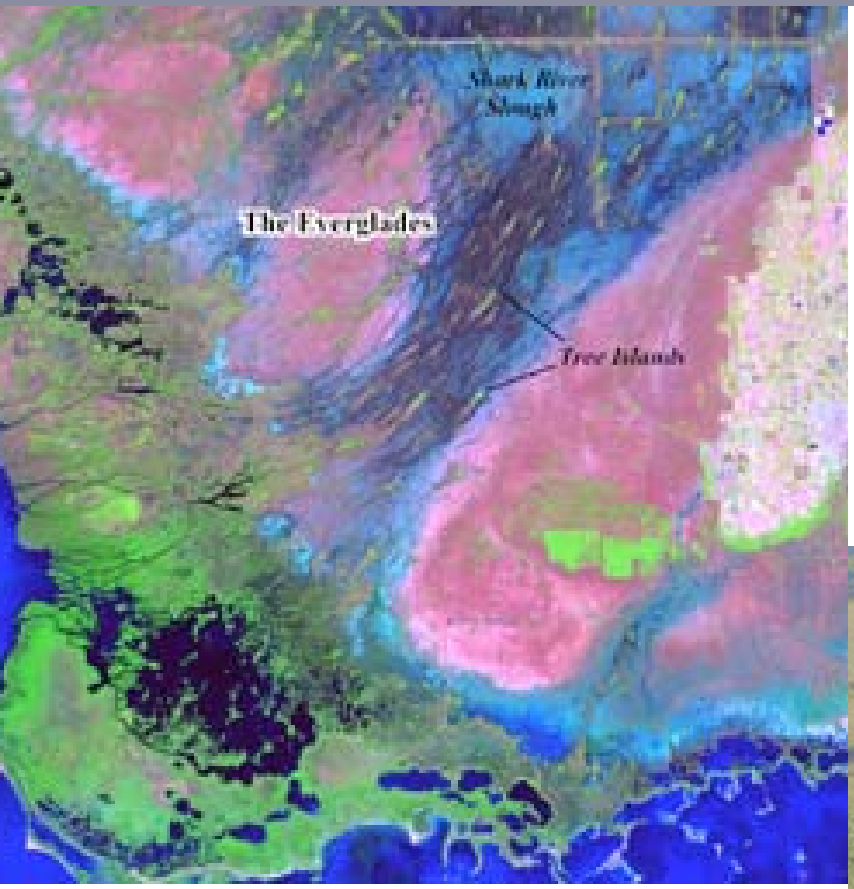
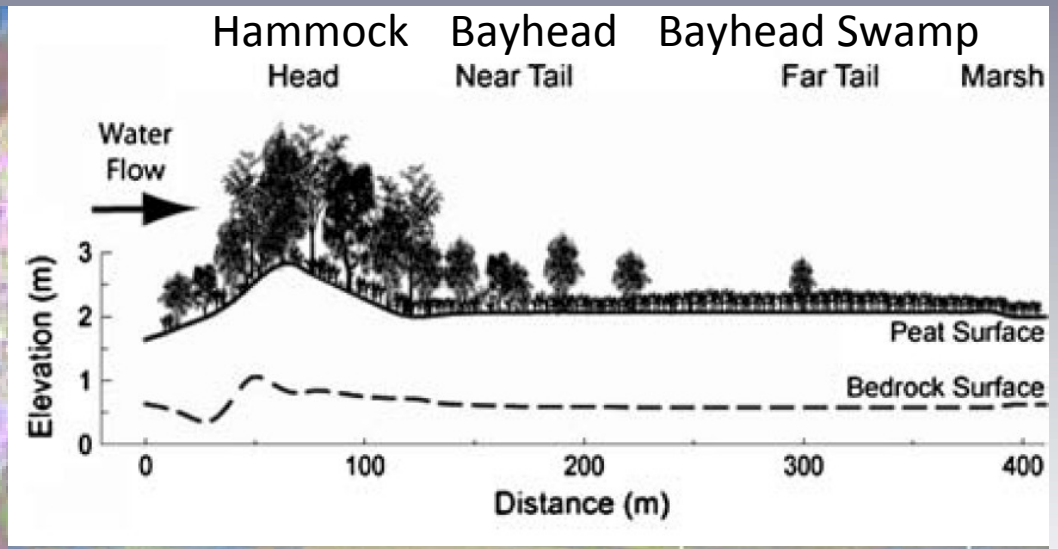
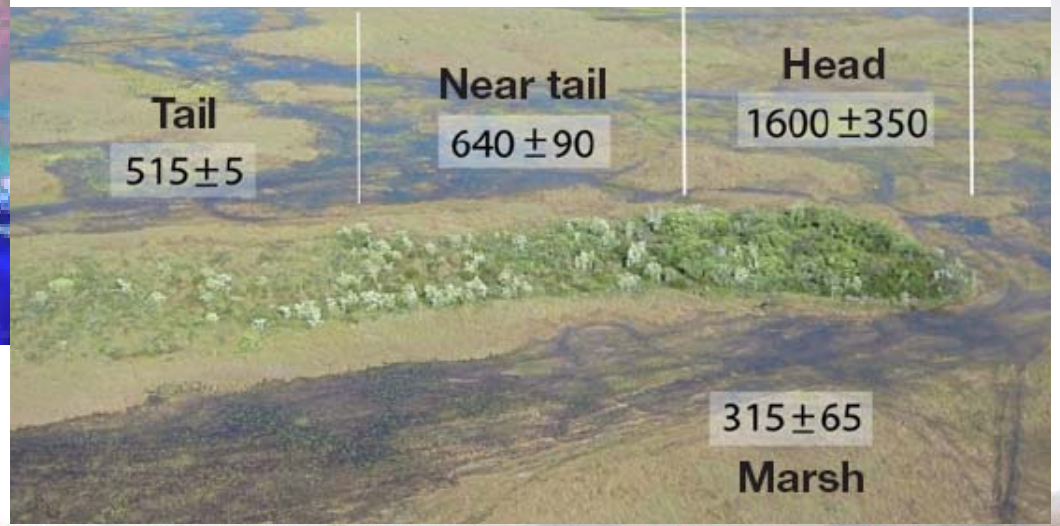
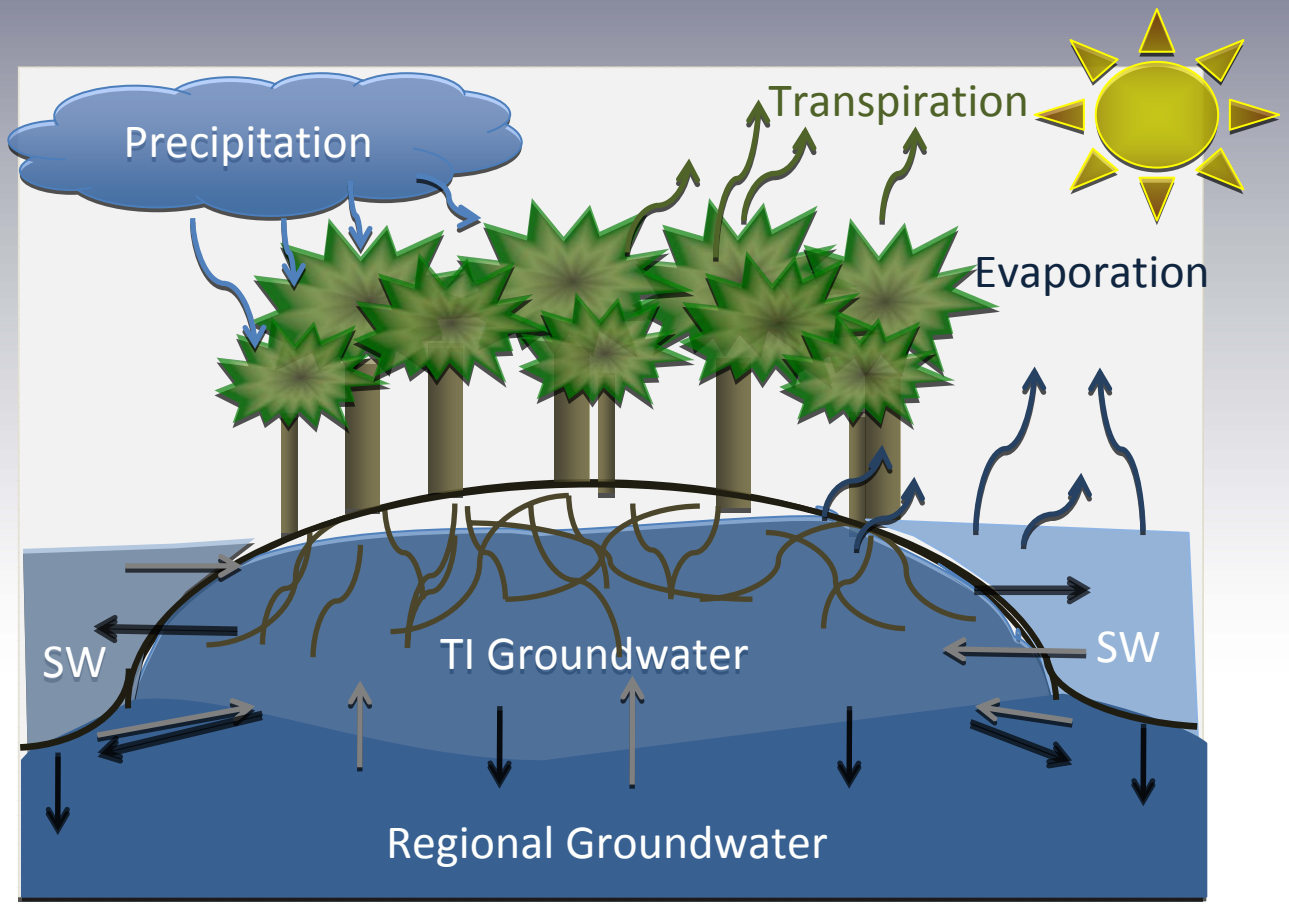
Groundwater-Surface Water interactions on Satinleaf Tree Island, Everglades National Park







1.Groundwater-Surface Water interactions



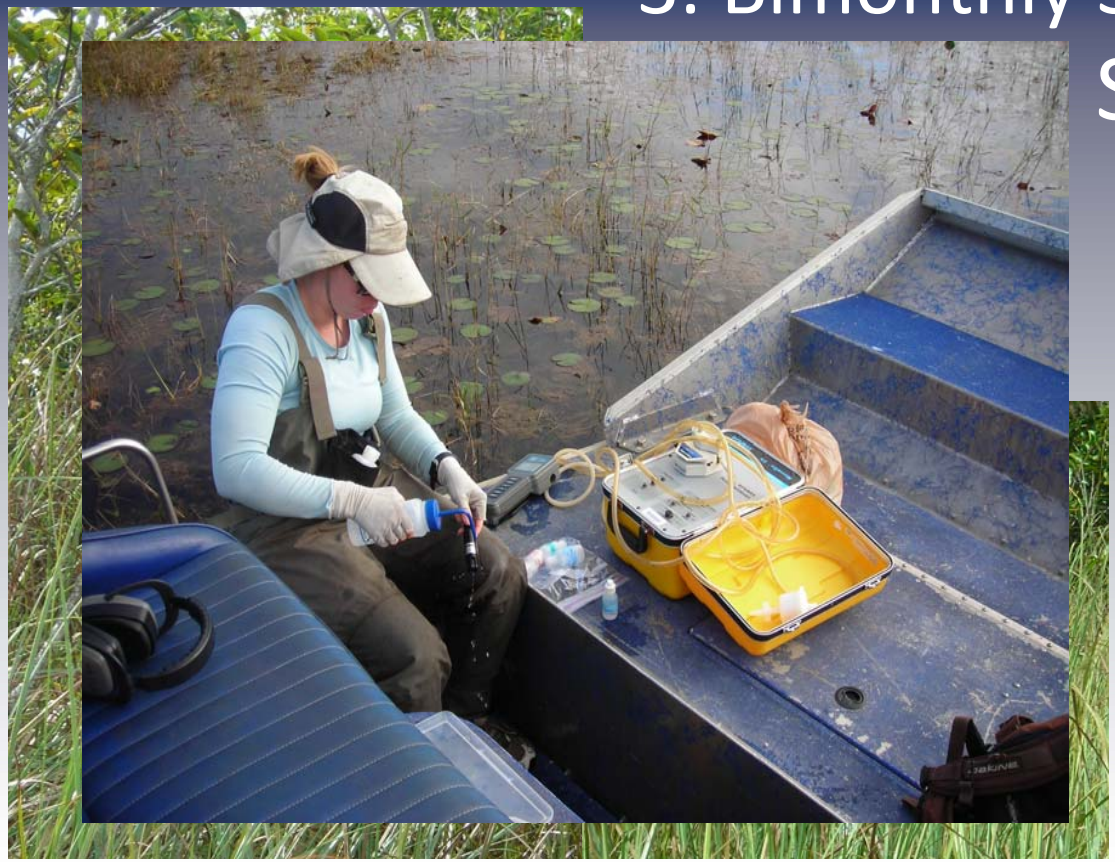
Objectives

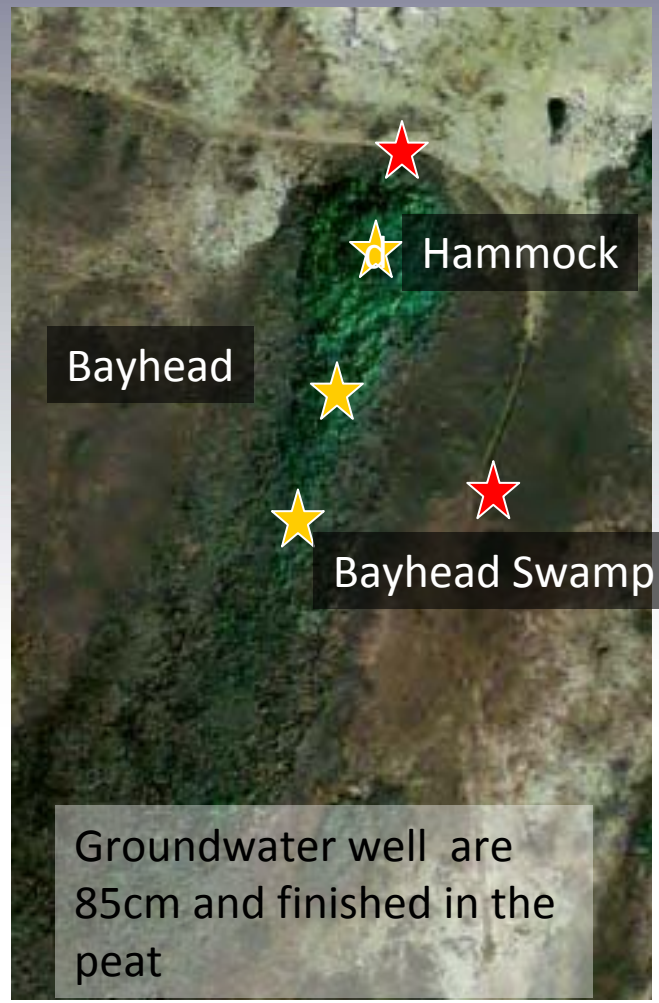
1. To determine if evapotranspiration and seasonal surface water levels govern the hydrodynamics of tree islands

2. To determine if nutrient availability in tree islands varies with seasonal hydro-dynamics and variable evapotranspiration rates as compared to the adjacent slough

3. Bimonthly Sampling Methods

Sampling Locations

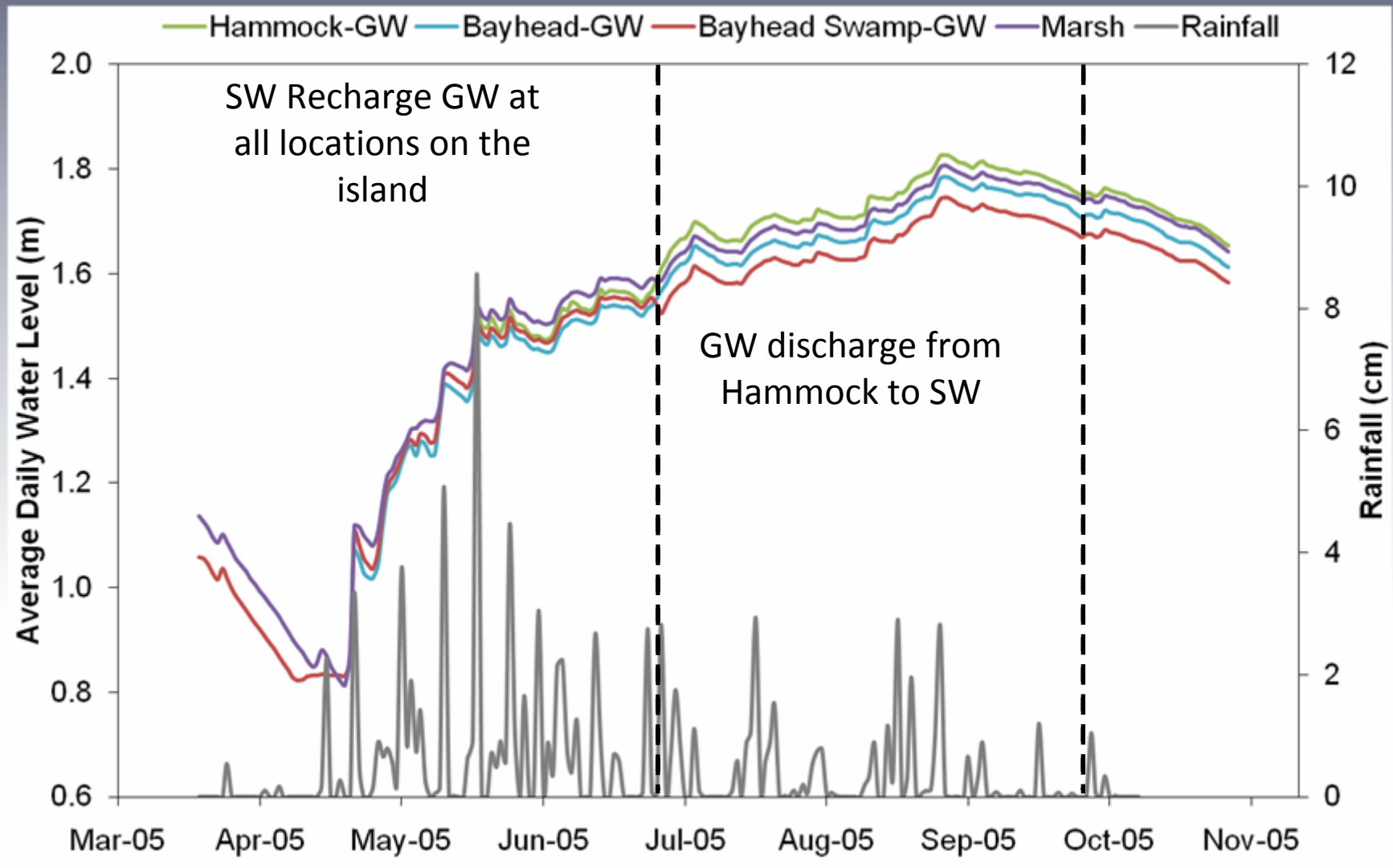




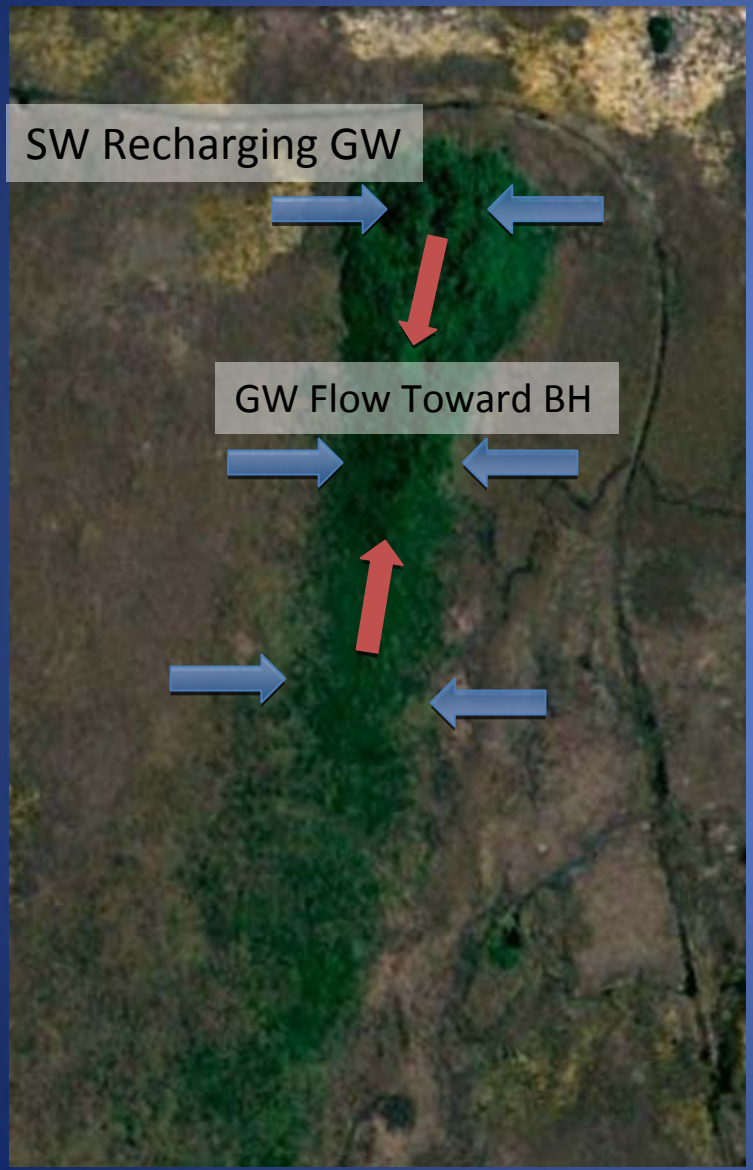
Groundwater and Surface Water were collected (October 2008-November 2009)

Samples were analyzed for major ions, nutrients and isotopes (δD and $\delta^{18}O$)

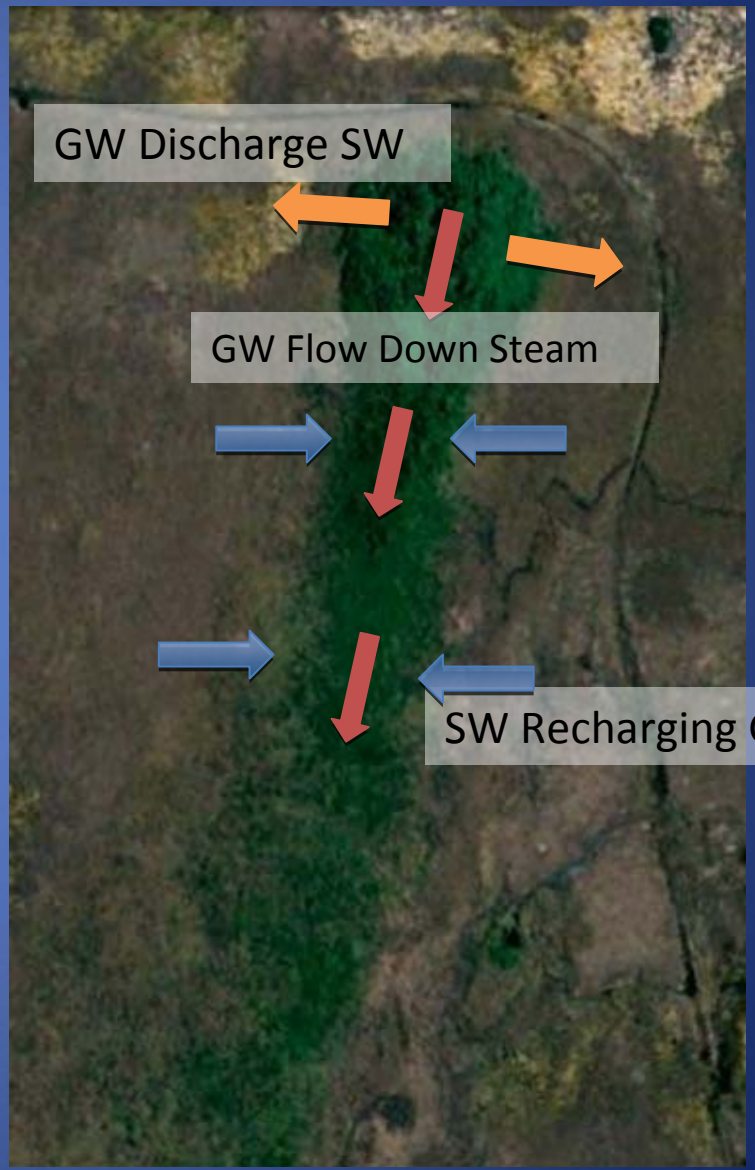
4.0 Groundwater & Surface Water Levels



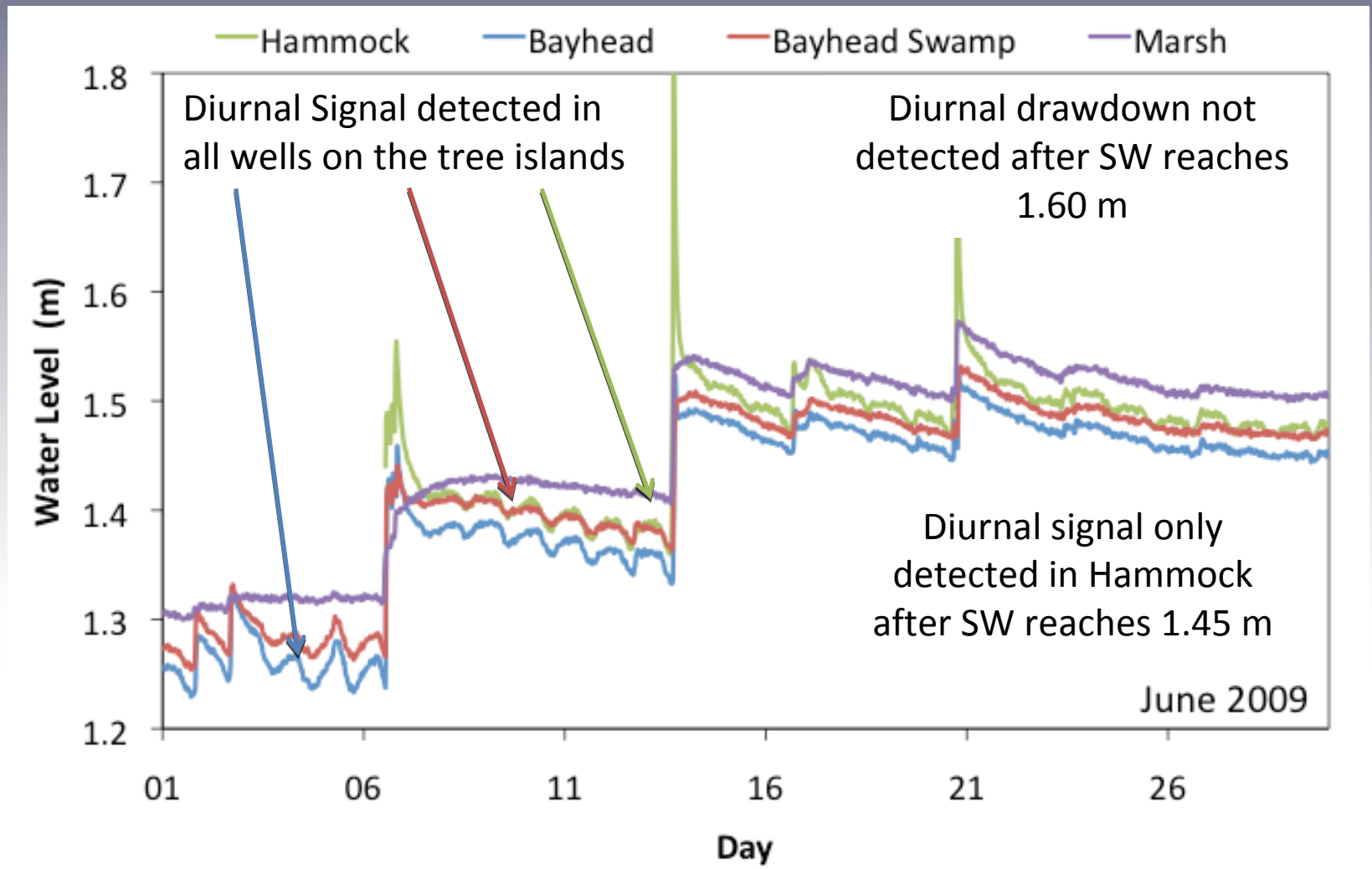
Dry Season
April- July



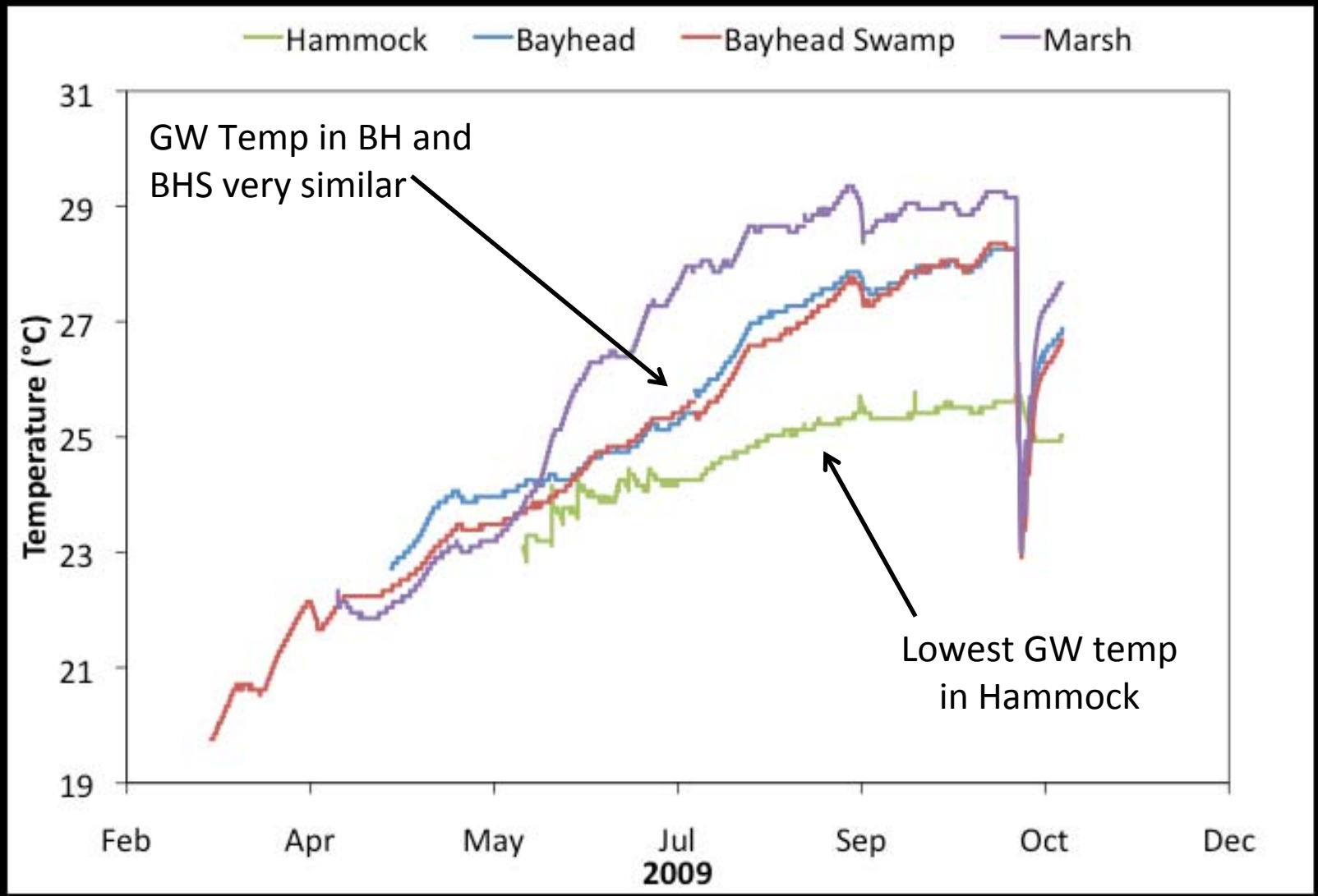
Wet Season
July-November



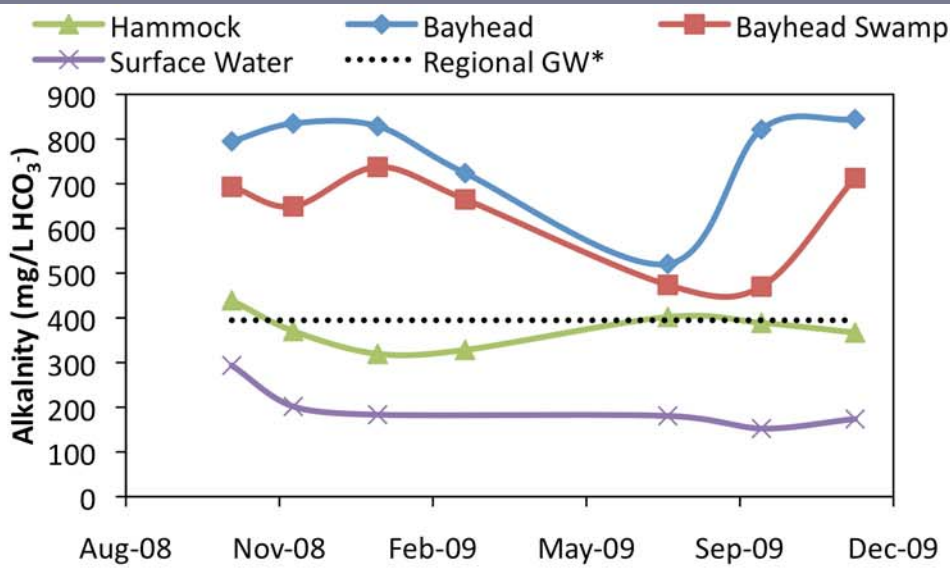
4.1 Diurnal Groundwater Signal

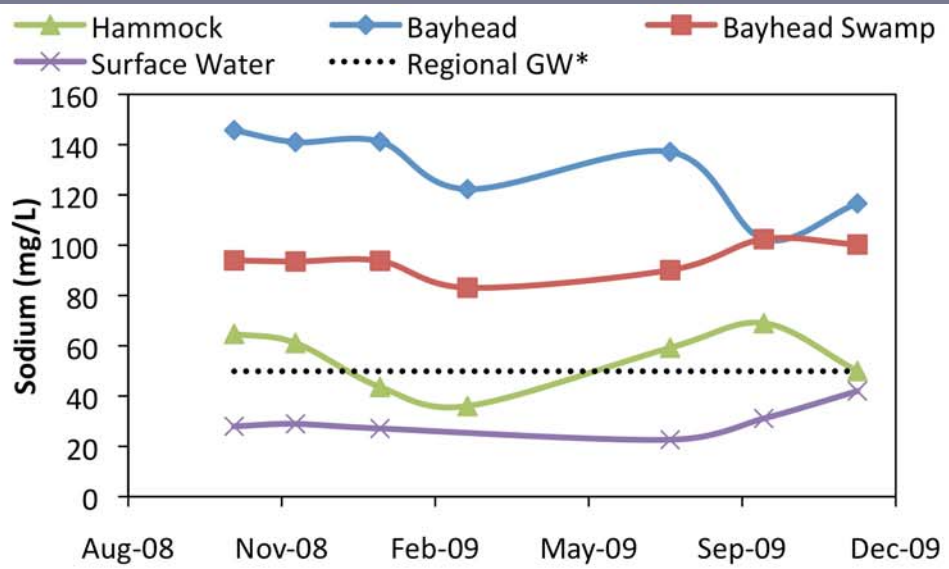


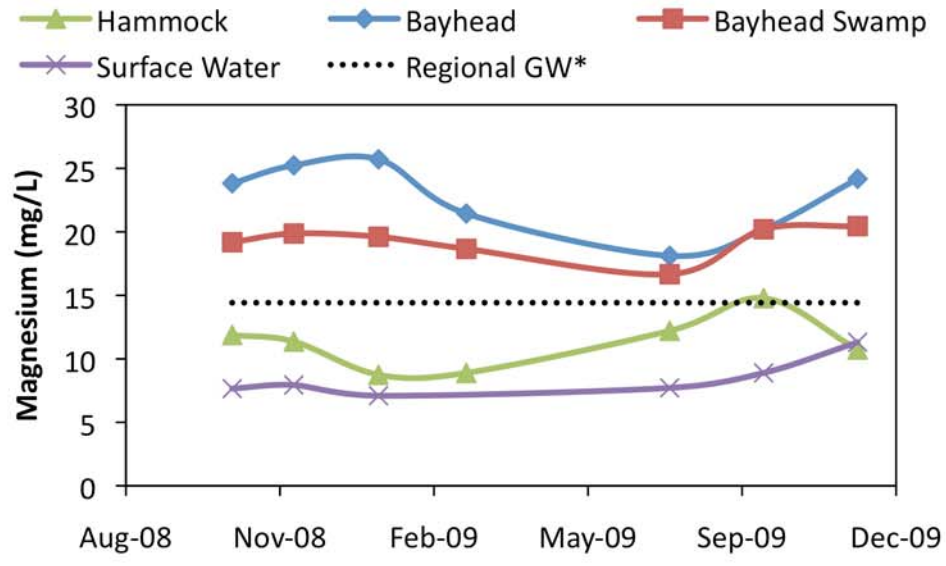
4.2 Groundwater-Surface Water Temperature

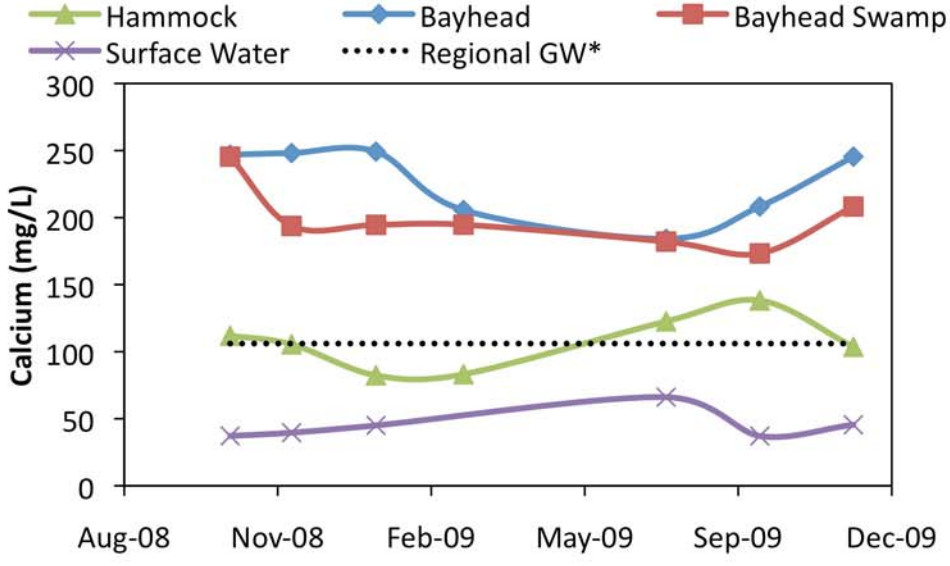


4.3 Groundwater-Surface Chemistry

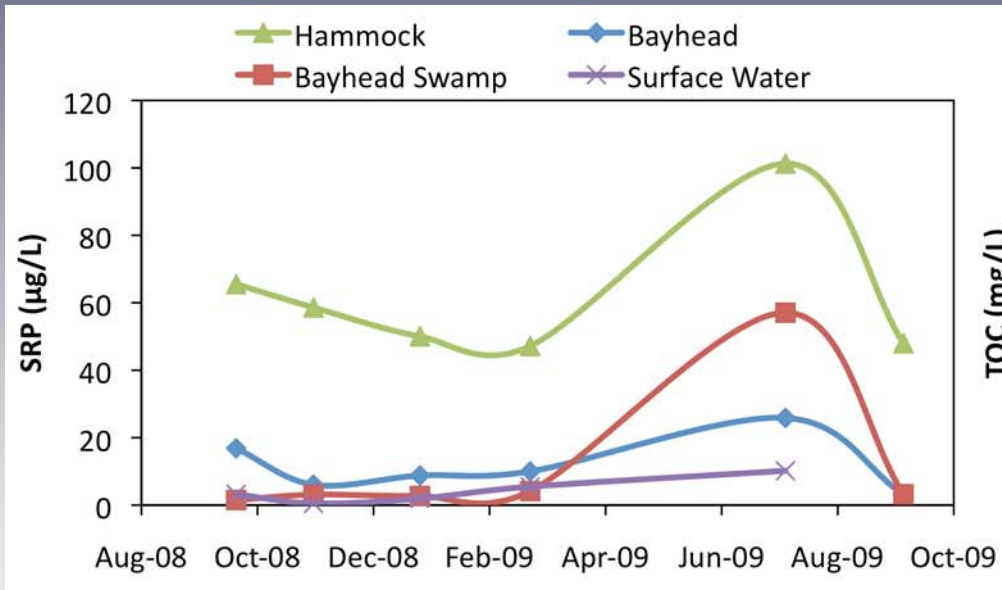


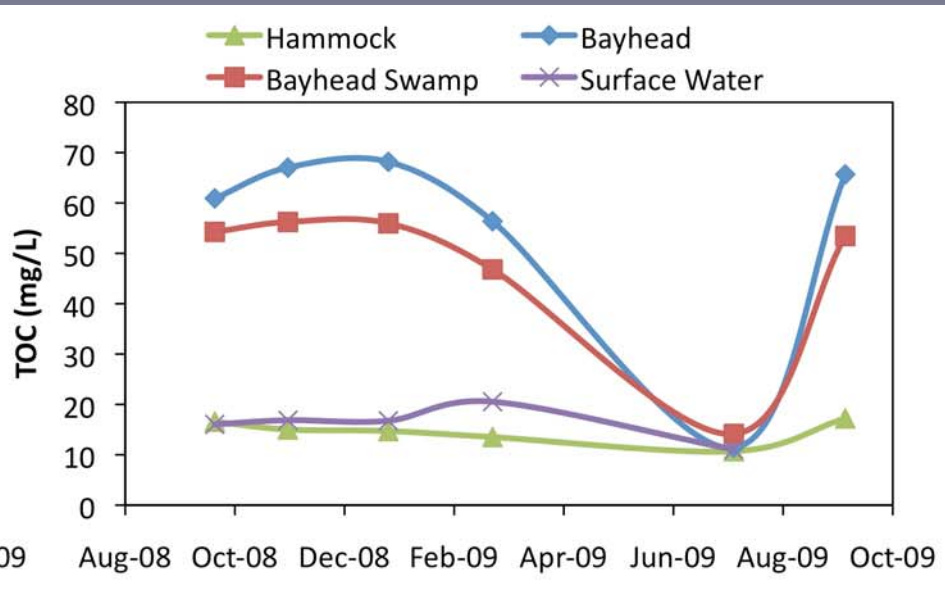


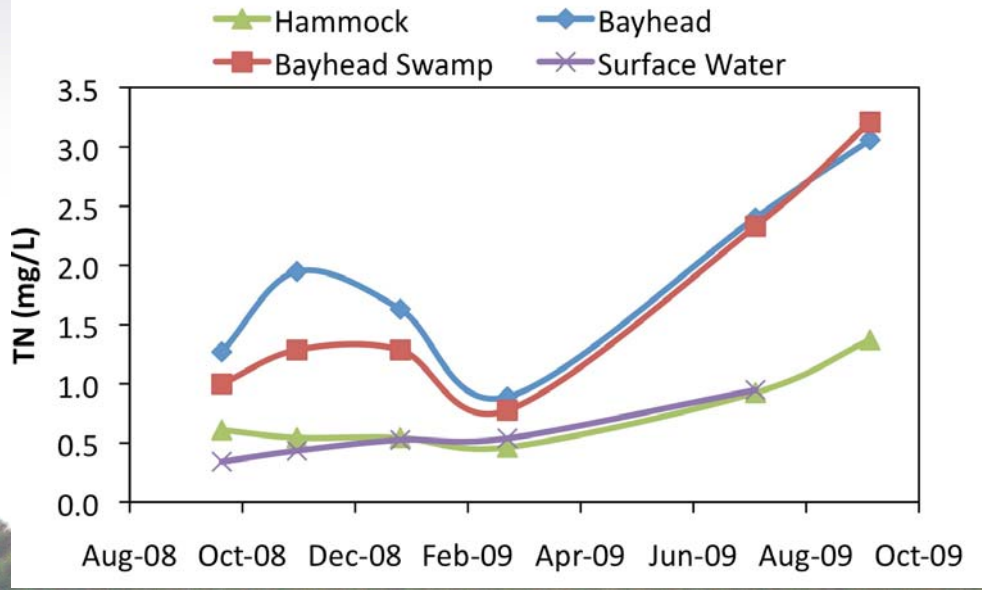




4.3 Groundwater-Surface Chemistry



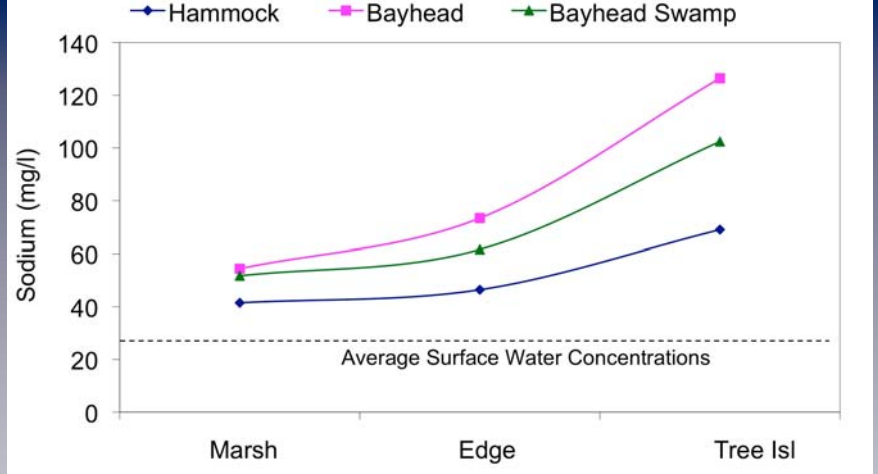


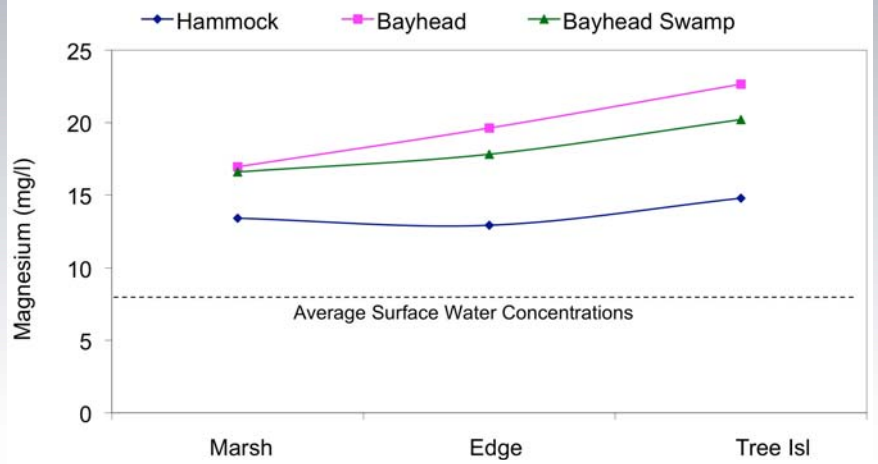


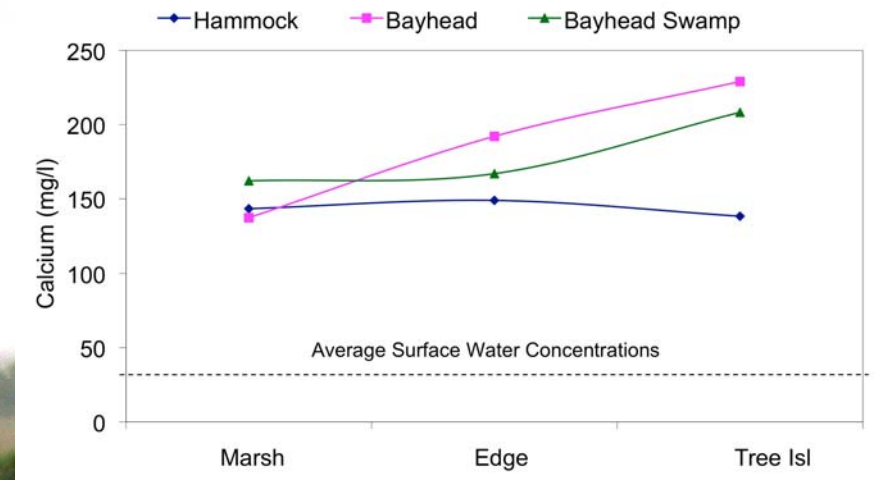
5. Sipper Method Sept 2009

10 sippers creates N-S and E-W Transects across the Island
Sippers were 85 cm in length

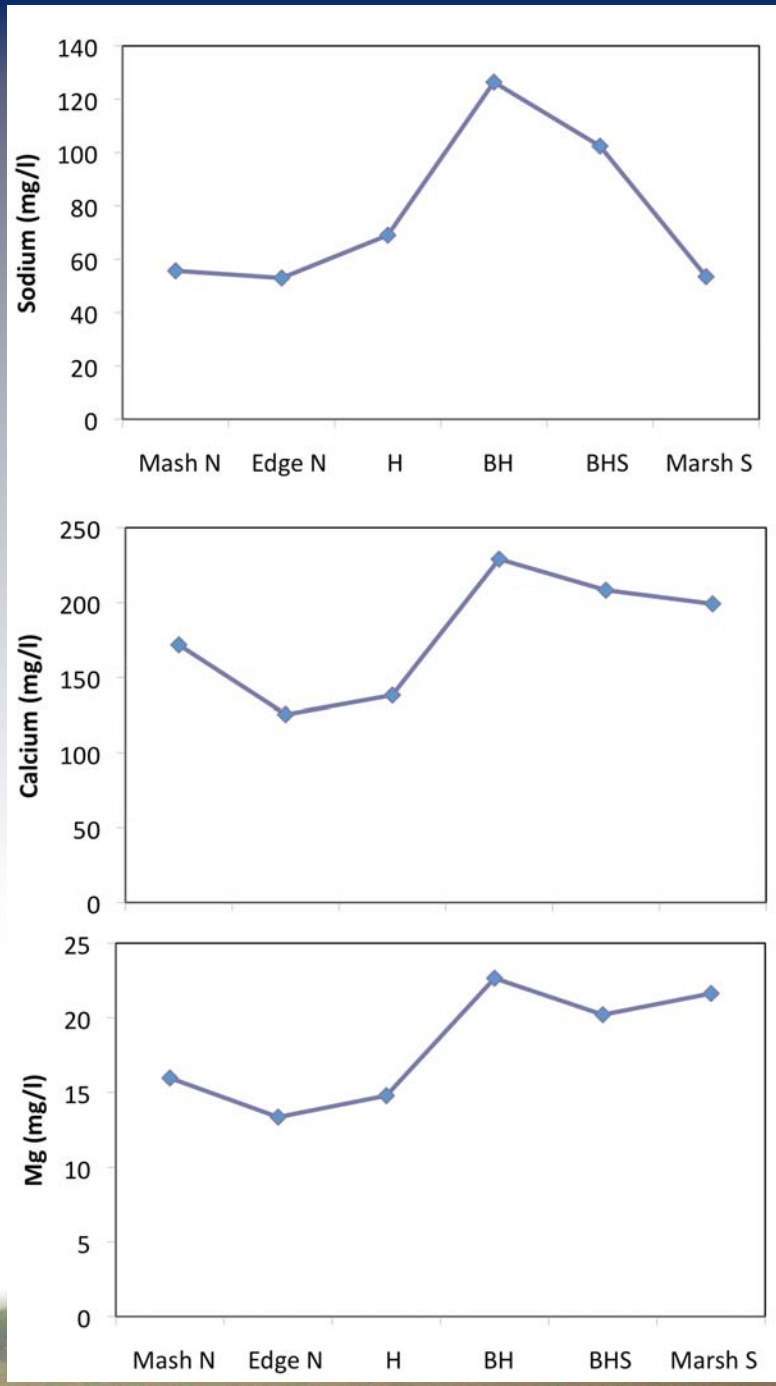
6. Sipper Results West to East







6. Sipper Results North to South

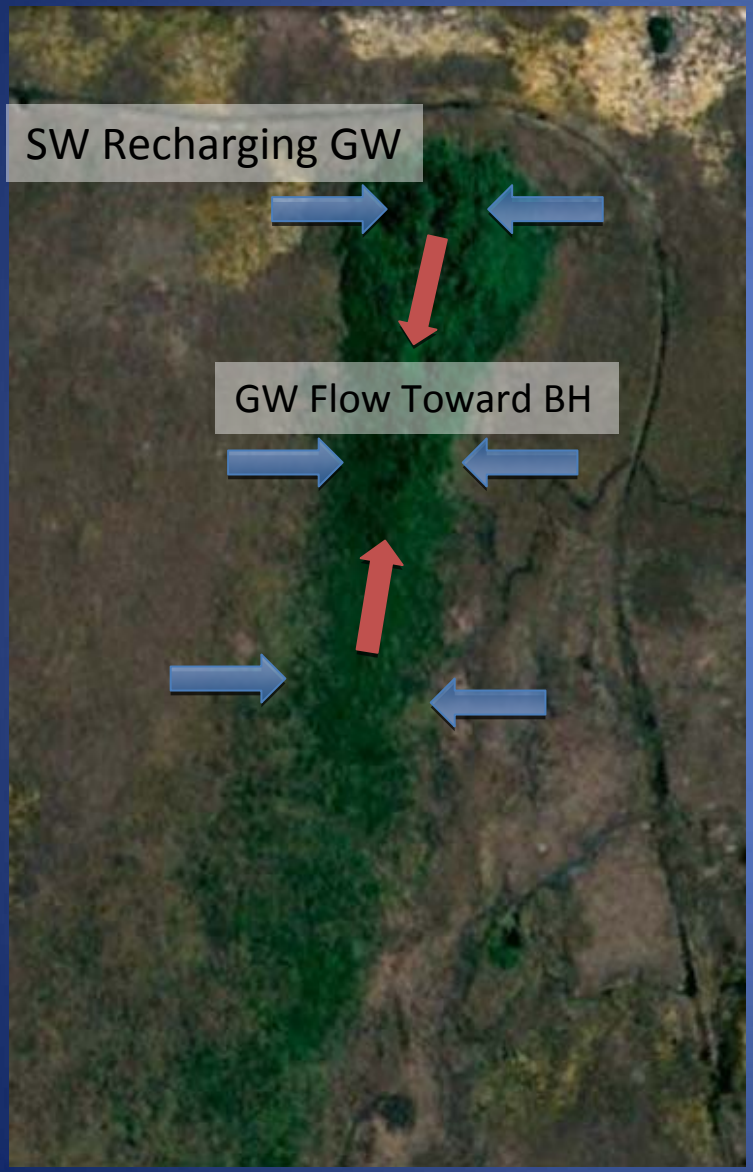


7.0 Conclusions

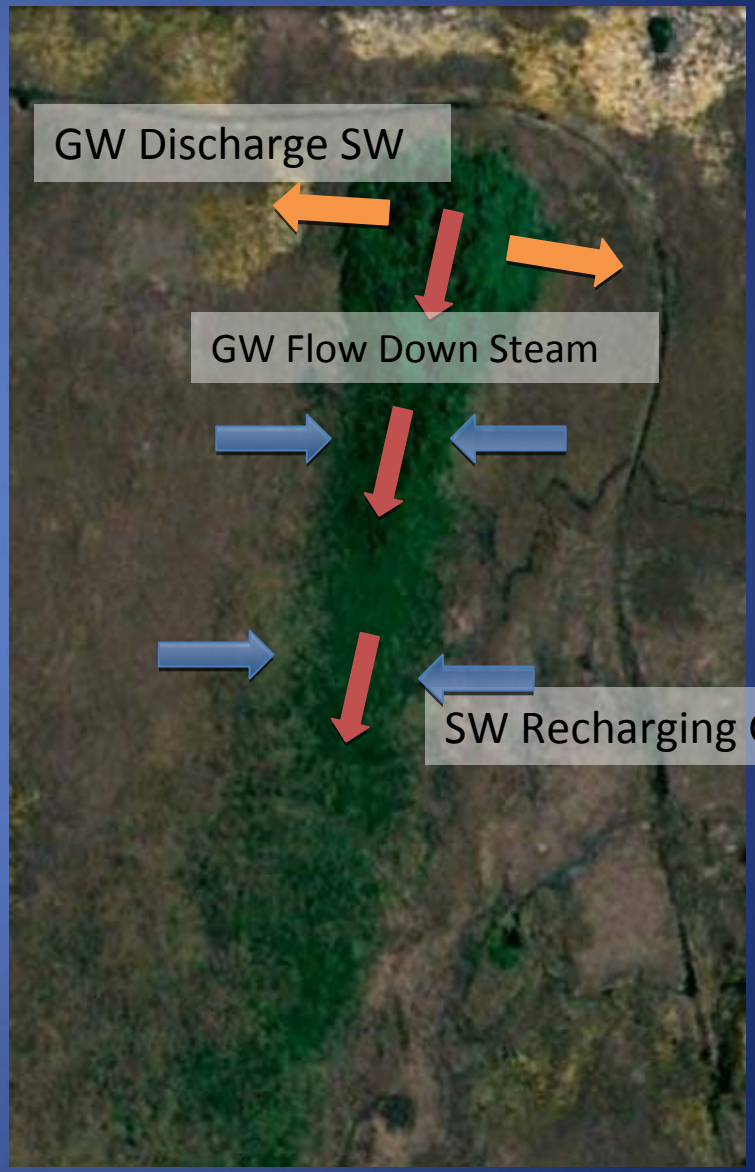
1. BH and BHS GW levels and Temp suggest that SW is recharging GW year round
2. GW level and Temp Suggest GW discharge occurred from hammock to SW from July through Nov

7.0 Conclusions

Dry Season
April- July



Wet Season
July-November



7.0 Conclusions

1. GW Chemistry Suggests similar GW-SW interactions occurring on BH and BHS, where by ions are being concentrated in the GW
2. Lower ionic strength of GW in the Hammock maybe attributed to inputs of rainfall, regional groundwater or surface water

Acknowledgments

I would like to thank the Everglades Foundation and the Christina Mendez foundation for the fellowships that were used fund this project

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THANK YOU