Chalk Streams First response to Thames Water WRMP draft consultation: March 2023

Abstraction reductions

Although (as shown on p10 of the TW WRMP Summary "Keep the Water Flowing") there has been a considerable reduction in Thames Water's (TW) chalk-stream abstraction since the late 1980s, amounting to 120 Ml/d across the rivers Darent, Misbourne, Wye, Bulbourne, Pang, Kennet, Og and Letcombe Brook, these were reductions from very high peak rates and there remains considerable pressure on chalk streams in the TW and other water company regions (see CaBA CSRG's report into abstraction as a % of recharge: https://chalkstreams.org/ar-abstraction-as-a-of-recharge-in-chalk-streams/). Within the TW sub-regions 20% of London's water supply comes from chalk groundwater abstractions, as does 60% of Swindon and Oxfordshire water (incl. the Cotswold limestone), 50% of Kennet valley water, and 50% of Guildford water (p5 TW WRMP Summary).

Chalk Streams First (CSF) therefore welcomes and supports the fact that abstraction reductions are an important part of the TW's WRMP, focused on "delivering environmental improvement" with many of the licence reductions in the TW scenarios in chalk streams catchments, driven by "the unique status of chalk streams as identified in the Biodiversity Action Plan".

CSF also welcomes and supports the inclusion in TW's planning of the recommendations made in the CaBA chalk-stream restoration strategy (CSRS), endorsing the requirement to "prioritise vulnerable chalk streams". Prioritisation of iconic chalk streams and a focus on delivering reductions in a way that maximises flow recovery (ie. on a scale that amounts to significant net reductions across catchments and regions, including headwaters and tributaries) is a key message from the CaBA CSRS, now included in WRSE scenario planning.

As described in TW WRMP Section 5. 5.33 the high-scenario figures are based on a requirement to meet the EFI in all waterbodies across all catchments. The risks to the high scenario are affordability / cost-effectiveness and the inevitable ripple of environmental impacts associated with any schemes that relocate pressure on natural resources: both have to be carefully weighed. The high-scenario reductions are therefore less certain as outcomes than the low-scenario reductions. Therefore CSF is concerned to ensure that reductions to priority chalk streams catchments are included in **all three scenarios** and not just the high scenario.

CSF supports the methodology of prioritisation for the low and medium scenarios summarised in Section 5 5.39 and 5.42 leading to the reductions across all three scenarios summarised in Table 5.2, including the "vulnerable chalk catchments": Darent, Cray Wye, Misbourne, upper Lee, Wandle, Hogsmill, Pang, upper Kennet, and Tillingbourne.

The Chalk Streams First coalition – in proposing a pragmatic way of re-naturalising chalk stream flow while minimising loss to water-resource output – has also consistently emphasised the need for **timely delivery** of these prioritised abstraction reductions, because: a) chalk streams have been over abstracted for too long and b) because naturalised flow underpins all the other measures needed to improve or restore the ecology of our chalk streams.

Table 1 below with data taken from the tables in TW WRMP Section 5 shows the TW proposed abstraction reductions in the chalk streams only under the three scenarios, listed by catchment in an upstream-to-downstream order (note we have not included the lowest "Kennet valley" sources which are long way downstream of the classic Kennet chalk stream reaches).

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	2050
	Orpington					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	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	2040
	Albury					3.58	2050
	Shalford					20.32	2050

Table 1. Thames Water's 2023 WRMP proposed abstraction reductions in chalk-stream catchments.

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

Reductions in blue = by 2030, green = by 2035, amber - by 2040 and red = by 2050.

The source names in bold boxes are those which **CSF considers highest priority (HP)** because they are sited in the upper or the classic chalk-stream reaches of the given catchments. The other sources are lower down the catchments in more highly modified environments, and in some cases very close to the main River Thames. This does not by any means preclude the need for reductions from these sources, but it does suggest an order of priority.

The coloured boxes indicate how soon any reduction is scheduled: green by 2030, blue by 2035, amber by 2040 and red by 2050. As can be seen, only one chalk stream reduction is scheduled by 2030. Only three more by 2035. Five by 2040. The remainder by 2050.

Colne / Lee Chalk - Chalk Streams First original proposal

Two of the reductions directly relate to the Chalk Streams First proposal for the Rivers Colne and Lea: Hampden Bottom on the Misbourne and Northern New Wells on the middle Lea near Amwell Magna (the New Gauge source is a surface-water abstraction from the head of the New River). CSF would like to see both of these reductions in all three scenarios and to see them brought forward to synchronise with the overall Chalk Streams First Colne / Lea proposal.

Chalk Streams First investigation in the Cray / Darent catchment

With regard to the TW abstraction reductions in the Cray and Darent, CSF would like to see:

• all the HP source reductions in the Darent catchment – which has been very heavily abstracted for many decades – brought forward to 2035 if at all possible.

• all the HP source reductions in the Cray catchment – which has also been very heavily abstracted for many decades – brought forward to 2035 if at all possible.

To facilitate the above, CSF would like to see an investigation of variations on the CSF model for conjunctive use in the Darent and Cray catchments, including the potential for:

- licence relocation from upper to lower catchment / close to the River Thames.

- licence swap, combining an exchange of middle and upper catchment groundwater abstraction for lower-catchment surface-water abstraction.

- the potential for a groundwater insurance scheme similar to the West Berks Groundwater Scheme to ensure water-resource resilience in drought and low-flow conditions, whilst allowing large-scale reductions in the middle and upper catchments outside drought conditions.

Other TW chalk stream abstraction reductions.

Elsewhere CSF would like to see:

• all the HP source reductions included in all three scenarios
• all the HP source reductions brought forward to 2035 if possible

The importance of flow recovery

It should be noted that up to 80% of the source reductions on the Rivers Kennet, Lambourne, Pang, Wye and Tillingbourne will add – via flow recovery to the chalk streams and the Thames – to the deployable output available for London via surface abstraction from the main River Thames.

CSF has commissioned an independent investigation – **https://chalkstreams.org/flow-recovery-following-abstraction-reduction/** – into flow recovery from abstraction reductions. Our analysis suggests that at the average percentiles through the duration of 1921 and 33/34 droughts 50% to 60% of upper-catchment groundwater reductions would translate into increased deployable output to downstream reservoirs. Across the flow-duration curve the average flow recovery is around 80% of the reductions, although this can fall to <30% in extreme low-flow periods.

For all the TW chalk streams, except the Darent and Cray where there is no reservoir, this flow recovery means only a fraction (albeit variable) of the abstraction reductions is lost to deployable output.

The uncertainty in implementing the reductions (ie. if they currently only feature in the high scenario) and the delay (ie if they are currently not scheduled until 2040 or 2050) are therefore unnecessarily precautionary.

Water-supply solutions and strategic-resource options

CSF support all of the options that add to water-supply resilience in the south east (p16 TW WRMP Summary)

CSF believes that the Chalk Streams First proposal, especially if combined with a groundwater insurance scheme, should be regarded as a strategic resource option both on its own (with the groundwater scheme it can actually add to deployable output) or in conjunction with other strategic resource options, because the eventual % of flow recovery contributes deployable output to London and therefore frees up a commensurate amount of water from the given strategic resource option ie. we do not need to offset 100% of the abstraction reduction from chalk sources).

Of the TW waters supply options it is important to consider the fundamental need for **more water** in the water-stressed south east. In the short and medium term, water transfers – provided they do not create a new environmental pressure elsewhere – offer a **certainty** of increased supply via relatively **discreet** infrastructure works that tend to be less controversial. The delays caused by local resistance and enquiries should be factors in the decision-making process. Water transfers from North Wales to London – as a way to relieve pressure on the Chilterns chalk streams and ensure resilience of supply to a growing city – were first proposed in the mid-nineteenth century: it's about time we built them.

Demand management (p20. TW WRMP Summary)

CSF welcomes the emphasis on leak reduction and water efficiency and supports the Thames Water scheduled roll-out of smart metering. However, this roll-out is due to be staggered over 15 + years and could arguably be more ambitious. As cited in the WRSE draft plan, consumption data indicate that smart metering quickly leads to consumption within the target of 110 litres per person per day. Relative to creating new supply, smart metering must be very cost-effective.

With all chalk-stream regions now designated as water stressed, there is no reason not to roll out smart metering quickly in all the areas where abstraction reduction is ecologically urgent (as recommended in the CaBA Chalks Stream Restoration Strategy).

Therefore, CSF urges that this programme should be front-loaded in such a way that the results of the early roll-out can be quickly and accurately monitored. There should be enough flexibility in the planning to accelerate the roll out if the metering is shown to be as cost-effective as data thus far suggest it will be.

Smart meters should be visible on a daily basis (by the kitchen sink and not in a cupboard) with usage correlated to cost, like a petrol pump.

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On behalf of the Chalk Streams First coalition.