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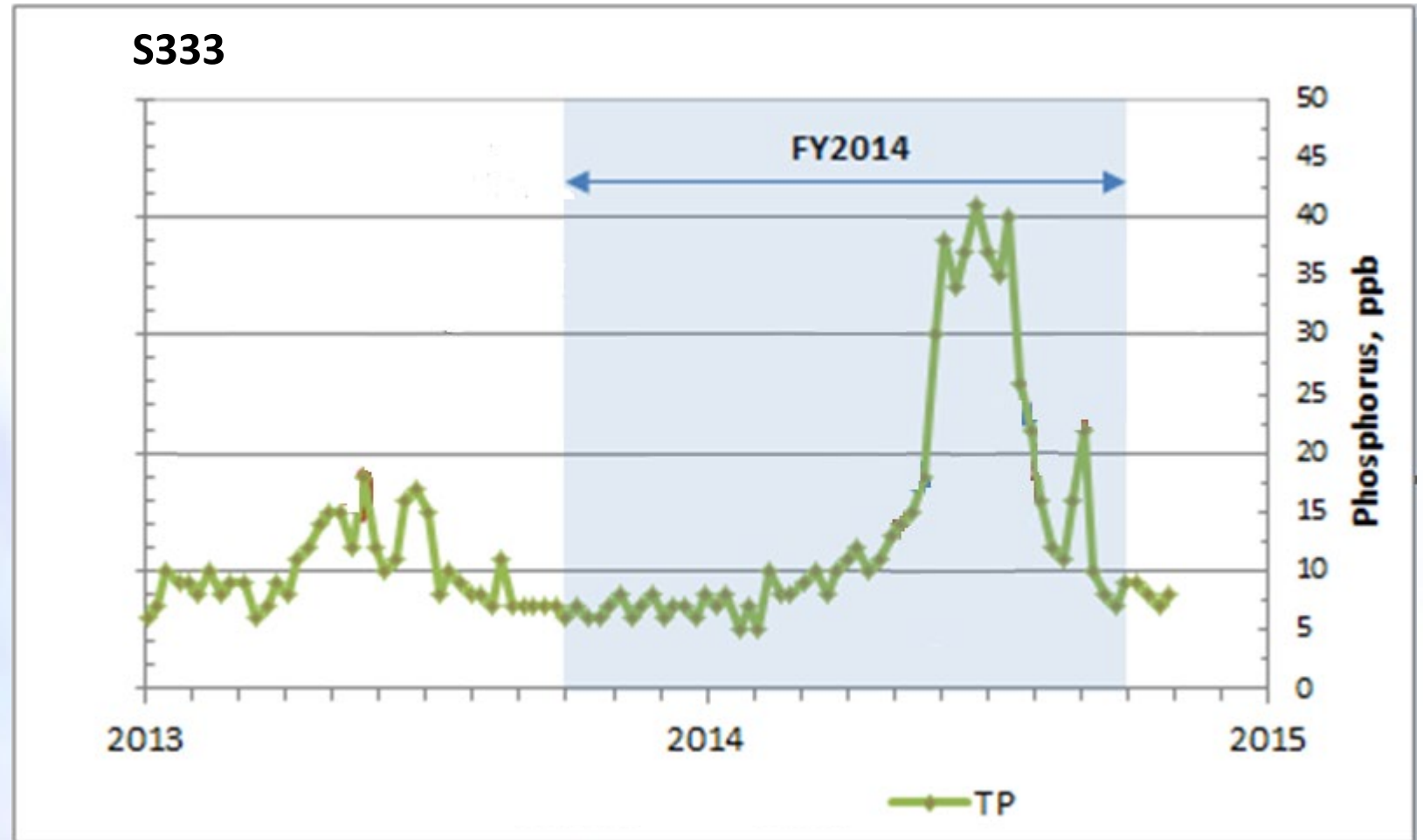
Fractionation of Phosphorous in Canals Draining to NE Shark River Slough.

Henry O. Briceño, Eduardo Mollinedo, Sandro Stumpf, Dilip Shinde,
Piero Gardinali, and Reinaldo Garcia

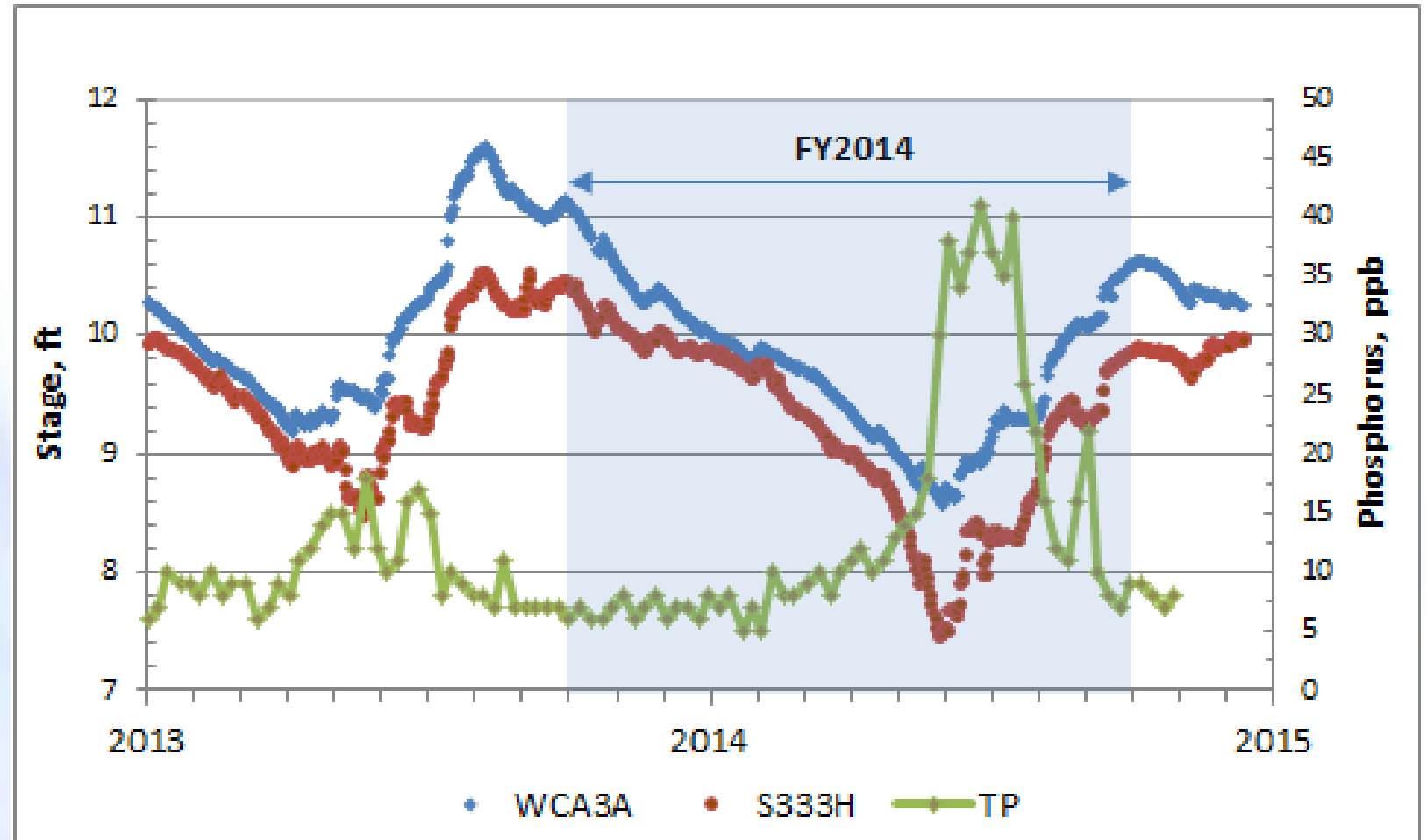
Florida International University
Southeast Environmental Research
Center
Miami, Florida

U.S.D.I, National Park Service
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...the problem....



...the hint....



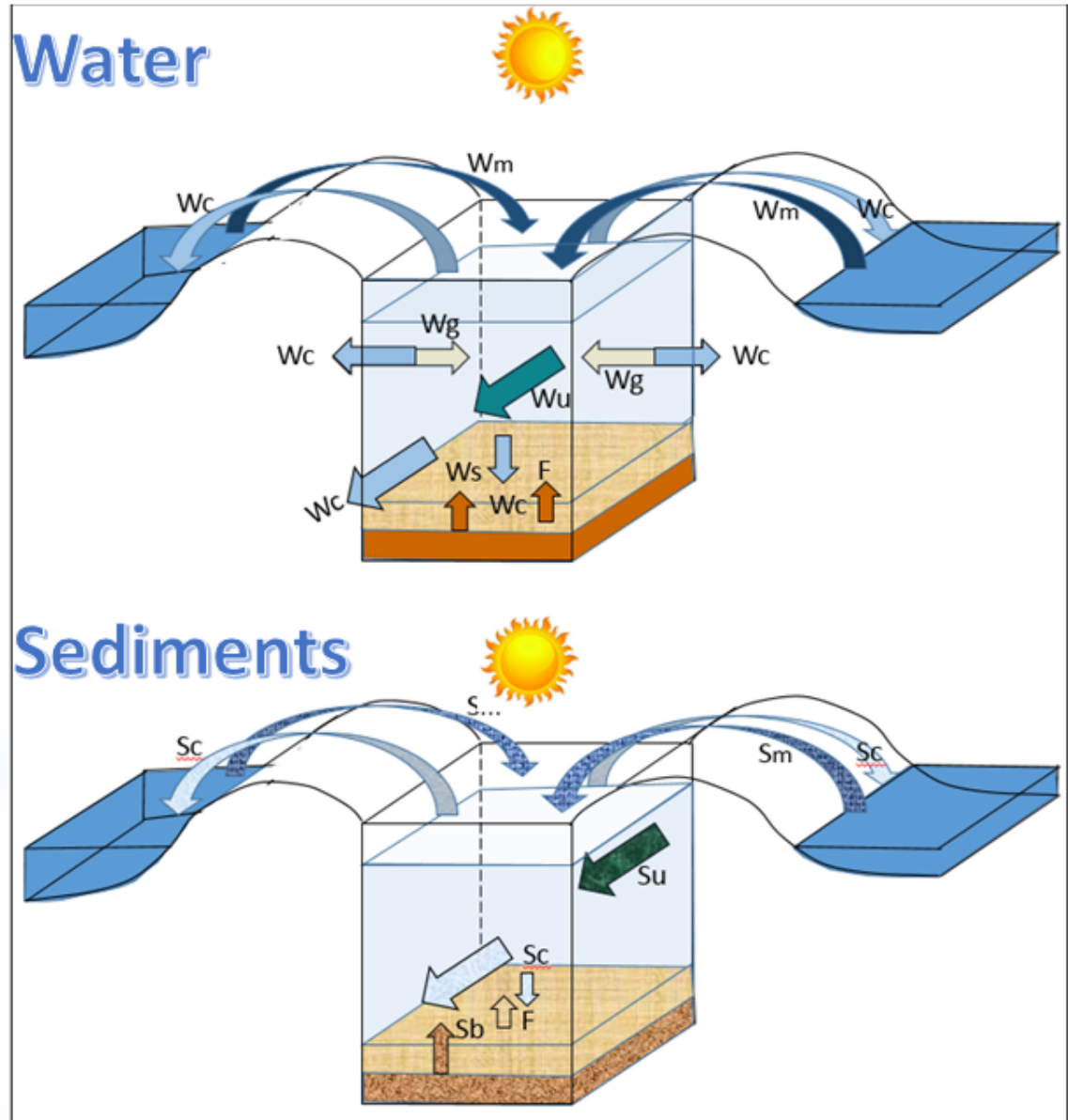
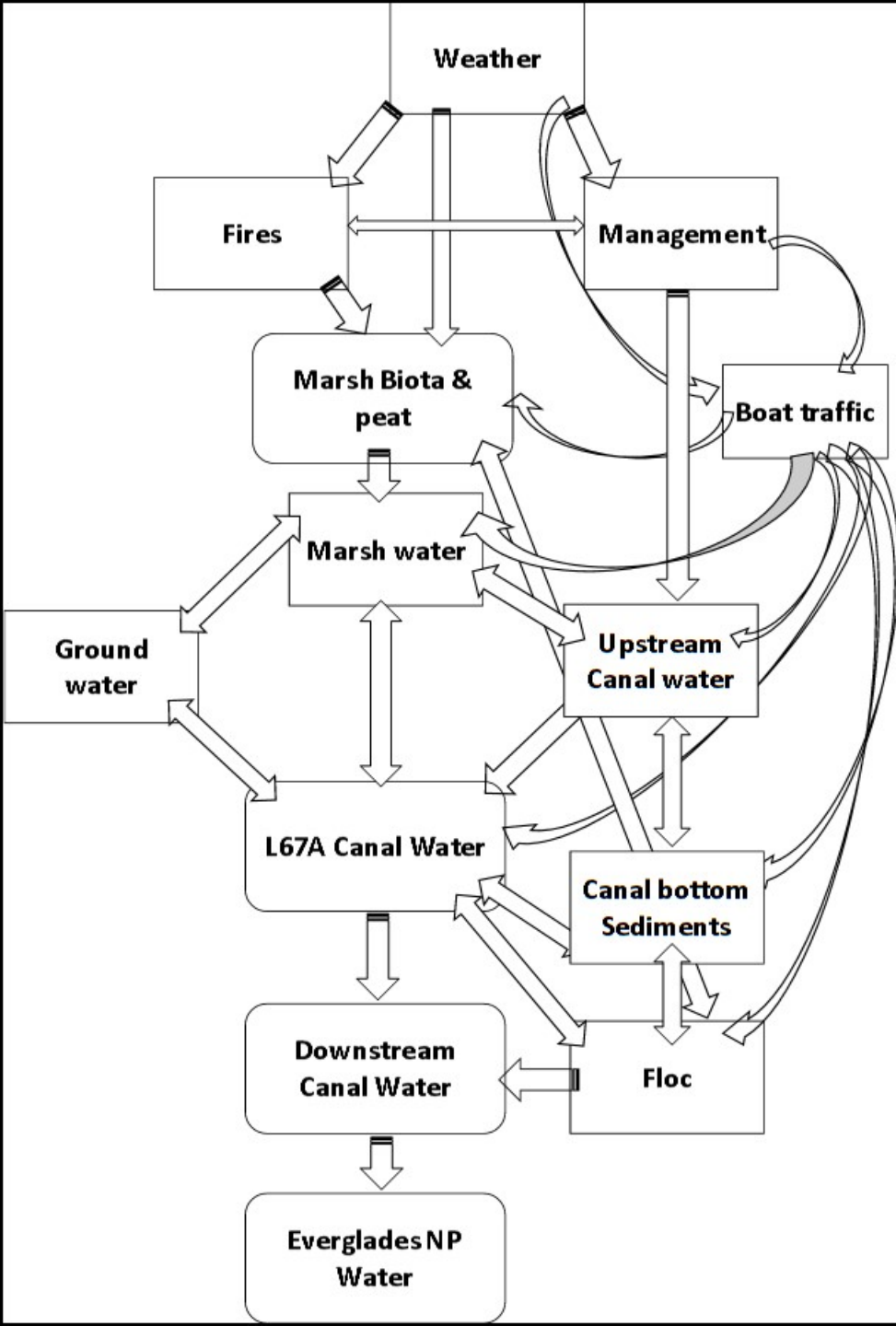
....the site....



...the objective....

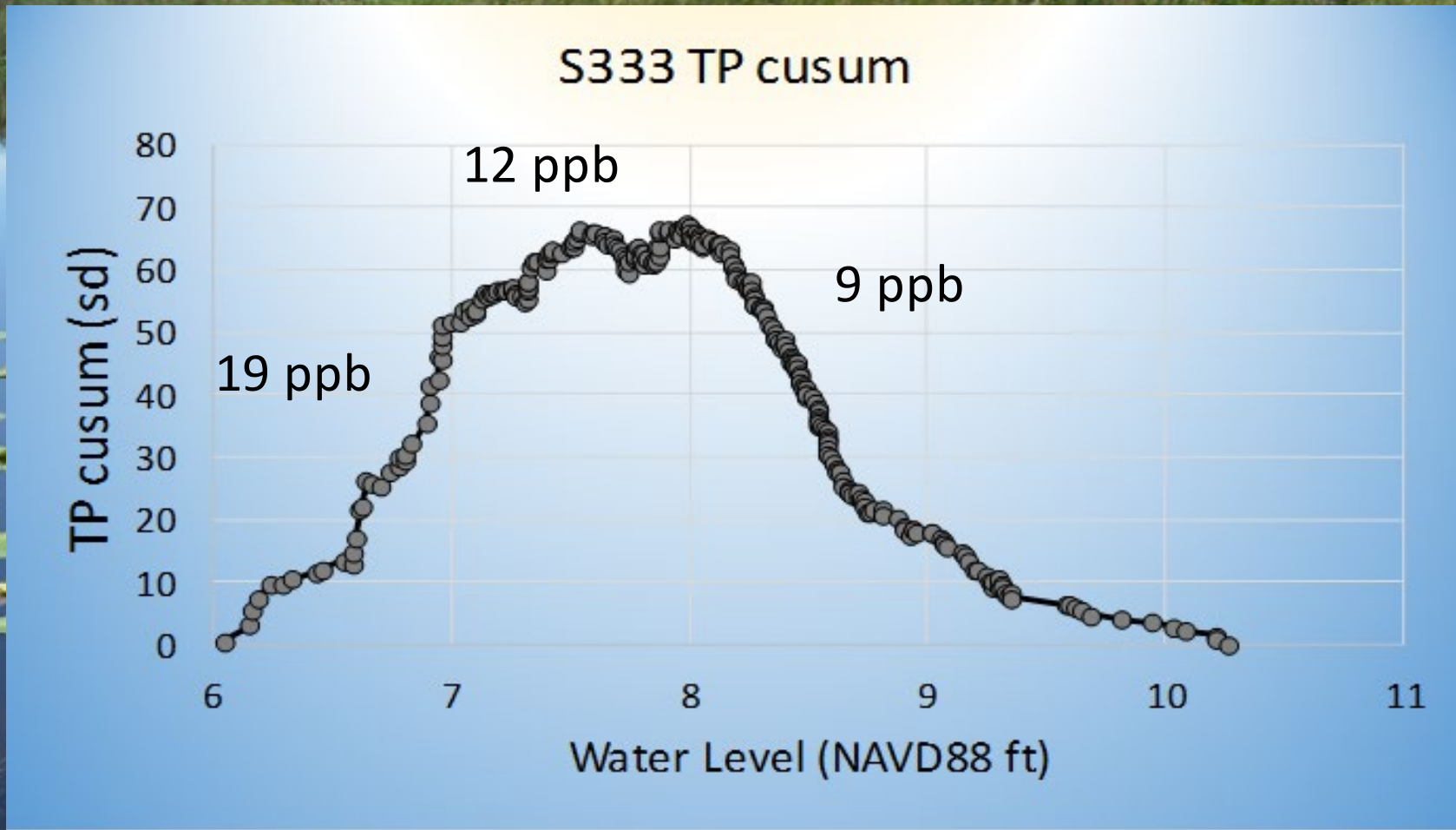
identify the sources of the elevated TP
at S333

...the conceptual model....



...selected stations....

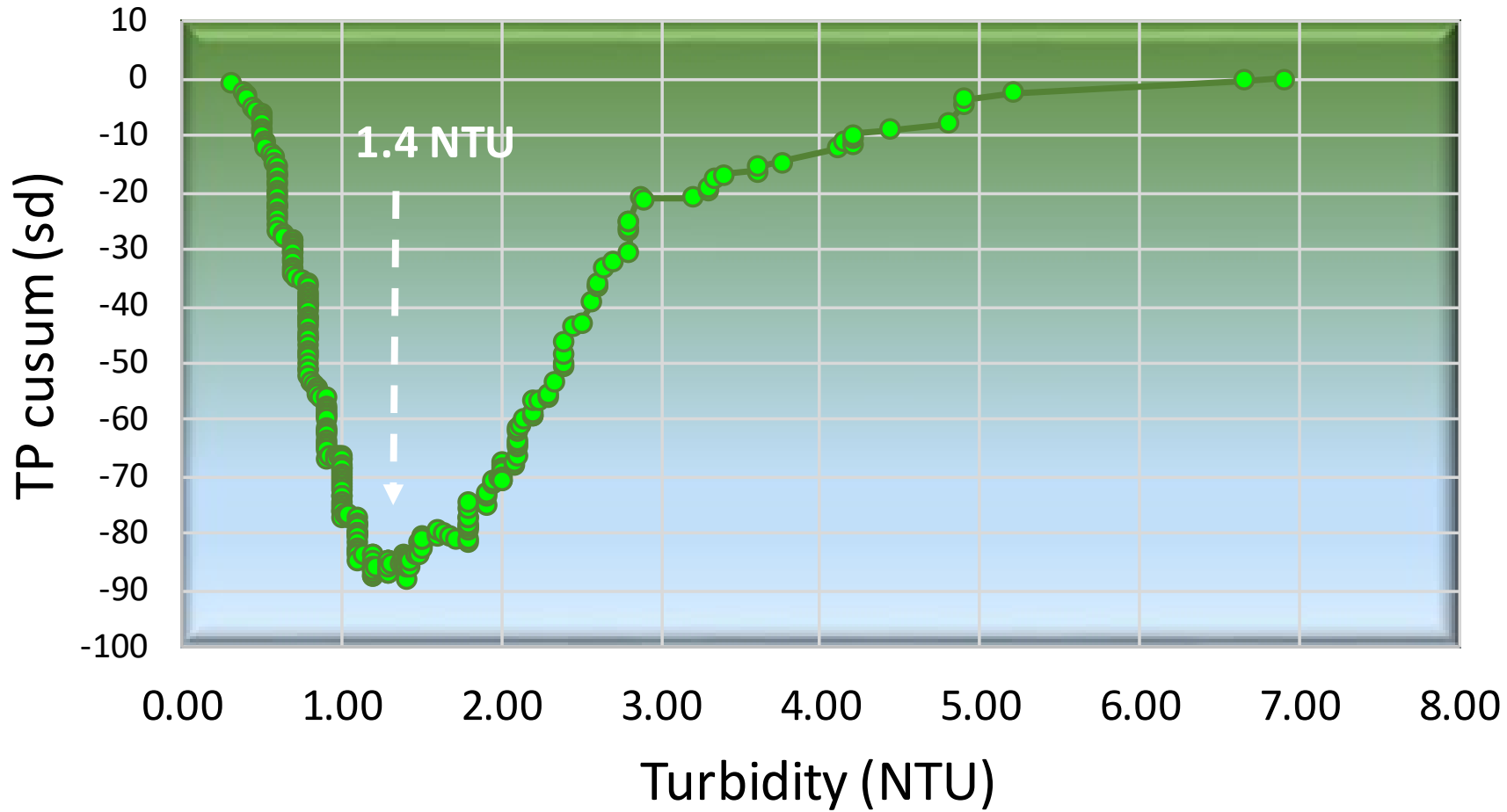




Hints:

Cusum= cumulative sum of standardized values:
+ slope= above average
- slope= below average

S333 TP cusum



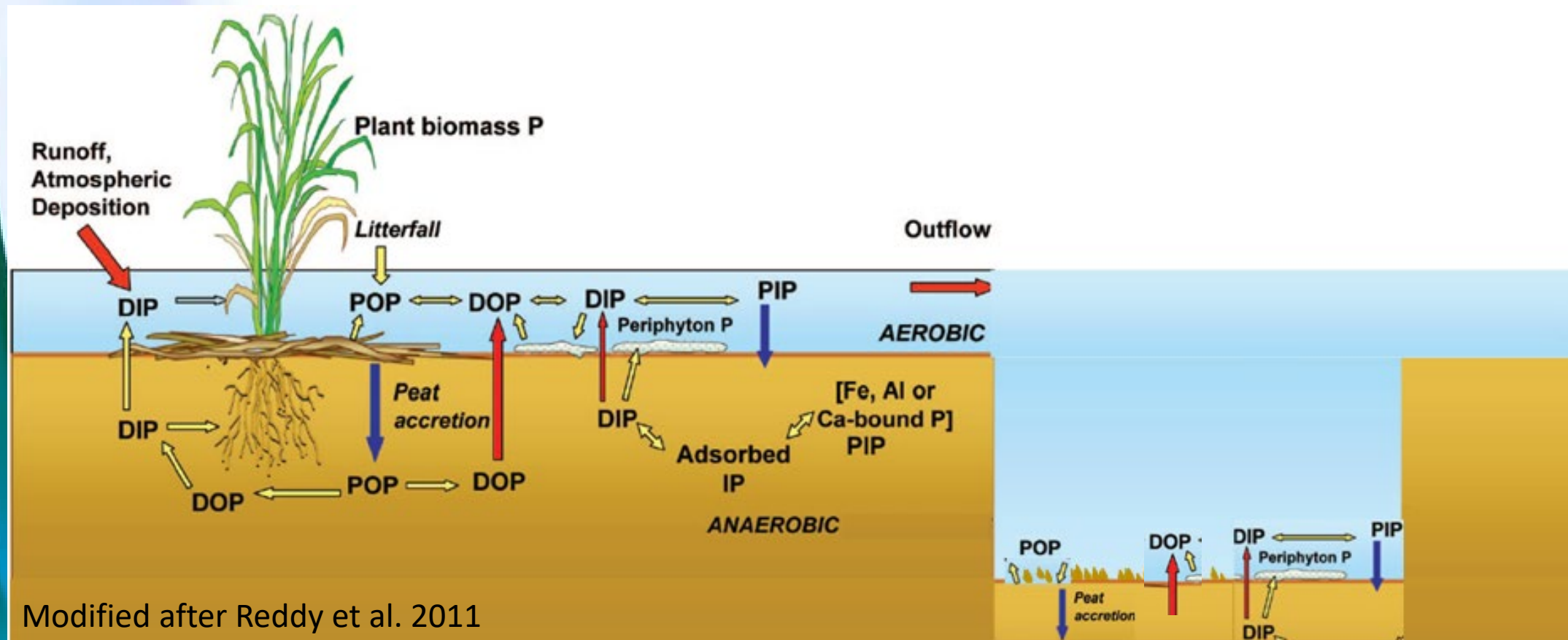
....data
exploration.....

.....phosphorous concentration in canals declines as water level increases, region-wide and independently of land cover/use

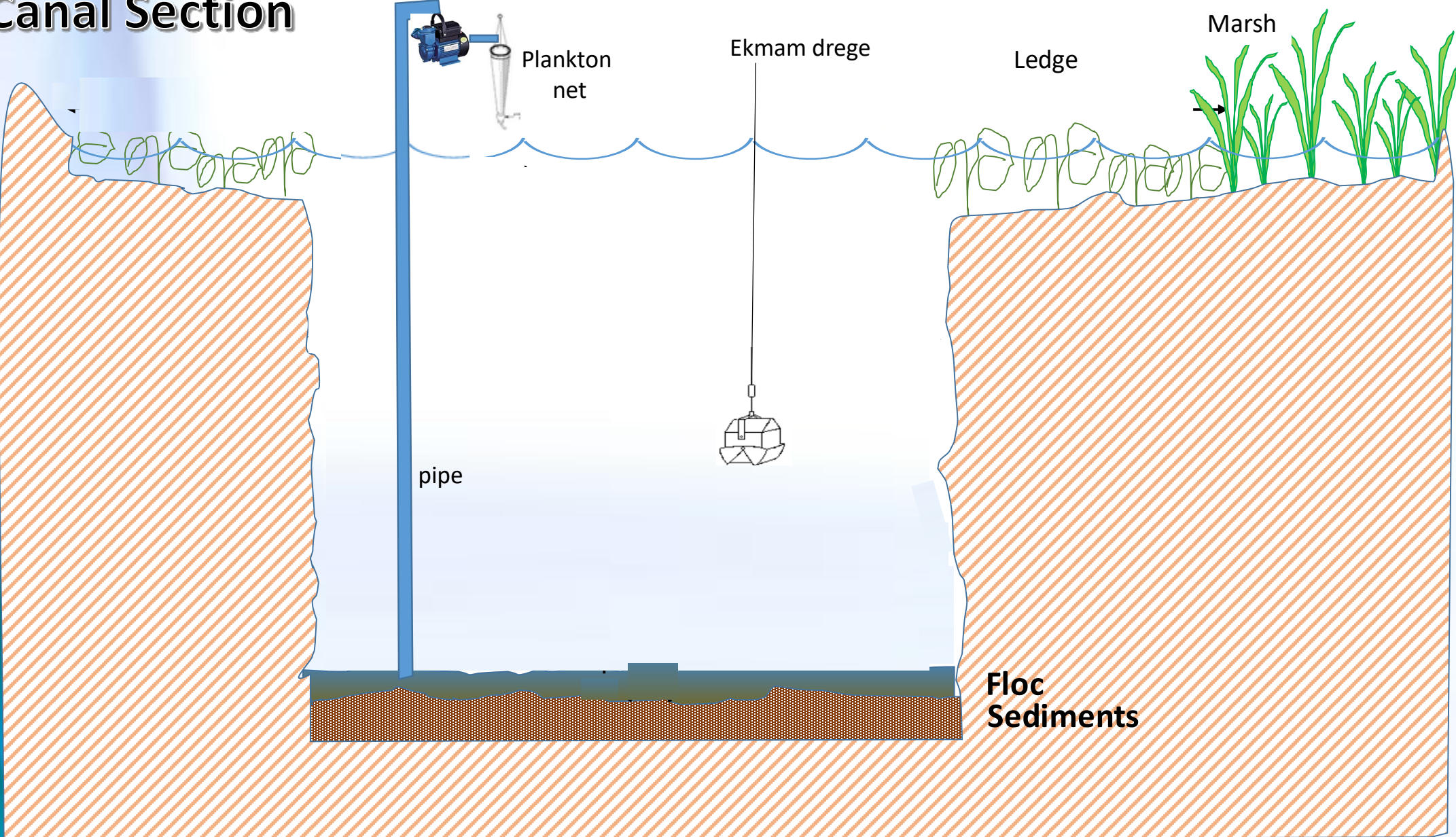
.....there seems to be a water level threshold, approximately at 8 ft, below which nutrient concentrations increase above average....

...that threshold level seems to be linked to the elevation of the adjacent marsh

... Focus on sediments and floc...



Canal Section

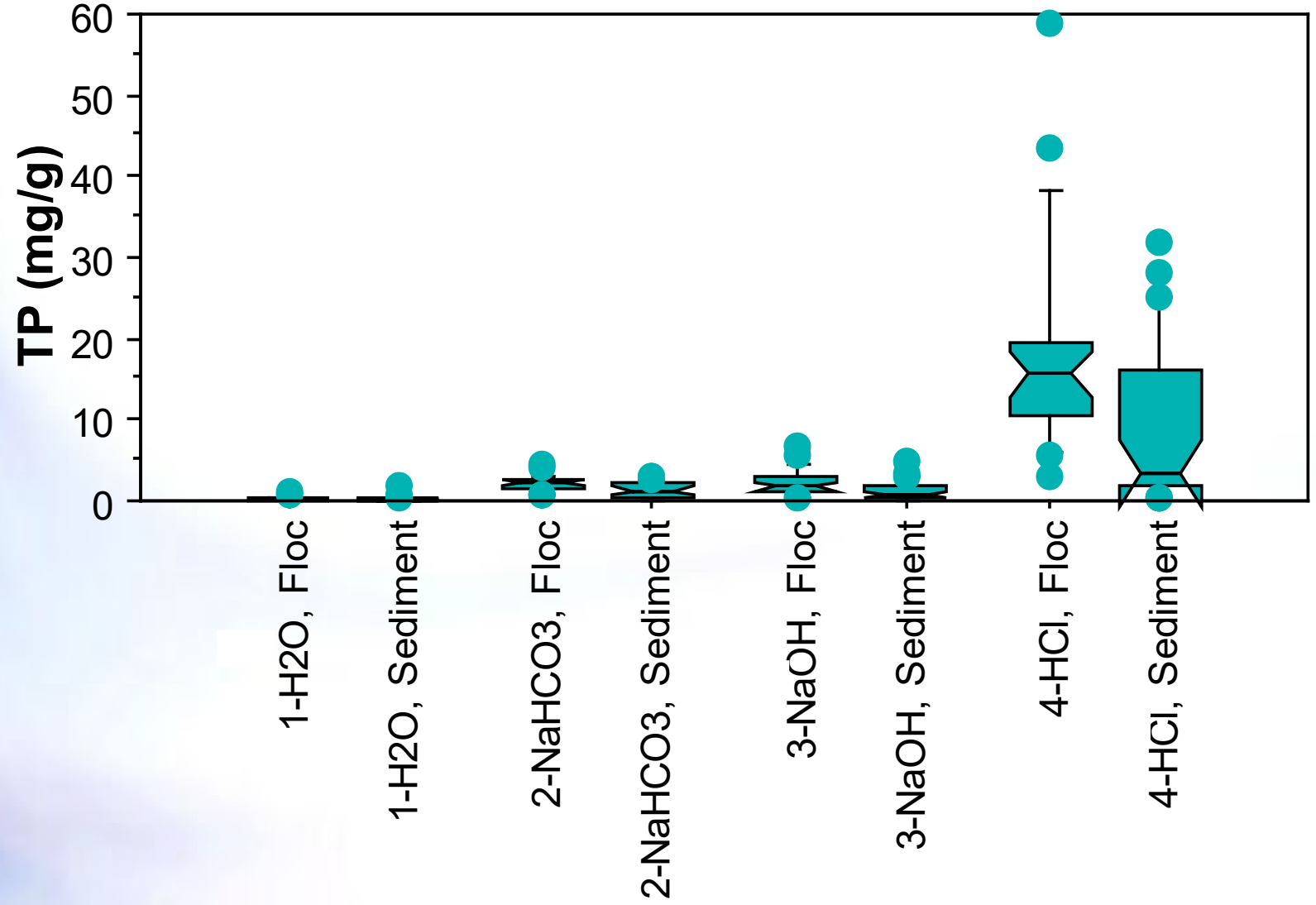


Phosphorous fractionation in floc and sediments

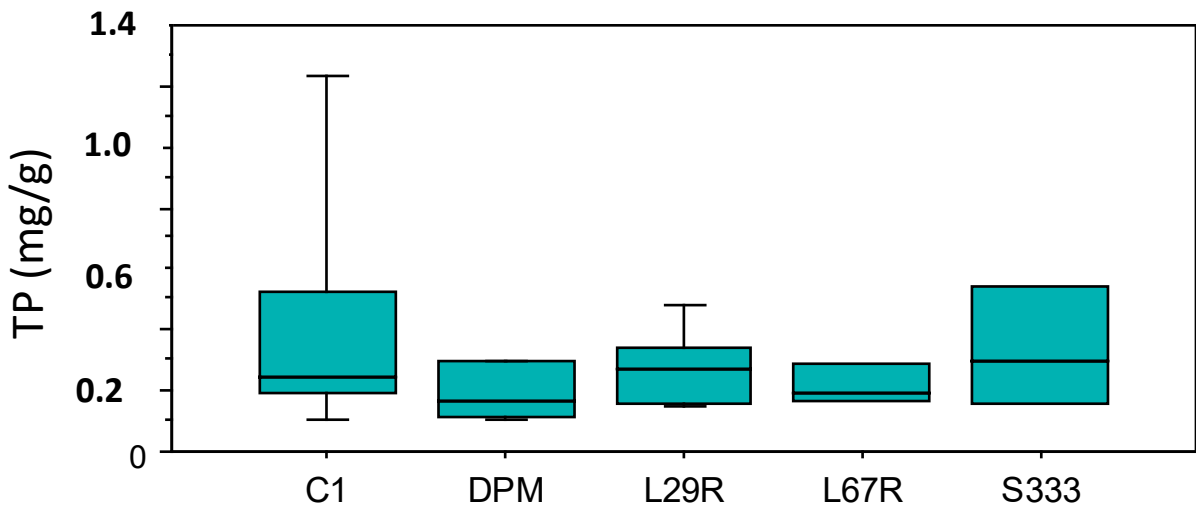
Fractionation scheme adopted in this research (Katsaounus et al. 2007) entailed:

- Deionized water extraction, corresponding to plant available and water extractable P.
- Sodium bicarbonate extraction, equivalent to weakly-sorbed and bioavailable organic and inorganic P
- Sodium hydroxide extraction, rendering strongly bound chemisorbed P-potentially bioavailable
- Hydrochloric acid extraction, equivalent to apatite or Ca-bound, non-bioavailable P

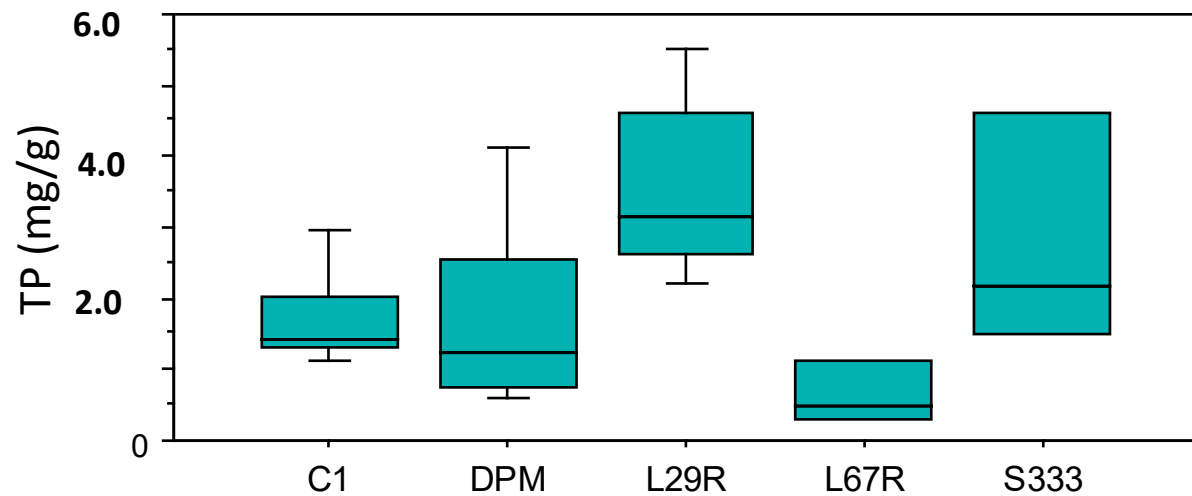
Substrate and extracting agent



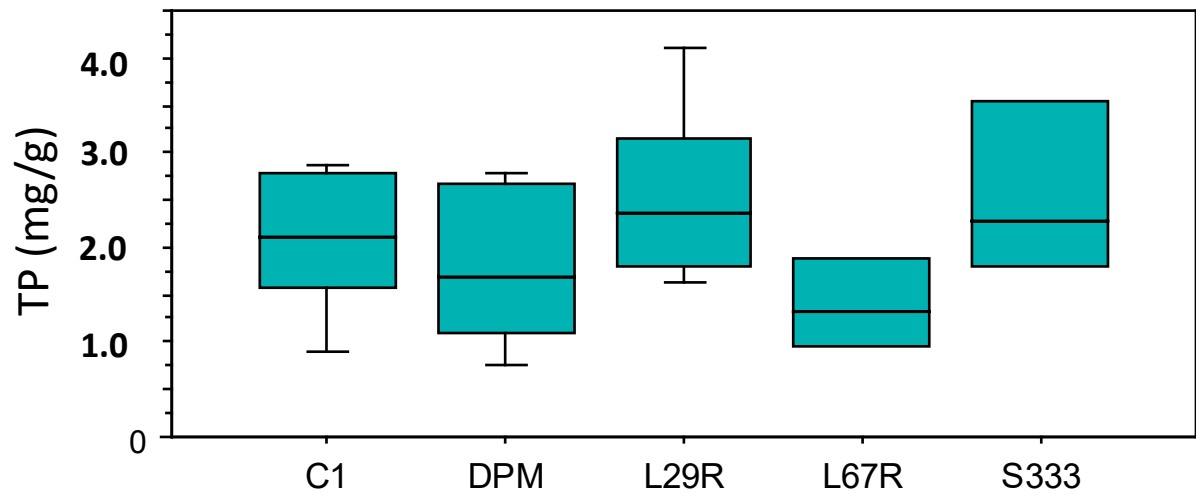
H2O extraction Floc



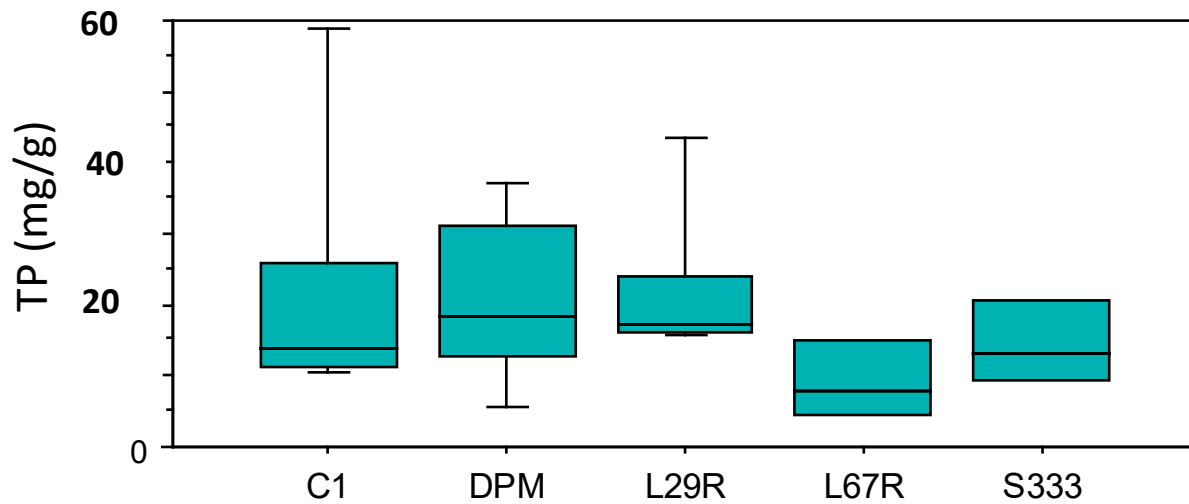
NaOH extraction Floc



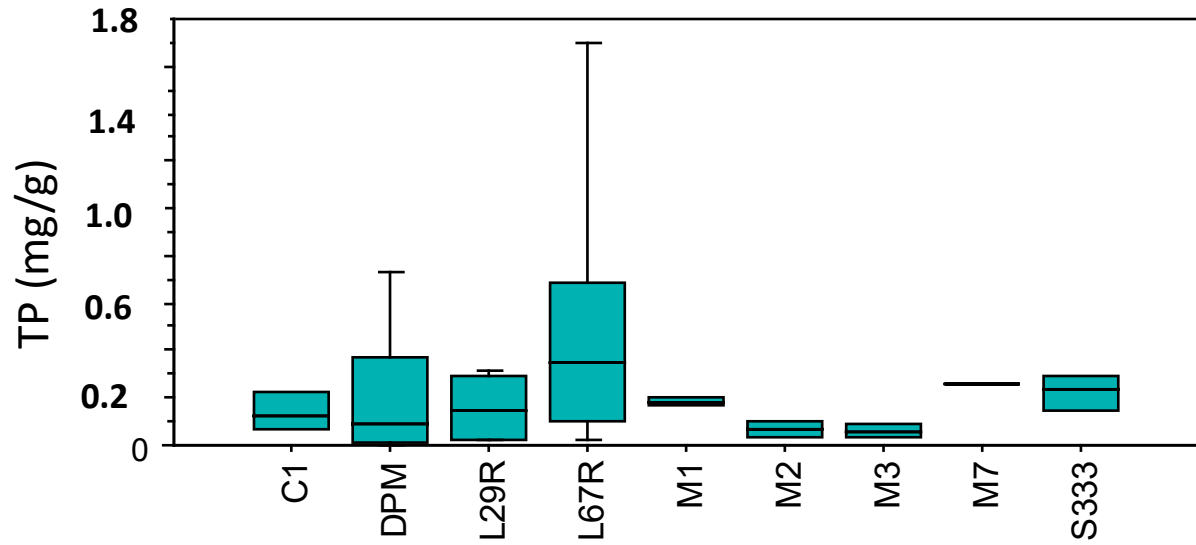
NaHCO3 extraction Floc



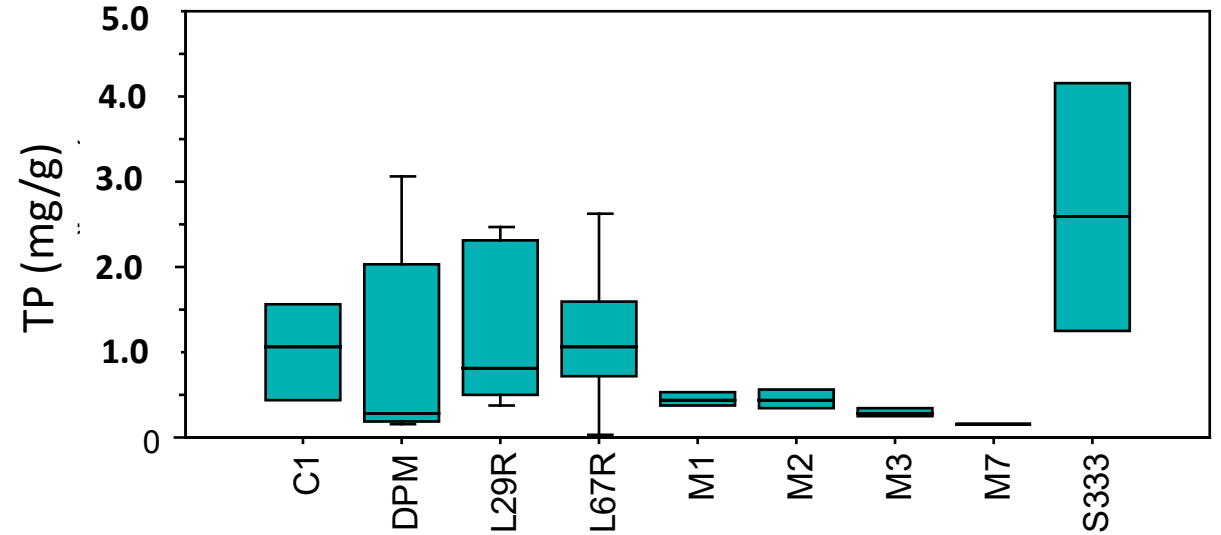
HCl extraction Floc



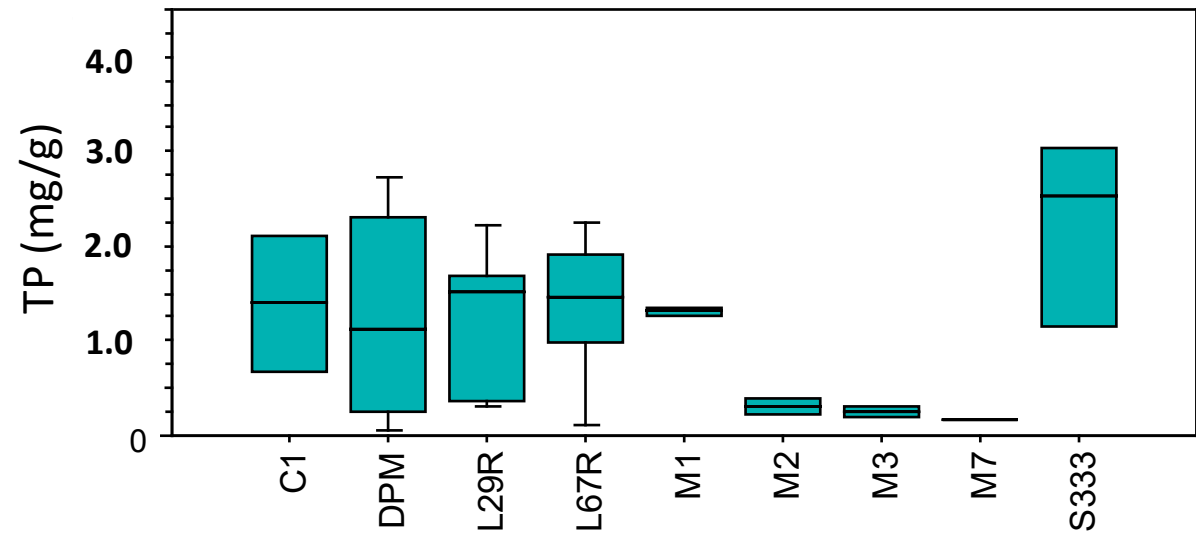
H2O extraction Sediment



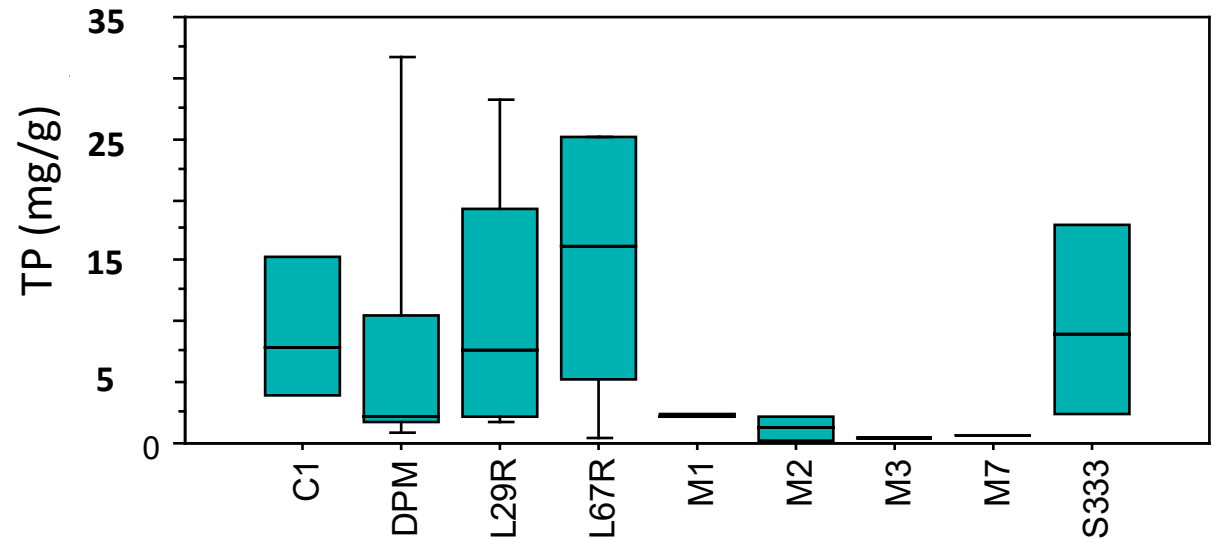
NaOH extraction Sediment



NaHCO3 extraction Sediment



HCl extraction Sediment



Conclusions

.....phosphorous concentration in canals declines as water level increases, region-wide and independently of land cover/use

Conclusions

..... most TP in sediments and floc is in the NaOH and HCl extracted fractions, which are non-bioavailable*

Sequence:

	Bioavailable	<	Weakly-sorbed bioavailable	<	Strongly Bound Chemisorbed	<	Ca-Bound non-bioavailable
Floc	1.3%		9.2%		9.5%		80.0%
Sediment	2.0%		11.0%		10.4%		76.6%



Special Thanks to:
Dr. Joffre Castro
Dr. Len Scinto





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