

Evaluating stewardship actions for Healthy Lake Huron

*Sharing Loading Estimation Experiences Workshop
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Healthy Lake Huron



Five priority areas for implementation of community-based watershed management plans that involve:

- Education/Outreach
- Stewardship – implementation of soil and water conservation practices
- Evaluation

Objectives vary amongst the community-based plans. However, there is a common theme of improved water quality in Lake Huron with reduced beach postings and algal-fouling events.

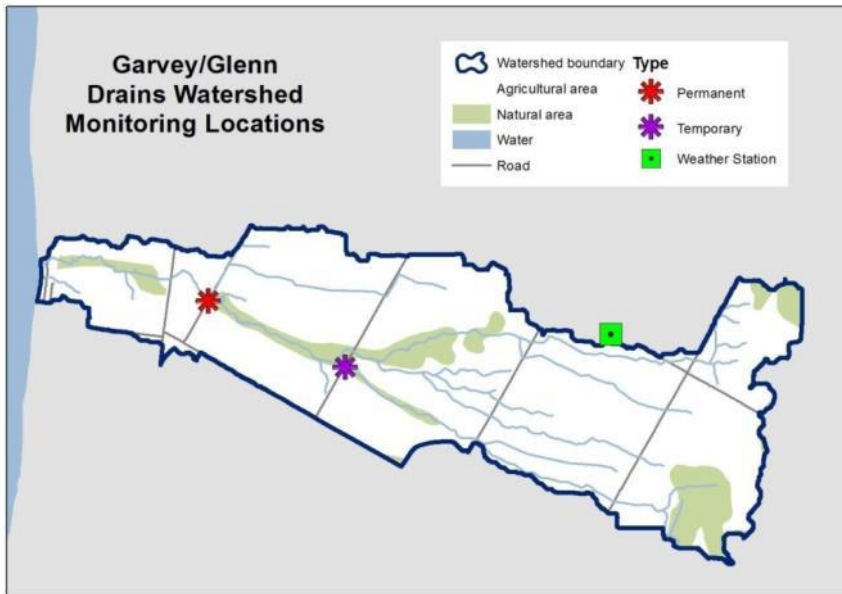
Water quality data used to:

- evaluate effectiveness of stewardship actions undertaken at watershed scale

Data Collection

At each of five watersheds there is a permanent station:

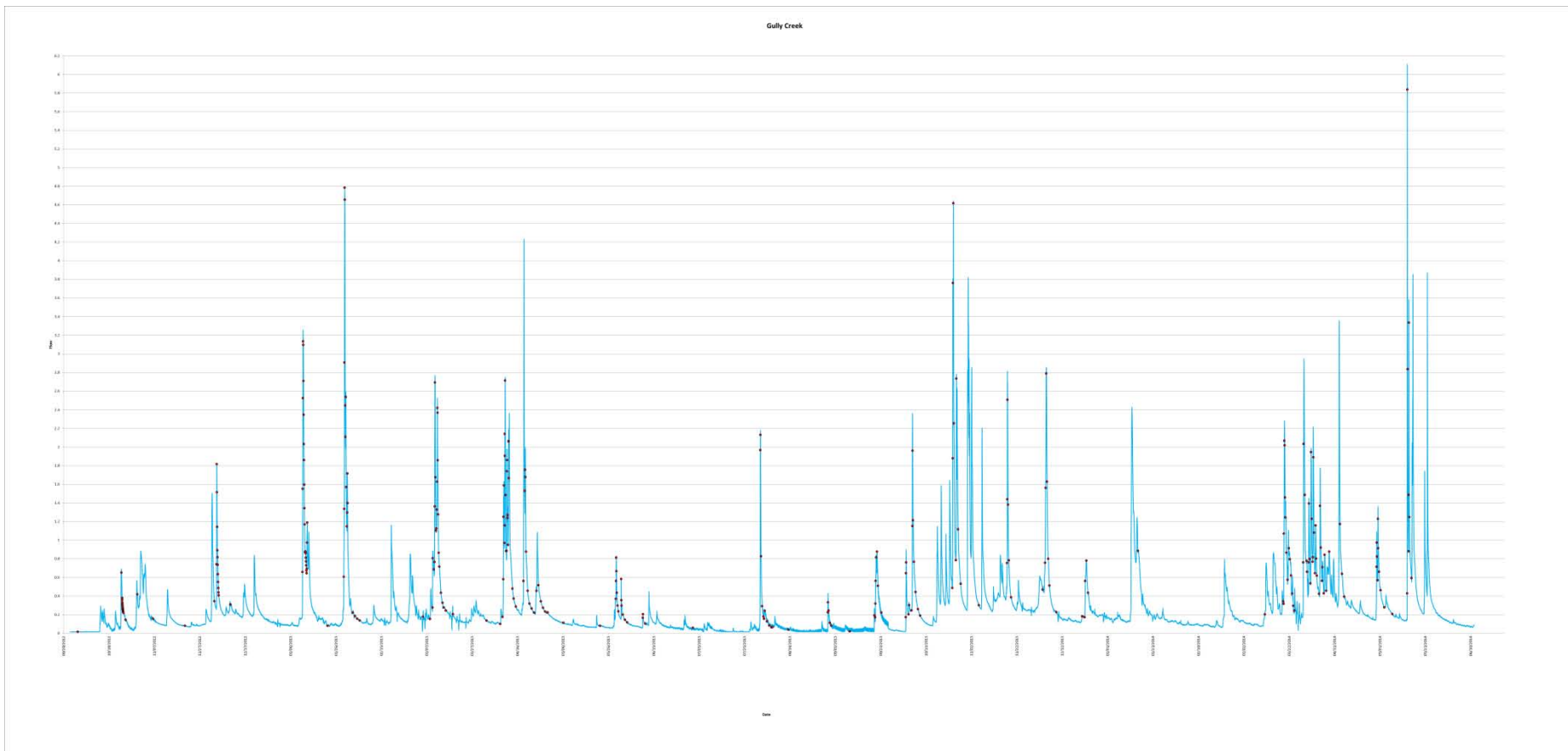
- continuous flow,
- Routine and event grab and automatic water samples analysed for nutrients (TP, NO₂/NO₃, SRP) and TSS



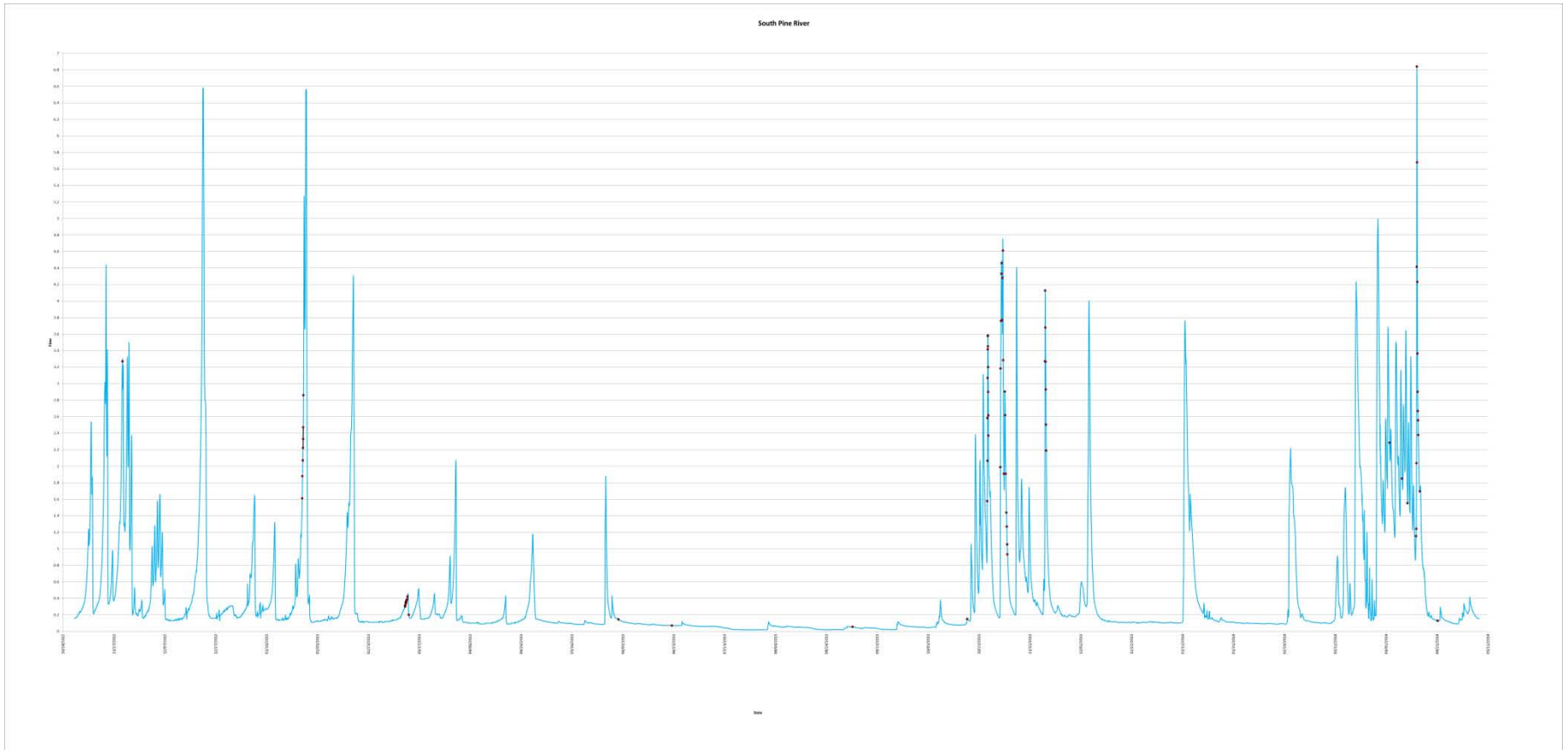
Storm Events in Healthy Lake Huron Priority Watersheds (October 2012 to May 2014)

Creek	Events sampled
Pine Tributary	7
Garvey Glenn	13
Gully (North of Bayfield)	22
Tricks (Bayfield)	18
Shashawandah (Lambton Shores)	12

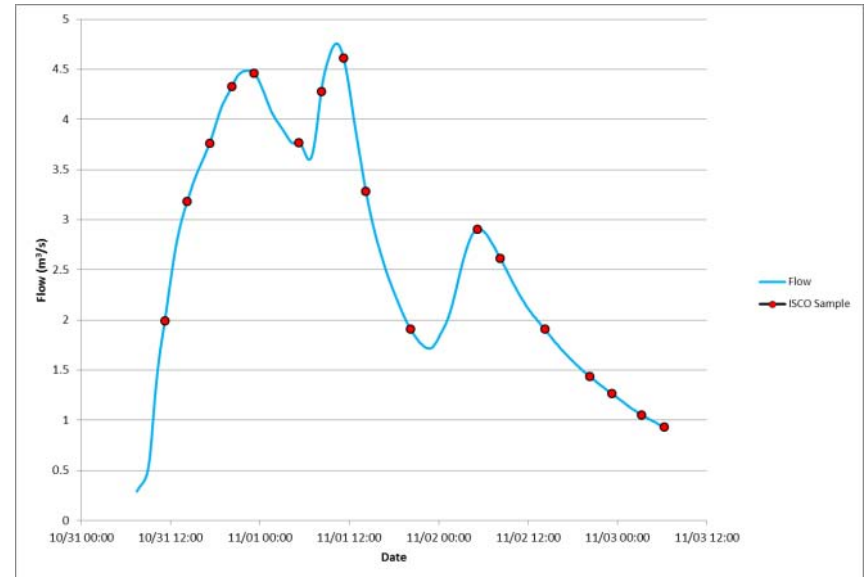
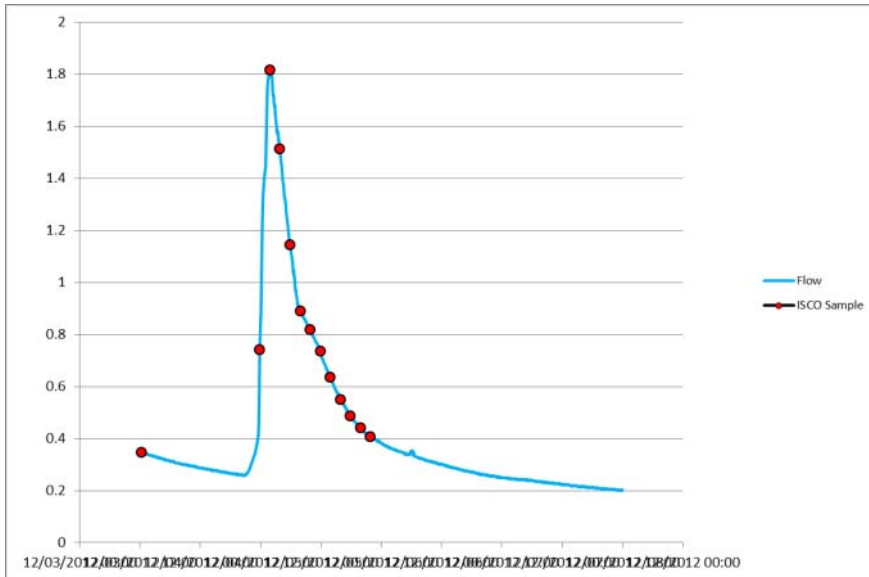
Gully Creek samples and flow



South Pine River – samples and flow



Data Analysis



- Different hydrographs are not uncommon; we attempt to submit samples from the beginning, middle of rising limb, peak, mid falling limb and end of the event
- Currently, we are calculating a flow weighted mean concentration and a load for each event (an averaging approach)
- We also collect monthly samples for base-flow concentrations (these may be used as “tie-down” values in our event calculations).

Considerations



To best address our watershed management objectives (Are our stewardship actions improving stream water quality and ultimately Lake Huron?) should we:

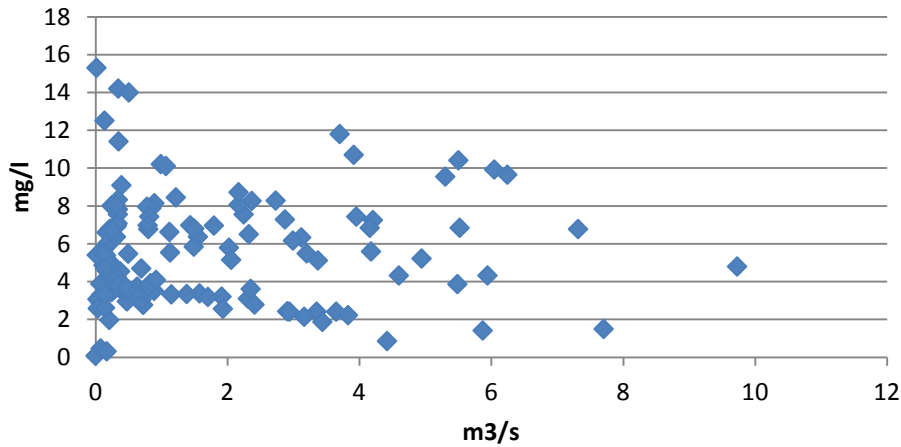
- Calculate annual loads for each tributary? If so, which method might be best suited?
- Continue to evaluate the individual events? Is there another method for calculating the individual events?
- Or would the Panel recommend another approach?

Acknowledgements

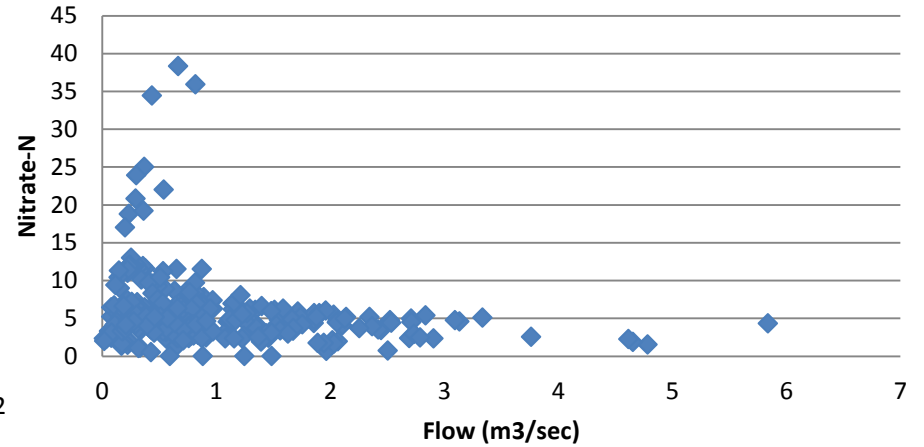
- Funders: Ministry of the Environment and Climate Change and Ministry of Agriculture, Food and Rural Affairs
- Tom Skinner and Abbie Gutteridge - Field Technicians Ausable Bayfield Conservation

NO₂+NO₃ (mg/L) as N

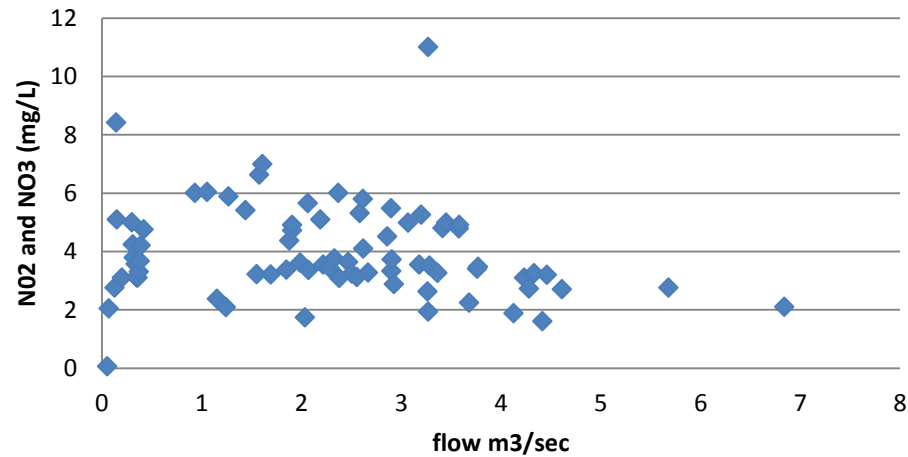
Garvey Glenn



Gully Creek

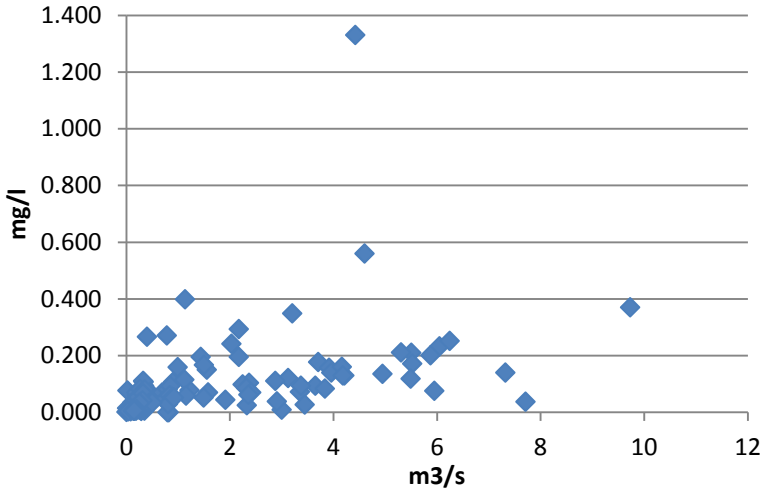


South Pine

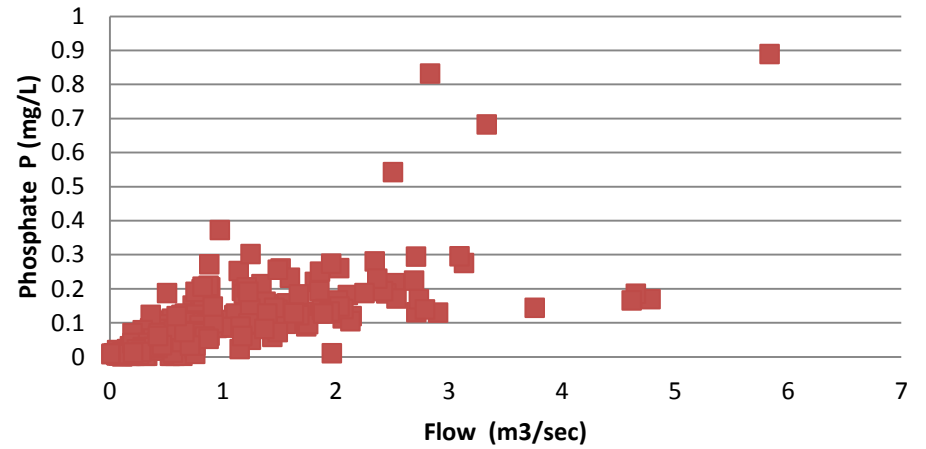


Phosphate P

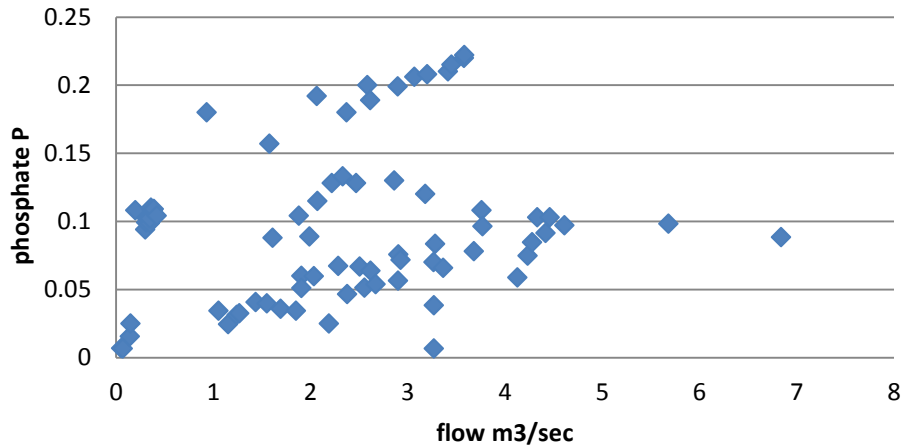
Garvey Glenn



Gully Creek

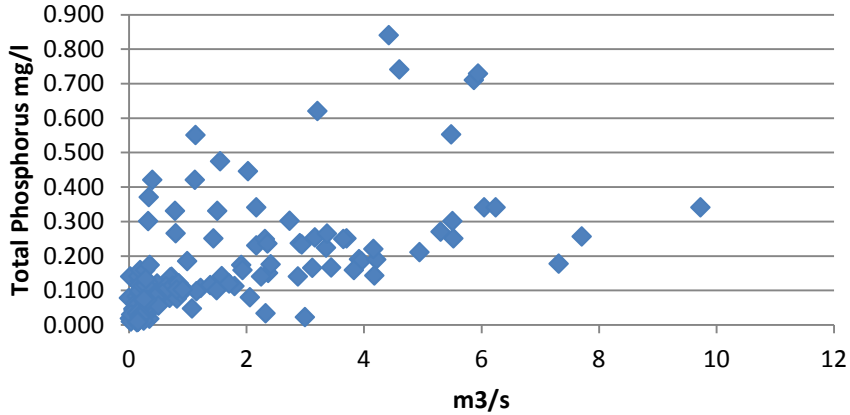


South Pine

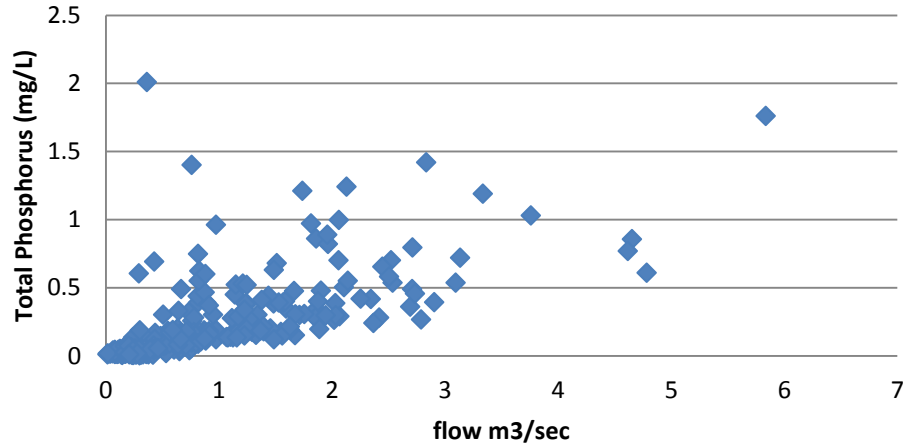


Total Phosphorus

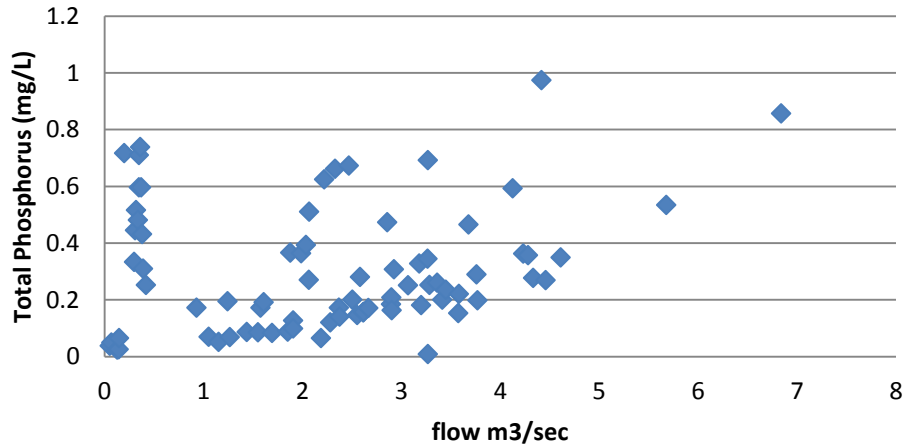
Garvey Glenn



Gully Creek

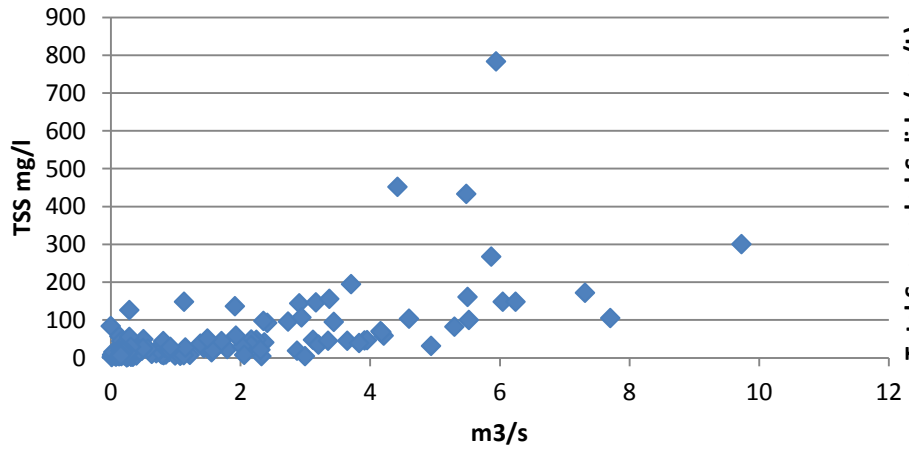


South Pine

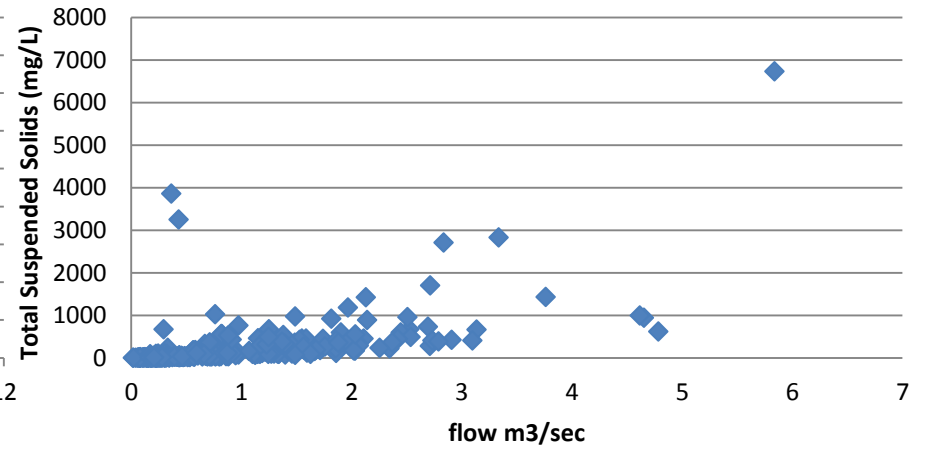


Total Suspended Solids

Garvey Glenn



Gully Creek



South Pine

