Emailed Document Consultation Response: UK Centre for Ecology & Hydrology

Q1: The Wonderful Windermere performance commitment identifies the following sources of phosphorus to reduce nutrient input: Private WwTWs, Domestic Septic Tanks, Catchment farmland, and 'Other' catchment land. • Are there any specific interventions you wish to be considered to support nutrient reduction from these sources? • Alternatively, are you aware of any additional sources of nutrient inputs that you think should be included?

You seem to be very focussed on 'end of pipe' solutions, have you given any thought to reductions in the sources of P before they enter the sewage systems or farmland? e.g. feeding regimes, P free products, removal/ recyling of slurry off catchment.

You are not considering targeting legacy nutrients in this approach i.e. those stored and potentially released from sediments and soils.

Q2: United Utilities has put forward a comprehensive sampling regime (Table 1 in the document) as part of the methodology to ensure phosphorus loads are representative. Do you think the proposed sampling regime is suitable for each source of phosphorus?

I think you need at least 1 year of 'before' and 1 year 'after' intervention monitoring, so that you can adequately represent the changing loads on the system and evaluate the effectiveness of measures. Seasonal patterns in visitor numbers, farming practices and weather will be missed otherwise.

Q3: Verified modelled values will be used to claim phosphorus reduction outputs for catchment interventions and for interventions where sampling is prevented or not possible. Do you have any comments regarding the proposed modelled values?

I think you will need to have collected some real values in the catchment to validate the use of modelled values for any of these approaches. Otherwise you should demonstrate the uncertainty in the modelled estimates by assessing these as a range.

Q4: Throughout the performance commitment, the governance group will play a key part in having oversight and signing off all interventions as part of this performance commitment. Do you have any recommendations for how this group should be used throughout the performance commitment?

Something missing from the methodology is how you will select sites to carry out interventions, currently this is really vague. To achieve the highest level of P reduction and best value for the investment you should be targeting the largest potential sources and should use existing data/ evidence to do this.

I think it is also likely that you will identify many sites that aren't currently compliant with the existing rules, whether that's sewage or farming. These need recording to understand the scale of non-compliance, even if you won't be carrying out interventions at those sites.

The governance group needs to carefully track how the pc is being implemented and identify the priorities early on in the work, based on potential largest benefit. It will be hard to justify a piecemeal approach and could open up the work to criticism. The group should identify what the key objective of the pc is e.g. is it about maximising P reduction or about demonstrating different measures and ensure that the allocation of resources delivers that objective. The group also needs to consider how it will handle the issue of ongoing maintenance of the assets produced beyond the pc, so that the legacy of the project is not lost due to poor maintenance of P absorbing material etc. Recommendations could be made as to how to ensure that these interventions are continued into the future, particularly if new compliance measures/ rules are required.