Chalk Streams First response to WRSE draft plan February 2023.

Prioritisation

Chalk Streams First welcomes and supports the recognition in the draft regional plan of the need to:

• prioritise where abstraction should be reduced
• with a focus on chalk streams (and designated sites)
• especially their headwaters and the iconic chalk stream tributaries of larger systems like the Colne and Lea.

Currently, environmental ambition is driving a very large part of the forecast deficit and the need for abstraction reductions, a total of 1360 Ml/d by 2075. Reductions of this scale will be subject to intense scrutiny and cost-benefit analysis set against ecological need. Already sectors of the hydro-geological community are voicing concern about the notion of "abandoning our groundwater resource", a hyperbolic – but in the context perhaps understandable – characterisation of the proposals (Rob Soley "Enormous Cuts to Groundwater Abstraction in England are Unwise" CIWEM magazine February 2023).

CSF feels that this concern is largely driven by the sheer scale of the mooted reductions without, thus far, enough clarity on the prioritisation methodology or the forum in which prioritisation decisions can be made. In the absence of these things, positions are more likely to become entrenched and the debate more adversarial than collaborative.

For example:

According to the CaBA chalk stream restoration group's independent analysis, the total abstraction reductions needed to achieve A10%R (abstraction limited to no more than 10% of catchment recharge) in the WRSE chalk catchments surveyed – which included the most significantly abstracted chalk streams – amounted to 532 Ml/d. This figure, however, includes the lower reaches of large rivers like the Colne and Lea, which are very highly modified, impounded waterways where the ecology is no longer rheophilic. Without ruling out the possibility for future abstraction reductions in these sorts of settings, the ecological case for re-naturalising flows in the iconic chalk stream tributaries is demonstrably more urgent. The lower reaches will benefit considerably from abstraction reductions in the tributaries, anyway. The total abstraction reductions needed to achieve A10%R in WRSE's most iconic chalk streams / headwaters amount to circa 220 Ml/d, a relatively small fraction of the WRSE total of 1360 Ml/d.

Extending this point: on a national scale the high scenario flow deficits and abstraction reduction figures will be similarly ambitious in all the other national framework regions: in which case, like WRSE, each regional group will be seeking out their own best value options. Under these circumstances and without this prioritisation methodology in place on a regional and national scale, it is highly likely that lower priority deficits in other regions will prohibit transfers that could be used to address high priority deficits in the WRSE region.

Therefore CSF recommends that the nettle of this task of prioritisation is urgently grasped and we would welcome an active role in advancing discussions, at least as far as they focus on priorities within the WRSE region, especially chalk streams.

Demand reduction.

CSF welcomes and supports the emphasis on leak reduction and water efficiency. As the draft plan states achieving the ambitious water efficiency targets will need to “rely upon new approaches and technologies that are yet to be tried and tested”. As cited, consumption data indicate that smart metering quickly leads to consumption within the target of 110 litres per person per day, with a small proportion of high users raising the average. CSF believes, therefore, that the most efficient, speedy and fair way to influence customer water-use is via smart metering *and* tiered tariffs, ideally metering that customers can see easily on a daily basis with the consumption correlated to cost on the meter itself. With all chalk stream regions now designated as water stressed, there is no reason not to roll out smart metering in all the areas where abstraction reduction is ecologically urgent (see above), especially in the Colne and Lea catchments, but also the Darent and Cray.

New Sources

CSF welcomes and supports schemes that bring new water into the WRSE region, as this is the most certain way to lower the burden on the stressed water environment. CSF particularly welcomes schemes which can help to deliver timely reductions in chalk stream abstraction and supports all the listed sources that provide “new and resilient supplies” up to 2040.

CSF is especially pleased, to see the Grand Union Canal Phase 1 in all future scenarios as it underwrites some early reductions in chalk stream abstraction. For the same reasons, CSF would like to see Phase 2 brought forward as quickly as is reasonably possible.

The other significant transfer scheme – Severn to Thames (STT) – is not scheduled until after 2050 (2040 if Abingdon Reservoir (aka SESRO) is not developed). For the same reason expressed above – that new water is a more certain way of addressing deficits and thus facilitating abstraction reduction – CSF has concerns about these delays to the STT.

Cross referencing WRSE plans with water company WRMPs it appears that the Thames to Affinity Transfer – upon which the initial concept of Chalk Streams First rests – is framed as being contingent upon either the construction of SESRO or the STT, with the supply network first identified by CSF as facilitating the scheme – “Supply 2040” – now pushed back and re-named “Supply-2050”. In our initial proposal we had asked for that network to be brought forward to become “Supply-2030".

The Chalk Streams First group sees either or both of these large strategic schemes as potentially important components of resilient future water-supplies, but would be extremely and justifiably disappointed if the full realisation of Chalk Streams First and Supply 2030/40/50 become contingent on these schemes. This would push the ecological recovery of the chalk streams decades down the line. CSF could and should be a self-contained and timely solution and should not become dependent on distant future schemes.

The contingency / delay appears to be based on an estimate of 17% flow recovery from chalk stream abstraction reduction at very low flows, Q95 - Q100, meaning that the strategic resource is necessary to underwrite the abstraction reductions.

CSF has commissioned an independent investigation – **https://chalkstreams.org/flow-recovery-following-abstraction-reduction/** – into flow recovery from abstraction reductions. Our analysis suggests that average flow recoveries at the relevant percentiles are considerably higher than 17%. For example, our analysis of measured flow recoveries and our CSF modelling indicate that in the region of 50% to 60% of upper catchment reductions would translate into increased deployable output in downstream reservoirs at the average percentiles through the duration of 1921 and 33/34 droughts.

The delay in implementing the reductions is therefore unnecessarily precautionary.

Groundwater Insurance Scheme

However, CSF accepts that there is uncertainty over flow recovery at the relevant flow percentiles and therefore proposes urgent investigation into the viability of a groundwater insurance scheme for the Colne and Lea catchments, modelled on the West Berkshire Groundwater Scheme. Preliminary CSF

modelling of such a scheme suggests that it could be used to more than offset the replacement supplies for all the abstraction reductions, and potentially yield a 55-60 Ml/d of deployable output increase for London, with minimal impact on the re-naturalised chalk stream flows.

Solving the chalk stream abstraction crisis with only a small net less to deployable output was the heart of the original Chalk Streams First proposal. Whilst underwriting the uncertainty of flow recovery (via the GUC etc.) is a sensible, precautionary approach, it would be also seem the most precautionary way forward to plan so that better-than-expected flow recoveries – ie. in line with CSF predictions – should they manifest themselves, can be used to create additional deployable output.

CSF notes that groundwater schemes form a relatively small component of the WRSE draft plans and speculates that this may be because of ideological objections within various groups and agencies to the concept of “managed” aquifers and “augmented flows”. CSF feels that these objections would be out of place in the context of aquifers that are effectively intensely managed anyway. And although flow support in the year of an extreme drought would be a byproduct of a groundwater scheme, the idea is not fundamentally about flow support. It is about enabling the long-term re-naturalisation of flows through a pragmatic measure to ensure short-term water-supply resilience in extreme droughts.

A groundwater insurance scheme would keep the CSF concept self-contained, would allow speedy delivery of chalk stream flow-recovery, and also because it would underwrite any uncertainty, could well create a drought water resource in its own right, and free up the net gains from any of these given strategic resource options in the future.

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On behalf of the Chalk Streams First coalition.