

Ecological Shifts on an Everglades Tree Island Over the last 100 Years

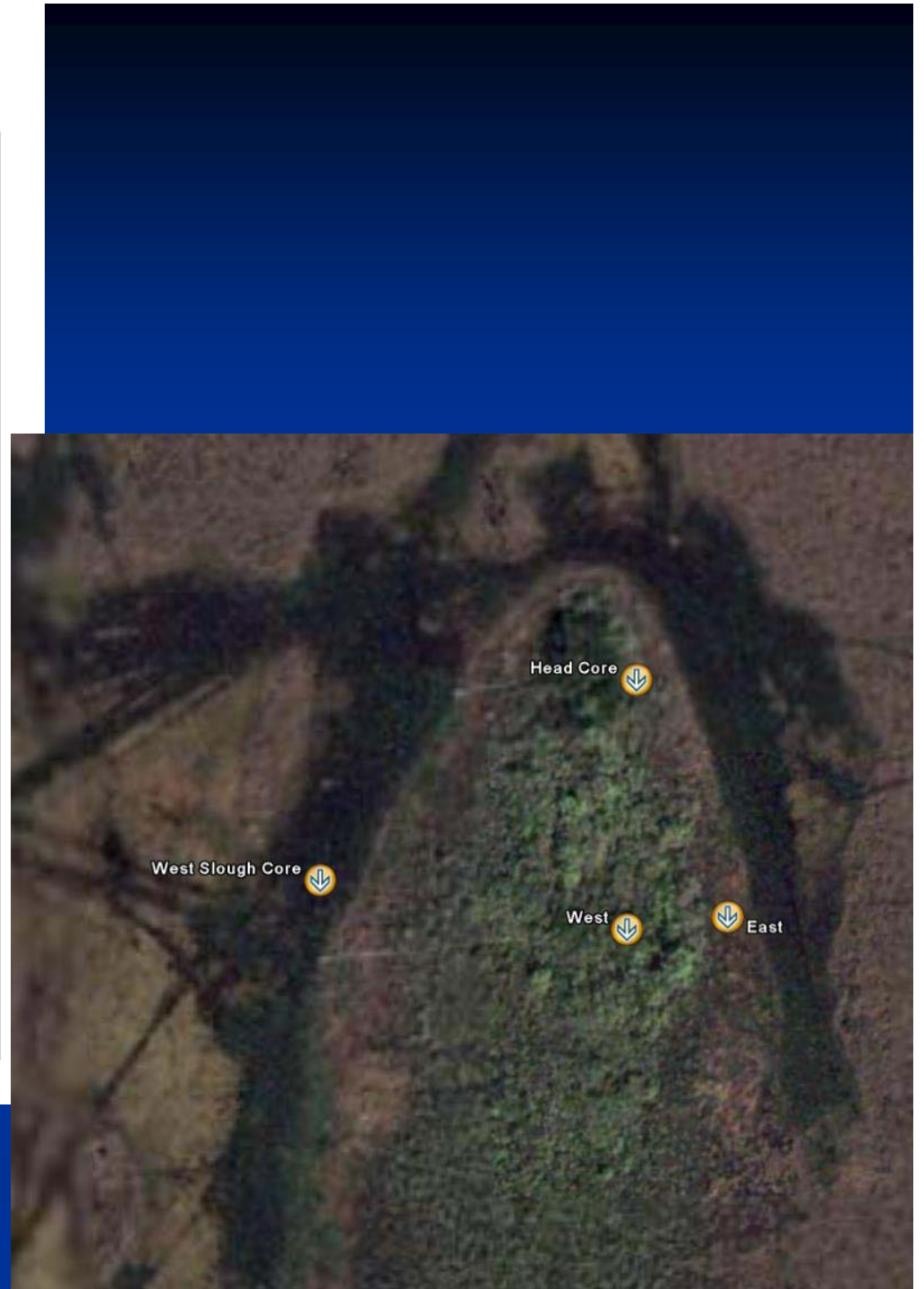
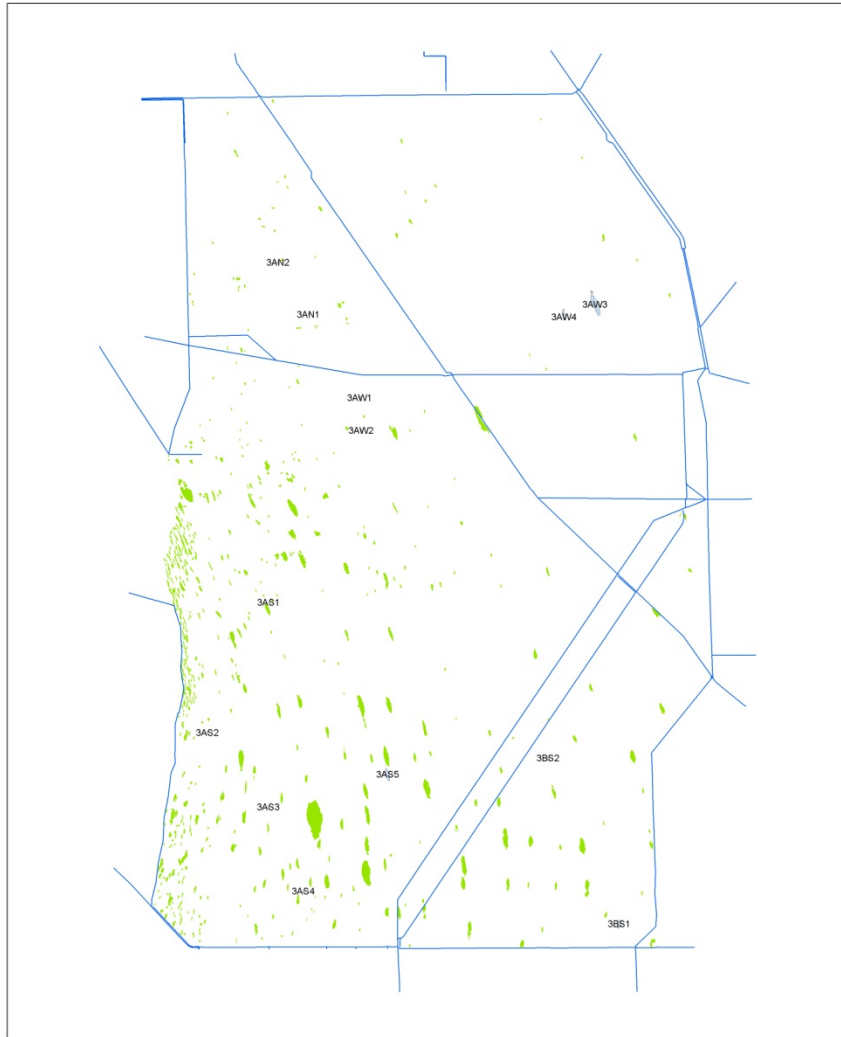
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District, West Palm Beach, FL, USA

Research - Tree Islands

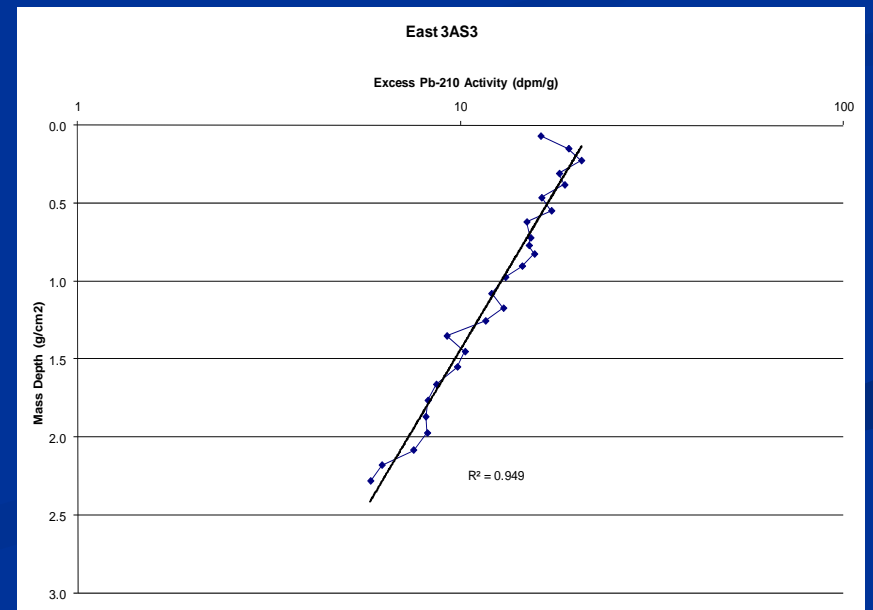
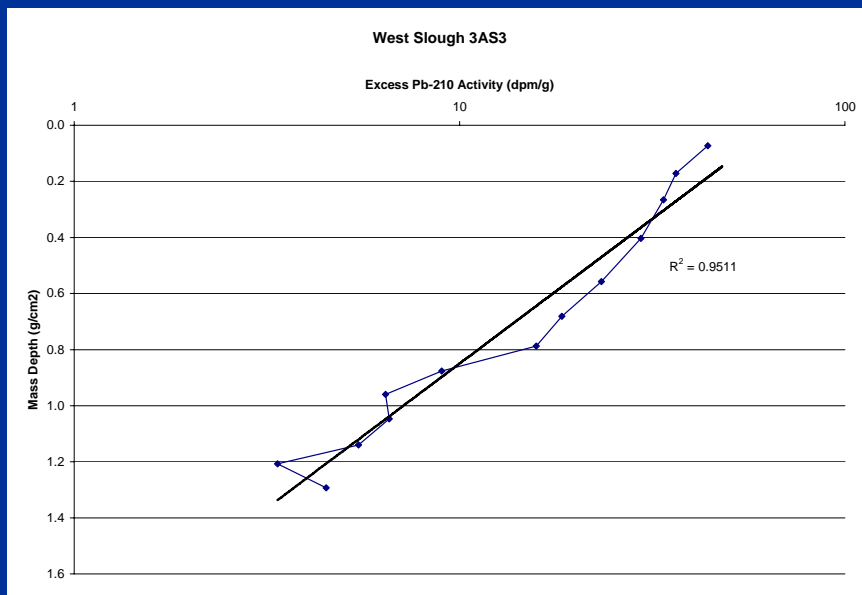
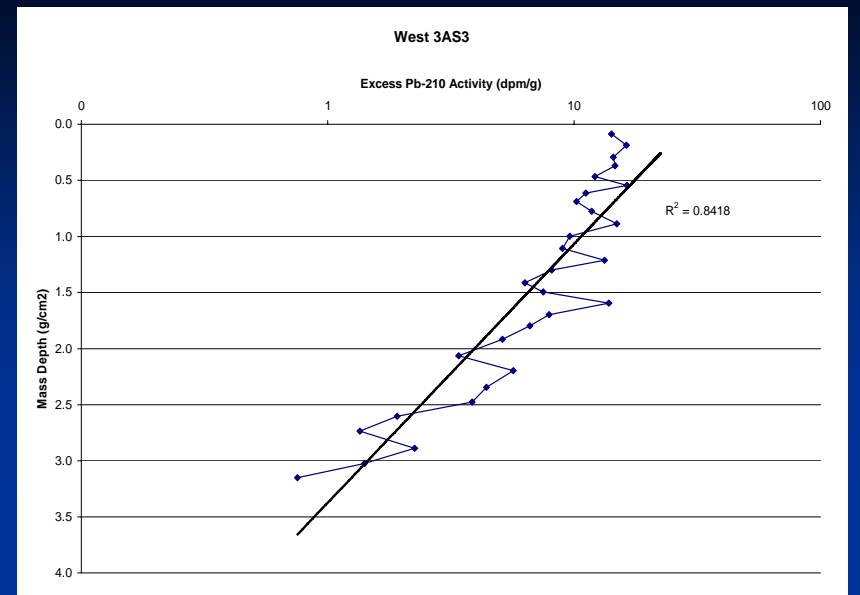
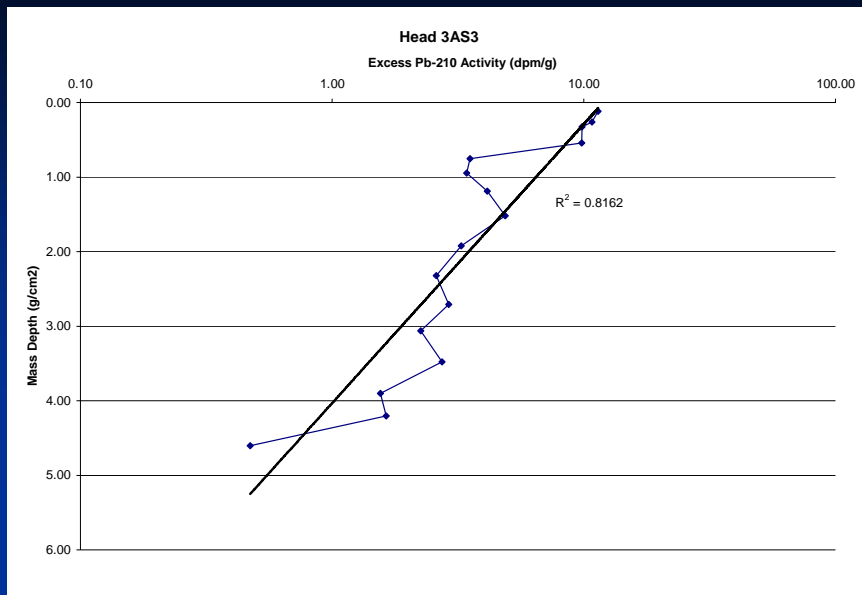
Overlaid on 1995 Tree Island Map

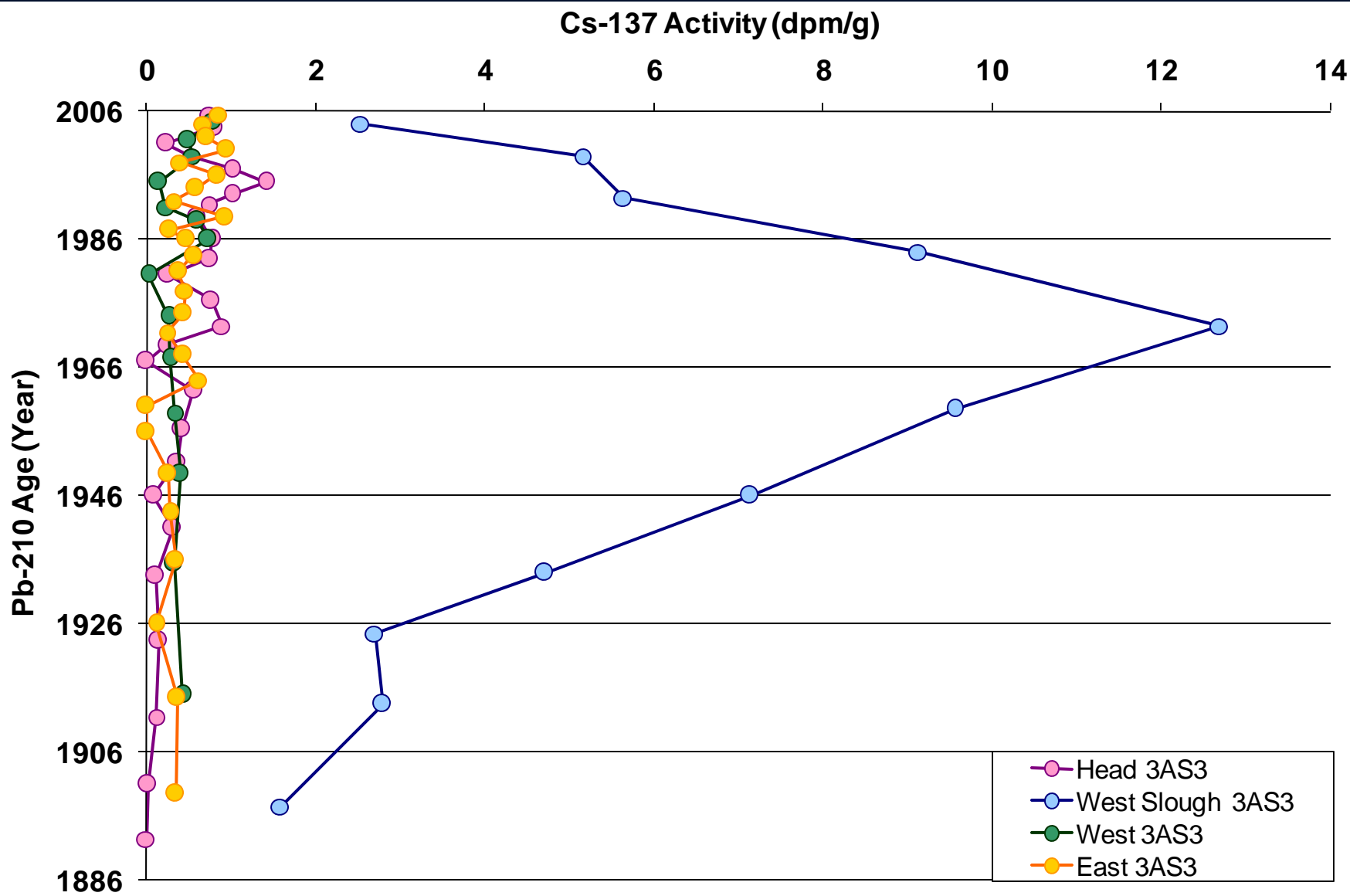




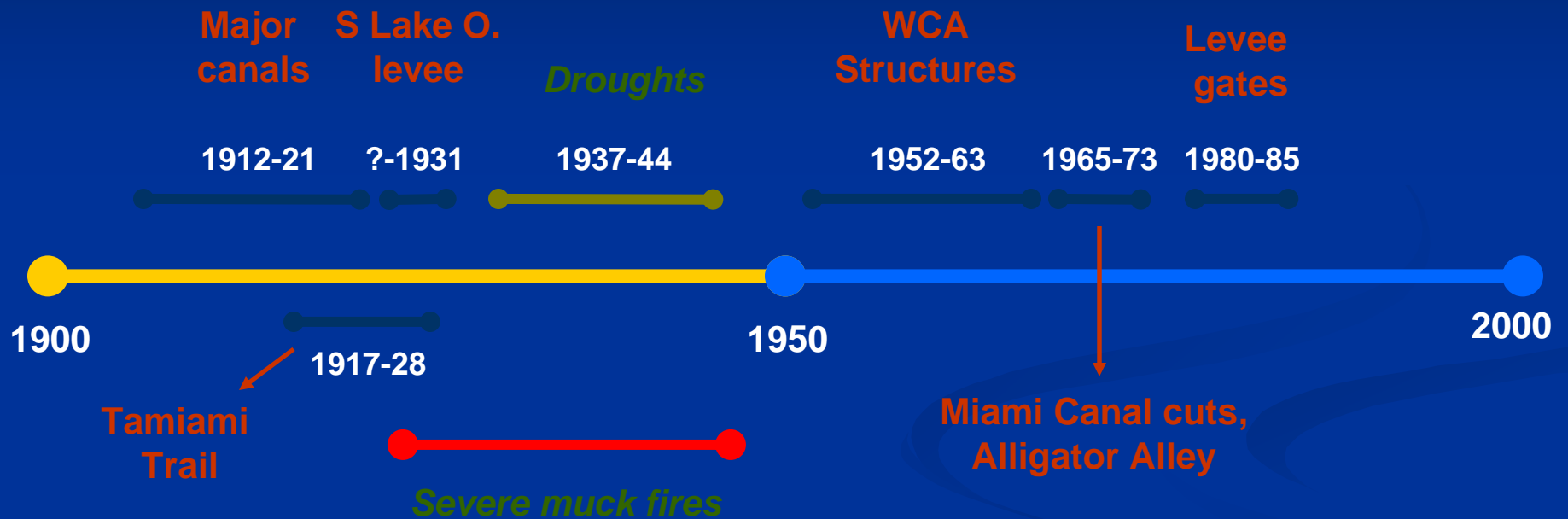
Data

- ^{210}Pb and ^{226}Ra
- Mass Accumulation Rate
- $\delta^{15}\text{N}$ and $\delta^{13}\text{C}$
- TP and TN
- Pigments



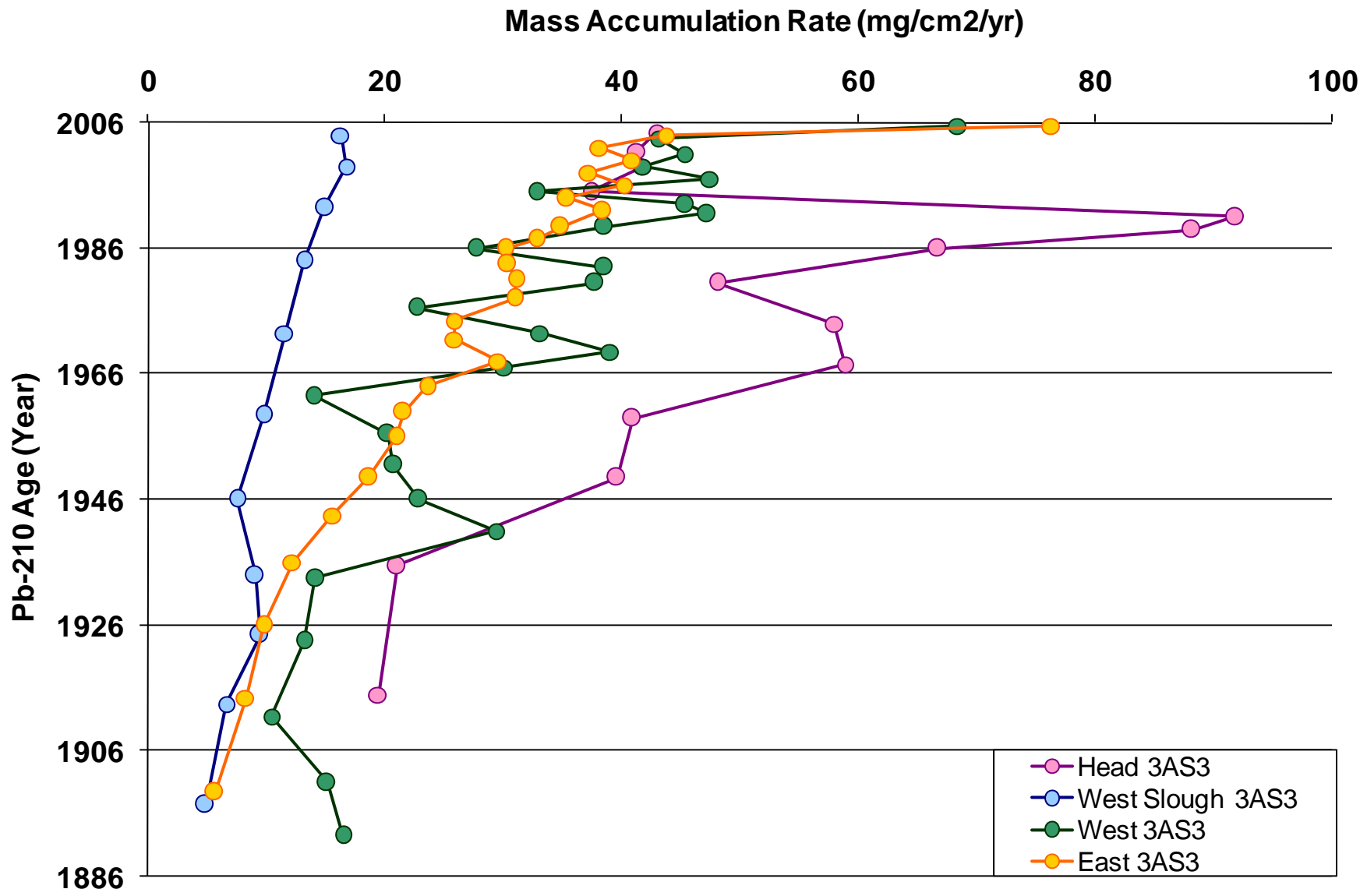


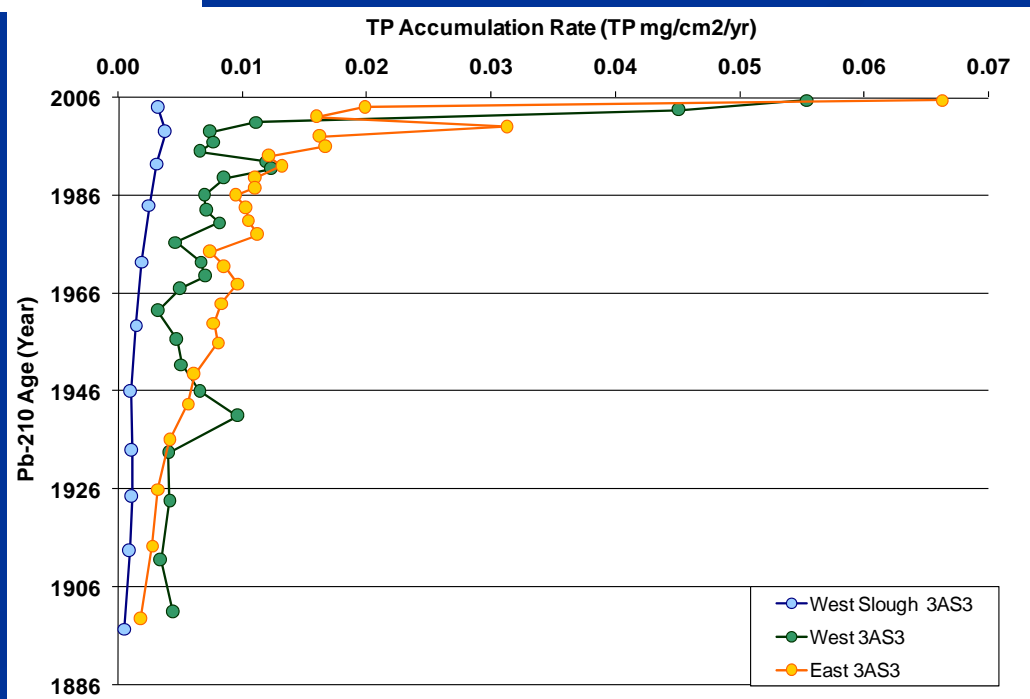
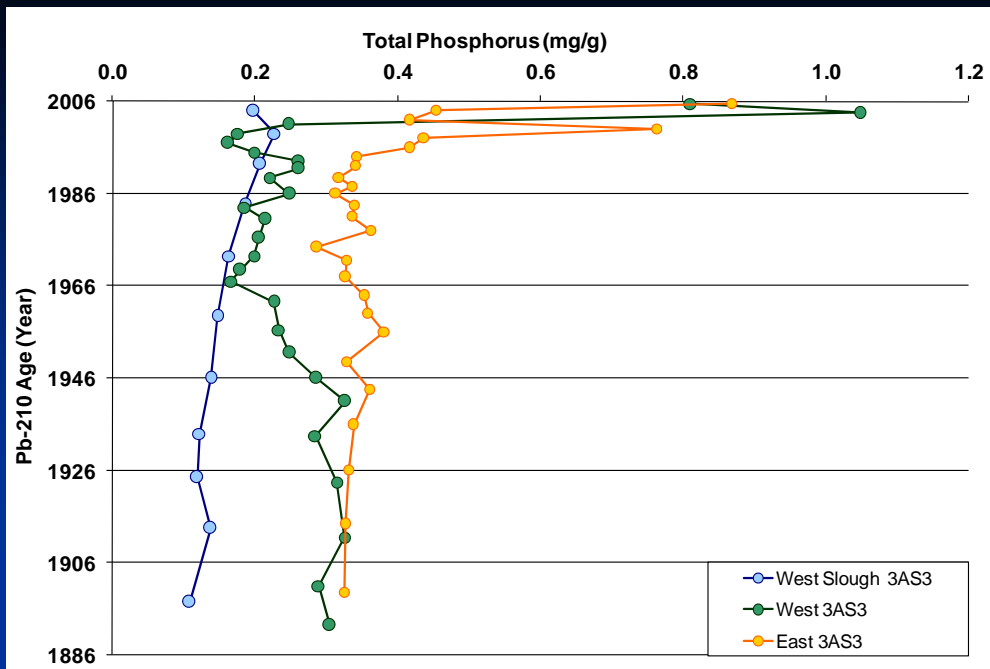
Brief Timeline of WCA Alterations

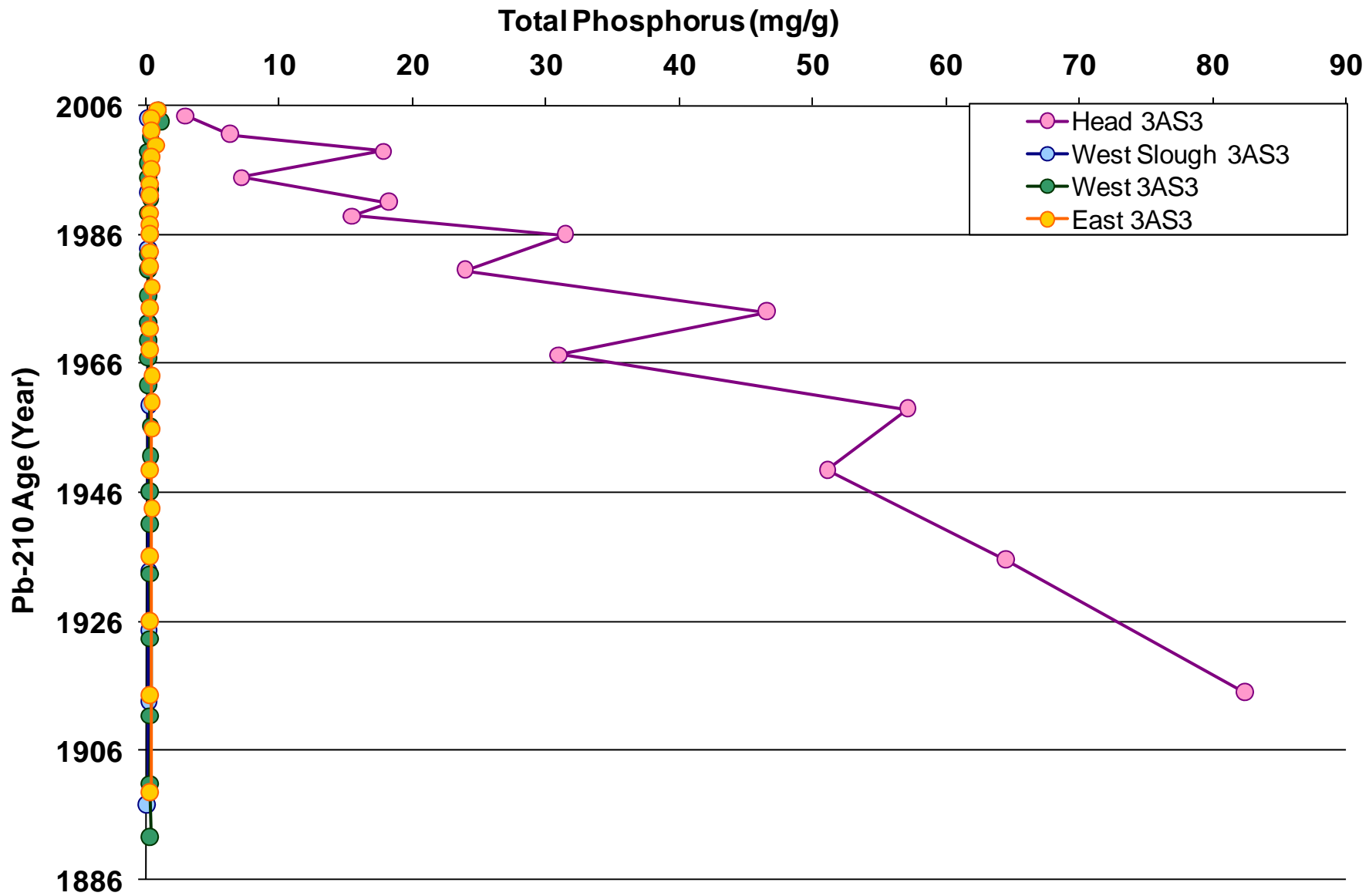


Drainage

Impoundment

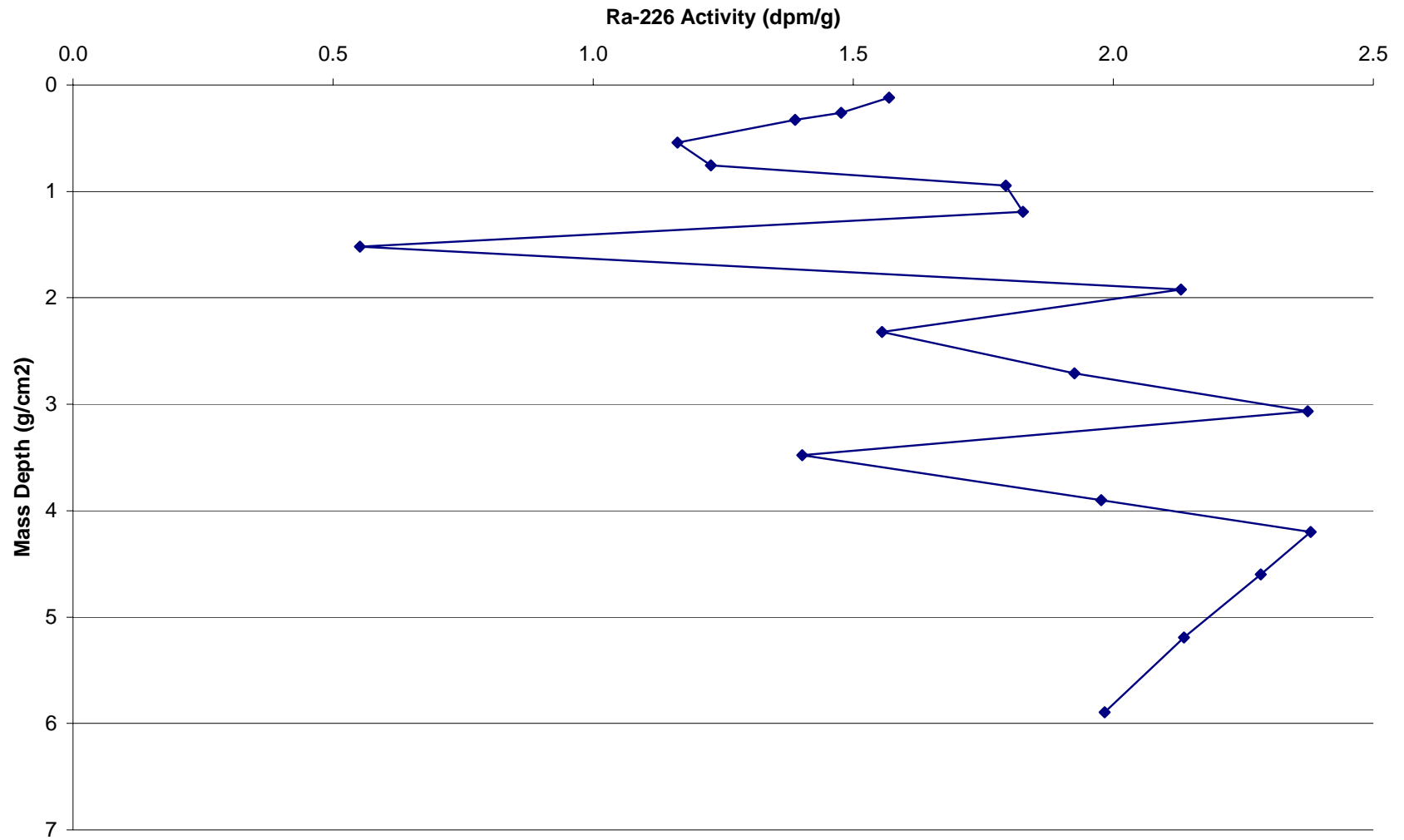


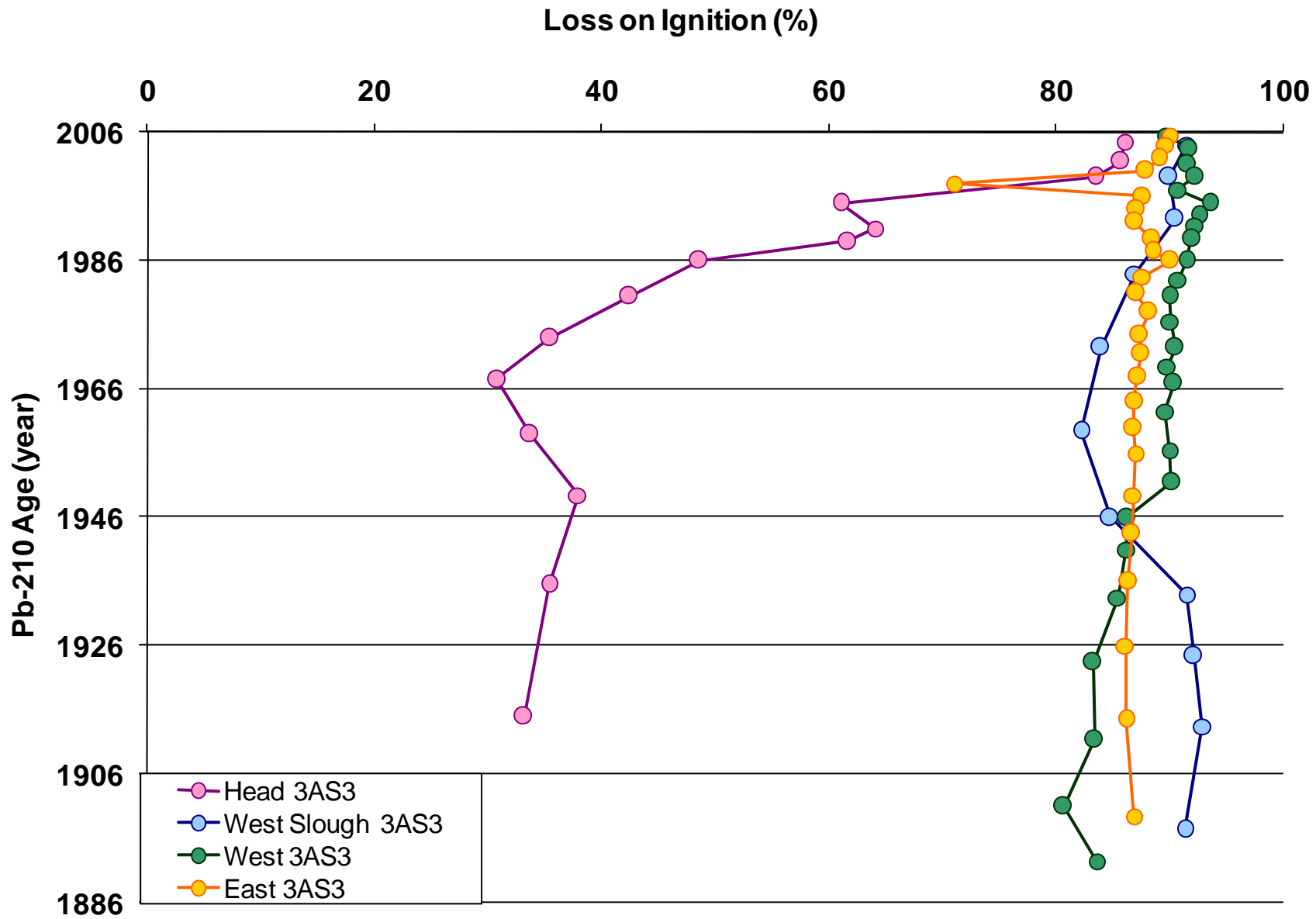


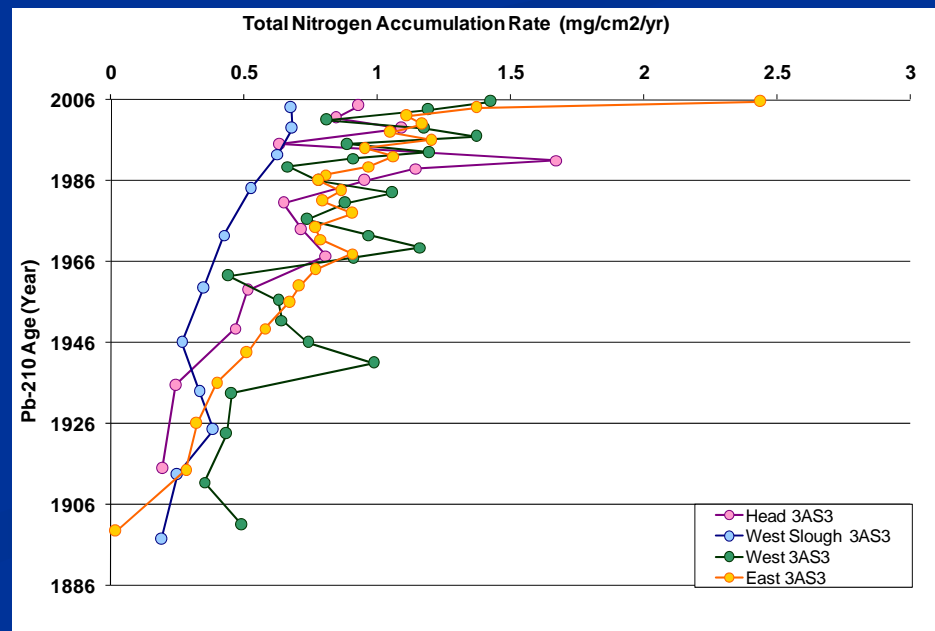
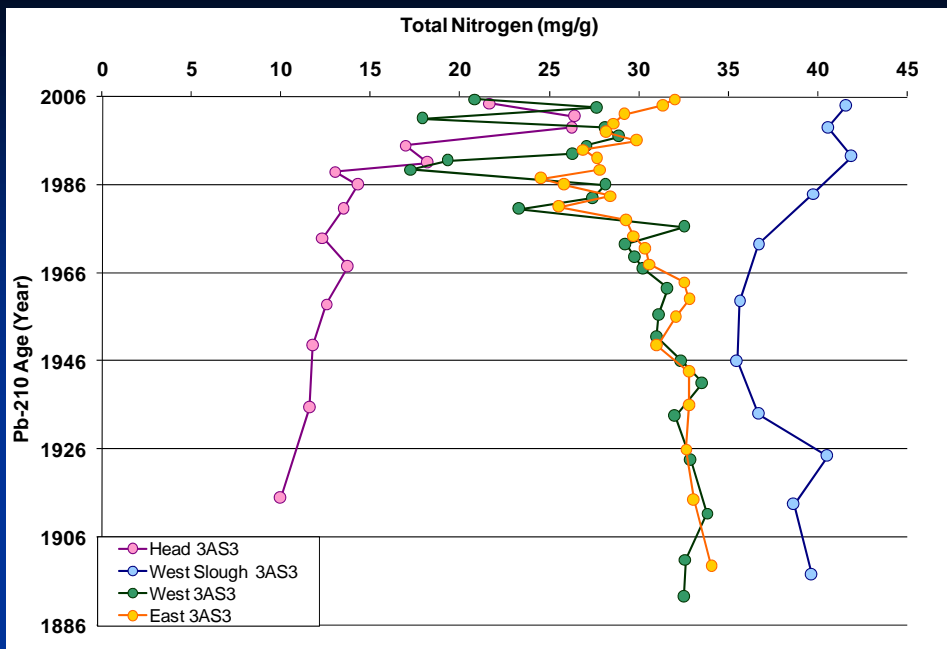




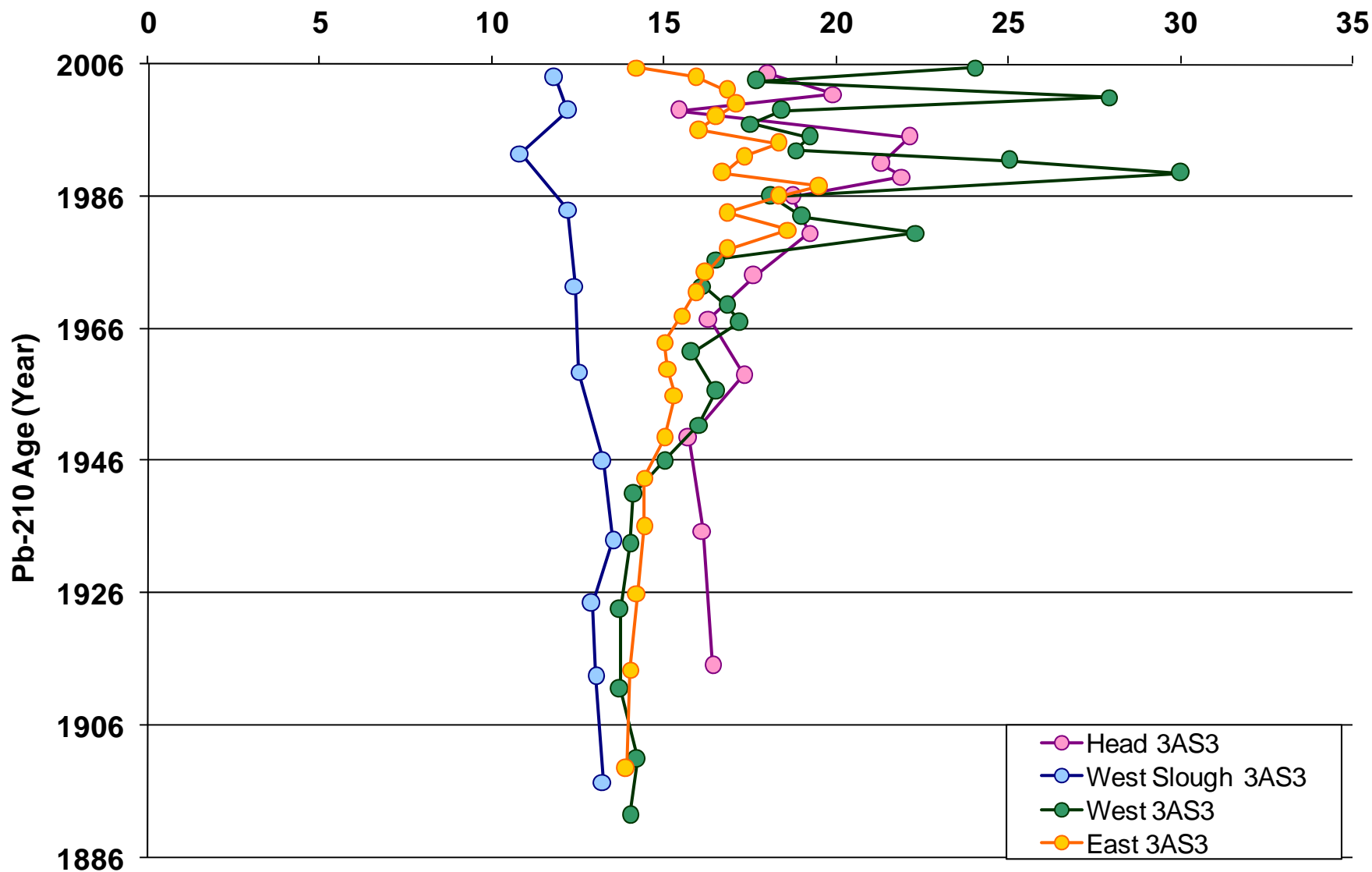
Head 3AS3



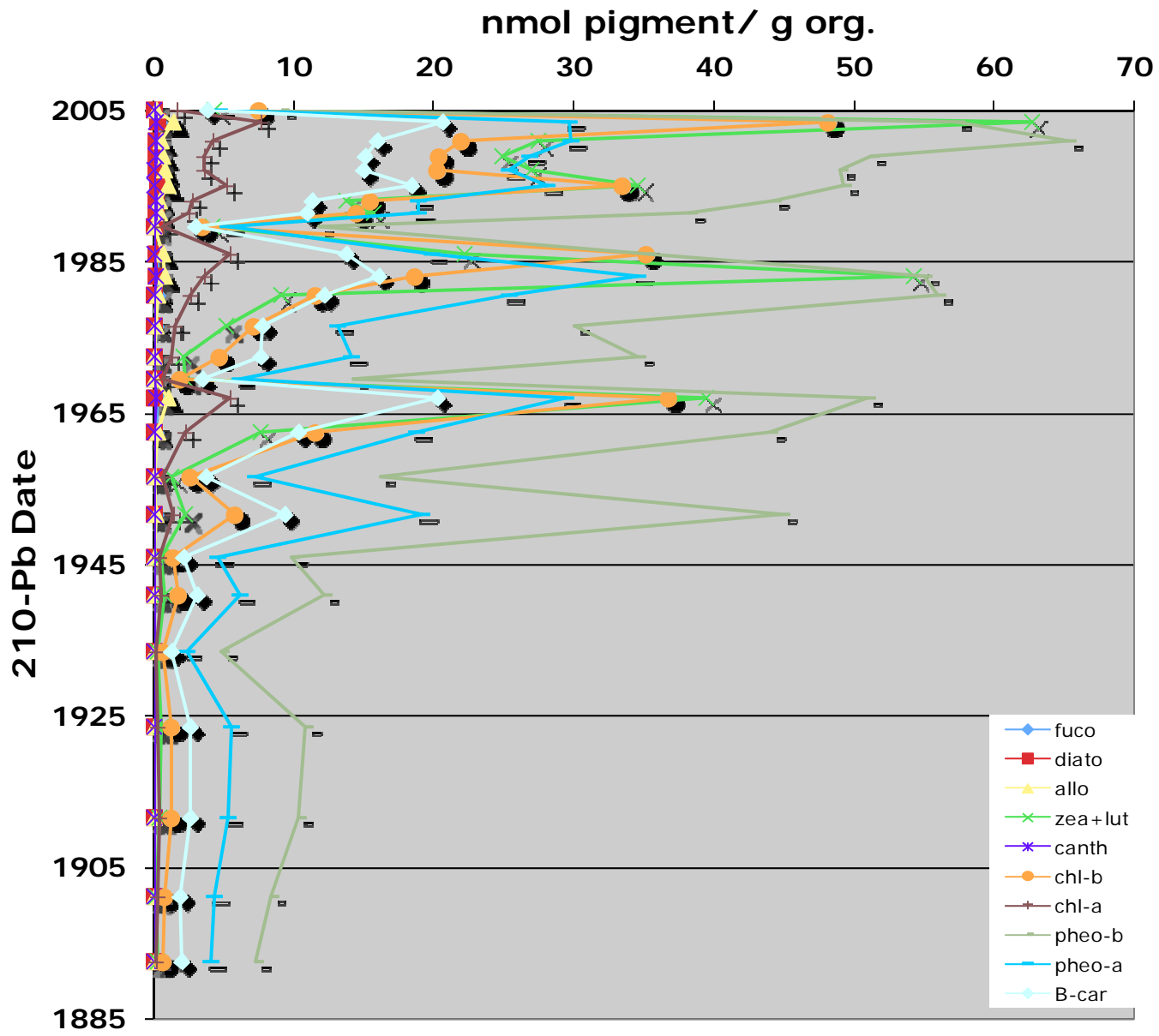


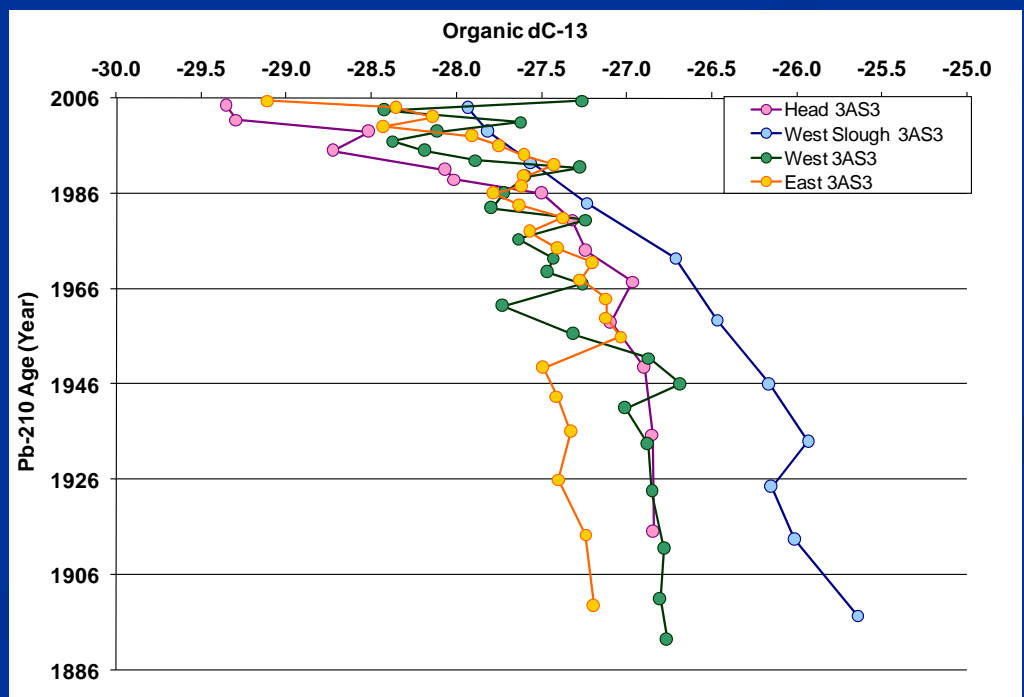
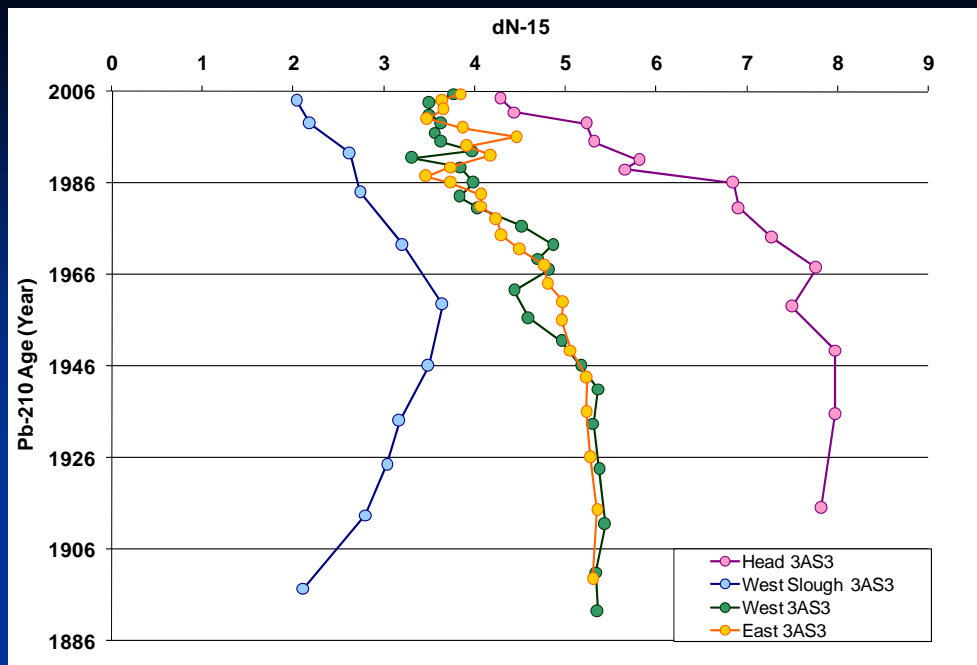


Organic Carbon : Total Nitrogen Atomic Ratio

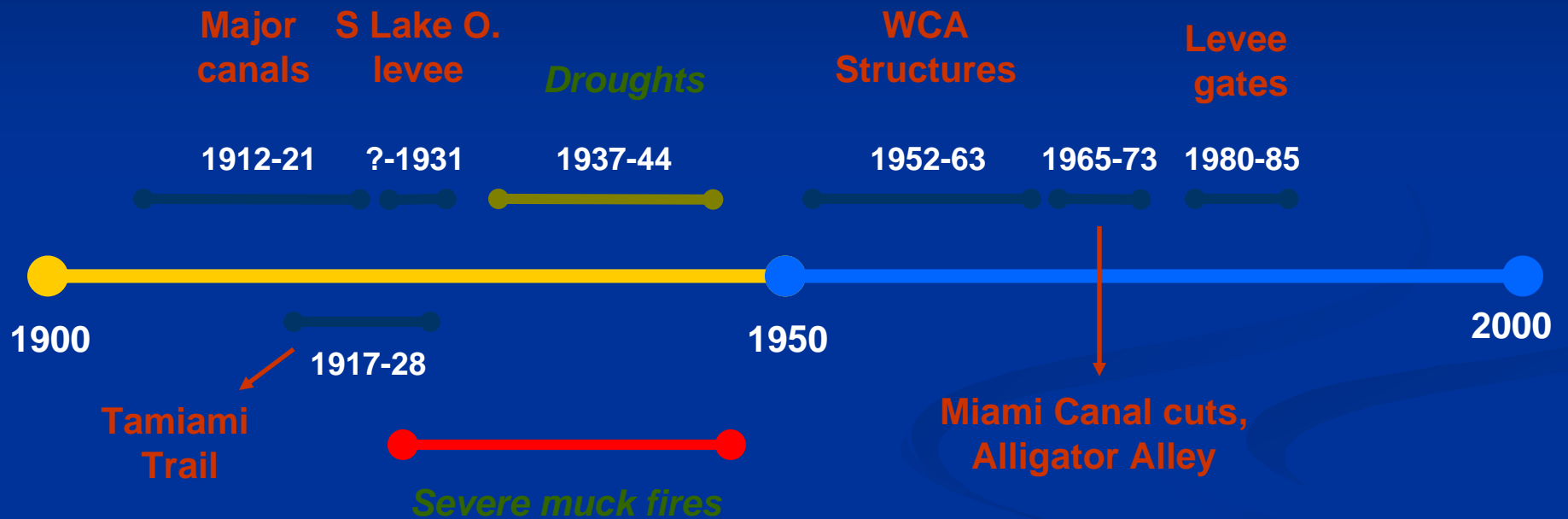


West Core





Brief Timeline of WCA Alterations



Drainage

Impoundment

Conclusions

- Circa 1950: change from draining to impoundment in the water conservation areas.
 - Mass accumulation rate increases
 - $\delta^{15}\text{N}$ and $\delta^{13}\text{C}$ values shift
- Decrease in the $\delta^{15}\text{N}$ could be the result of a reduction in the bird population on this island.
- Or the type of vegetation on the tree island has shifted to producers with lower $\delta^{15}\text{N}$ and $\delta^{13}\text{C}$ values.

Conclusions

- C/N ratios which increase since 1950s support the shift in plant community
- Pigment data also supports plant community shift
- Impoundment produced longer periods of high water beginning in 1950s and could result in a different type of vegetation encroaching on the island or became more dominant on the island.