

# The Question

- We want to know how SAV influences sediment-water nutrient cycling. How much nutrient is removed from water column by SAV?
- We quantify these fluxes within the model code.
- We need to export the desired information from the code and put it into useful form.

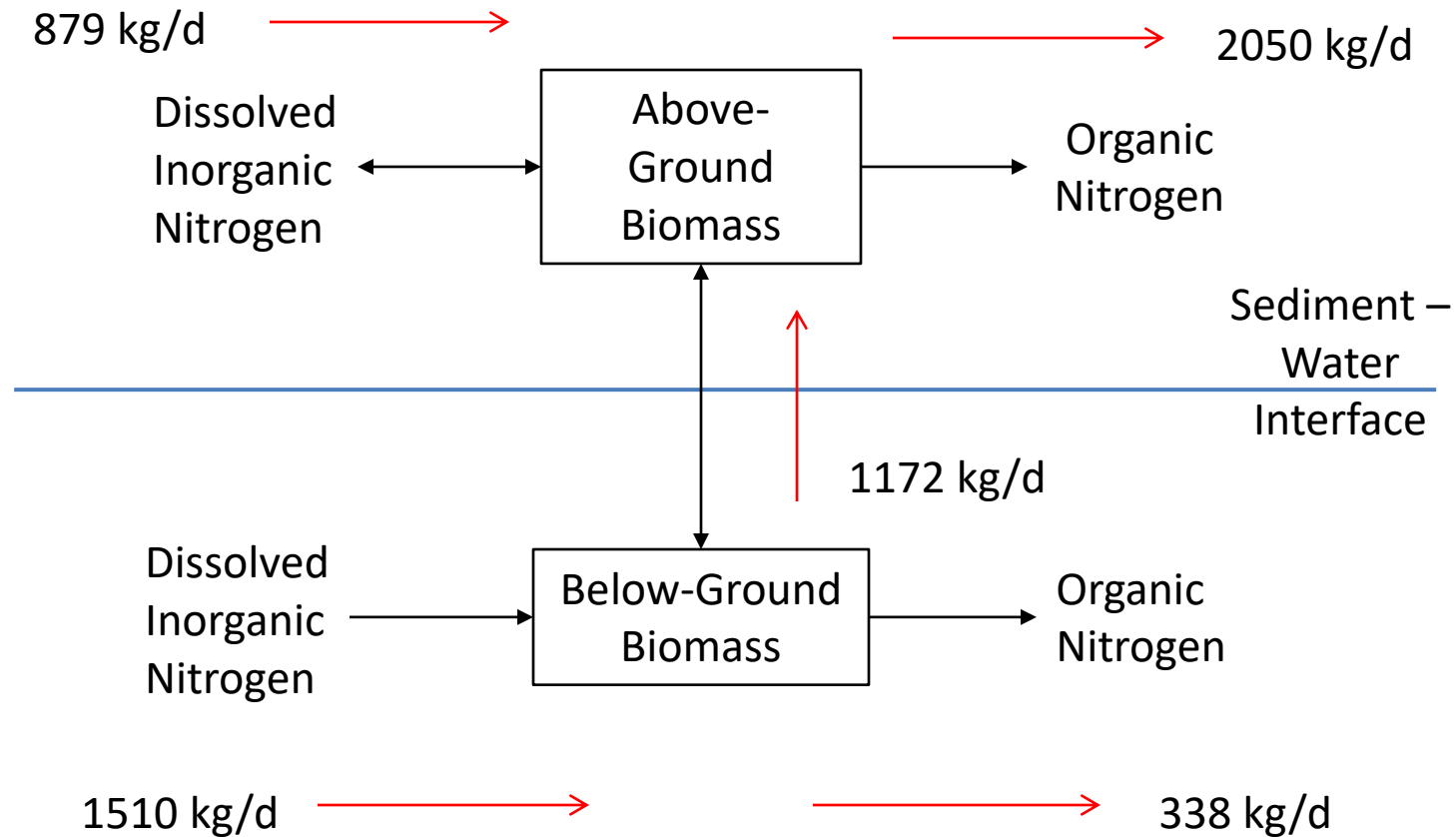
# Long-Term Goals

- Perform detailed mass-balance analysis of sediment-water fluxes etc.
- Compare SAV nutrient fluxes to local and system-wide external loads. Calibration and WIP3
- Run calibration with and without SAV. Examine water quality as indicated by stoplight plots etc.
- Run WIP3 with and without SAV. Examine water quality as indicated by stoplight plots etc.

# Status

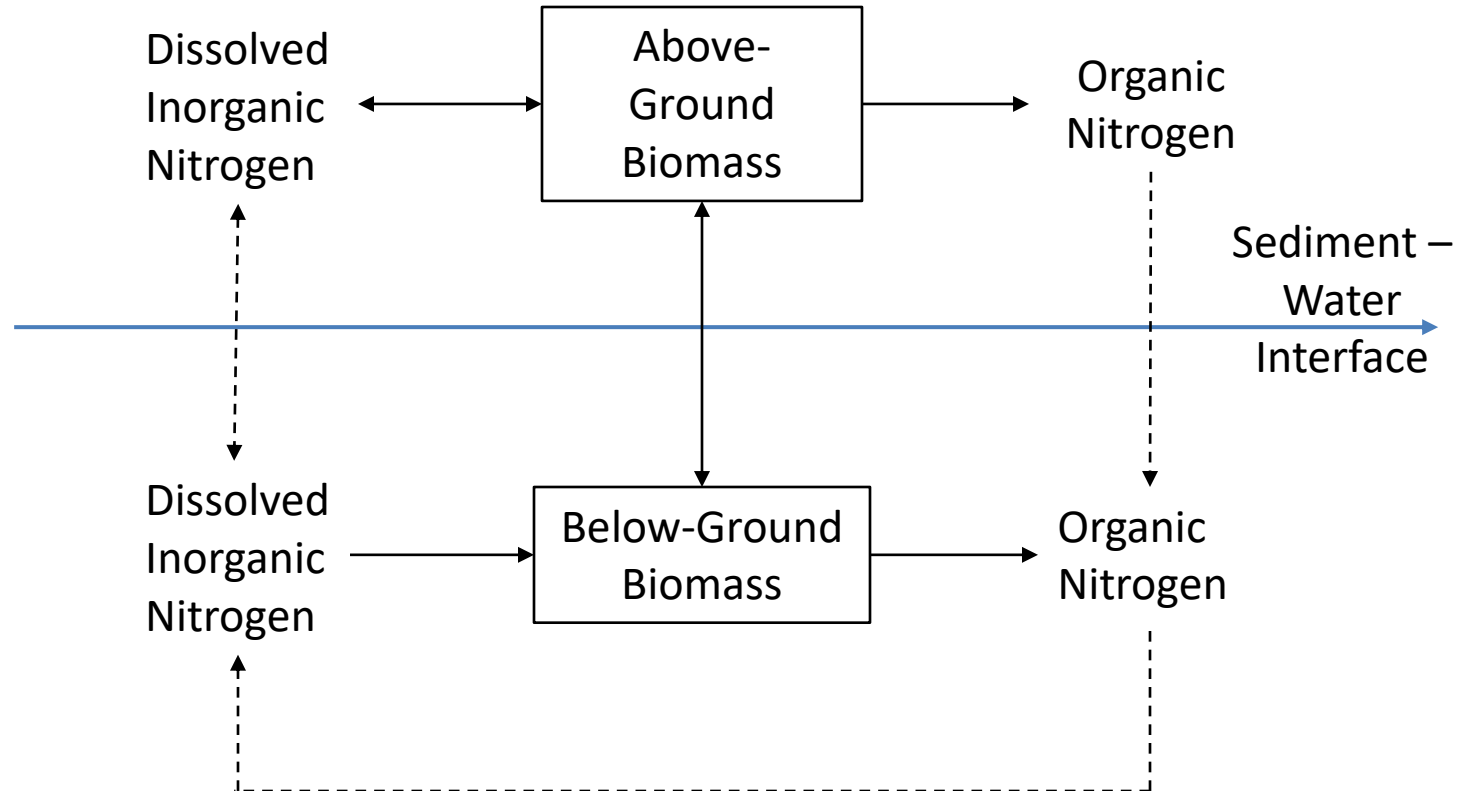
- We have the code to save and output SAV fluxes installed and QC'd at the Bay Program.
- We have quality checked and debugged the processors and software.
- We have made calibration runs with and without SAV to examine SAV effects on sediment-water N and P fluxes.

# The Nitrogen Cycle



We quantify and can report out the indicated fluxes (CB1TF, vallisneria).

# Complications



We quantify and can report out the additional fluxes but it is difficult to isolate the influence of SAV.

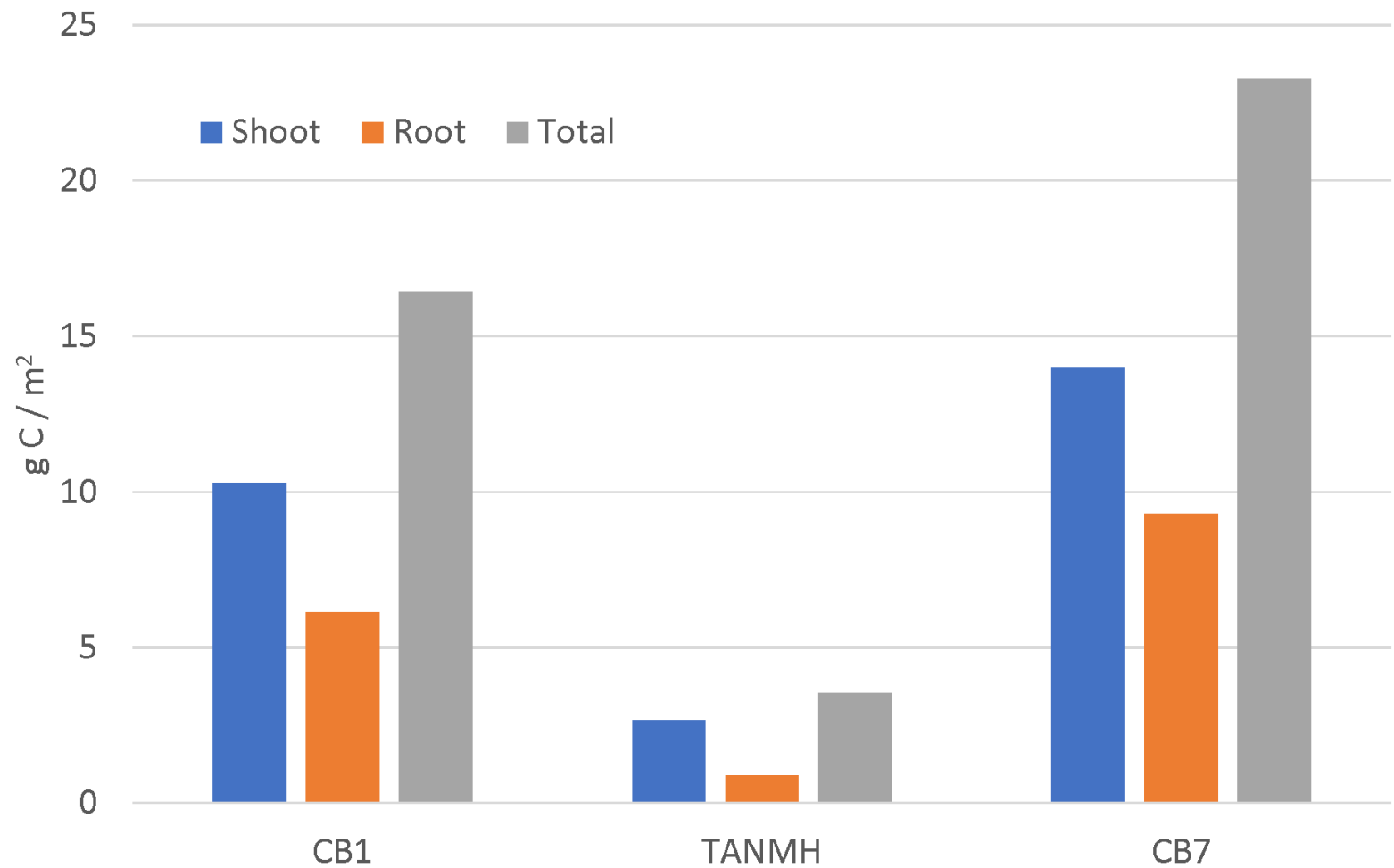
# Nitrogen Key

- All fluxes are positive from sediment to water. Negative from water to sediment.
- BENNH<sub>4</sub> – Sediment-water NH<sub>4</sub> flux
- BENNO<sub>3</sub> – Sediment-water NO<sub>3</sub> flux
- DENIT – Denitrification
- PNFWS – Particulate nitrogen flux from water to sediment
- SAV – Sediment-water nitrogen flux (DIN + Organic) through SAV
- Net – Net nitrogen flux from water to sediment (BENNH<sub>4</sub> + BENNO<sub>3</sub> + PNFWS + SAV)

# Phosphorus Key

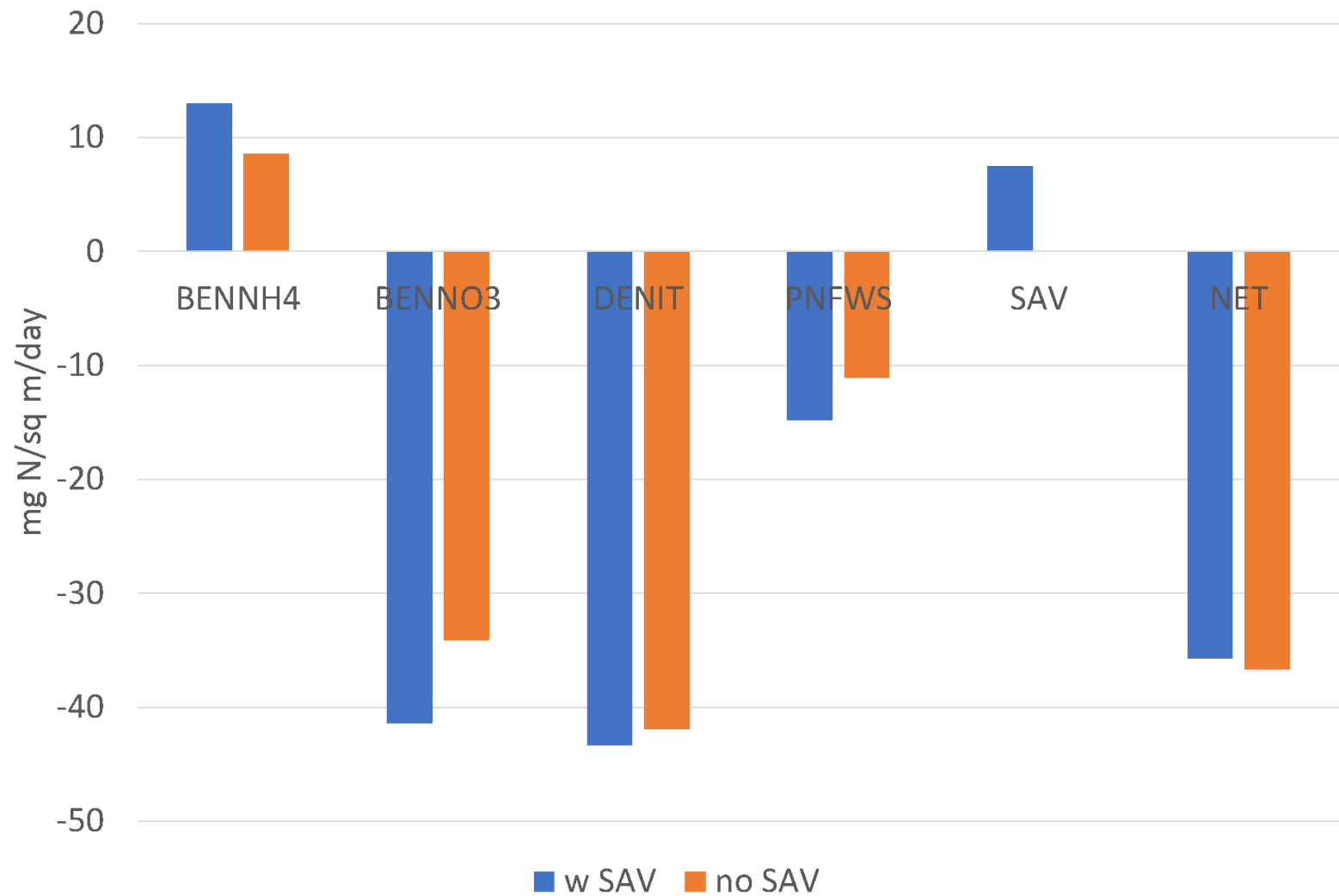
- All fluxes are positive from sediment to water. Negative from water to sediment.
- BENPO<sub>4</sub> – Sediment-water PO<sub>4</sub> flux
- PIPFWS – Particulate inorganic phosphorus flux from water to sediment
- PPFWS – Particulate organic phosphorus flux from water to sediment
- SAV – Sediment-water phosphorus flux (DIP + Organic) through SAV
- Net – Net phosphorus flux from water to sediment (BENPO<sub>4</sub> + PIPFWS + PPFWS + SAV)

SAV Standing Stock (for Selected Cells)





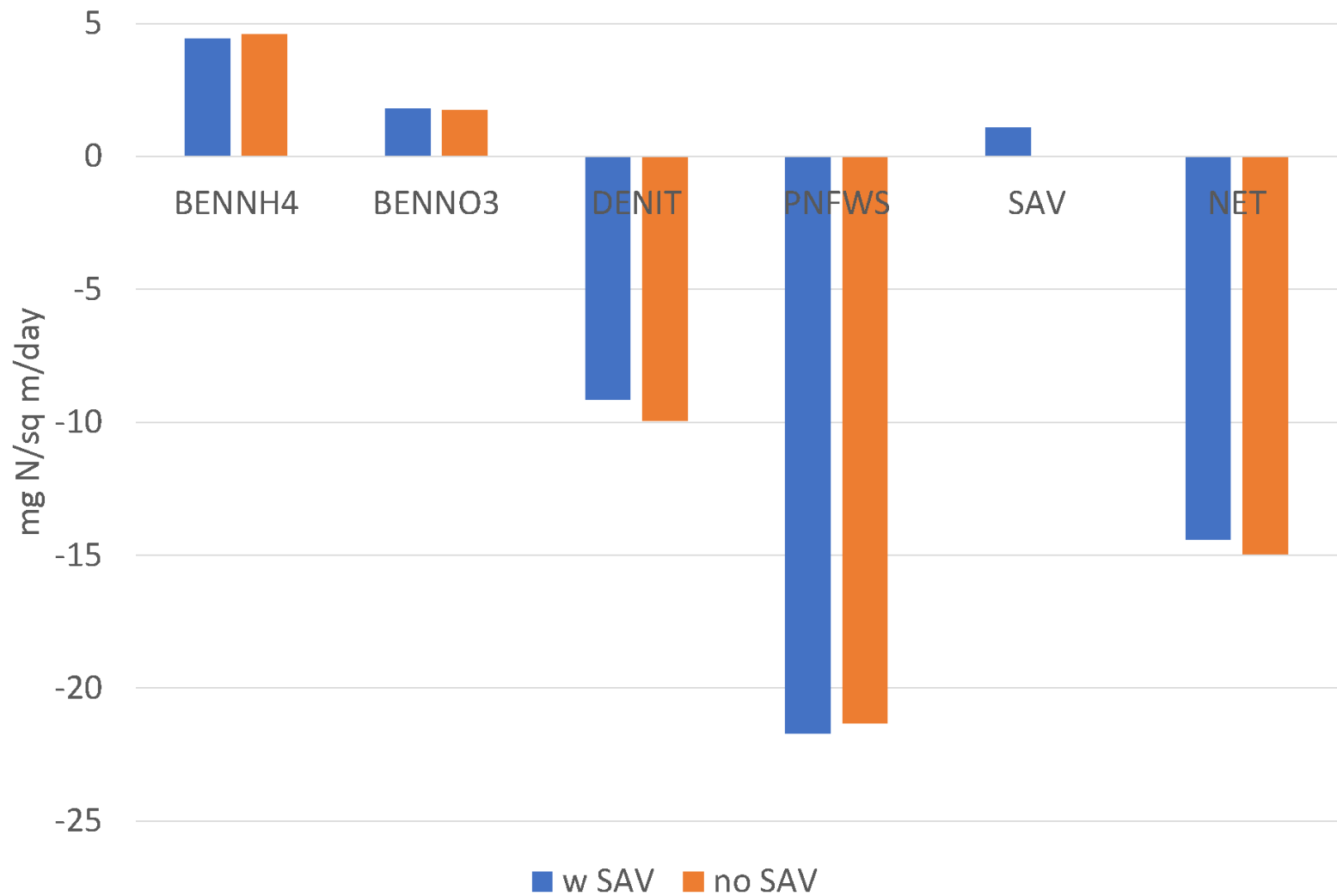
## Nitrogen CB1



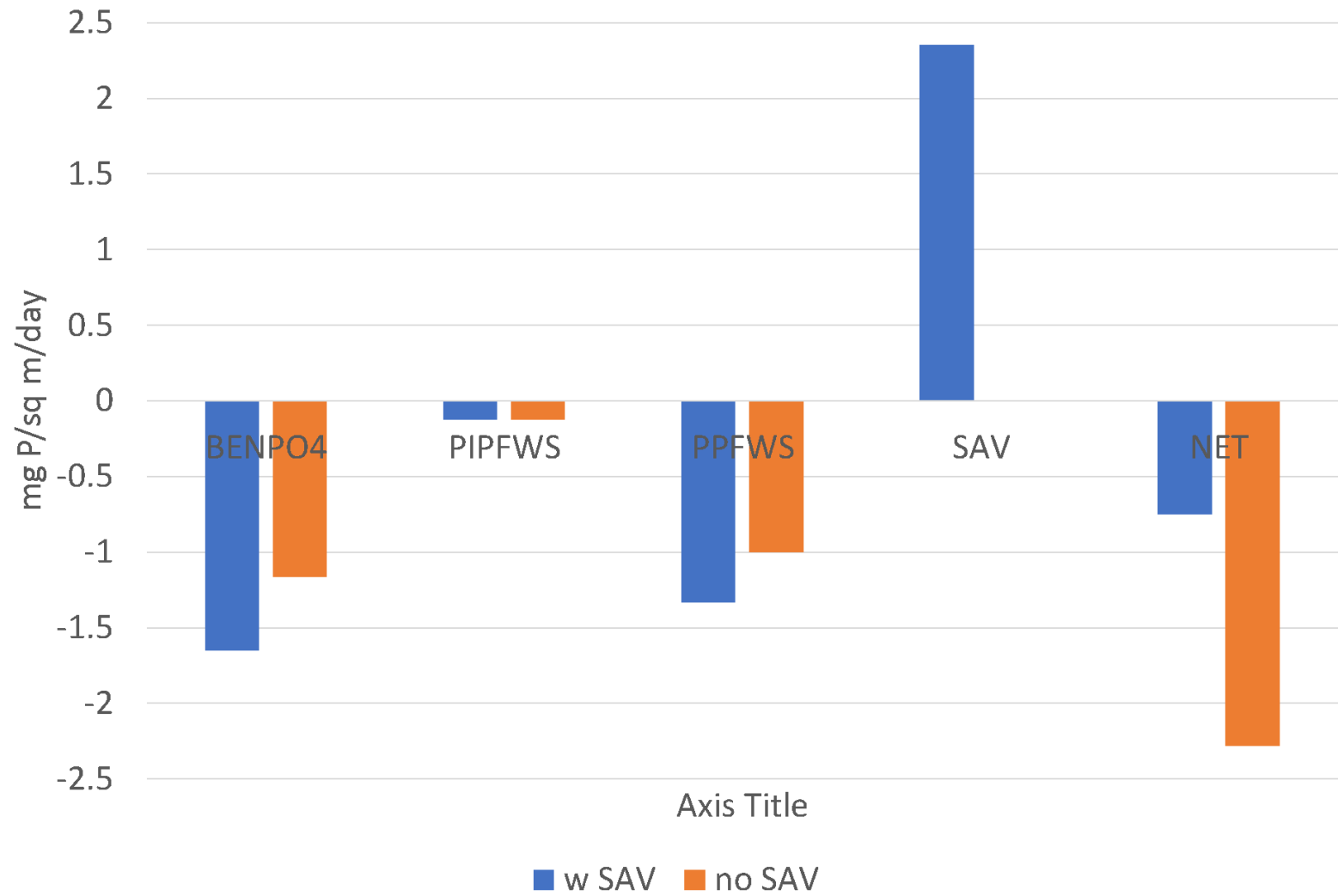
## Nitrogen TANMH



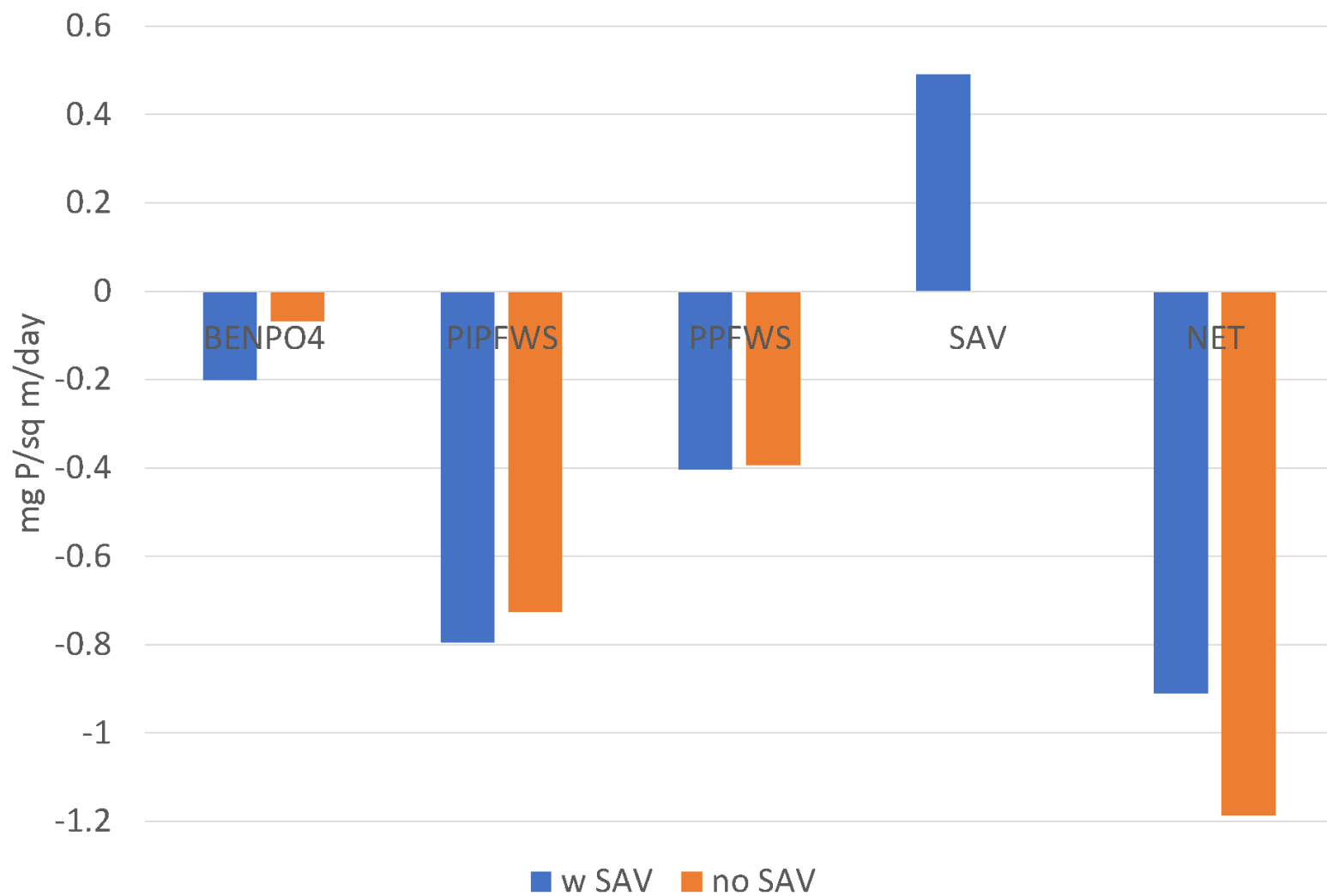
## Nitrogen CB7



## Phosphorus CB1



## Phosphorus TANMH



## Phosphorus CB7



# Conclusions

- We are looking at segments which are vegetated but not entirely vegetated.
- The magnitude of net effects of SAV is variable.
- Presence of SAV appears to diminish retention of nutrients in sediments.
- SAV has no determinist effect on denitrification.

# Next Steps?

- Try to isolate SAV impact by examining individual vegetated cells.
- Extend this analysis to other segments and Bay-wide.
- Examine magnitude of SAV effects compared to loads and/or other factors.
- Extend this analysis to the WIP3 run. What is effect of SAV on WIP3 conditions?
- Document results.
- And ??????