



Notice of Meeting of

SCRUTINY COMMITTEE - CLIMATE AND PLACE

Wednesday, 18 October 2023 at 1.30 pm

Luttrell Room - County Hall, Taunton TA1 4DY

To: The members of the Scrutiny Committee - Climate and Place

Chair: Councillor Martin Dimery

Vice-chair: Councillor Adam Boyden

Councillor Steve Ashton

Councillor Bente Height

Councillor Henry Hobhouse

Councillor Dave Mansell

Councillor Harry Munt

Councillor Alex Wiltshire

Councillor Alan Bradford

Councillor Edric Hobbs

Councillor Marcus Kravis

Councillor Matthew Martin

Councillor Tom Power

For further information about the meeting, including how to join the meeting virtually, please contact Democratic Services democraticservicesteam@somerset.gov.uk.

All members of the public are welcome to attend our meetings and ask questions or make a statement **by giving advance notice** in writing or by e-mail to the Monitoring Officer at email: democraticservicesteam@somerset.gov.uk by **5pm on Thursday, 12 October 2023**.

This meeting will be open to the public and press, subject to the passing of any resolution under the Local Government Act 1972, Schedule 12A: Access to Information.

The meeting will be webcast and a recording made.

Issued by (the Proper Officer) on Tuesday, 10 October 2023

AGENDA

Scrutiny Committee - Climate and Place - 1.30 pm Wednesday, 18 October 2023

Public Guidance Notes contained in Agenda Annexe (Pages 5 - 6)

Click here to join the online meeting (Pages 7 - 8)

1 Apologies for Absence

To receive any apologies for absence.

2 Declarations of Interest

To receive and note any declarations of interests in respect of any matters included on the agenda for consideration at this meeting.

(The other registrable interests of Councillors of Somerset Council, arising from membership of City, Town or Parish Councils and other Local Authorities will automatically be recorded in the minutes: [City, Town & Parish Twin Hatters - Somerset Councillors 2023](#))

3 Public Question Time

The Chair to advise the Committee of any items on which members of the public have requested to speak and advise those members of the public present of the details of the Council's public participation scheme.

For those members of the public who have submitted any questions or statements, please note, a three minute time limit applies to each speaker and you will be asked to speak before Councillors debate the issue.

We are now live webcasting most of our committee meetings and you are welcome to view and listen to the discussion. The link to each webcast will be available on the meeting webpage, please see details under 'click here to join online meeting'.

4 Water Quality in Somerset (Pages 9 - 40)

To consider the issues around water quality in Somerset including the data, roles and responsibilities of the organisations involved and the measures and steps available to Somerset Council.

Guidance notes for the meeting

Council Public Meetings

The legislation that governs Council meetings requires that committee meetings are held face-to-face. The requirement is for members of the committee and key supporting officers (report authors and statutory officers) to attend in person, along with some provision for any public speakers. Provision will be made wherever possible for those who do not need to attend in person including the public and press who wish to view the meeting to be able to do so virtually.

Inspection of Papers

Any person wishing to inspect minutes, reports, or the background papers for any item on the agenda should contact Democratic Services at democraticserviceteam@somerset.gov.uk or telephone 01823 357628.

They can also be accessed via the council's website on [Committee structure - Modern Council \(somerset.gov.uk\)](#)

Members' Code of Conduct requirements

When considering the declaration of interests and their actions as a councillor, Members are reminded of the requirements of the Members' Code of Conduct and the underpinning Principles of Public Life: Honesty; Integrity; Selflessness; Objectivity; Accountability; Openness; Leadership. The Code of Conduct can be viewed at: [Code of Conduct](#)

Minutes of the Meeting

Details of the issues discussed, and recommendations made at the meeting will be set out in the minutes, which the Committee will be asked to approve as a correct record at its next meeting.

Public Question Time

If you wish to speak or ask a question about any matter on the Committee's agenda please contact Democratic Services by 5pm providing 3 clear working days before the meeting. (for example, for a meeting being held on a Wednesday, the deadline will be 5pm on the Thursday prior to the meeting) Email democraticserviceteam@somerset.gov.uk or telephone 01823 357628.

Members of public wishing to speak or ask a question will need to attend in person or if unable can submit their question or statement in writing for an officer to read out, or alternatively can attend the meeting online.

A 20-minute time slot for Public Question Time is set aside near the beginning of the meeting, after the minutes of the previous meeting have been agreed. Each speaker will have 3 minutes to address the committee.

You must direct your questions and comments through the Chair. You may not take a direct part in the debate. The Chair will decide when public participation is to finish. If an item on the agenda is contentious, with many people wishing to attend the meeting, a representative should be nominated to present the views of a group.

Meeting Etiquette for participants

Only speak when invited to do so by the Chair.

Mute your microphone when you are not talking.

Switch off video if you are not speaking.

Speak clearly (if you are not using video then please state your name)

If you're referring to a specific page, mention the page number.

There is a facility in Microsoft Teams under the ellipsis button called turn on live captions which provides subtitles on the screen.

Exclusion of Press & Public

If when considering an item on the agenda, the Committee may consider it appropriate to pass a resolution under Section 100A (4) Schedule 12A of the Local Government Act 1972 that the press and public be excluded from the meeting on the basis that if they were present during the business to be transacted there would be a likelihood of disclosure of exempt information, as defined under the terms of the Act.

If there are members of the public and press listening to the open part of the meeting, then the Democratic Services Officer will, at the appropriate time, ask participants to leave the meeting when any exempt or confidential information is about to be discussed.

Recording of meetings

The Council supports the principles of openness and transparency. It allows filming, recording, and taking photographs at its meetings that are open to the public - providing this is done in a non-disruptive manner. Members of the public may use Facebook and Twitter or other forms of social media to report on proceedings. No filming or recording may take place when the press and public are excluded for that part of the meeting.

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Somerset Council Climate and Place Scrutiny Committee

18th October 2023

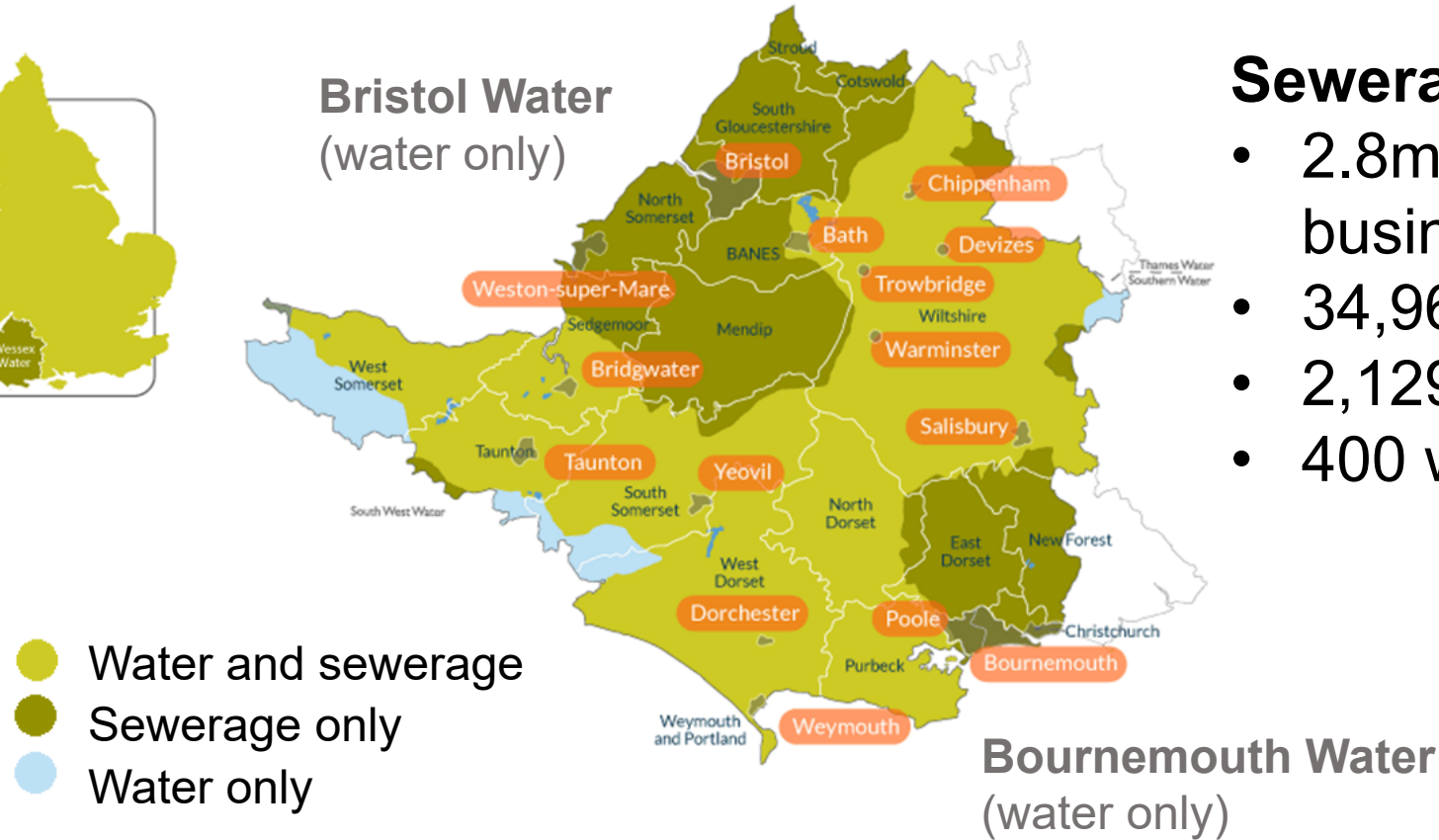
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Wessex Water
YTL GROUP



Agenda Item 4

What we do



Sewerage services

- 2.8m people and 57,000 businesses
- 34,966km of sewers
- 2,129 pumping stations
- 400 water recycling centres

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



Water recycling centres

- Typical parameters for a water discharge permit

Quantity	Quality
Dry Weather Flow (m ³ /d)	Ammoniacal nitrogen (mg/l)
Flow Passed Forward (l/s)	Suspended Solids (mg/l)
	Biochemical Oxygen demand (mg/l)
	Total phosphorus (mg/l)

Flow x concentration = LOAD

$$\text{m}^3/\text{day} \times \text{mg/l (or g/m}^3\text{)} = \text{mg/day}$$

- Dry Weather Flow (measured in m^3/day) reflects the volume of foul sewage from the upstream population
- Concentration (measured in mg/l) reflects the level of pollutants in a volume

Water discharge permits

- These set an allowable future dry weather flow (based on a predicted level of new development) and a concentration that must be achieved
- In other words – permits are set conservatively so that treatment is always in excess of what the environment requires
- This means new development can be accommodated and outperformance headroom gradually shrinks

Example: Taunton Water recycling centre

Date	Dry Weather FLOW permit (m ³ /d)	CONCENTRATION permits (mg/l)			
		Biochemical Oxygen Demand	Ammonia	Suspended solids	Phosphorus
1987	20,300		15		
2005	21,680	25	10	40	-
2010					
2015					
2018	30,595	15	3	30	2
2020					1

Required by the Urban Wastewater Treatment Directive

Required by the Water Framework Directive

Permit: Flow x Concentration = 30,595 m³/d x 1 mg/l = 30.6kg/day
 Actual: Flow c14,000m³/d x concentration 0.89 mg/l = 12.5kg/day

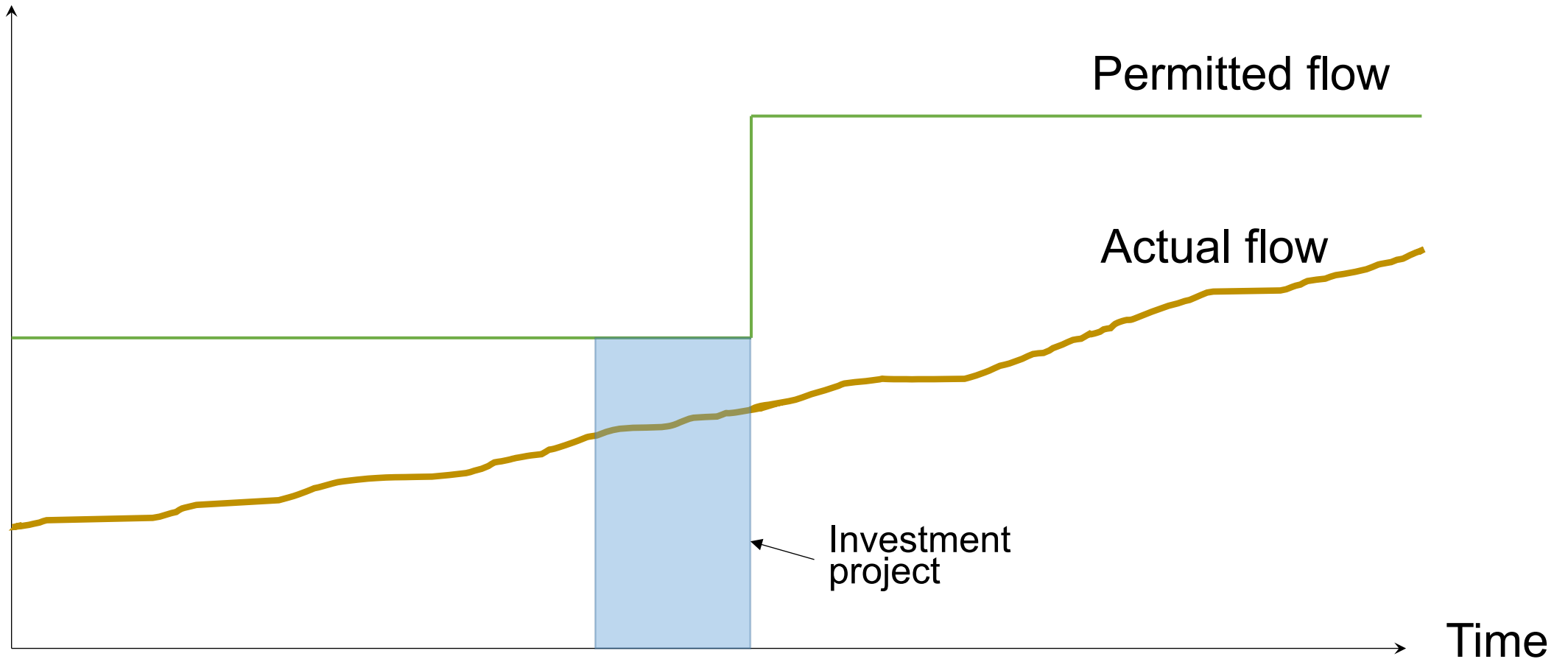
Permit changes to accommodate development when river already meets EQS



Flow (m³/day)

$$\text{Flow} \times \text{concentration} = \text{LOAD}$$

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EQS = Environmental Quality Standard

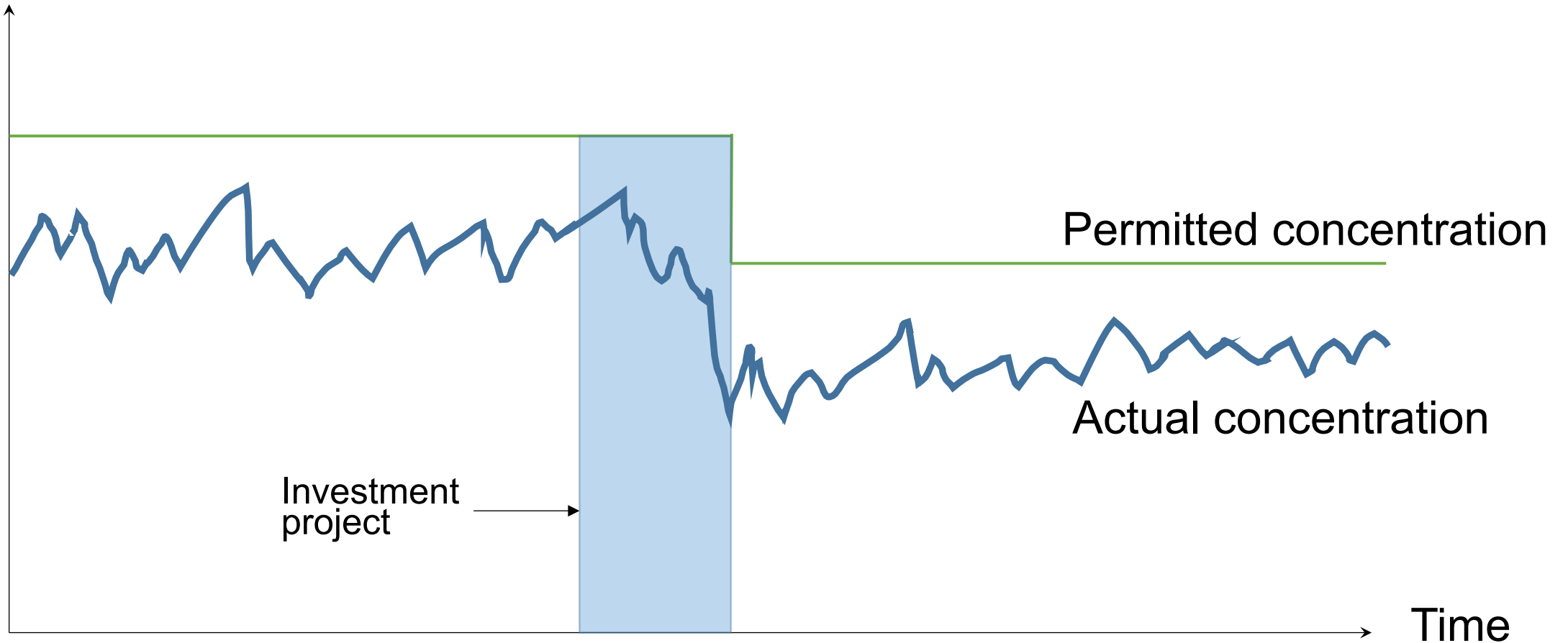
Permit changes to accommodate development when river meets EQS



$$\text{Flow} \times \text{concentration} = \text{LOAD}$$

Concentration (mg/l)

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Permit changes to accommodate development when river meets EQS



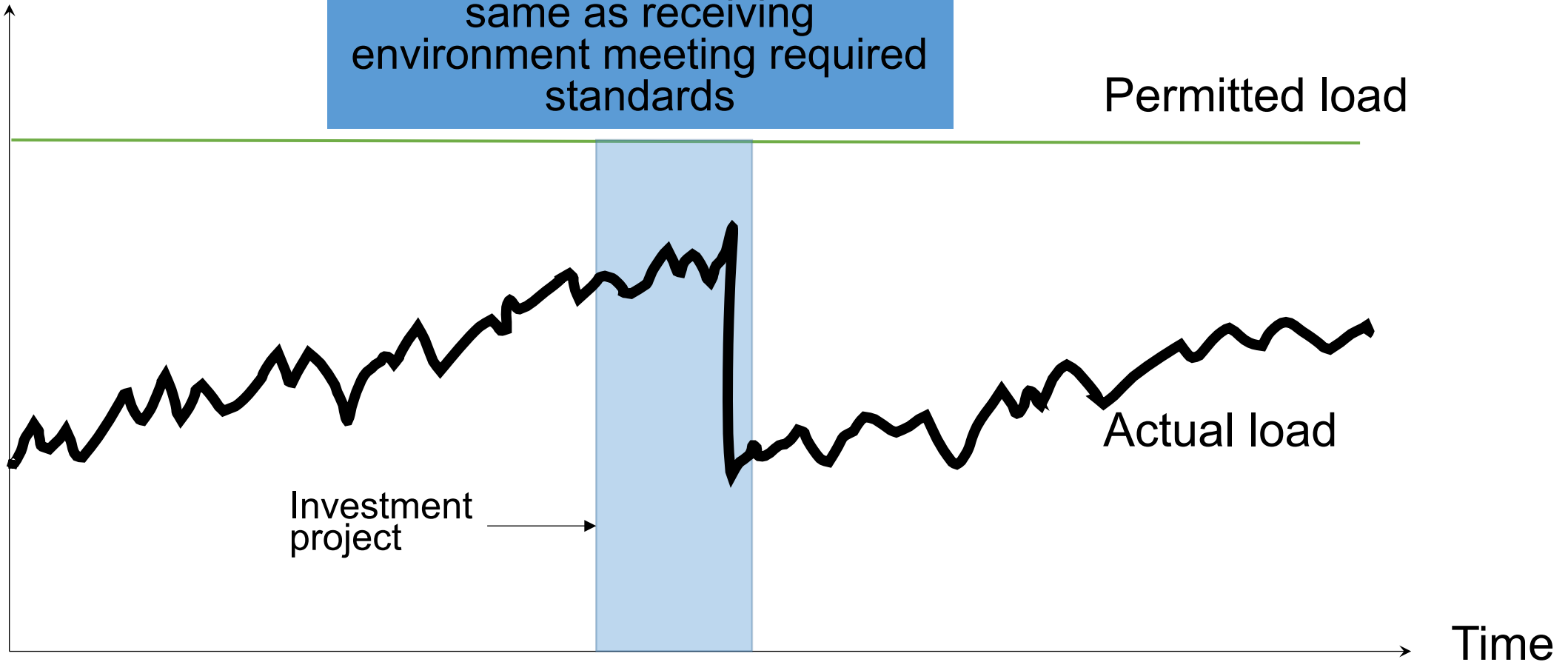
$$\text{Flow} \times \text{concentration} = \text{LOAD}$$

Load (g/day)

Permitted load remains the same as receiving environment meeting required standards

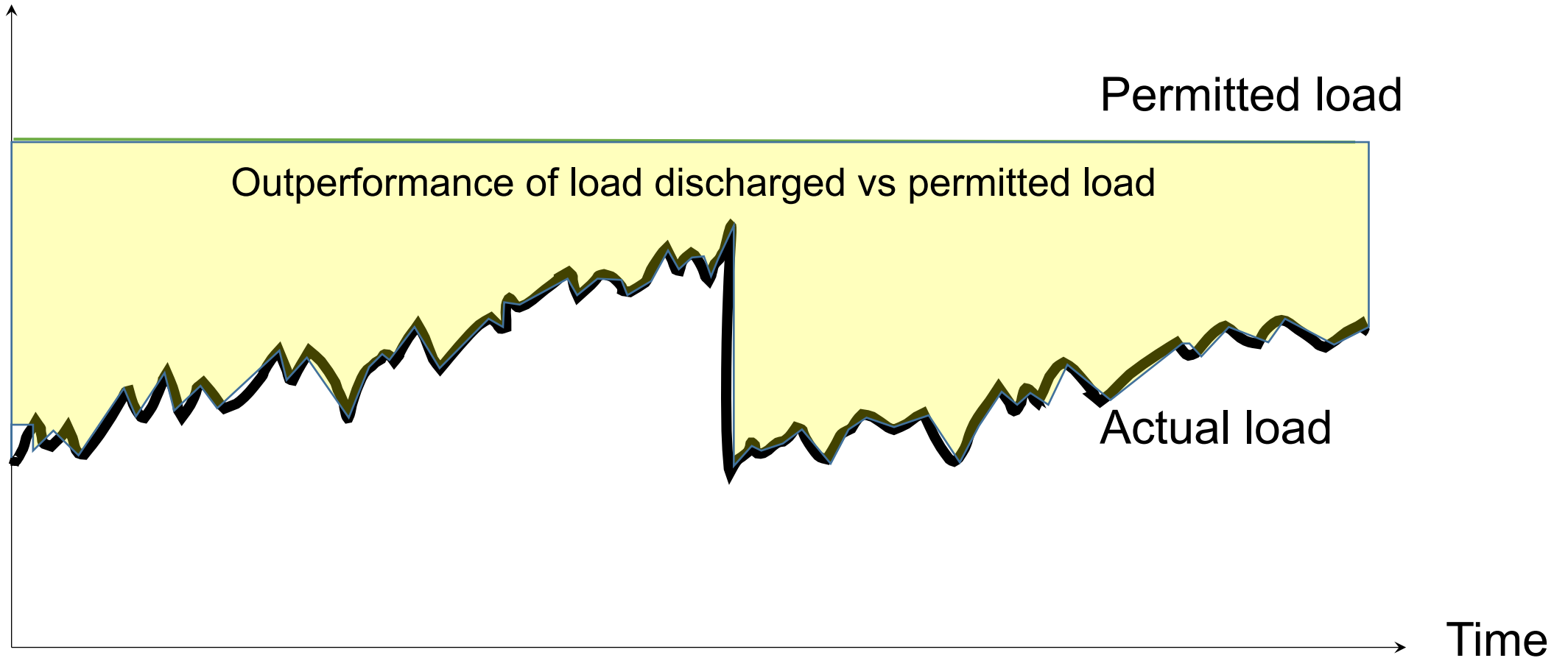
Permitted load

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Actual performance better than required

Load (g/day)



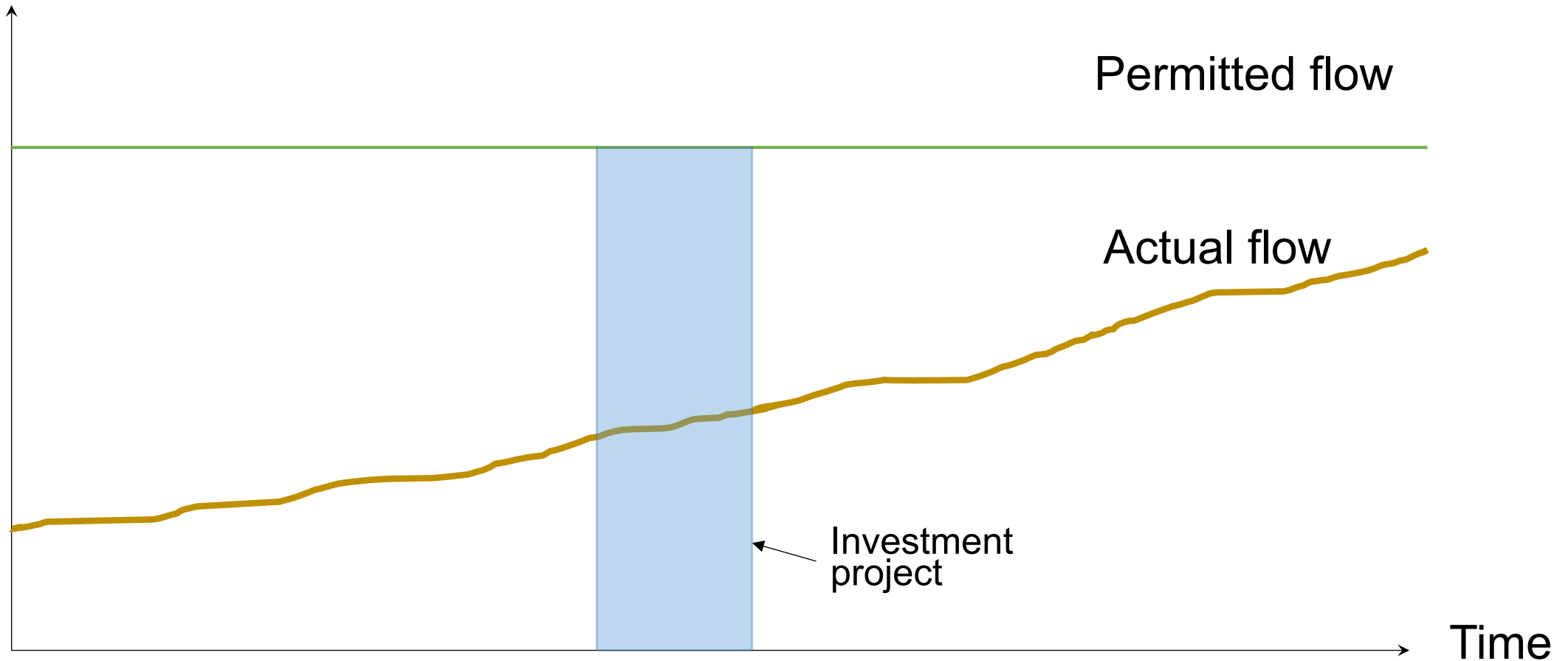
Permit changes to meet tighter river environmental quality standards



Flow (m³/day)

$$\text{Flow} \times \text{concentration} = \text{LOAD}$$

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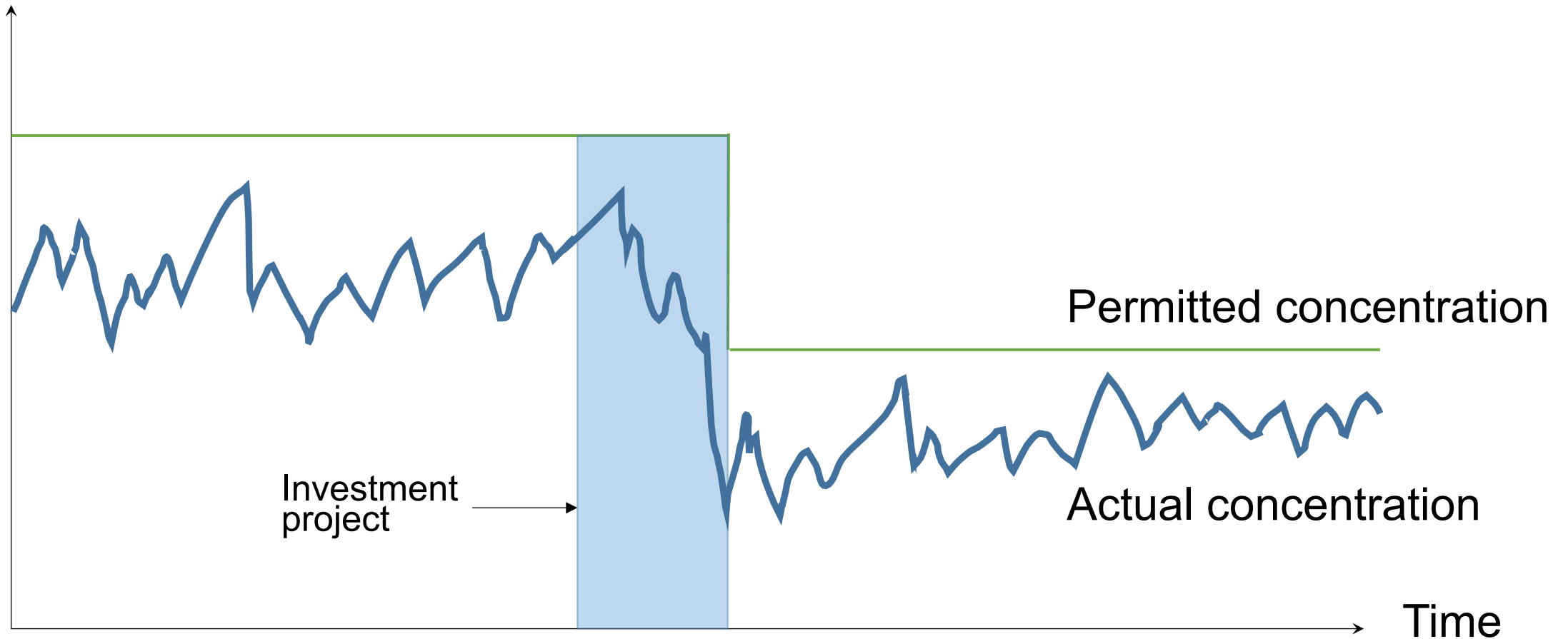
Permit changes to meet tighter river environmental quality standards



$$\text{Flow} \times \text{concentration} = \text{LOAD}$$

Concentration (mg/l)

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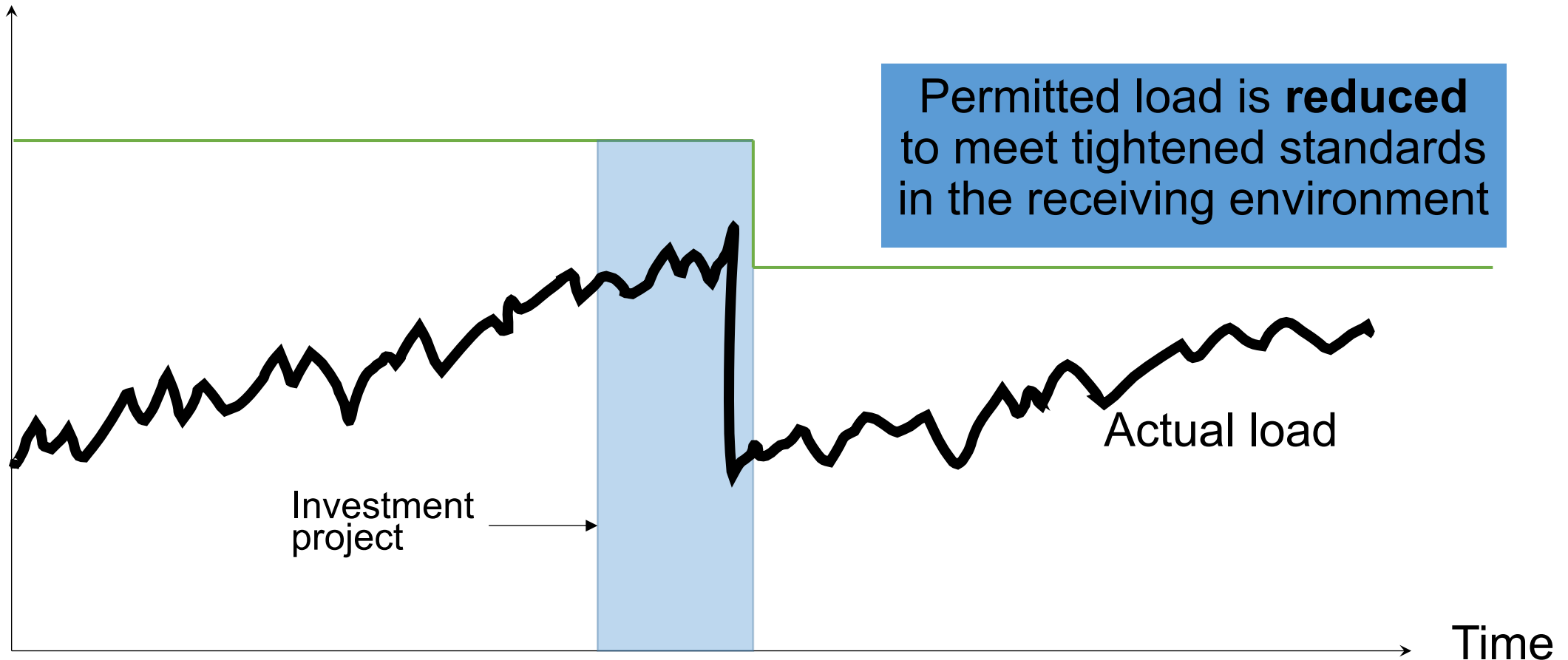


Permit changes to meet tighter river environmental quality standards

$$\text{Flow} \times \text{concentration} = \text{LOAD}$$

Load (g/day)

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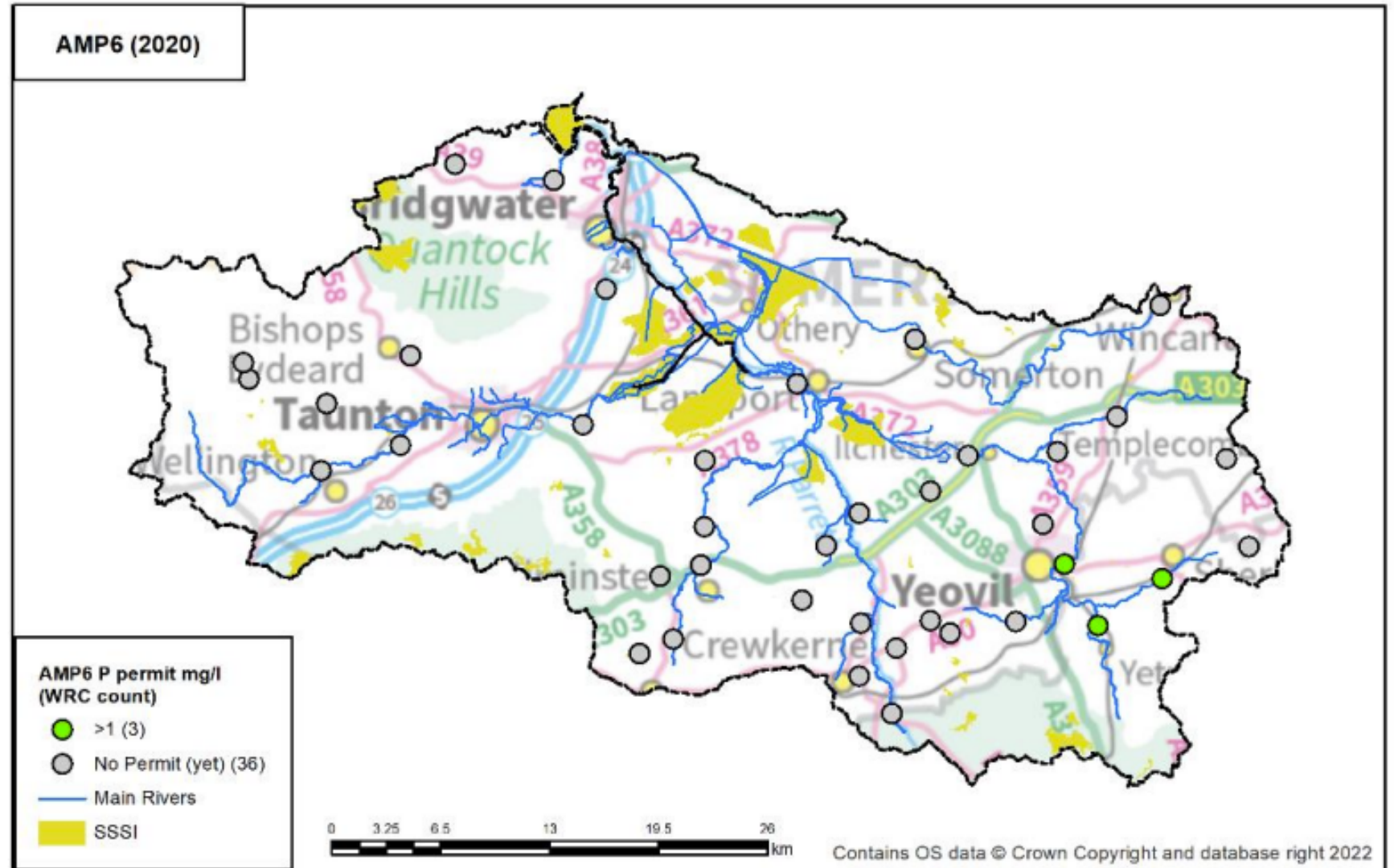


Phosphorus removal investment 2015-2020

- e.g. river Parrett catchment

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

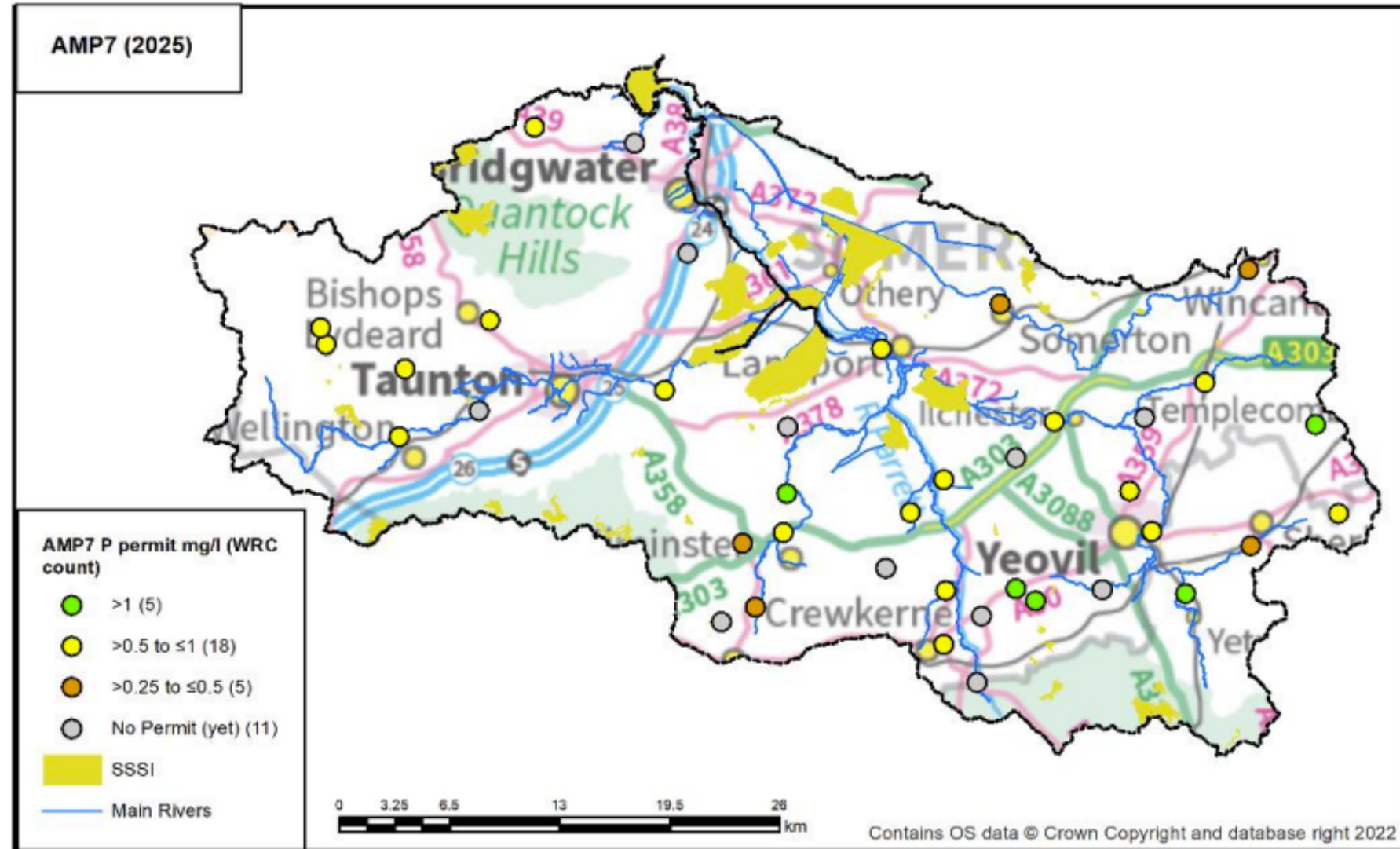


Phosphorus removal investment 2020-2025

- e.g. river Parrett catchment

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

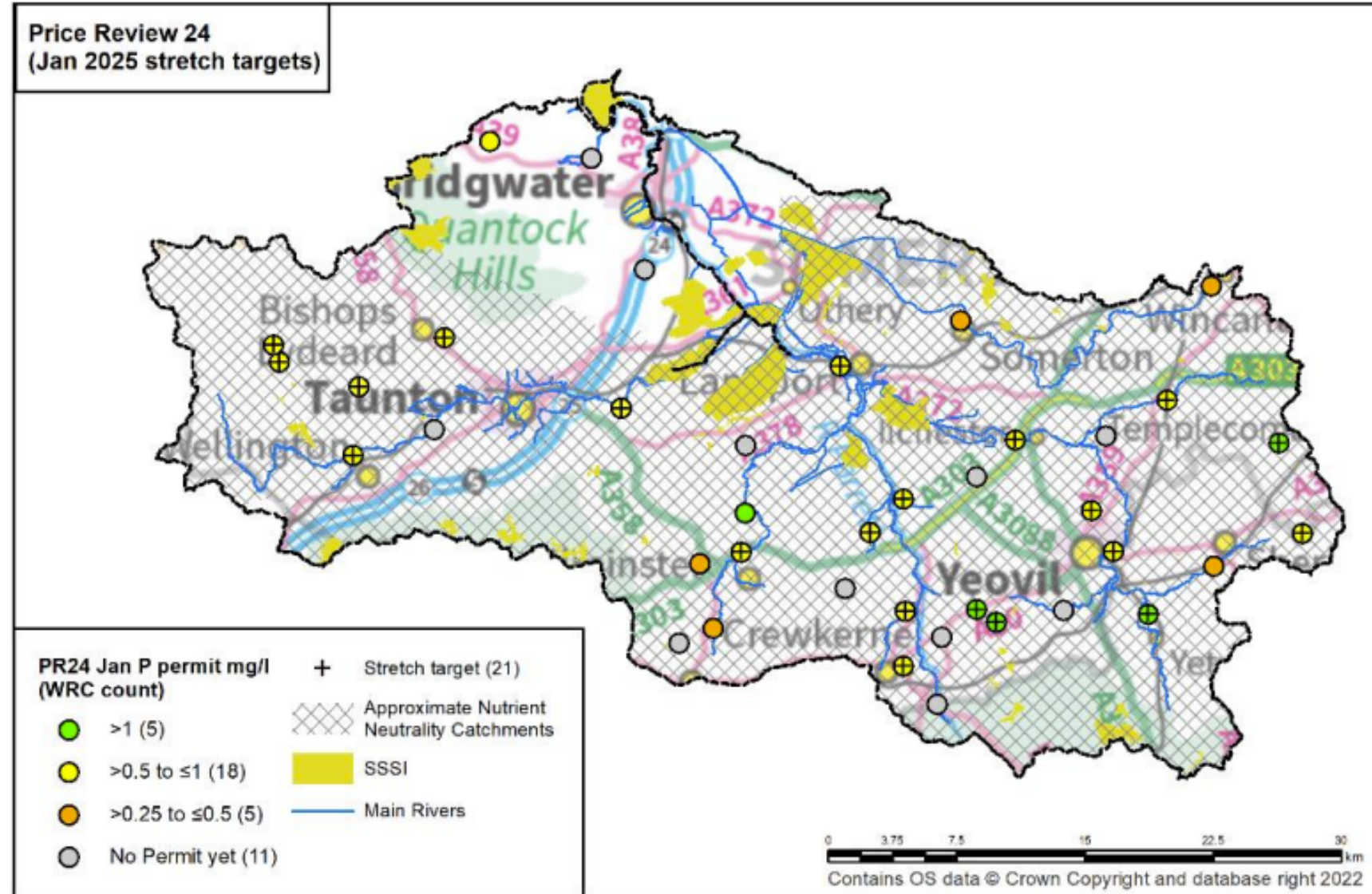


Phosphorus removal investment 2025

- e.g. river Parrett catchment

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

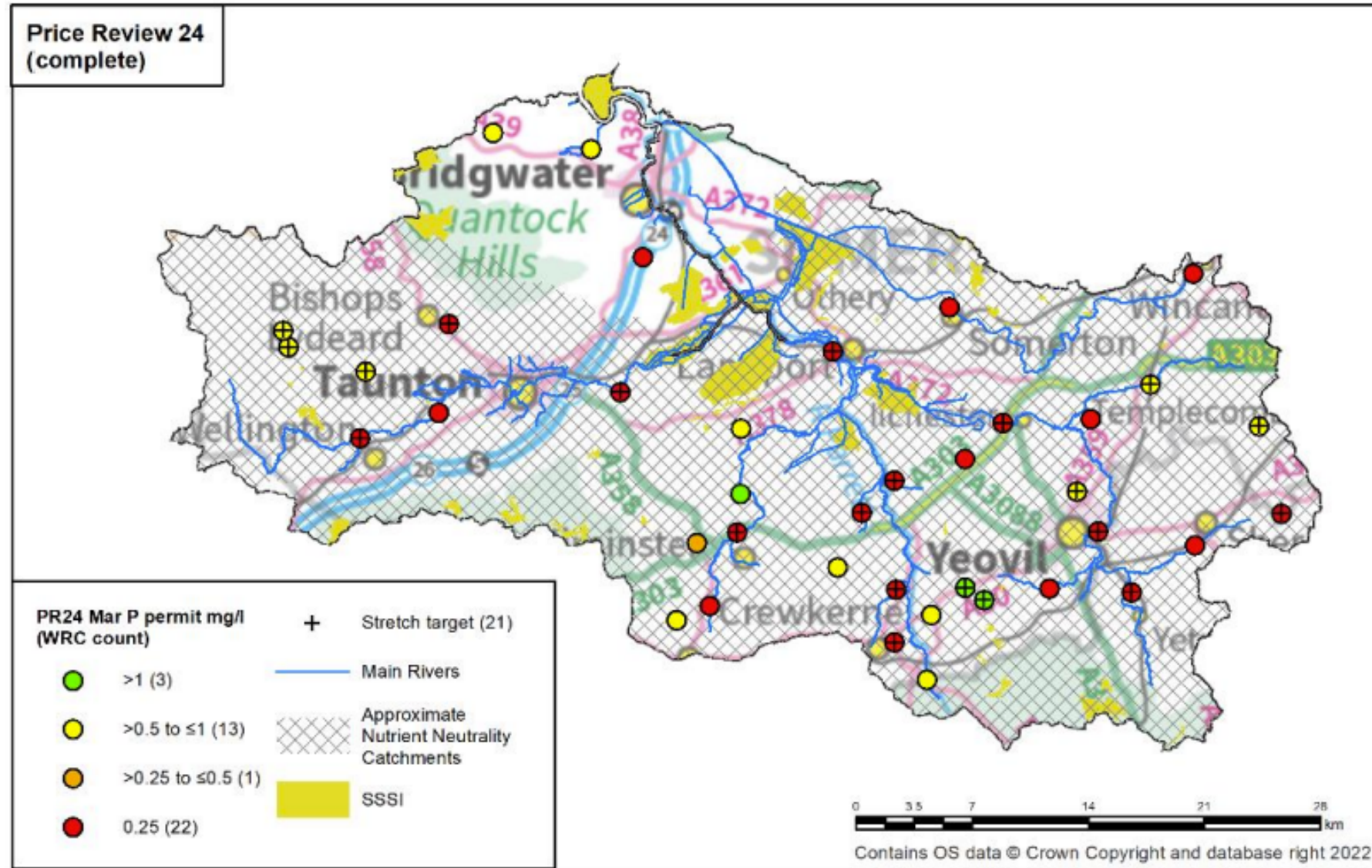


Phosphorus removal investment 2025-2030

- e.g. river Parrett catchment

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



Summary

History demonstrates that Wessex Water:

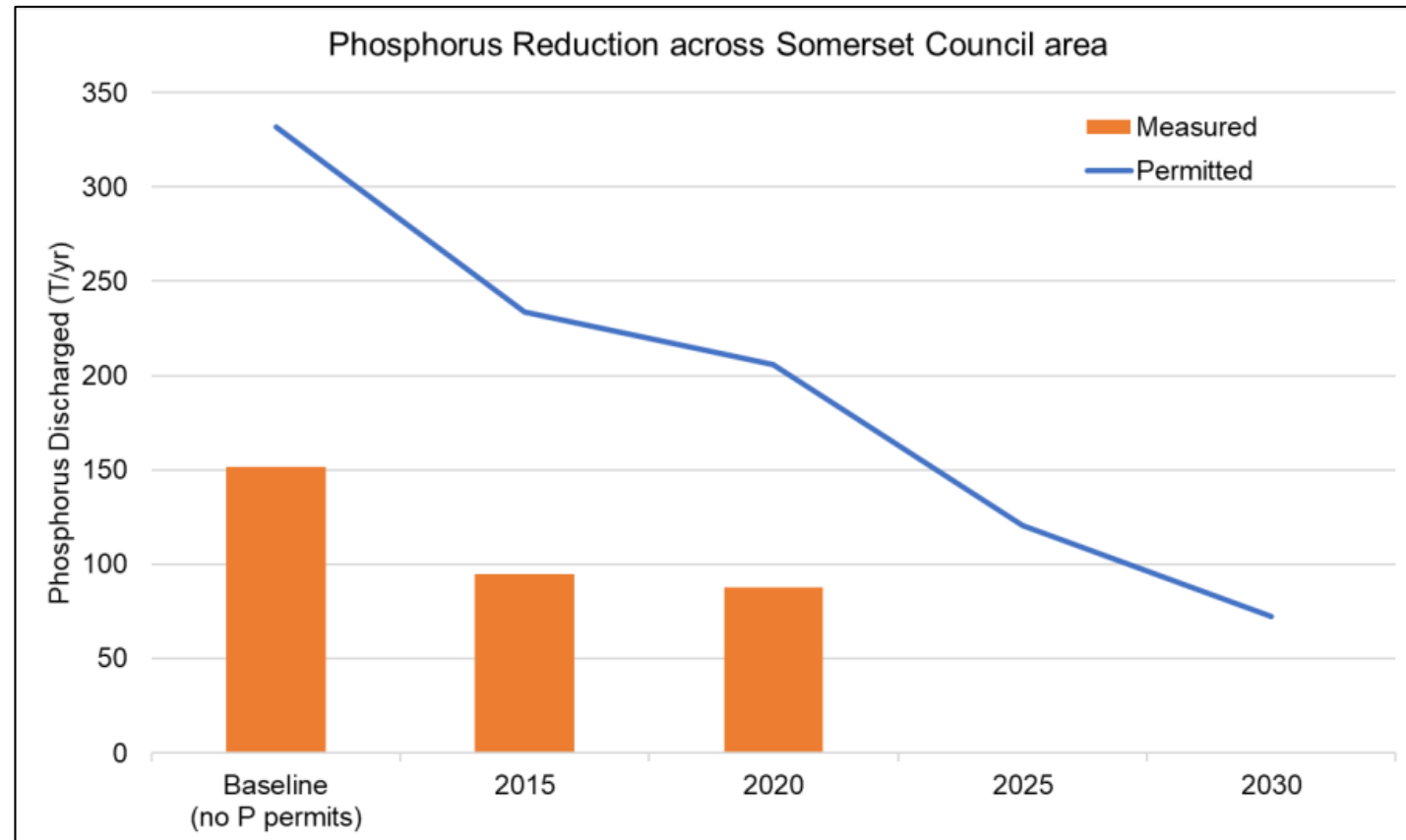
- delivers investment projects before the deadlines that are set
- outperform the permits that are set

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Concentration

2023 summary against concentration permits	Number of WRCs with P permits
< 50% of permit	62
50-80% of permit	15
80-90% of permit	1
>90% of permit	0

Load

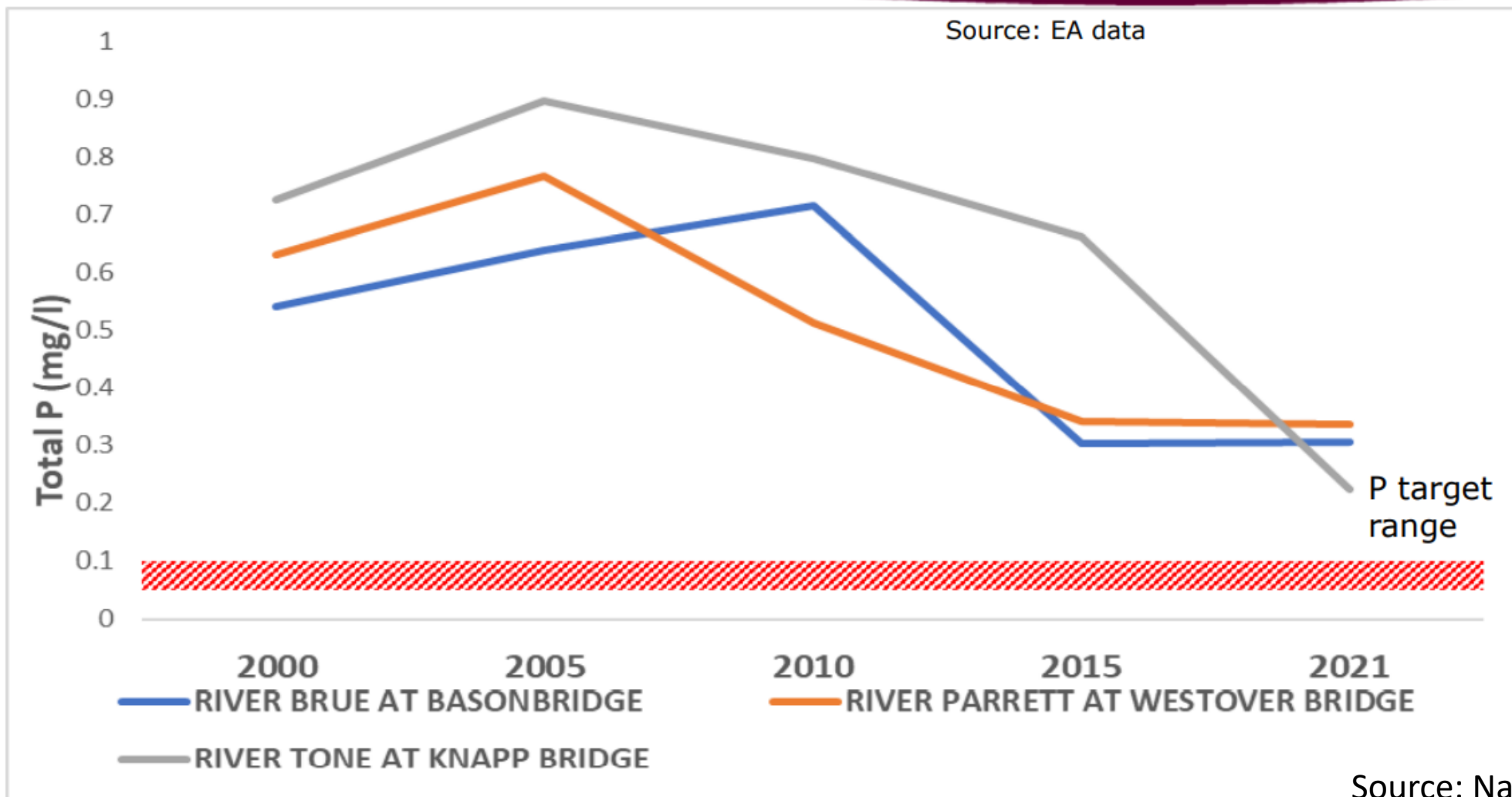


Thank you for listening

Wessex Water
YTL GROUP



Trends in Phosphorus in Somerset rivers feeding the SLMs



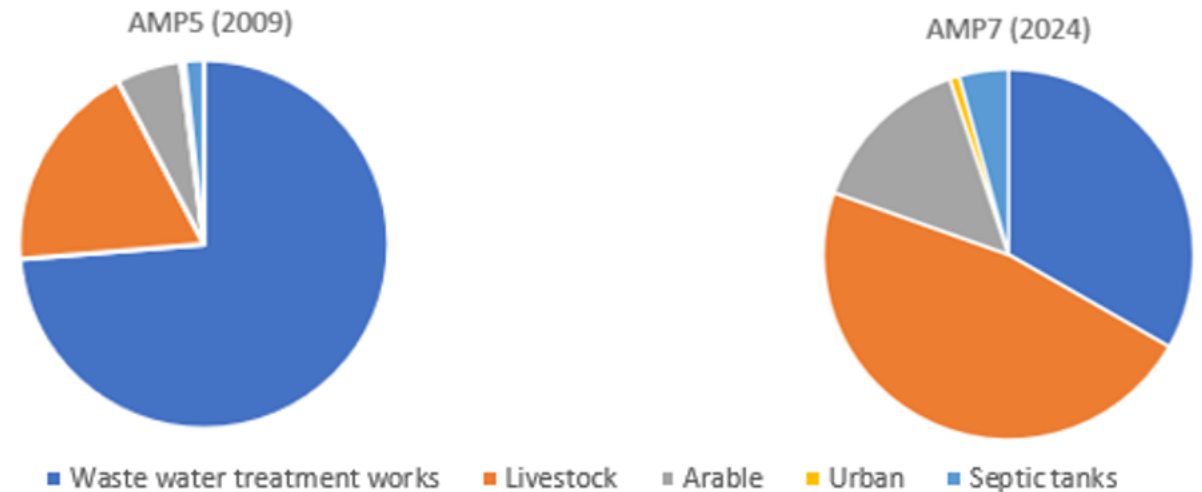
Action underway – WRC investment

New phosphorus removal

Site	Approx Phosphorus removed (at 2020) (tonnes/year)	Additional Phosphorus removed by 2024 (tonnes/year)	Approximate Cost (£m)
Brue & Axe			
Upper Brue	2.3	0.6	8
Lower Brue	7.1	2.9	
Shepreth	12.9	5.6	
West Somerset Coastal Streams			
Stogursey Brook		0.4	0.8
Parrett			
Cary		6.0	44
Isle, Fivehead and West Sedgemoor		15.6	
Lower Parrett		3.5	
Lower Parrett Western Streams		1.5	
Parrett Headwaters		14.4	
Yeo	25.5	14.5	
Parrett (Tone)			
Lower Tone	55.8		4
Northern Tone		3.7	
Upper Tone	4.1	1.4	
Total	107.7	70.1	56.8

Natural England's Somerset Levels & Moors SSSI Condition Assessment, May 2021.

Figure 4. Sources of Phosphate (Location Above Pomparles Bridge – South Drain). Percentage of phosphate sources in 2009 & predicted percentage sources in 2024 (following significant investment by Wessex Water)

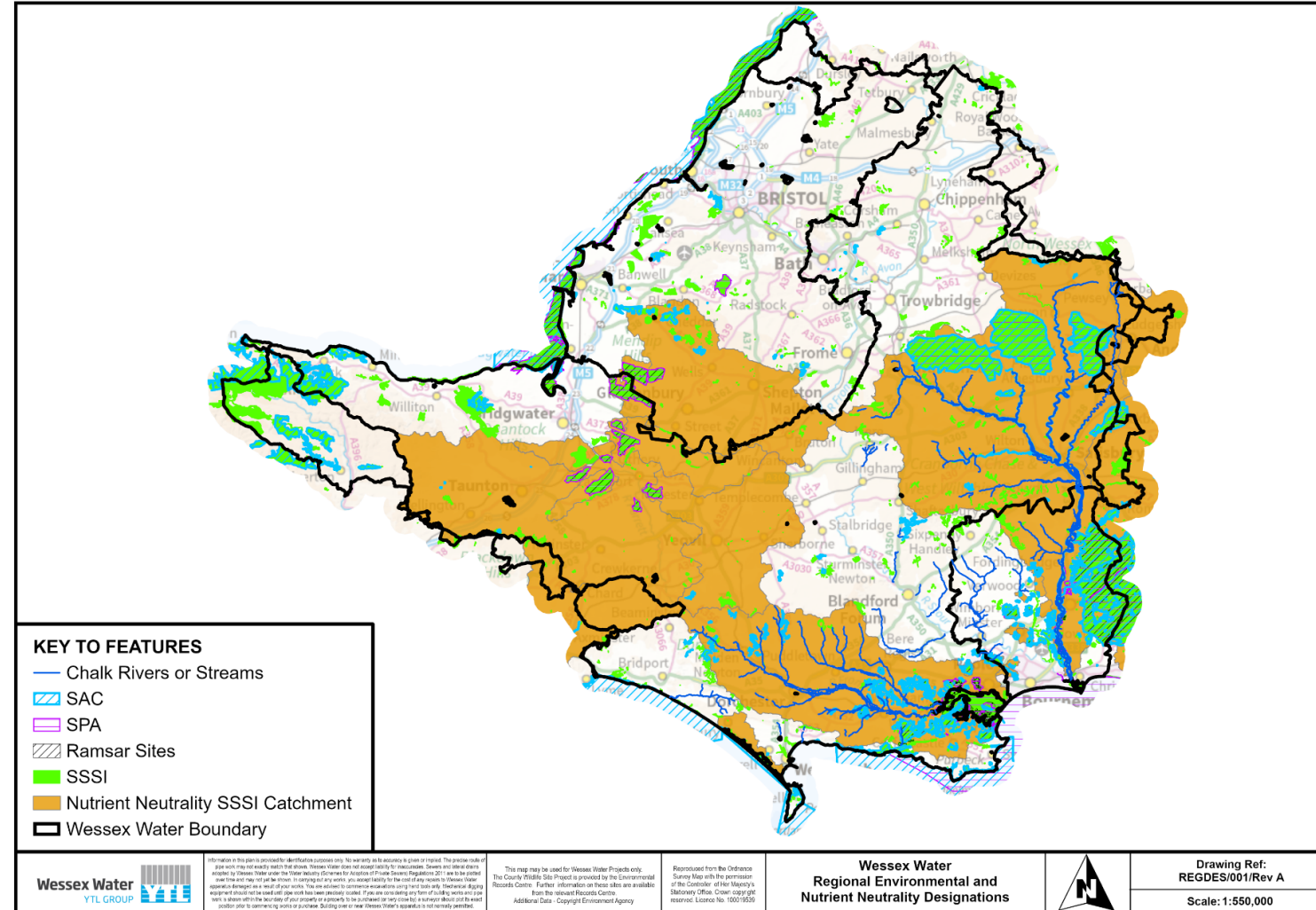


Most significant sources of phosphorus impacting the SSSI will be from agriculture following WW investment to 2024 - NE

Future Plans

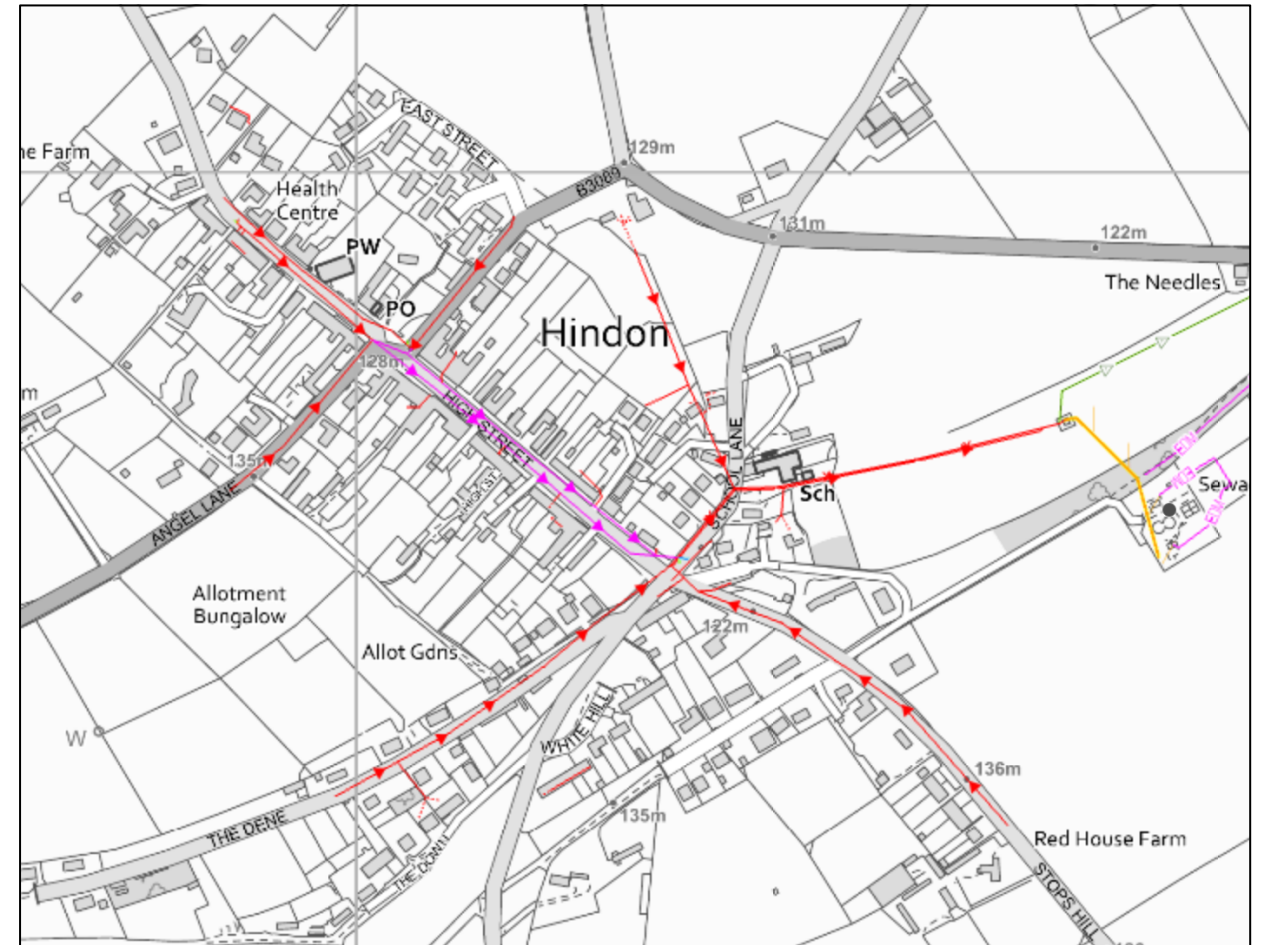
- Over 50% of our region has some form of environmental designation, more than any other company.
- Watercourses (and land holdings) in these areas need to meet higher standards.
- 43% of our region is affected by nutrient neutrality.

	Proportion of company area covered by nutrient neutrality	
Wessex Water	43%	
Southern	36%	
Northumbrian	19%	
United Utilities	17%	
Anglian	7%	
South West	5%	
Dwr Cymru	4%	
Severn Trent	3%	
Thames	2%	
Yorkshire	0%	



Example of how to achieve the Technical Achievable Limit of 0.25mg/l at a small site

- Hindon WRC: Population **560**
- To meet the Technical Achievable Phosphorus Limit would require a complete rebuild (bottom-up estimate):
 - Capex: £9m
 - Opex: £140k/yr
 - Embodied Carbon: 689 tCO₂e
 - Operational Carbon: 190 tCO₂e /yr
- i.e. £15,000 per person
- **OUTPUT:** only 160kg/year P removal



Example: Hindon WRC



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Assets	Reasons
New 6mm 2D inlet screen	Only has 1D bar screen (n.b. storm flows are 6mm 2D screened)
Mechanical mixing chamber	In sufficient hydraulic drop between inlet works and PST for ferric mixing
New auto desludge pumps for existing PSTs	Producing more sludge
New sludge transfer PS	To handle increased sludge production
New biological filter	To treat backwash flows from tertiary filter
New humus settlement tank	Current lax solids permit. If retained, tertiary filter would be oversized as would need regular backwashing.
New recirculation PS	Because of the new biofilter
New mixed media filter (MMF) plus Feed PS, backwash tanks, Backwash PS etc. etc.	Given low P
New washwater system (package and mains)	To help keep lines flushed, etc.
New final effluent sampling chamber	Existing chamber suitable for spot samples but not for continuous monitoring
New ferric sulphate dosing	Coagulant for P removal
New alkalinity dosing	Need additional alkalinity (likely summer only) as removing P in PST could inhibit nitrification across the filters
New potable water supply to site plus emergency shower, eyebath	Safety concerns associated with ferric dosing
New standby generator	Given tight permit, unable to recover to annual average if any high sample
Instrumentation/Monitors	Given tight permit (including of iron), need accurate dosing control and also early sight of any deviation/trend away from permit.



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Phosphate concentrations in the Parrett and tributaries

2021-23

Andrew Clegg



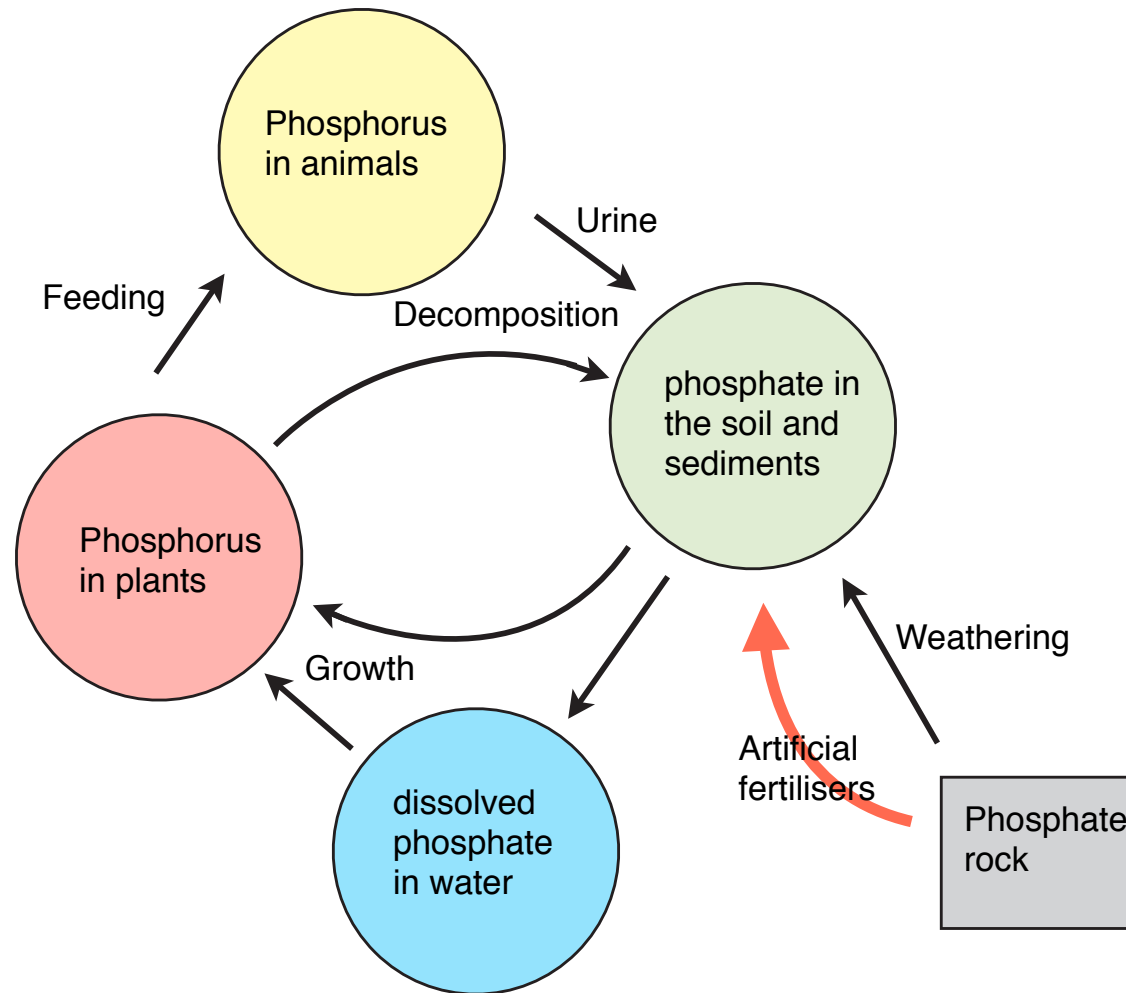
The Phosphorus Cycle

In nature everything is recycled

Phosphates are normally very insoluble.

The reserve supply is in rocks, soil and sediment, not water or air

Clay contains aluminium and aluminium phosphate is extremely insoluble



Parrett midsummer snapshot, June23

Main observations

1. The main source of phosphate is Sewage Treatment Plants (STWs).
2. Phosphate is absorbed by river plants and sediment.
3. Some evidence of agricultural phosphate but these are classified as moderate.
4. No significant agricultural point source phosphate

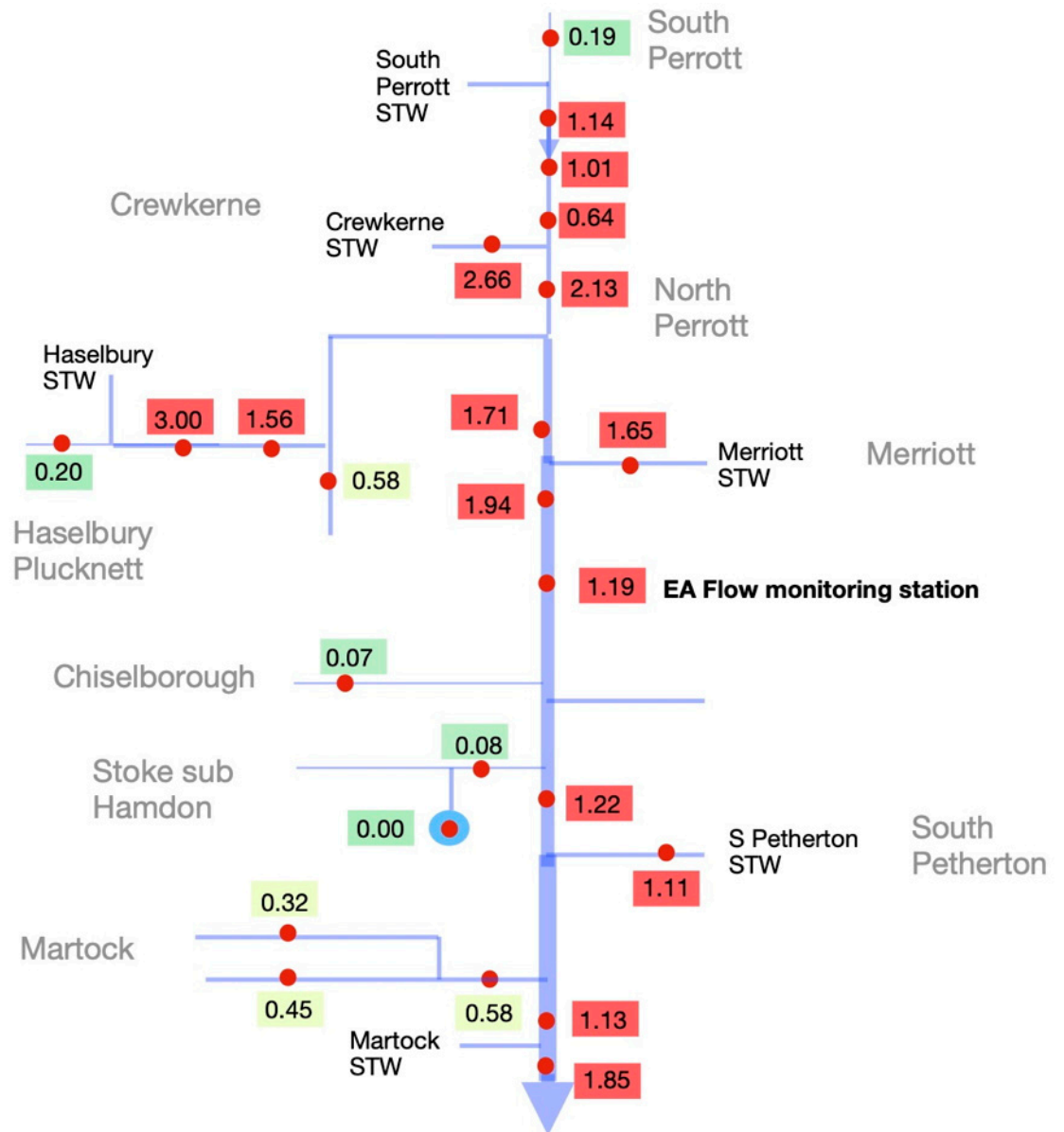
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Environment Agency classification

	High / Good
	Moderate
	Poor / Bad

Note

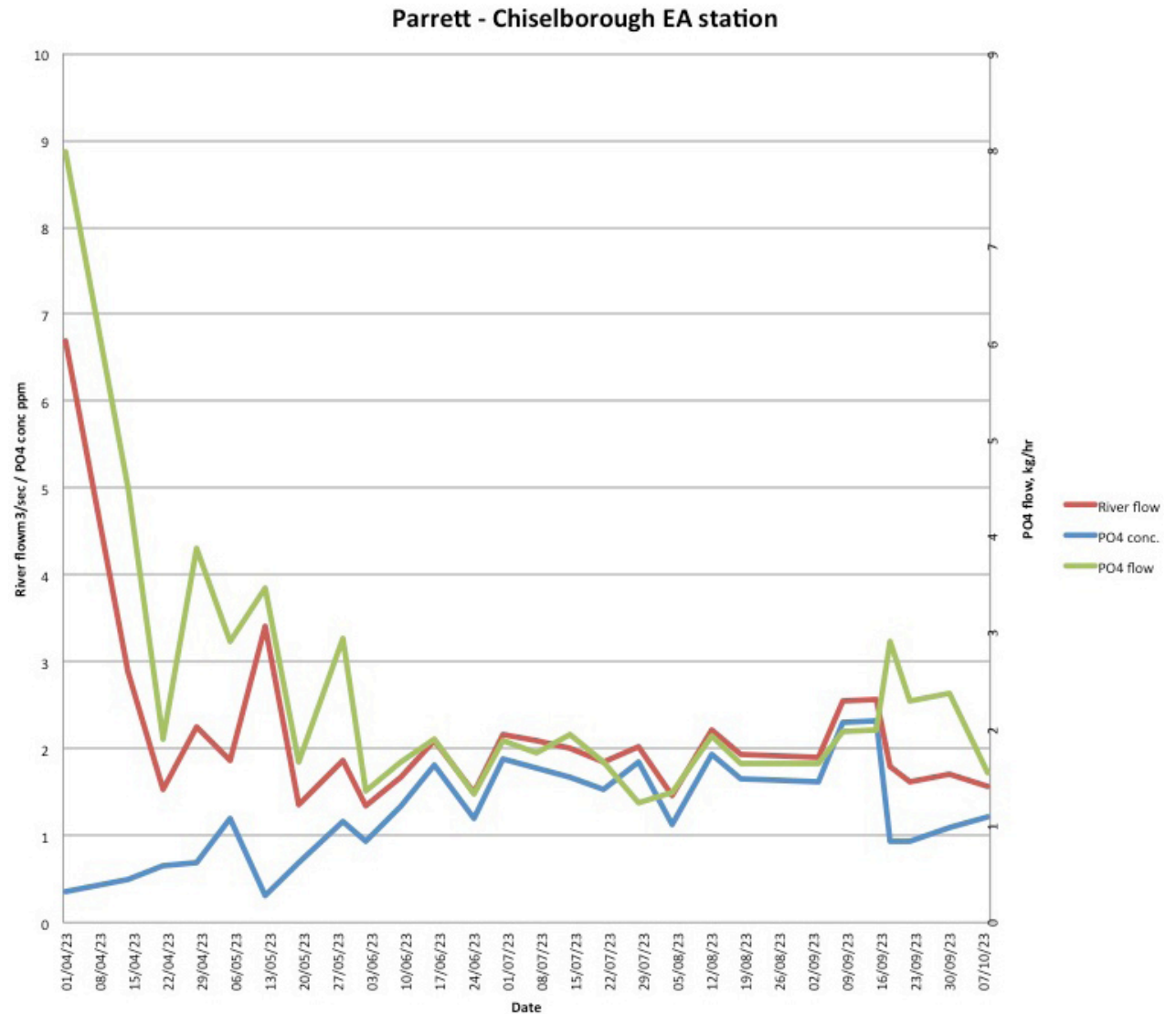
Concentrations are in mg/litre PO₄ (not P)
Grade boundaries are 0.27 and 0.66 mg/l



Parrett Phosphate Load April to October 2023

Main observations

1. Small variation in phosphate concentration.
2. Phosphate load depended more on river flow
3. Baseline load in dry conditions, about 40kg/day
4. Sudden increases in flow result in sudden increases in phosphate load.
5. Increases are due to legacy phosphate in disturbed sediment



Measurements taken each Friday morning

Phosphate flow in a Somerset Moor - West Sedgemoor

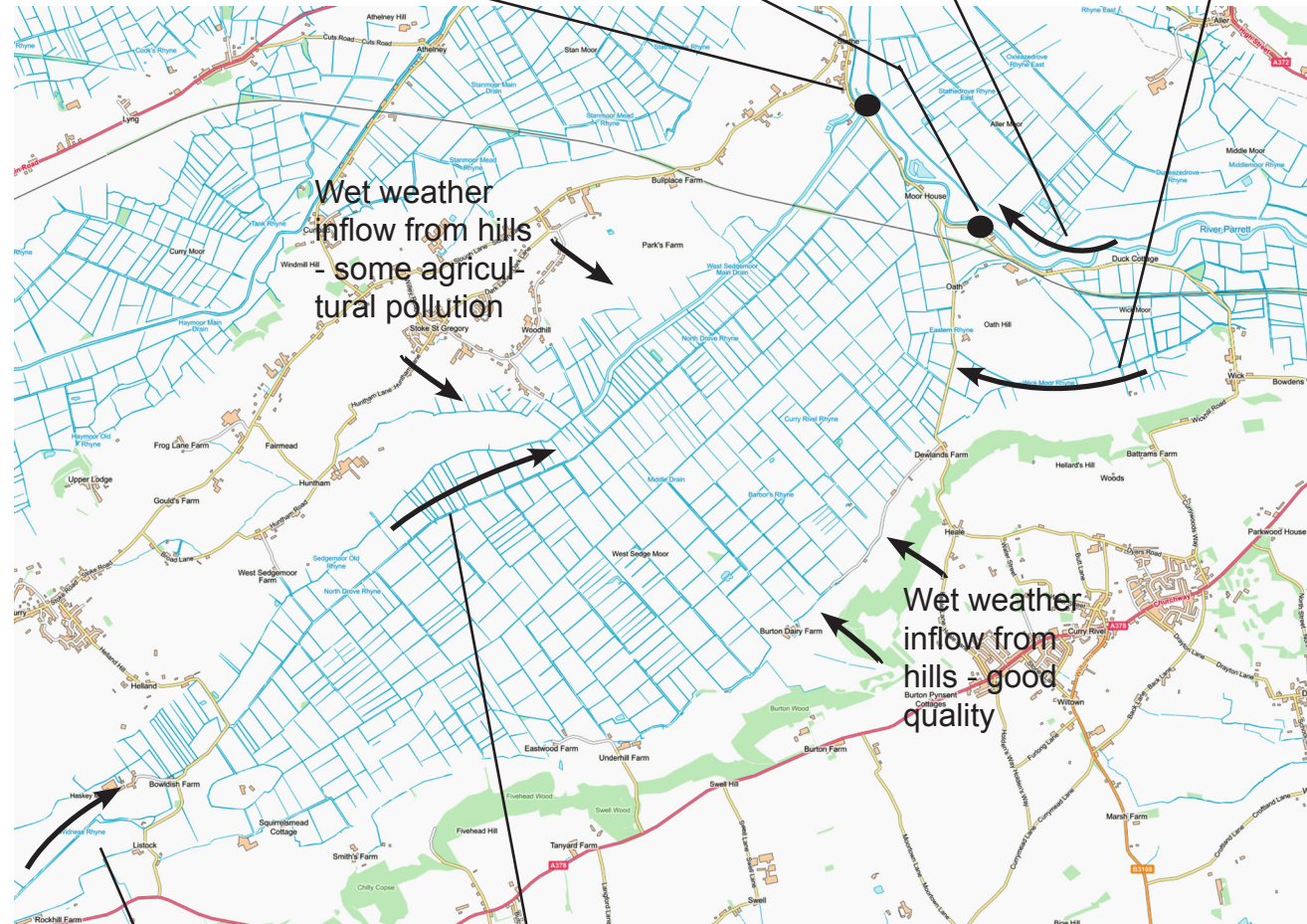
1. Parrett level is 1.5m+ above the Moor.
2. Three sources of water; nearby hills, original stream and controlled inlets from the Parrett
3. One exit - pumping station
4. Proportion of Parrett flow entering the Moor though the inlets varies from zero in winter to about 0.01% in summer

Pumping station. The only outflow draining the Moor.

Oathe Lock; the tidal limit on the Parrett

River Parrett flow - does not flow into the Moor rhynes. High phosphate level.

Summer flow from two inlets from the Parrett opened in dry weather.



Original stream flowing from the Blackdowns. Seasonally raised phosphate possibly from agriculture.

Main Drain - the original stream straightened. Water flows into this drain from the Moor. Arrow shows flow direction.

Protecting the Levels

- 1.Reduce phosphate output of the STWs on the Parrett, Isle and Yeo.
- 2.Action on point source agricultural phosphate
- 3.More sampling better to understand seasonal phosphate movement through Moors
- 4.Research into phosphate movement during storm events.
- 5.Can IDB programme be modified to minimise phosphate flow through the inlets?
- 6.Nature-based removal of phosphate at each inlet

Andrew Clegg

ac@asclegg.co.uk

www.SomersetLevelsPhosphate.org.uk