

Somerset Council Climate and Place Scrutiny Committee

Wessex Water improvements driving phosphate reduction in the
rivers near the Somerset Levels and Moors

26th April 2024

Wessex Water
YTL GROUP



Water recycling centres (WRCs)

- Physical, physico-chemical and biological processes to treat sewage to a standard that the environment can accommodate and assimilate
- The discharge standards required are set and enforced by the Environment Agency



General approach to cost effective P removal

1. Upfront chemical dosing

- Coagulant such as ferric sulphate causes phosphorus associated with solids to settle out in the primary settlement tanks
- Gets P concentration down from c5mg/l to <1mg/l (i.e. 80% removal)



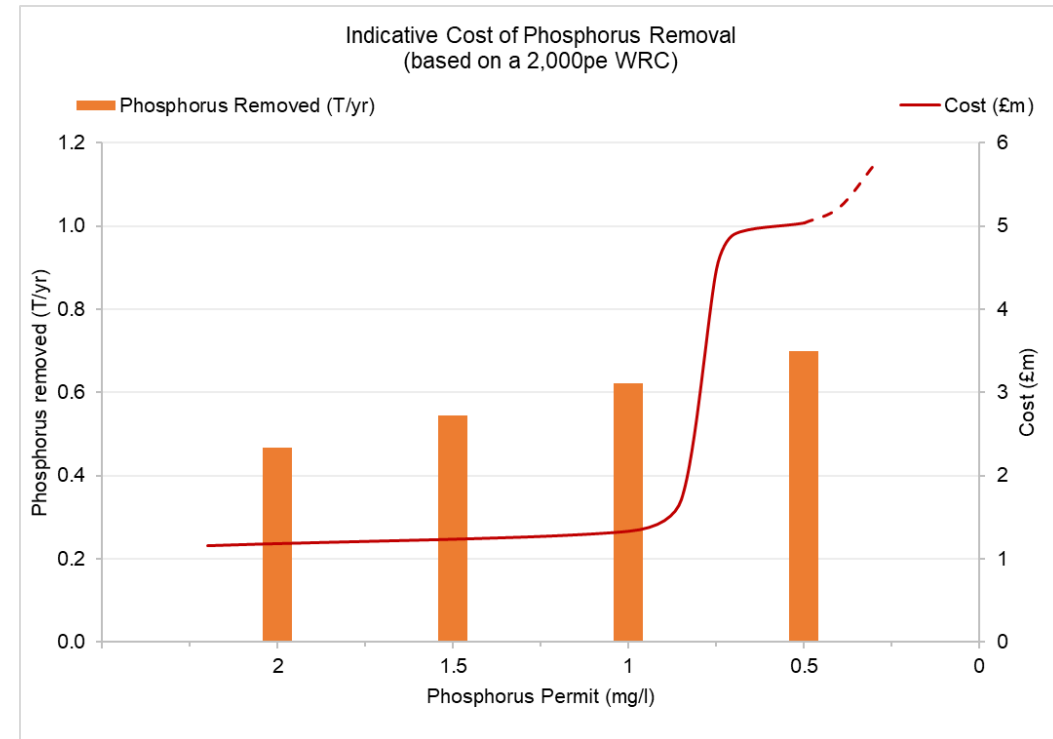
2. Back-end filtration

- Often requires upsizing whole upstream process due to impact of backwashing
- Gets P concentration down from c1mg/l to <0.25mg/l (i.e. 15% removal)



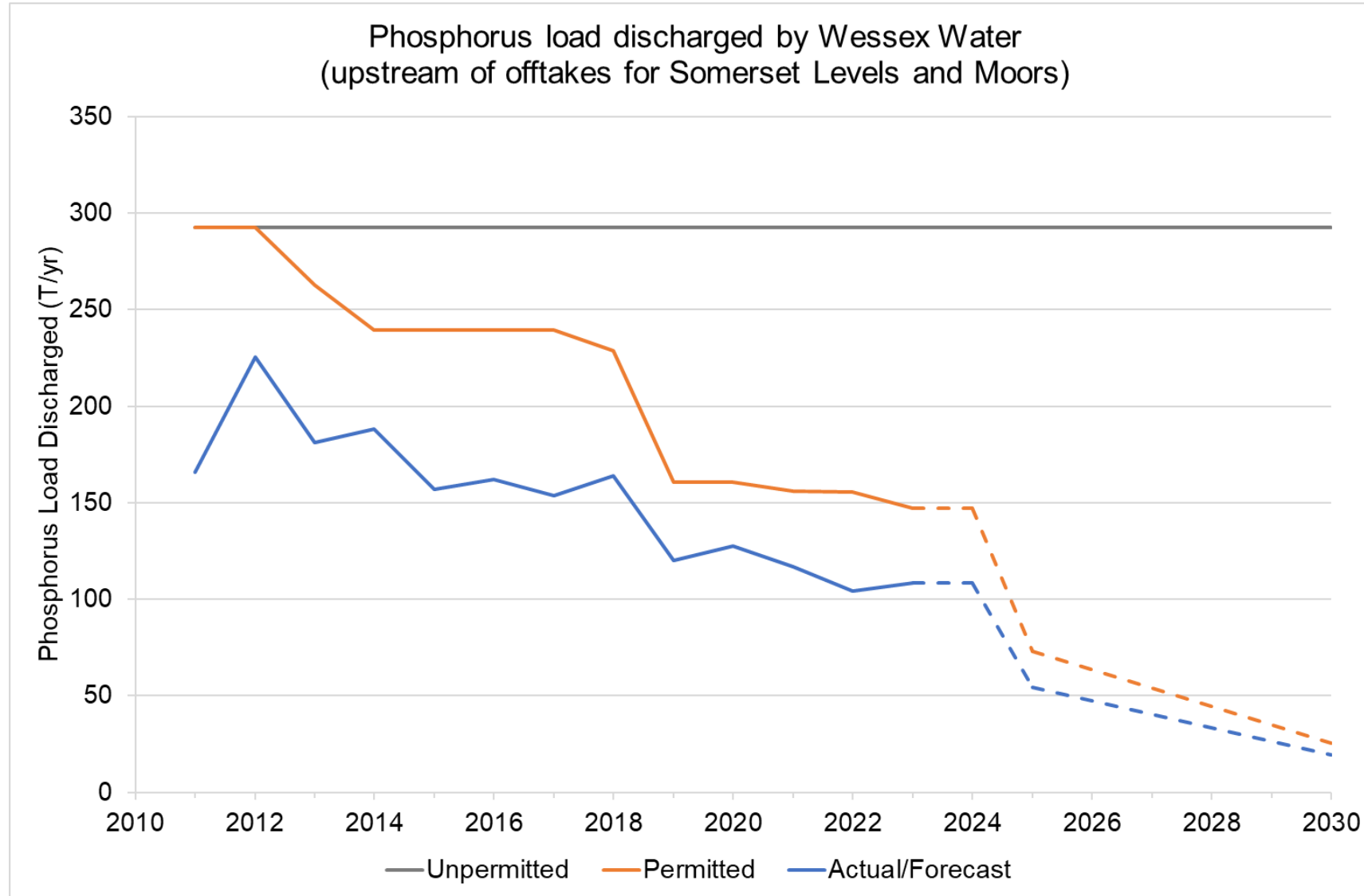
Relationship between costs and benefits

- The law of diminishing returns...
- Costs to reach lower concentrations (i.e. <1 mg/l) increase significantly for far less benefit



- We try to look at other ways of removing the same amount of P in more cost-effective ways
 - e.g. catchment permitting (stretch targets) or catchment nutrient balancing (offsetting)

P load reduction from WRCs to rivers upstream of SL&M offtakes

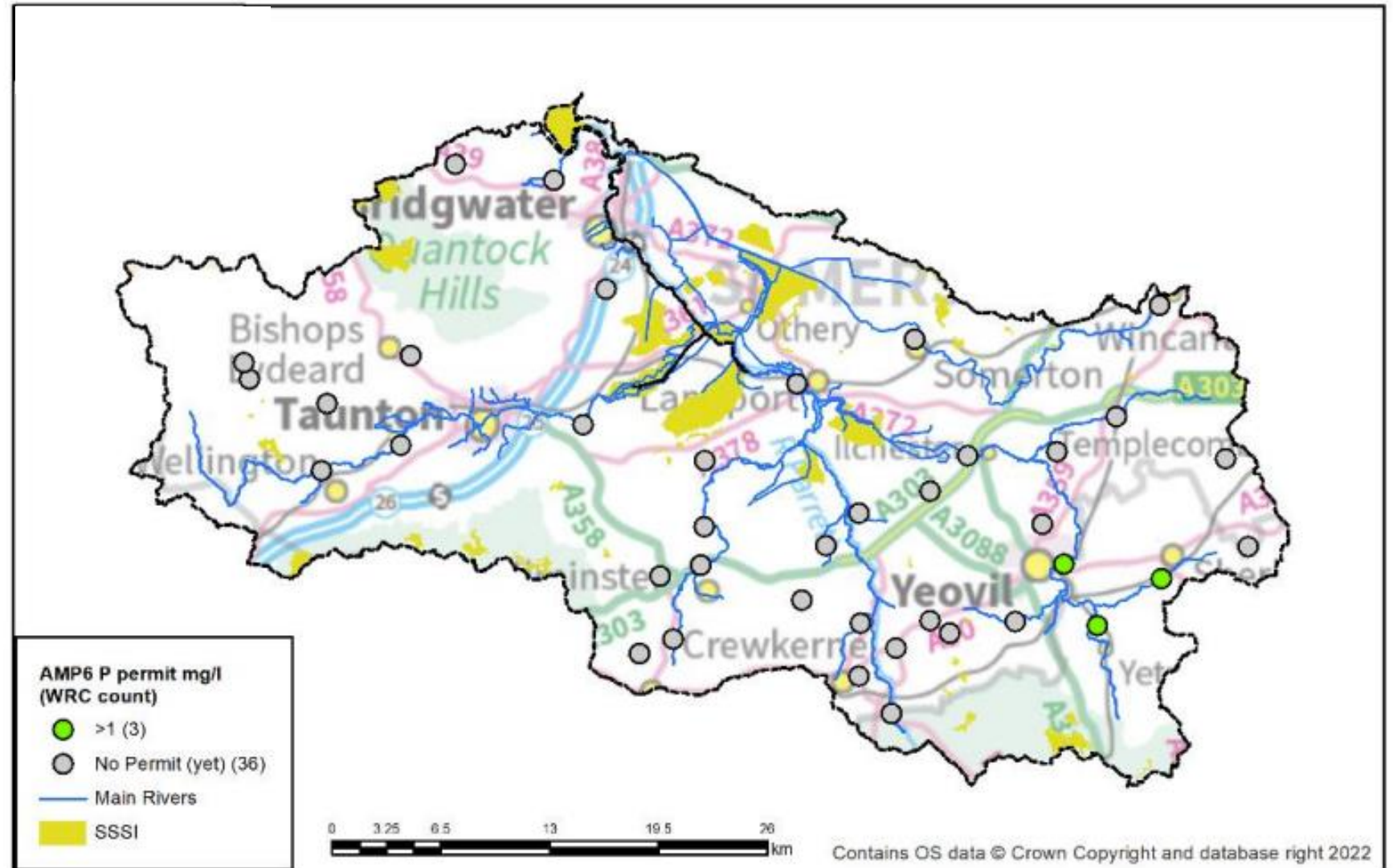


Phosphorus removal PAST investment (Before 2019)



- e.g. river Parrett and Tone catchments

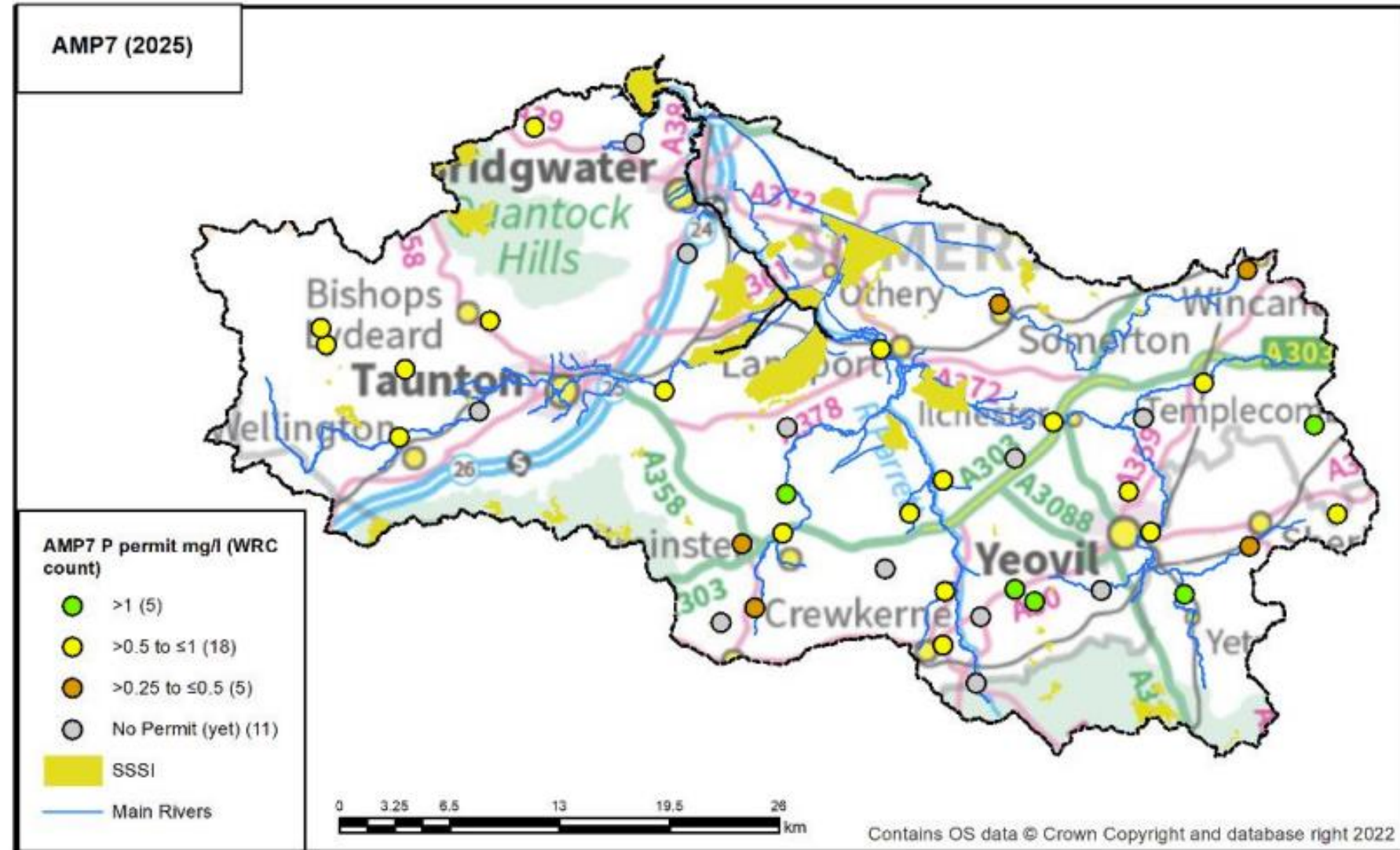
- More info [Business plan 2025-2030](#)
- Document: WSX16
- Page 135pp



Phosphorus removal CURRENT investment 2020-2025

- e.g. river Parrett and Tone catchments

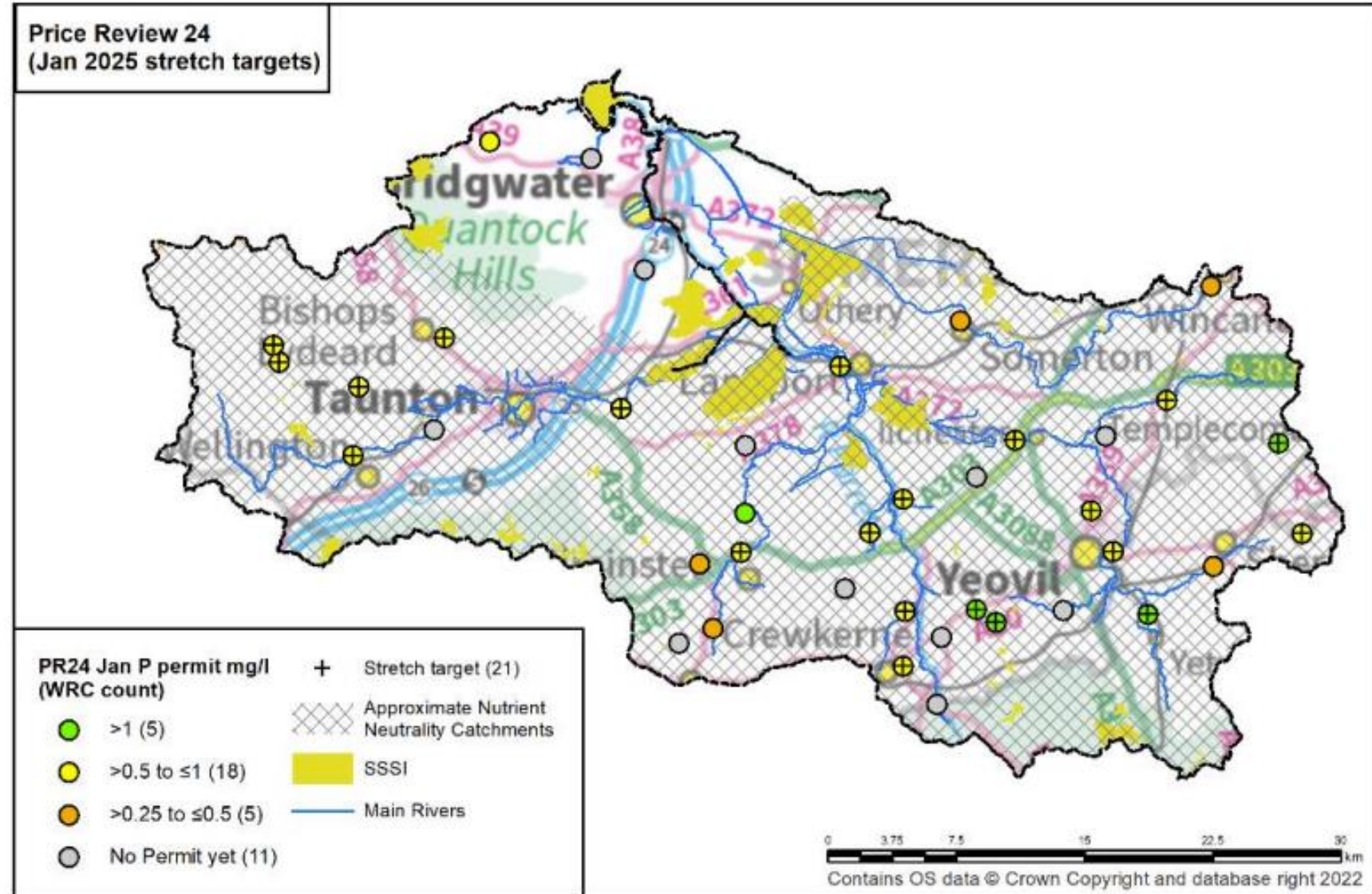
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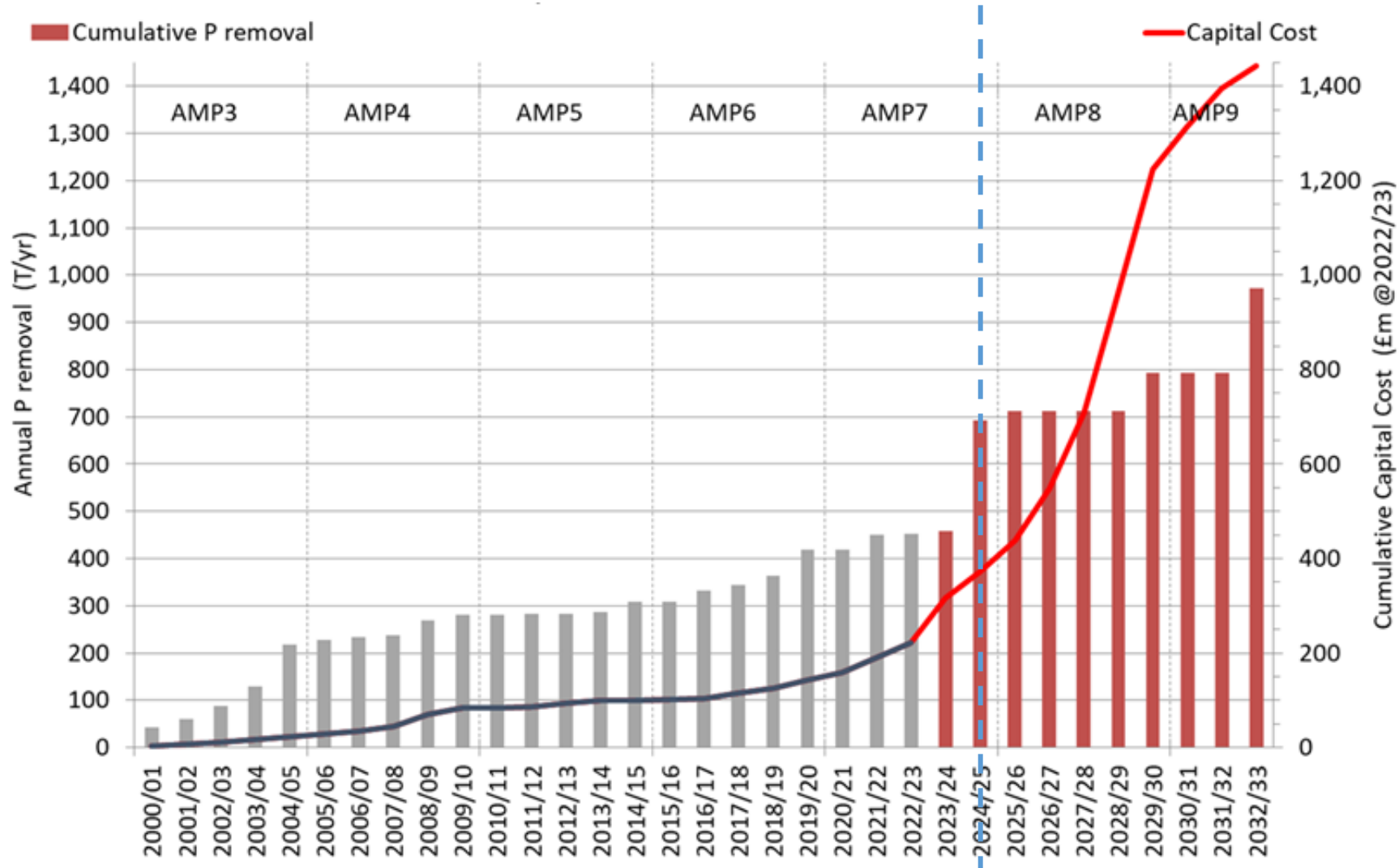
Phosphorus removal CURRENT investment 2025

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P removal (tonnes/yr) vs capital cost (£m) Past and future

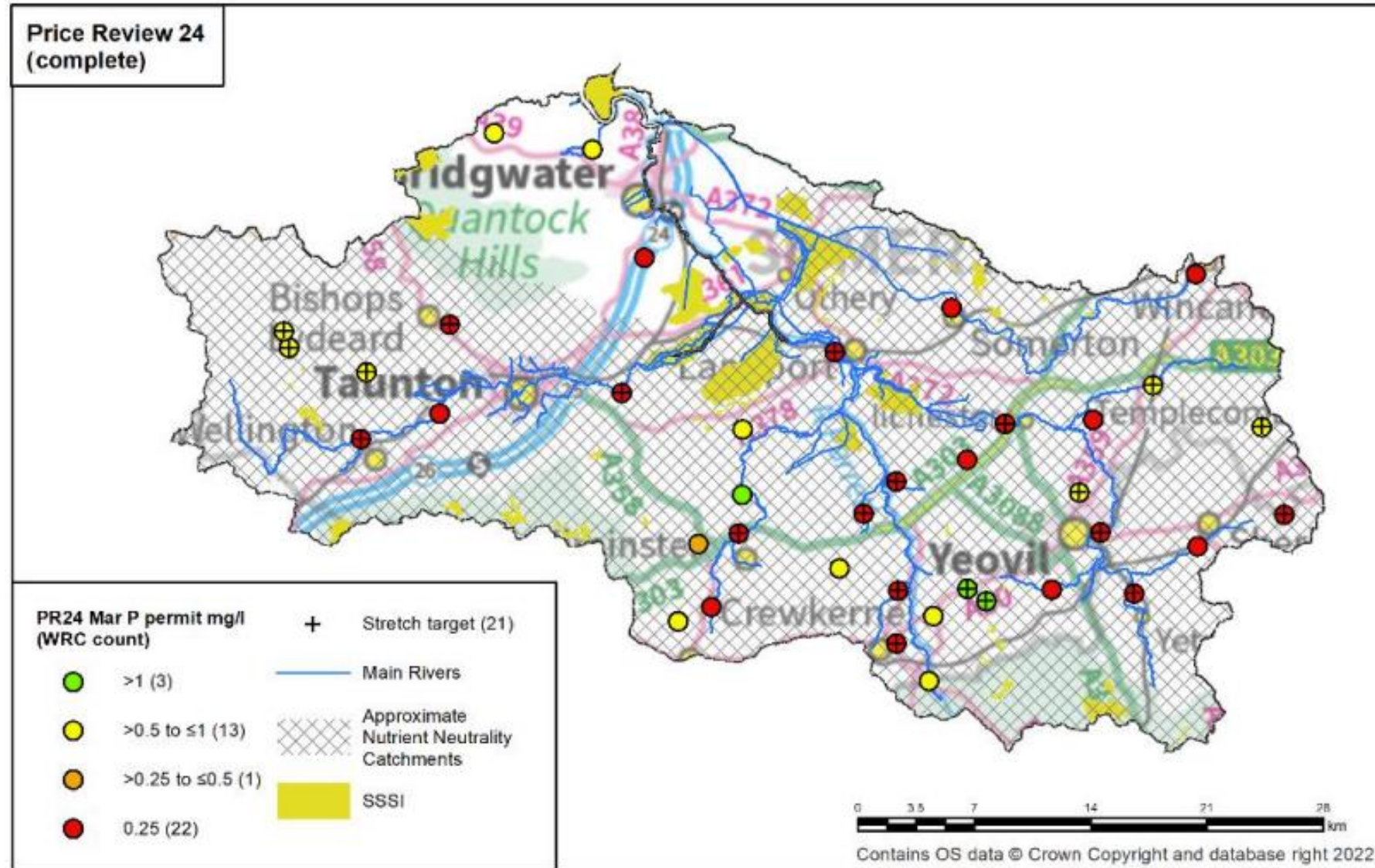


NB Whole Wessex Water region

Phosphorus removal FUTURE investment 2025-2030

- e.g. river Parrett and Tone catchments

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Environmental Investigations

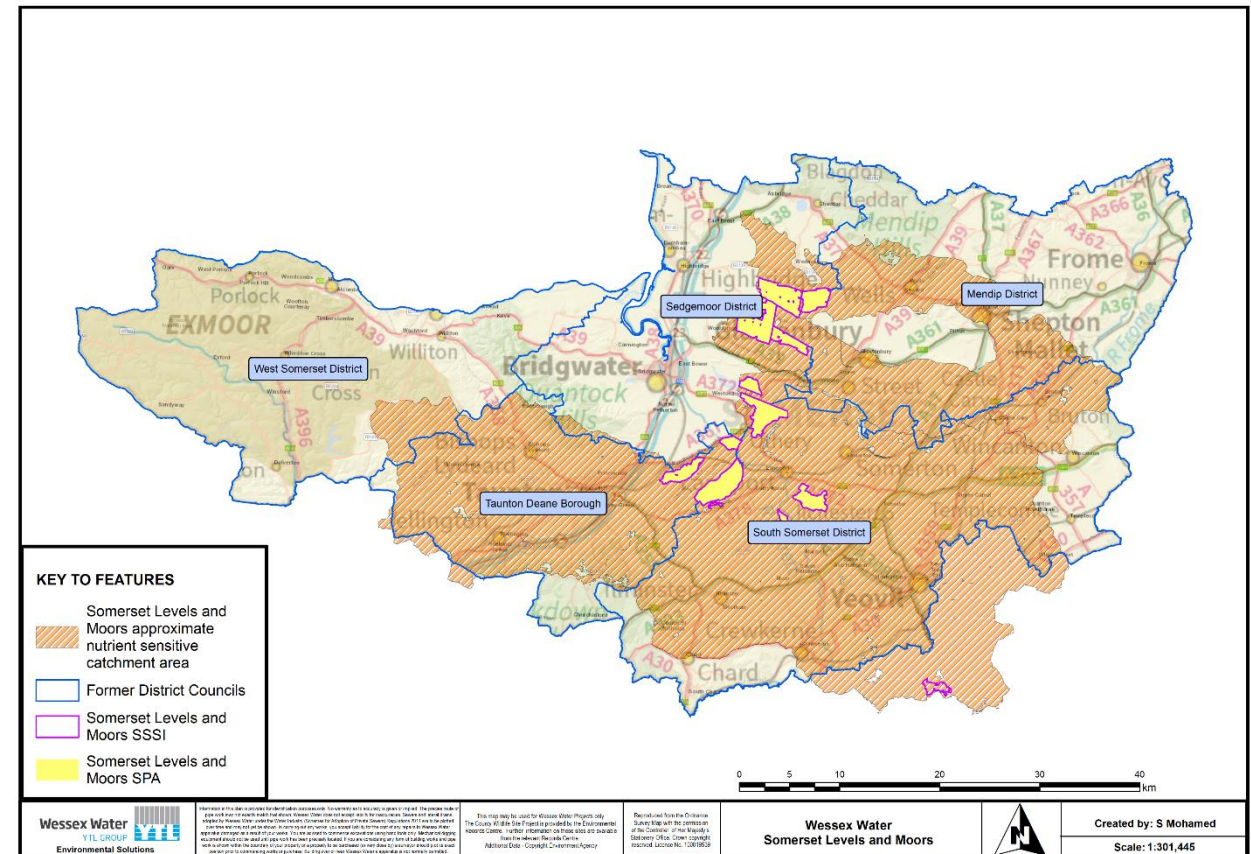
- There are two environmental investigations in S&LM to be delivered by April 2027
- Partnership group to discuss aligning projects including RSPB, NE and IDB and potentially Somerset Wildlife Trust

1. Somerset Levels and Moors Seasonal Nutrient Investigation – the aims include:

- Assess the proportion of nutrient loading from water recycling centres (WRCs) and storm overflows to the Somerset Levels and Moors (SL&M) sites of scientific special interest (SSSI)
- Assess the feasibility of seasonal permitting to be implemented at WRCs discharging upstream of the SL&M SSSI

2. Nutrient legacy and cycling in the Somerset Levels and Moors Partnership Project – the aims include:

- To understand the fate and behaviour of legacy phosphorus in the SL&M Ramsar site
- To explore options for increasing the rate of nutrient export from the site



Thank you for listening

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