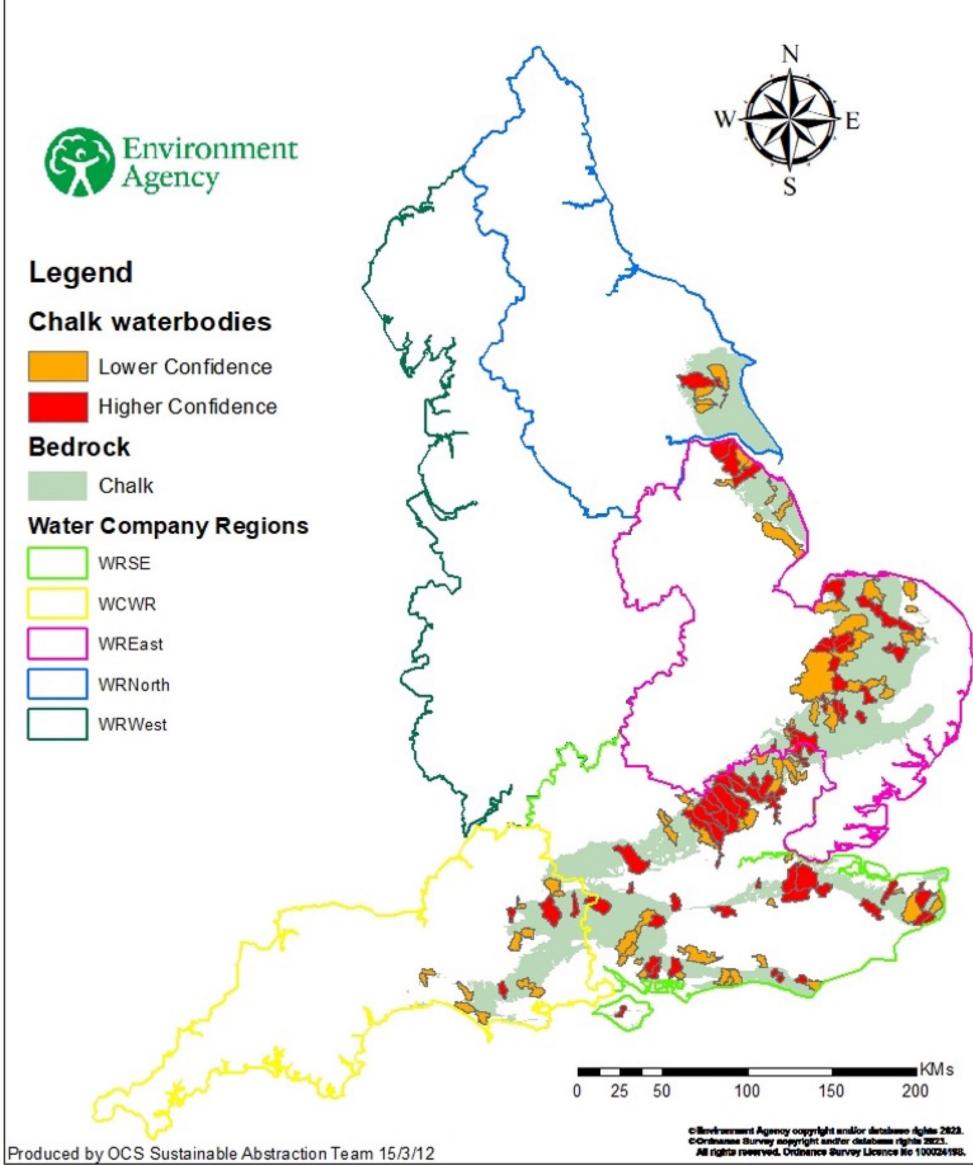




Water Company Water Resources Management Plans (WRMP)

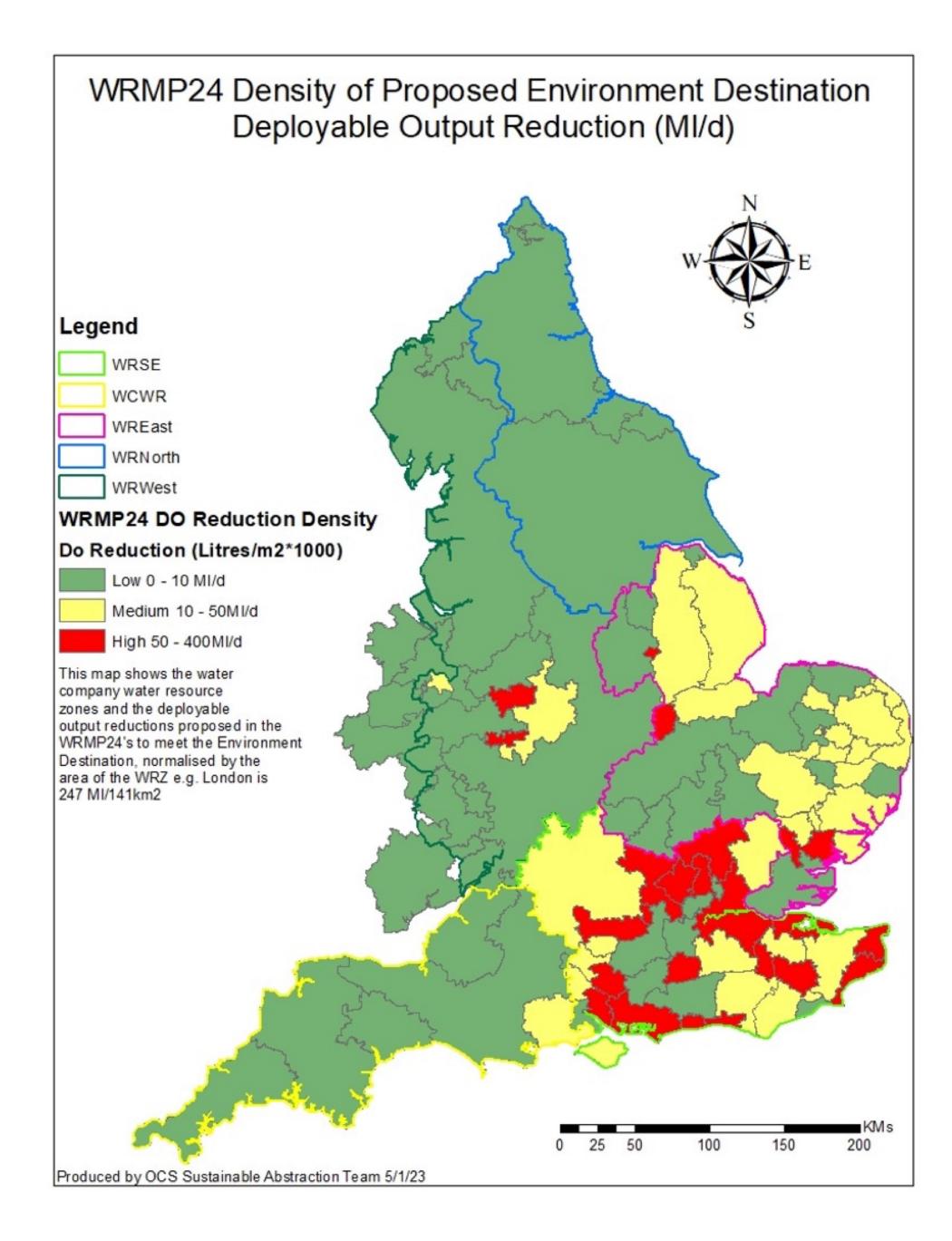
- National Framework the Environmental Destination requires sustainable abstraction in all chalk streams by 2050
- Map shows where existing flow is likely to have a negative impact on ecology
- Water companies have been asked to ensure their plans address these flow deficits

Chalk Waterbodies in England with Unsustainable Abstraction



Water Company Water Resources Management Plans (WRMP)

- Water companies have published their draft water resources management plans
- Map shows water company zones where abstraction reductions are planned
- 50% of the proposed investment is to protect the environment.
- Final Water Resources Management Plans are due in Autumn 2023.



Thames Water's 2023 WRMP proposed abstraction reductions in chalk-stream catchments.

Sources in bold boxes are CSF "highest priority" sources.

Abstraction reductions:

blue = by 2030 green = by 2035 amber - by 2040 red = by 2050.

Sources in blue bold boxes: CSF highest priority sources which should be in the medium scenario

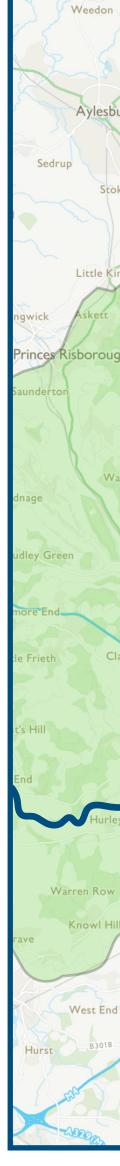
CHALK STREAM	Abstraction source (upstream to downstream)	Low Scenario Deployable output reduction	Year	Med Scenario Deployable output reduction	Year	High Scenario Deployable output reduction	Year
LEE	Northern New Wells	17.96	2040	17.96	2040	40	2050
	New Gauge			60	2050	80	2050
MISBOURNE							
	Hampden Bottom			2	2040	2	2040
DARENT							
	Westerham			0.972	2050	0.88	2050
	Sundridge			1.355	2050	1.36	2050
	Lullingstone	4.5	2035	4.5	2035	4.5	2035
	Eynesford & Horton Kirby	3.4	2035	3.4	2035	6.8	2035
	Darenth					20.7	2050
	Wilmington					19	2050
	Dartford					3.63	2050
CRAY							
	Great Street Green			4.46		4.46	2050
	Orpington			8.55		8.55	2050
	Bexley	9	2050	15	2050	31.7	2050
	Wansunt					13.6	2050
	Crayford					13.6	2050
KENNET							
	Clatford	1.24	2040	1.24	2040	1.24	2040
	Marlborough	2.5	2040	2.5	2040	2.5	2040
PANG							
	Bradfield	1.64	2030	1.64	2030	1.64	2030
	Pangbourne	5	2035	5	2035	5	2035
LAMBOURNE							
	Ashdown Park			0.95		0.95	2050
	Fognam Down						
WYE							
	Radnage	1.58	2040	1.58	2040	1.58	2040
	Pann Mill	7.5	2050	7.5	2050	7.5	2050
	Bourne End					5.65	2050
TILLINGBOURNE							
	Netley Mill	1.18	2030	4.5	2040	4.5	204
	Albury			3.58		3.58	205
	Shalford					20.32	205
		55.5		146.687		305.24	200
		55.5		17.54		000.24	

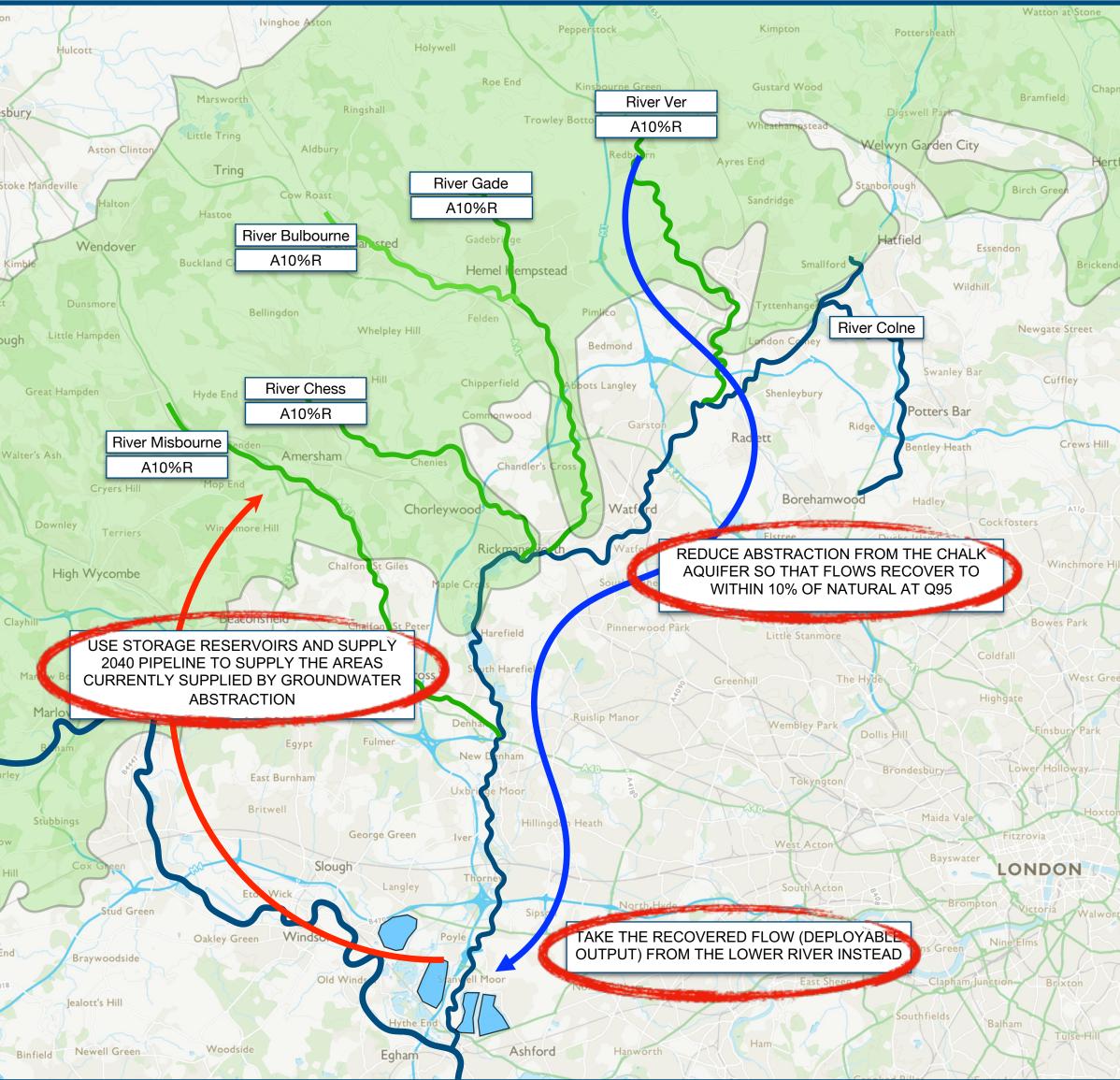
Affinity Water and Chalk Streams First

Over the past year Affinity Water has been working with Chalk Streams First to develop and include the CSF proposal for "using the flow benefits derived from abstraction reduction".

To re-cap **Chalk Streams First** would mean:

- greatly **reducing** groundwater abstraction in the Colne chalk streams: the Misbourne, Chess, Gade, Bulbourne and Ver (and the Lea).
- allowing groundwater levels and flows to recover: 80% of the water left in the ground turns into surface flow in the chalk stream (Friars Wash reduction on the River Ver)
- using that recovered flow as available surface water for abstraction from the lower part of the catchment near the Thames reservoirs after the chalk streams have benefitted from it hence Chalk Streams FIRST.
- redistributing the water via pipe networks that are already planned within AW plans.







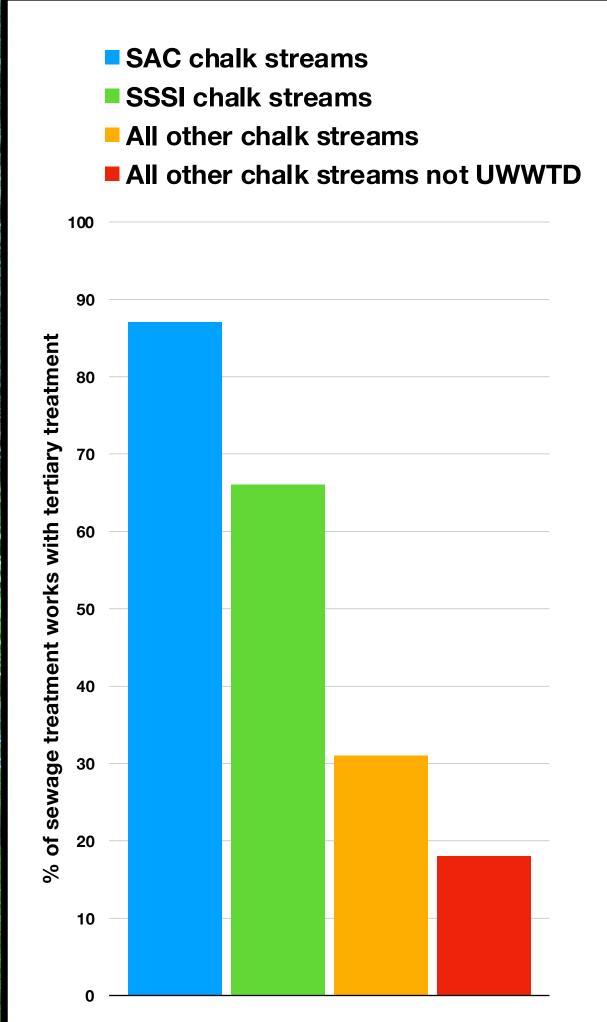


FLUSHED AWAY

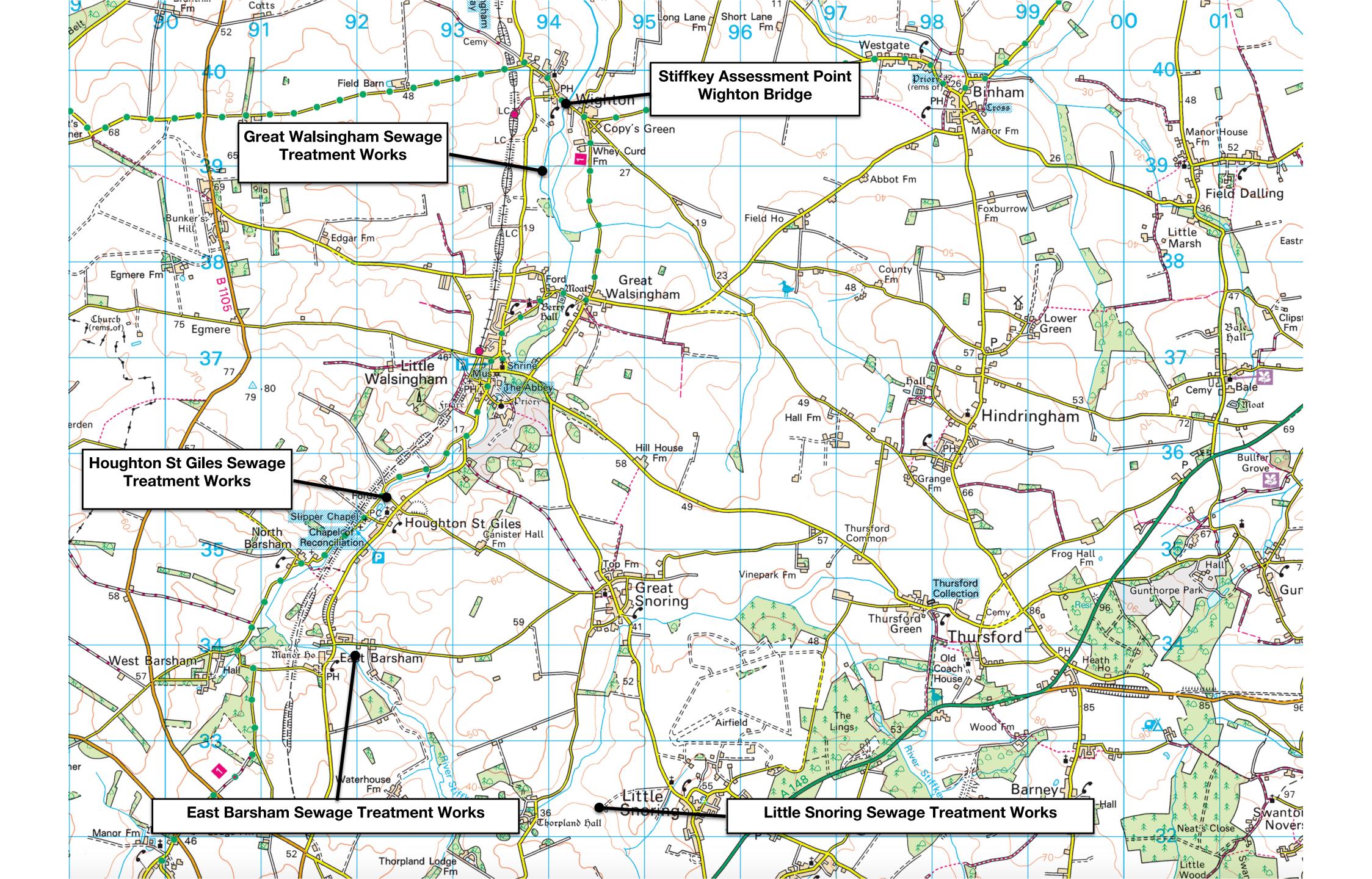
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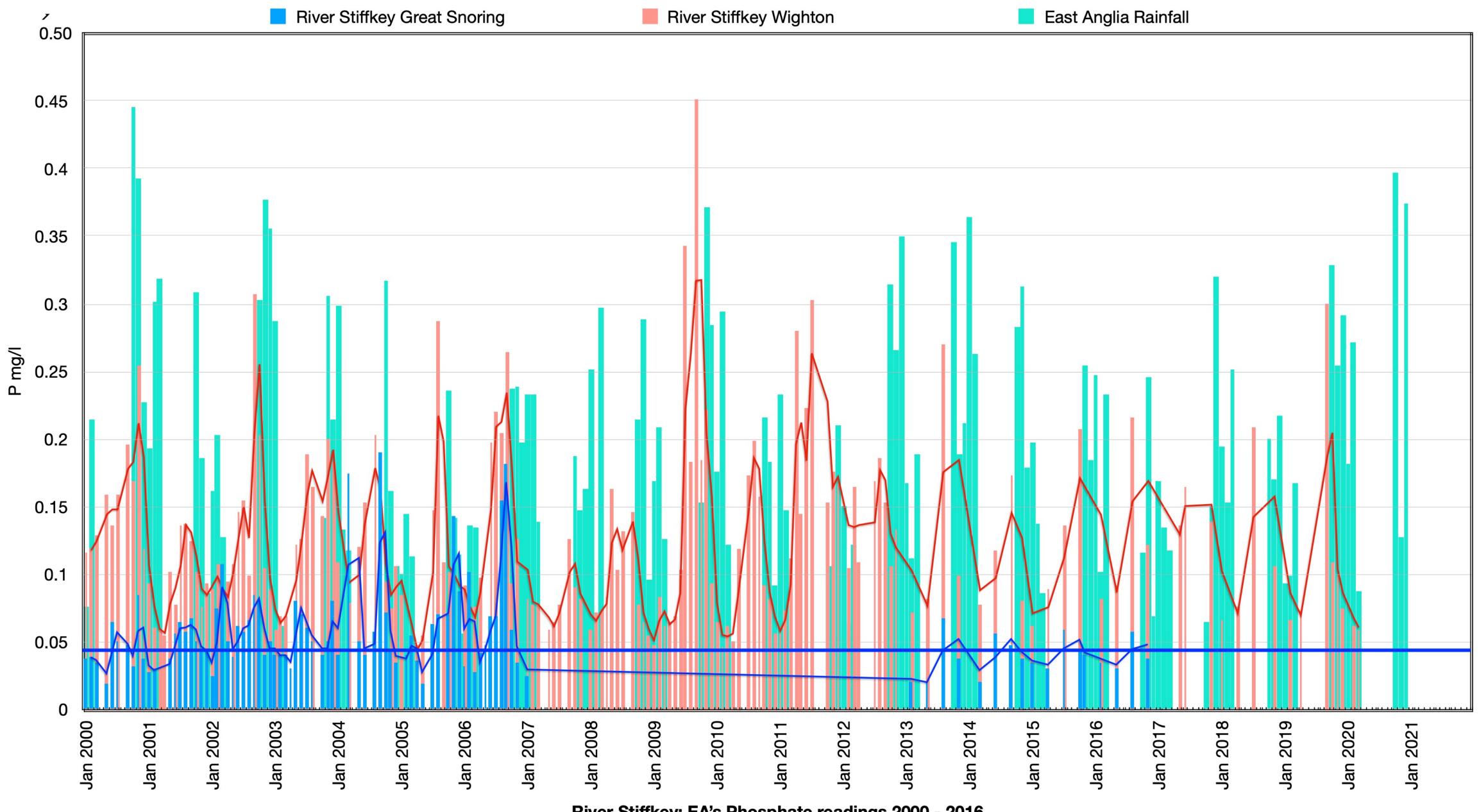
HOW SEWAGE IS STILL POLLUTING THE RIVERS OF ENGLAND AND WALES











River Stiffkey: EA's Phosphate readings 2000 - 2016 0.048 and below = High / 0.098 and below = Good status for phosphate

FROME	GOOD
AVON	GOOD
TILL	HIGH
KENNET	GOOD
LAMBOURNE	HIGH
TEST	HIGH
ITCHEN	HIGH
NAR	HIGH
DRIFFIELD BECK	HIGH

PHOSPHORUS STATUS OF DESIGNATED CHALK STREAMS

LEA	POOR			
COLNE	POOR			
RIB	POOR			
STORT	POOR			
CRAY	GOOD			
DARENT	HIGH			
CAM	POOR			
CHESS	POOR			
GREAT STOUR	MODERATE			
STORT CRAY DARENT CAM CHESS	POOR GOOD HIGH POOR POOR			

PHOSPHORUS STATUS OF MOST HEAVILY ABSTRACTED CHALK STREAMS



HOW LONG WOULD IT TAKE CHALK STREAMS TO RECOVER?



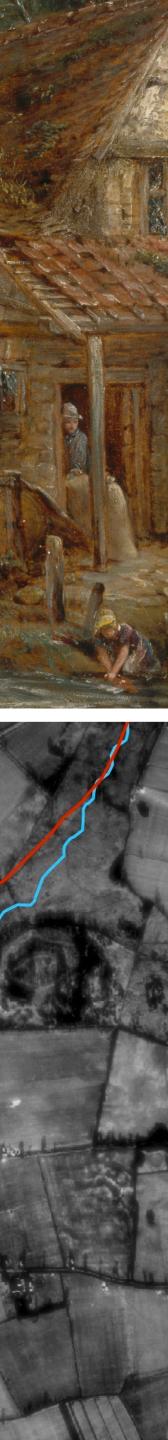


DEFORESTATION



WATERMILLS

STRAIGHTENING & DITCHING



RIVER RIB - DREDGED

GYPSEY RACE - DREDGED

RIVER STOUR - DREDGED

RIVER BEANE - DREDGED

RIVER BAINE - DREDGED





VASTLY MODIFIED CATCHMENTS & FLOODPLAINS WATER ABSTRACTION & WATER POLLUTION:

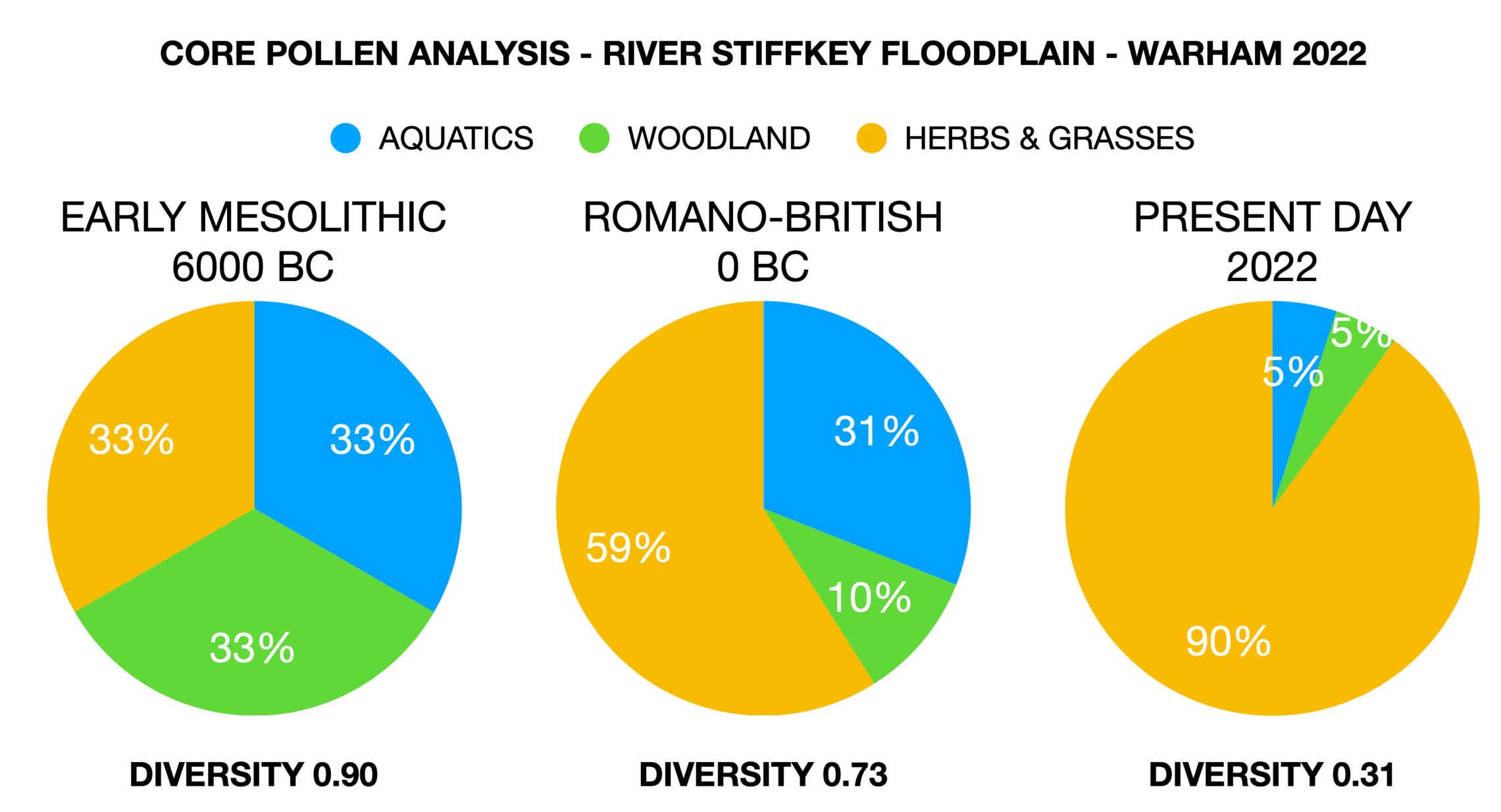
REDUCES SPECIES ABUNDANCE AND DIVERSITY











SO, HOW DO WE GO FROM 0.31 ...







BACK TOWARDS 0.91 ?

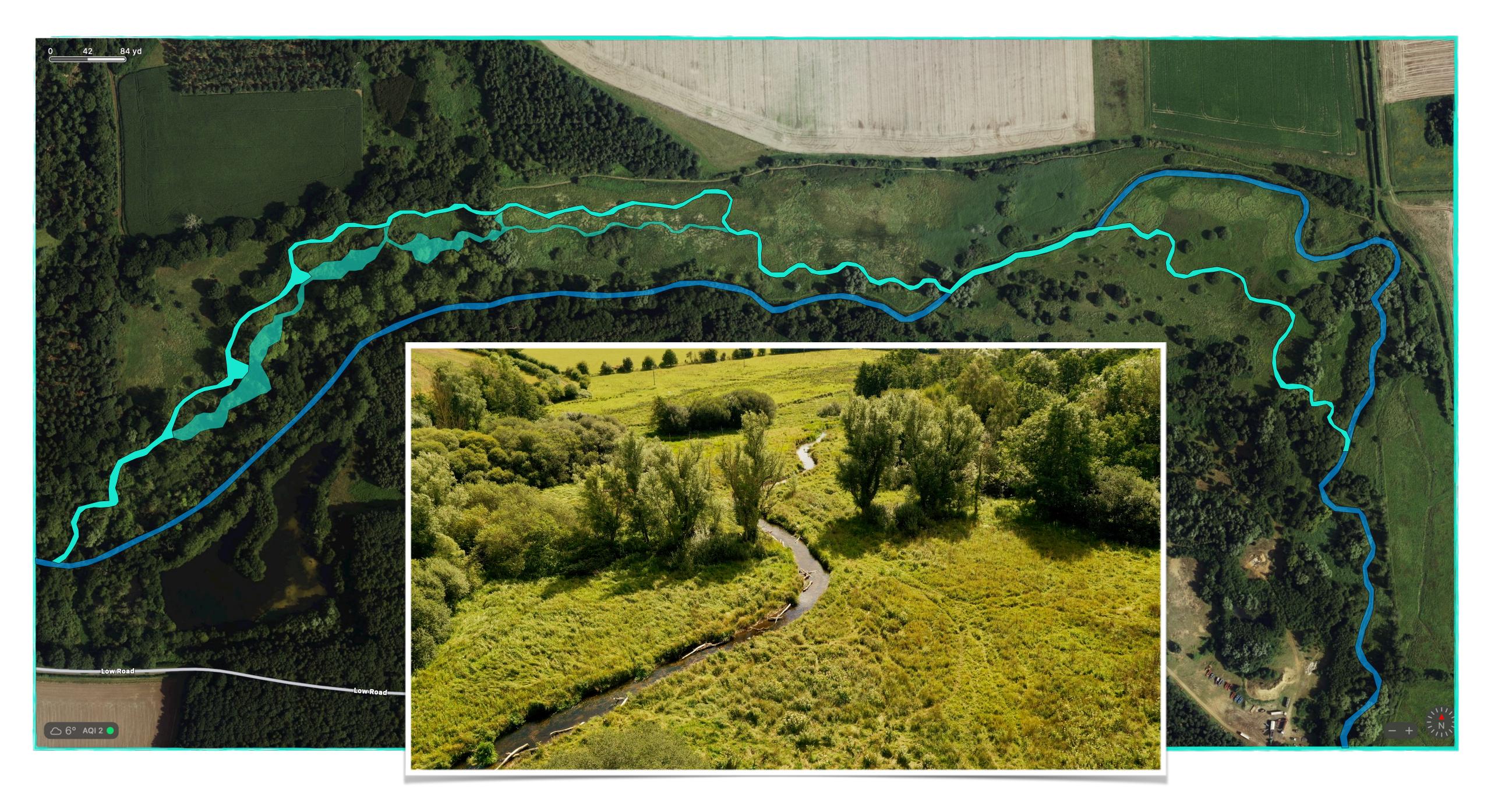


RECONNECT THE RIVER TO THE FLOODPLAIN

RESTORE THE NATURAL MEANDERS







Sept 2019







LARGE WOODY DEBRIS - FUNDAMENTAL TO A CHALK STREAM'S ECOLOGICAL PROCESSES





THE DIFFERENCE BETWEEN A DREDGED / IMPOUNDED CHANNEL AND ONE WITH A RESTORED (OR UNDAMAGED) GRAVEL BED AND NATURAL GRADIENT

October 2016

ALL ST



SO, WHAT'S THE POINT OF A STRATEGY TO RESTORE CHALK STREAMS?



A strategy gives you the best chance of assessing and understanding all the pressures and problems:

societal, political, financial, governance, legislation

pollution, abstraction, physical damage

Unless you understand the nature and scale of the problems and the barriers to progress, you won't find the best solutions.

A strategy allows you to address those pressures in the most cost-effective way

in the right order

at the right scale.

Collaboration is vital.

You'll probably have to work with, in fact it may even be best to work with, the very organisations you think are responsible for a large part of the problems in the first place.

Finally, there will be no Damascene moment: it's going to take decades and to think otherwise is to underestimate the task. BUT ... it can be done.

