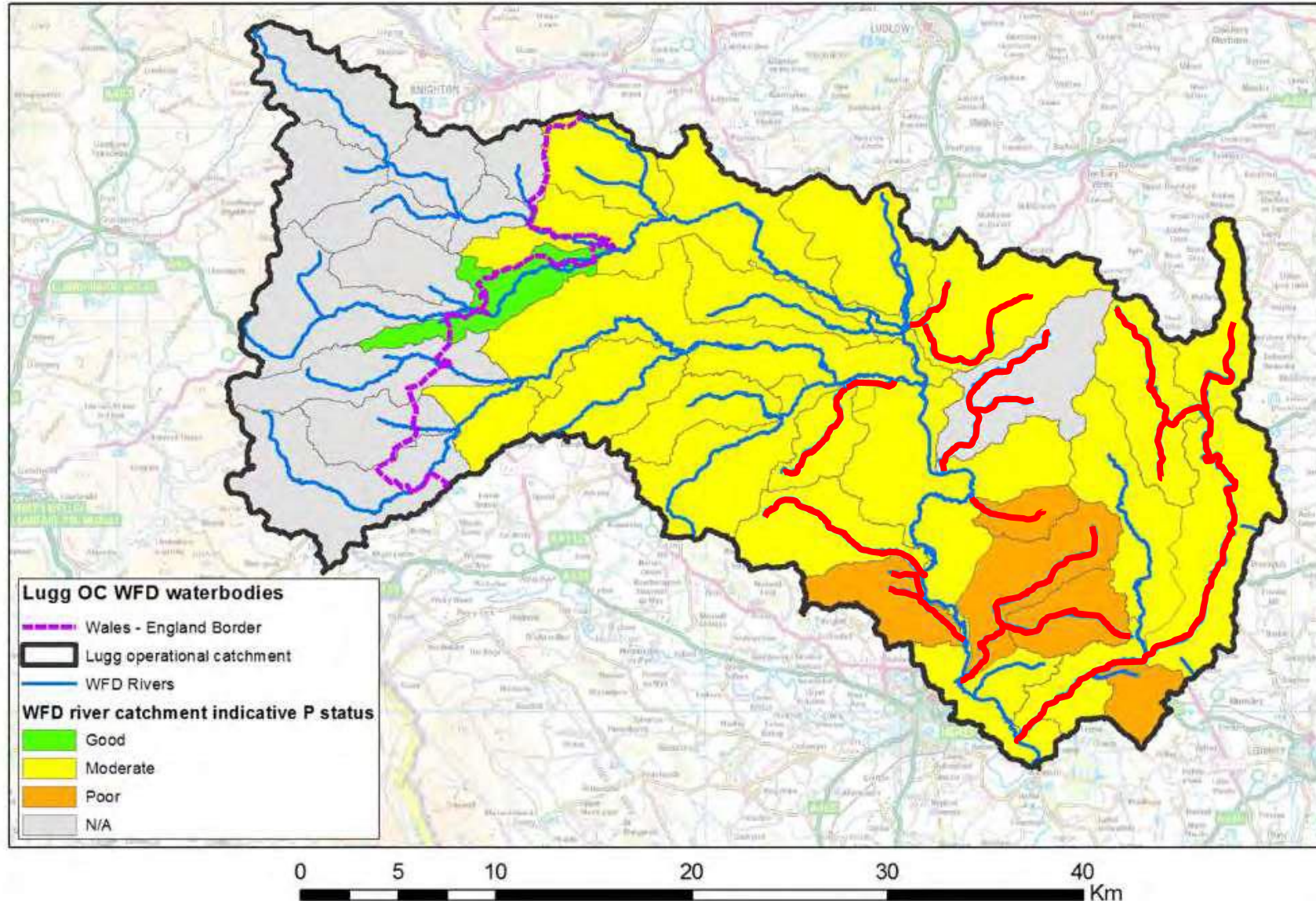


Lugg 2017-19 indicative phosphate status



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LUGG MONITORING NETWORK

- 11 - Sub-catchments
- Low Sewage Effluent Phosphates
- 44 - Monitoring sites at bridges
- 11 - Pro Team Leaders
- 4 - Sites per Pro
- 35 - Trained Teststrip volunteers

PARAMETERS MEASURED

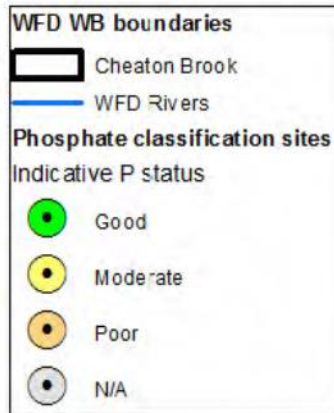
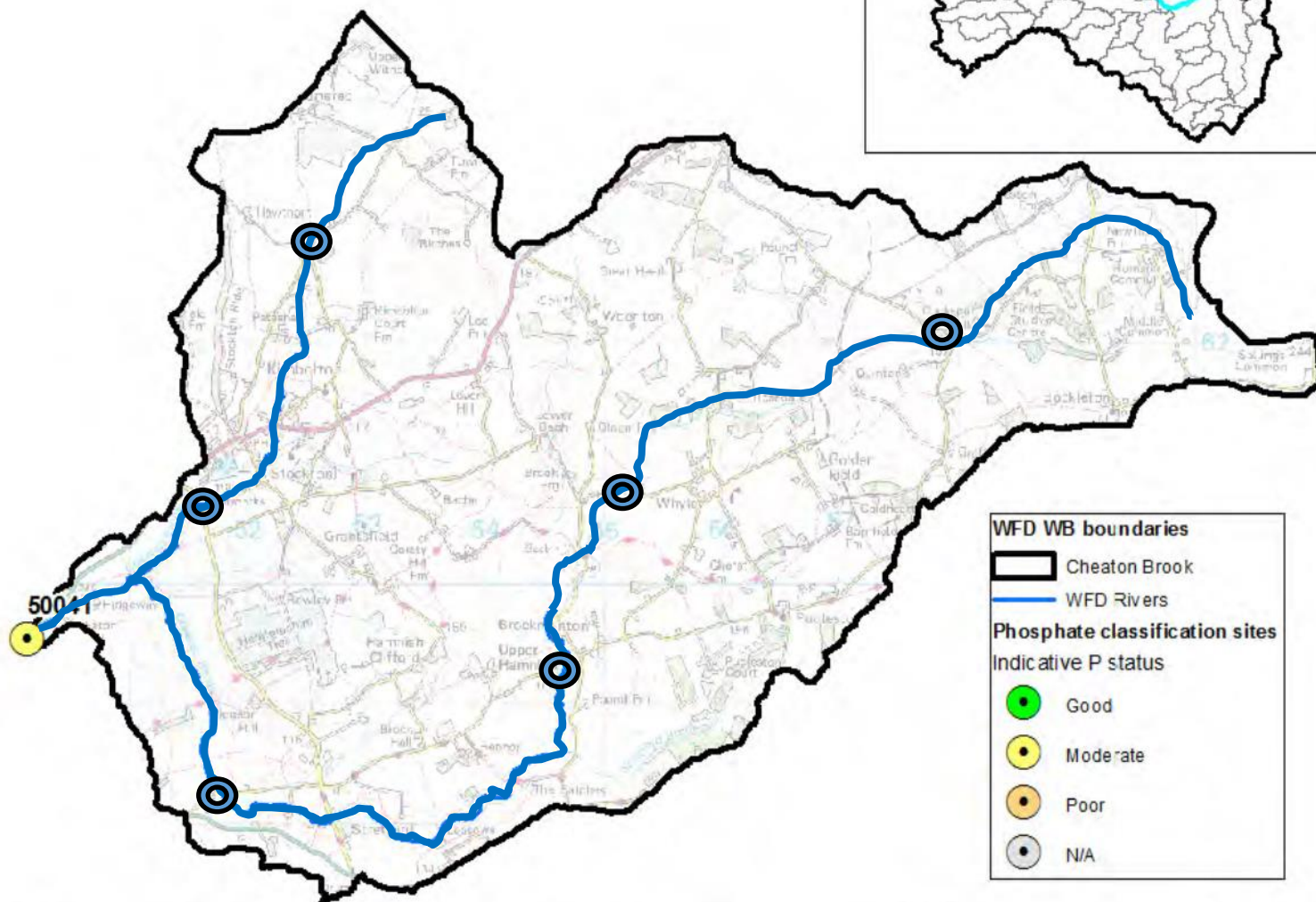
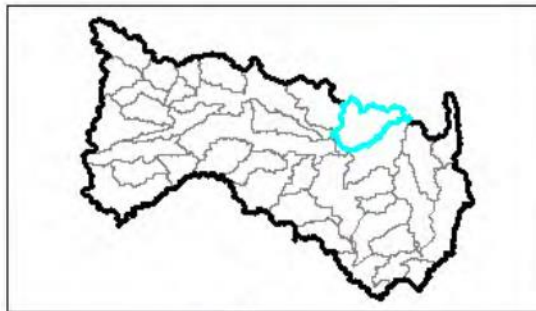
Phosphates - Hanna Digital Meter
- LaMotte/Bayroll Teststrips

Nitrates – Hach Teststrips

Turbidity - Secchi Tube

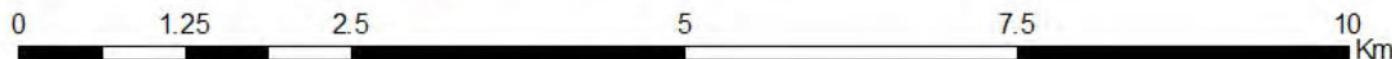
EC/T – HM EC3 digital meter

Water Level – tape measure dipper



CHEATON & COGWELL BROOKS

- 6 sites - all at road bridges
- 2-3km reaches between sites
- Little or no sewage effluent
- 3 sites per wk PO₄/NO₃ teststrips
- 3 sites per wk full set of params

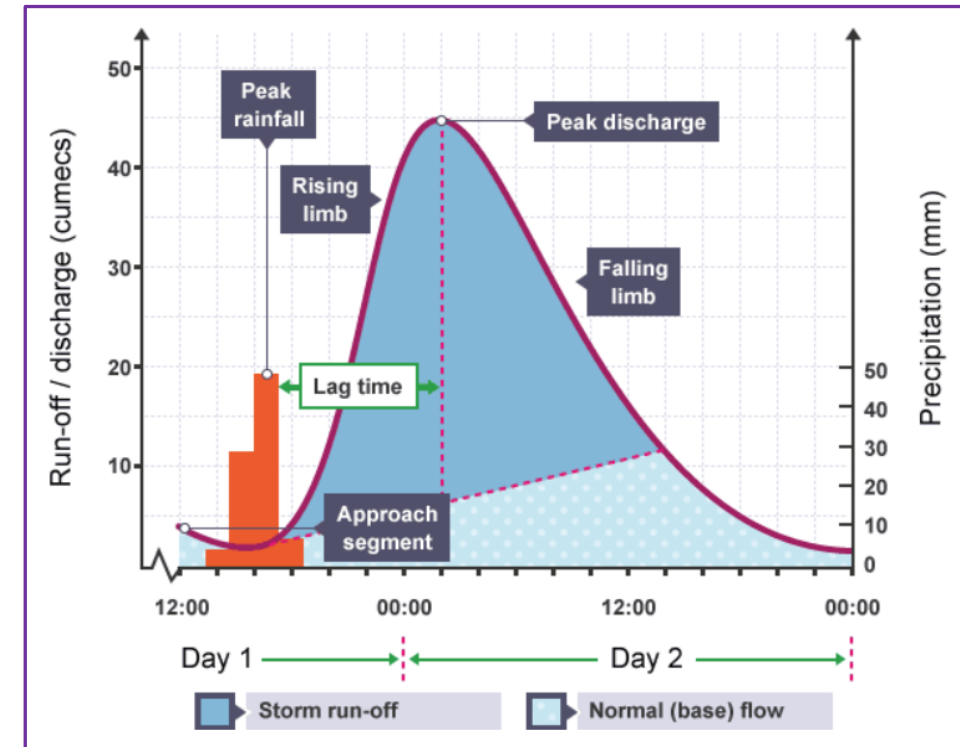


Q - Why measure water level ?

Q - Why measure water level ?

A - It's about water quality hydrology

Typical rainfall-runoff response




Q - Why measure water level ?

A - It's about water quality hydrology

- River Water Level relates to River Flow :

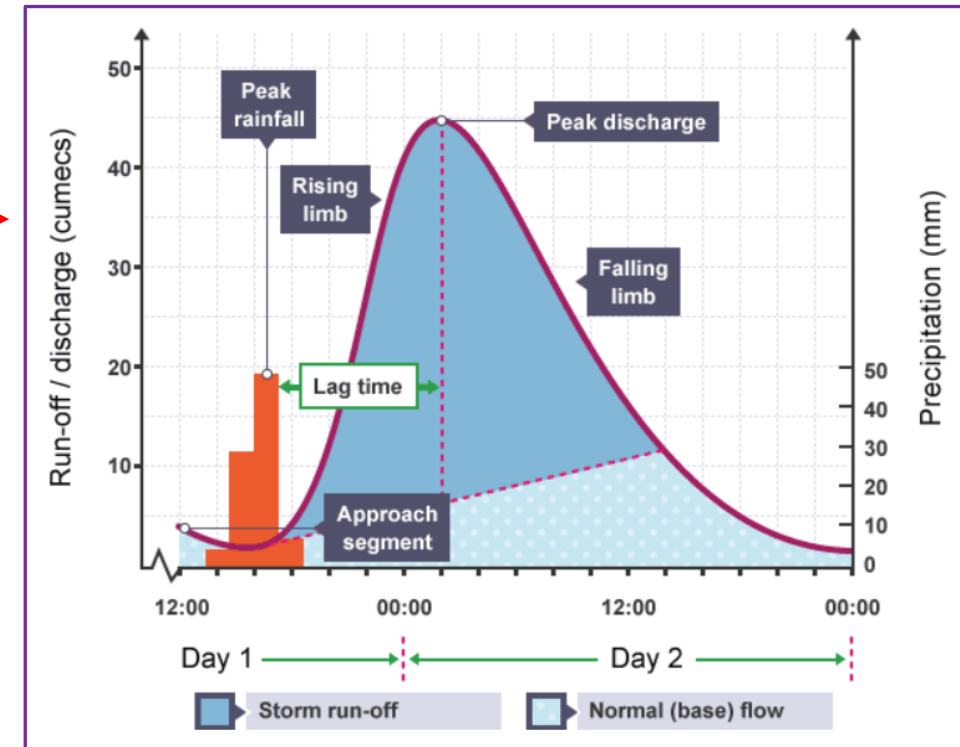
- $Q = a \times (H+b)^c$

- Phosphate changes probably runoff related i.e intense storm rainfall causes higher surface runoff from land 

- Are changes in phosphate due to increased runoff ? e.g soil erosion, a recent manure application or a sewage treatment works (STW) discharge ?

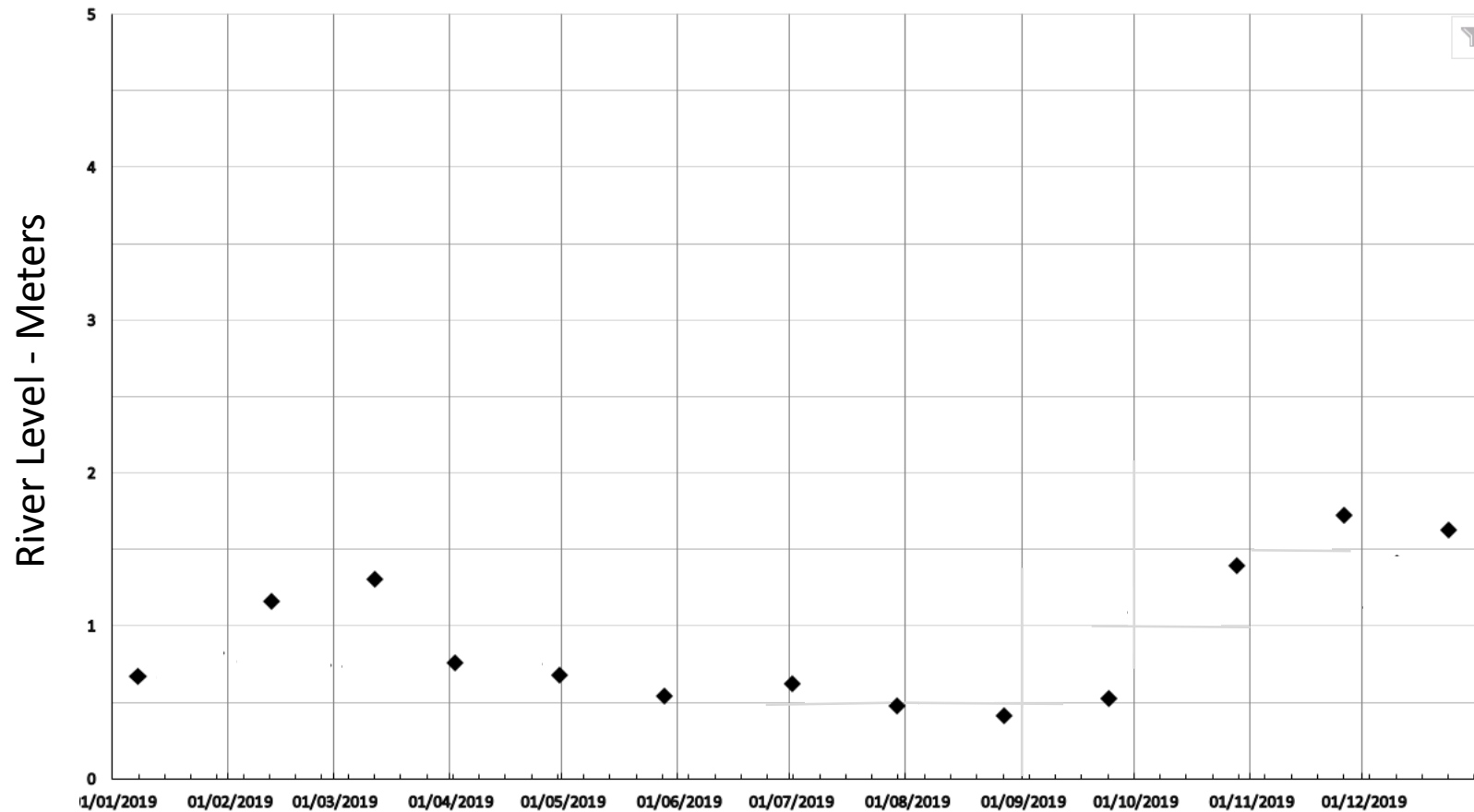
- STW discharges characterised by reducing phosphate levels during floods due to greater dilution

Typical rainfall-runoff response



WATER QUALITY HYDROLOGY – effects of flow runoff on phosphate sample results (NB - importance of sample frequency to understand processes)

CPRE-62 River Frome at Watery Lane, Yarkhill (EA Flow Gauging Station)
River level hydrograph



Sample frequency

1970s – weekly

1990s – monthly

2010s – quarterly

.

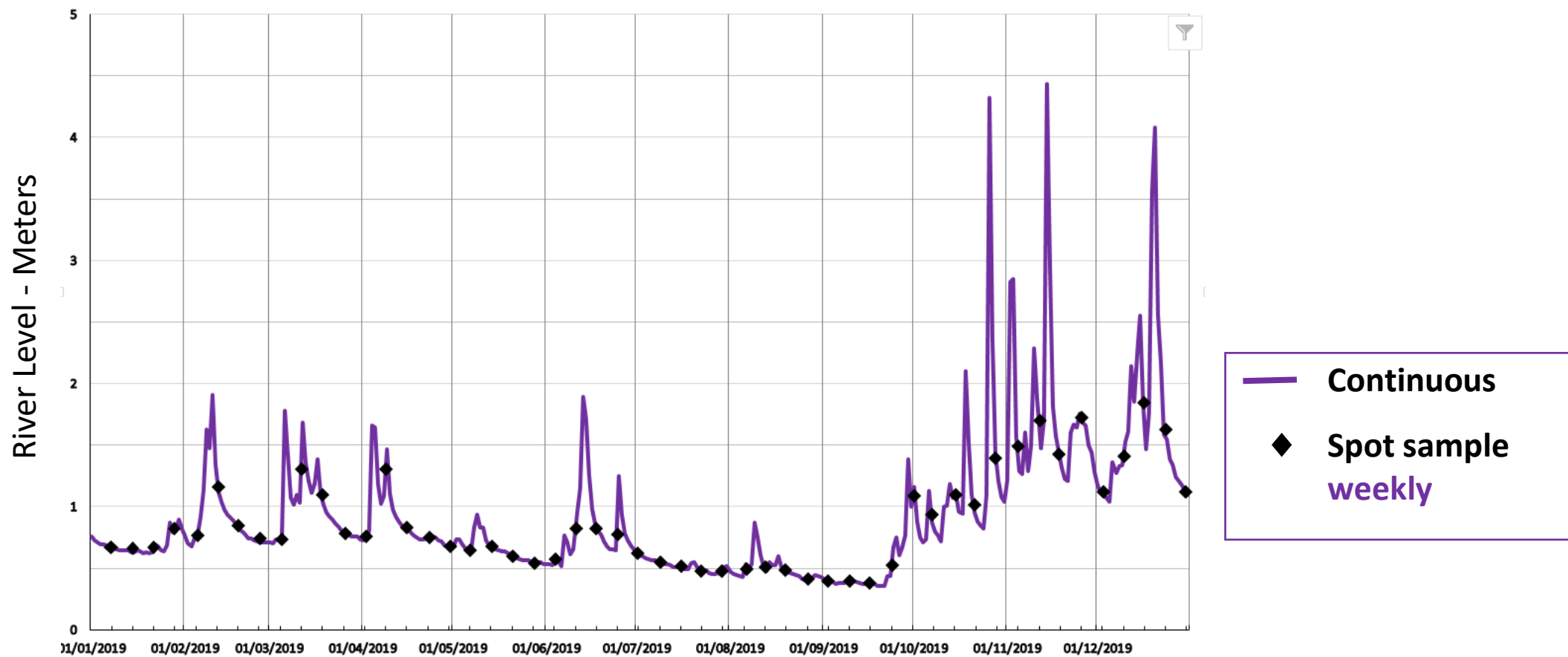
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2021 – weekly (CS)

◆ Spot sample
monthly

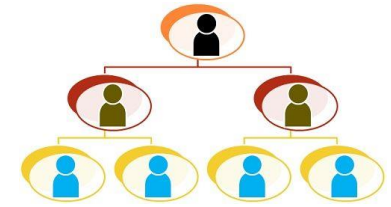
WATER QUALITY HYDROLOGY – effects of flow runoff on phosphate sample results (NB - importance of sample frequency to understand processes)

CPRE-62 River Frome at Watery Lane, Yarkhill (EA Flow Gauging Station)
River level hydrograph



Citizen Science monitoring networks - thoughts from a former professional

Organisation and costs/value of Citizen Science projects



- Impressed with aptitude and commitment of most Volunteers
- Organising 50 volunteers into a team ? Challenging and not without a few staffing issues!
- Sharing network organisation with 10 x Pro volunteers successful and recommended
- Given resources, the quality and continuity of data has been pretty good
- CS volunteers could produce data to same quality as 'professionals' given same equipment
- Staff costs and travel costs are bulk of monitoring network costs; **NB - CS costs = £ 0**
- PERSONAL VIEW - False economy to skimp by purchasing cheap kit

E.g PO4 test strips v Hanna Digital meter !



Don't look a gift horse in the mouth - give it better hay instead !