



Phosphate concentrations in the Parrett and tributaries

2021-23

Andrew Clegg

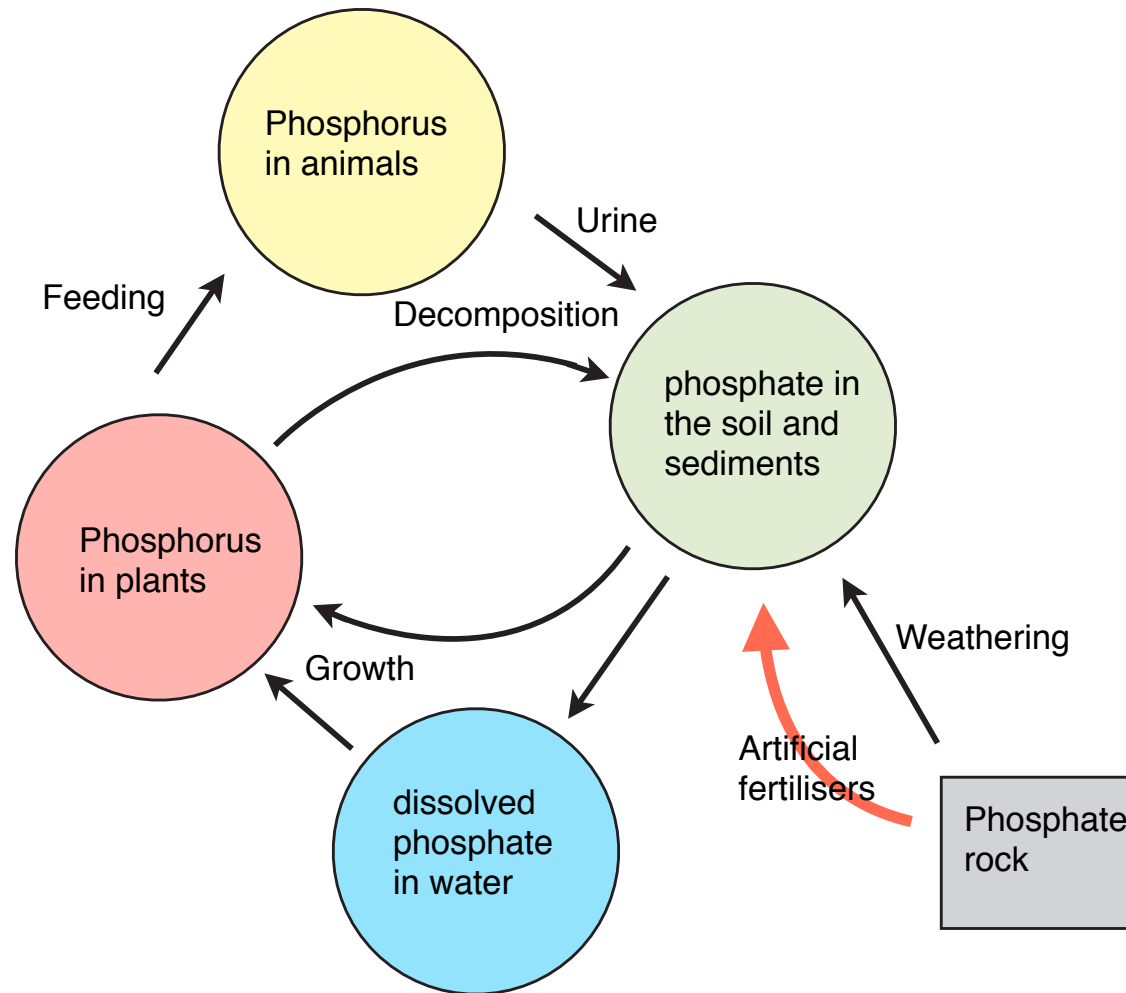
The Phosphorus Cycle

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

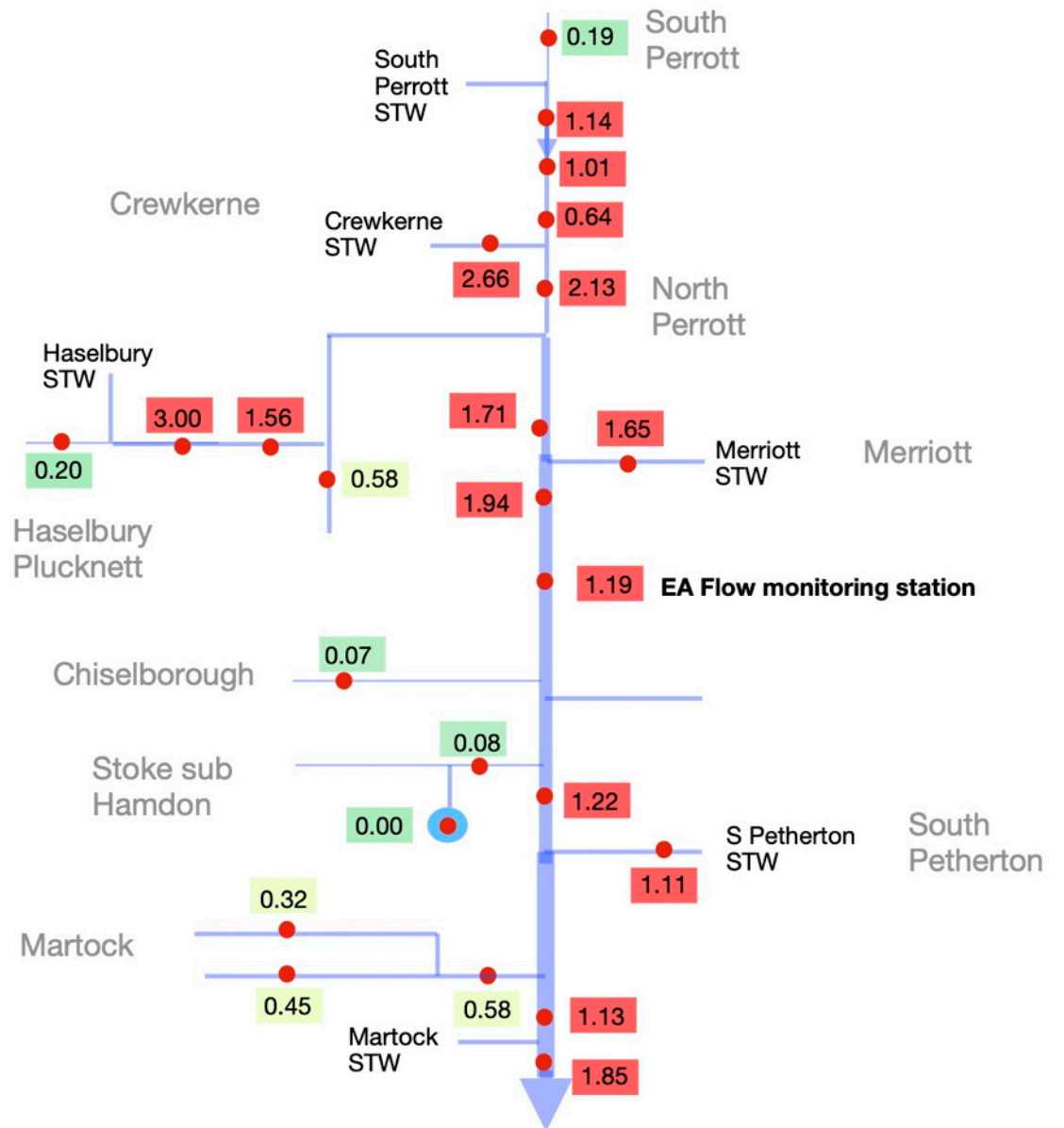
1. The main source of phosphate is Sewage Treatment Plants (STWs).
2. Phosphate is absorbed by river plants and sediment.
3. Some evidence of agricultural phosphate but these are classified as moderate.
4. No significant agricultural point source phosphate

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

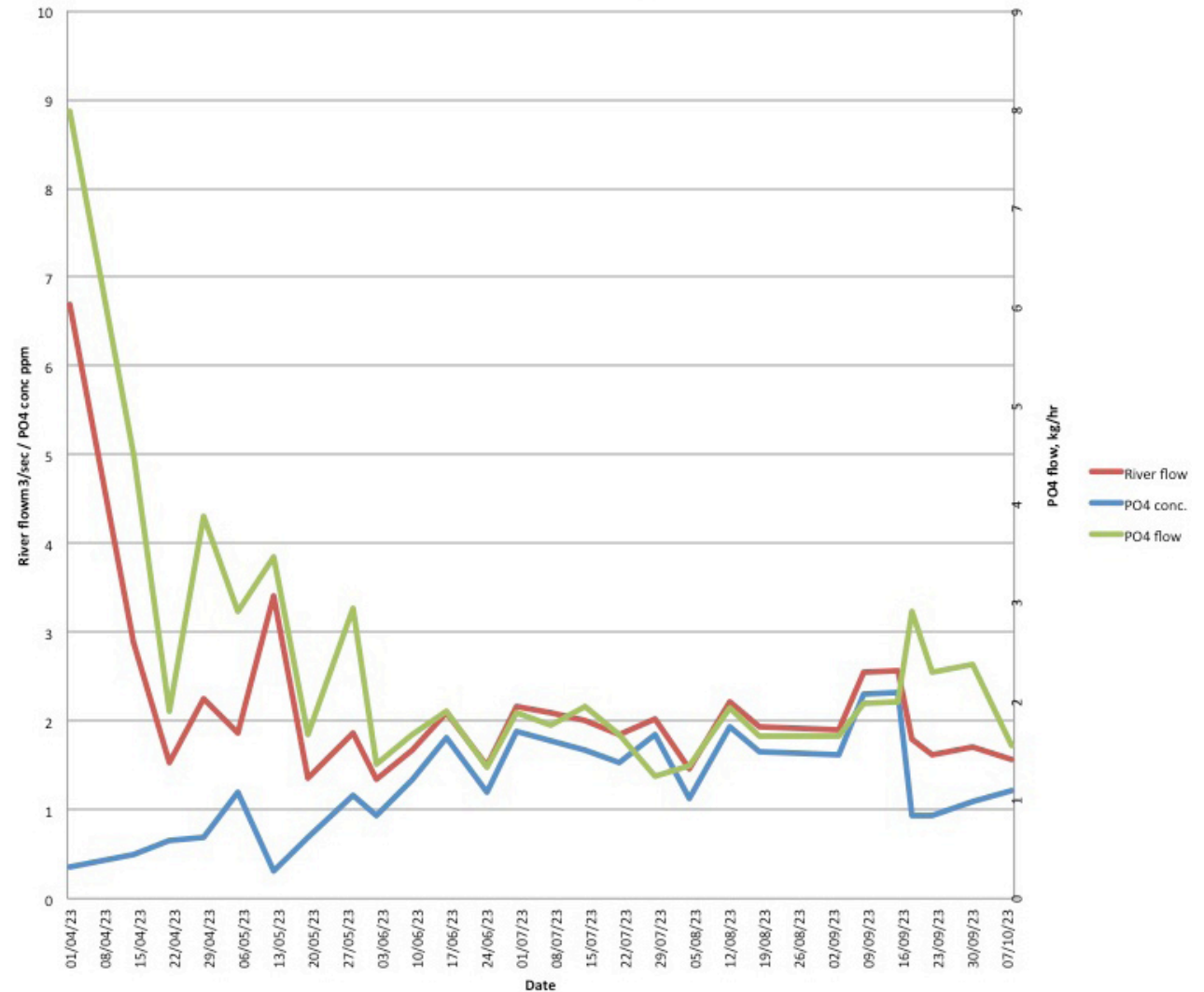


Parrett Phosphate Load April to October 2023

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

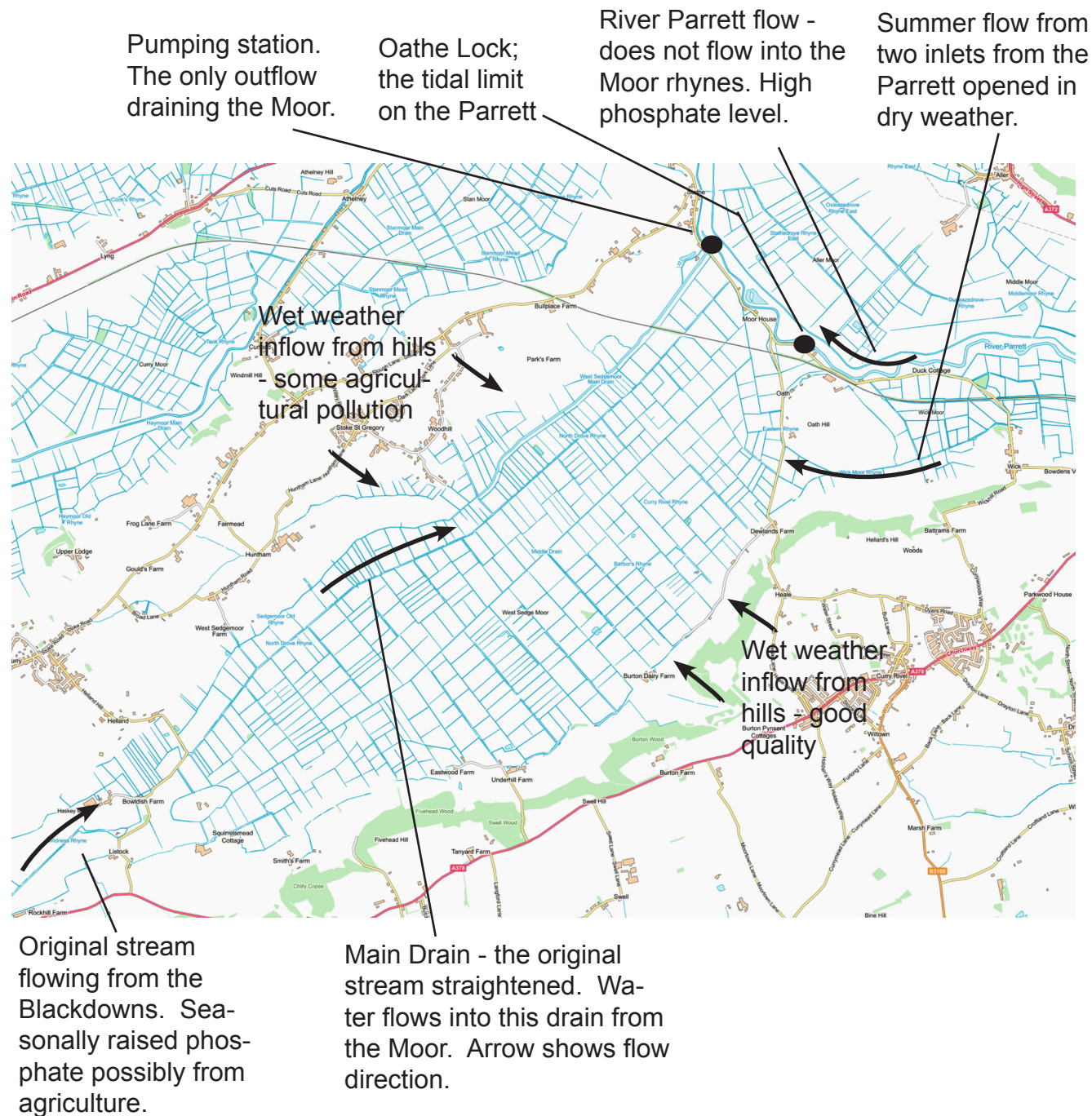
Parrett - Chiselborough EA station



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



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