The Coastal Salinity Index

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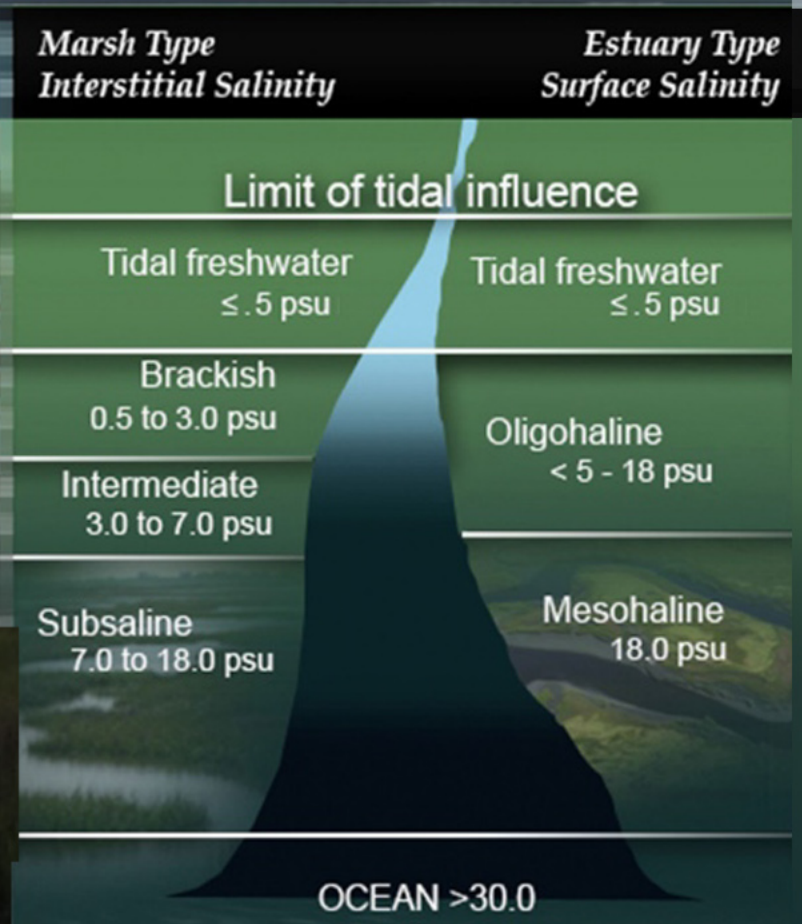
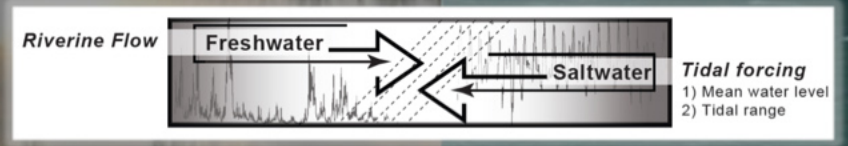
science for a changing world

Question –

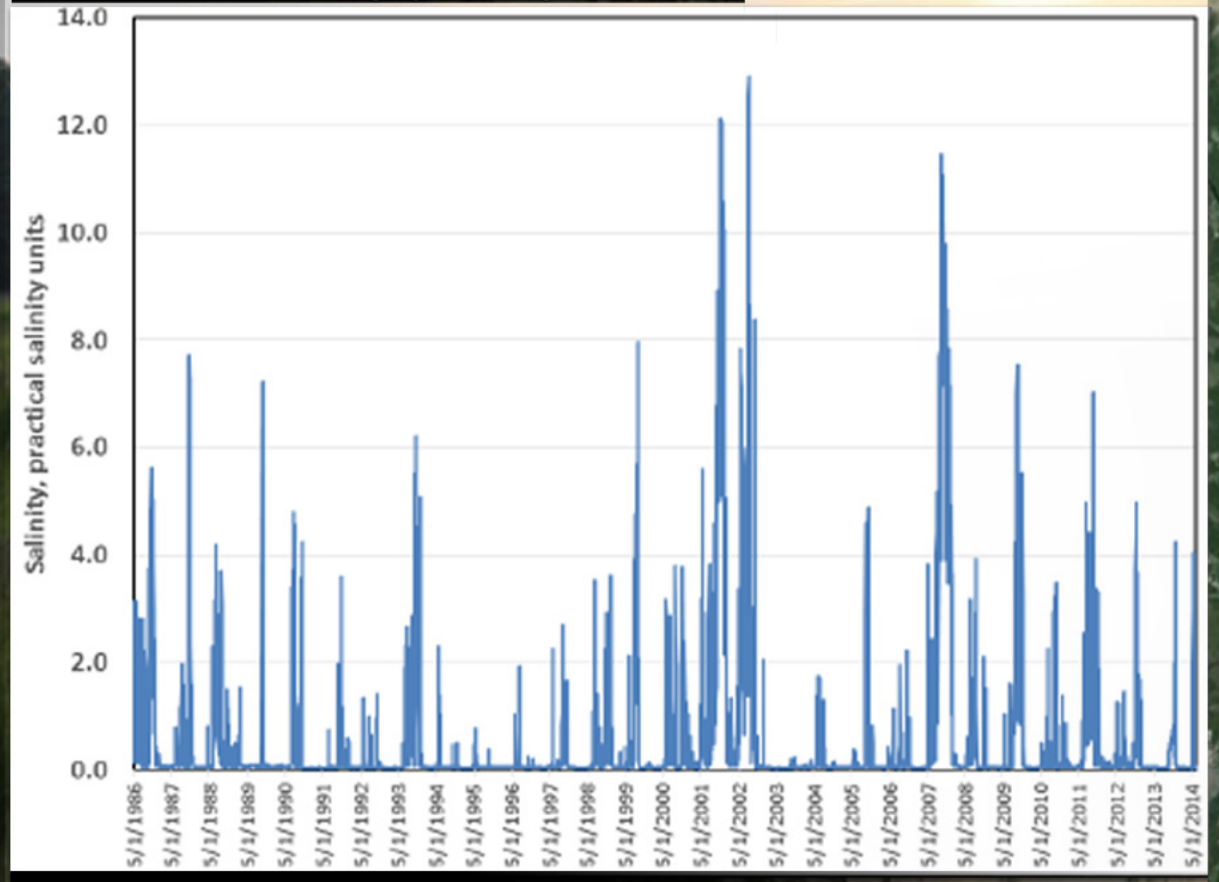
Can a drought index be developed for the coast?





Long-term Salinity Data

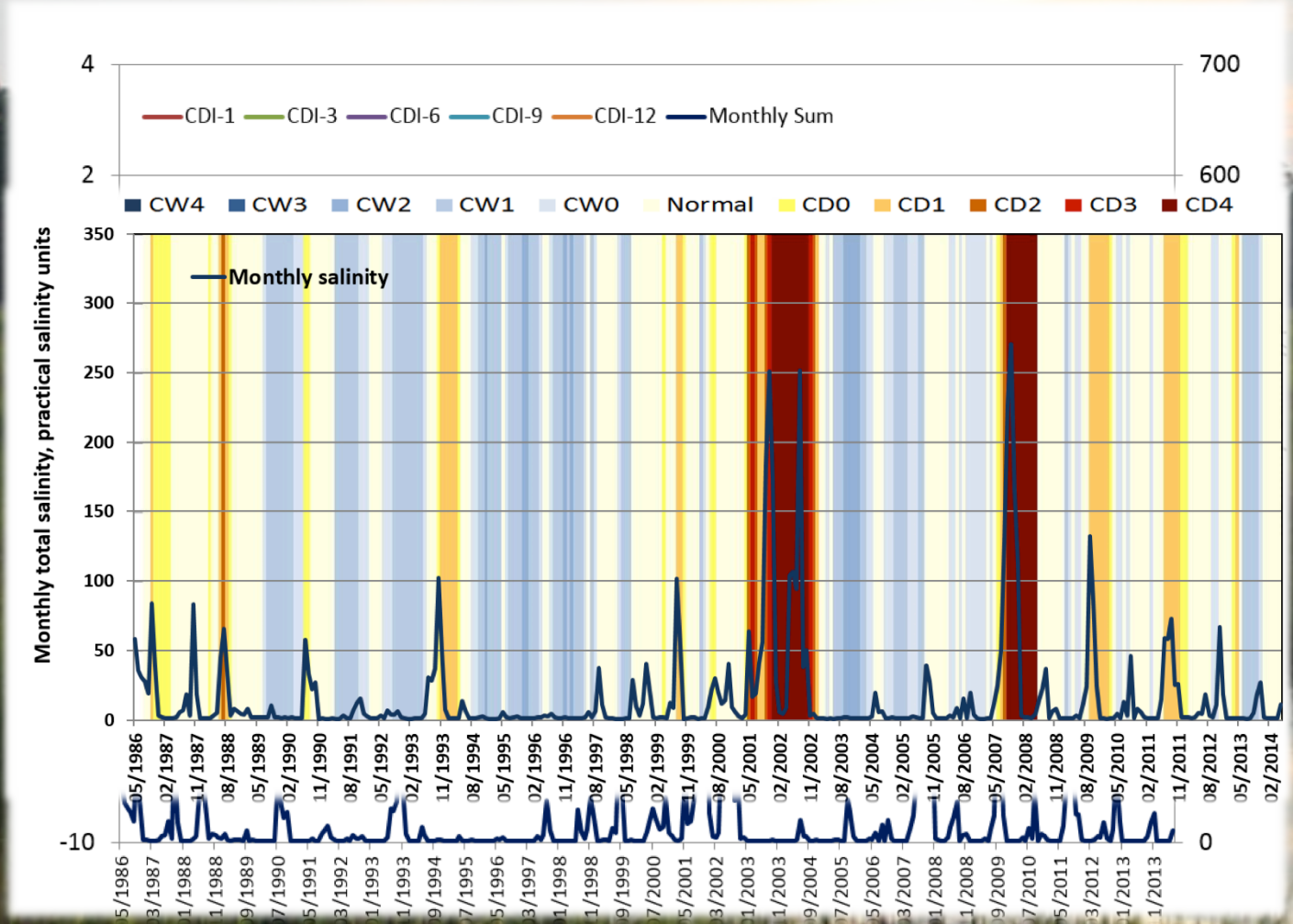
Waccamaw River at Hagley Landing (02110815)



Long period of record **1986 to present**

Daily mean salinity **~10,000 data point**

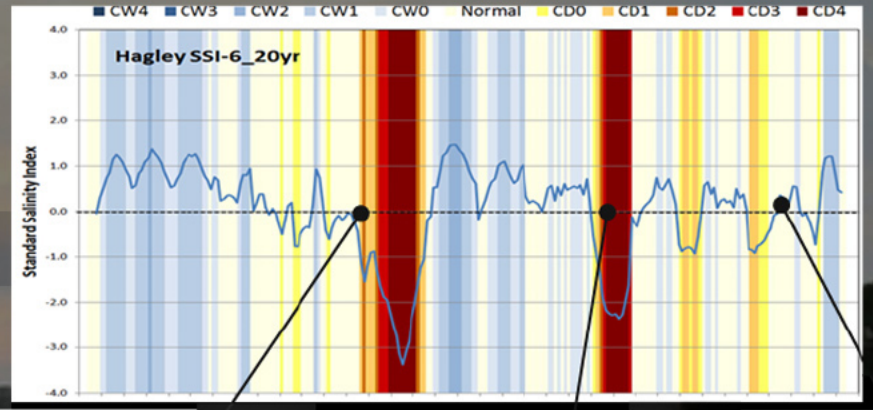
Coastal Salinity Index (CSI)

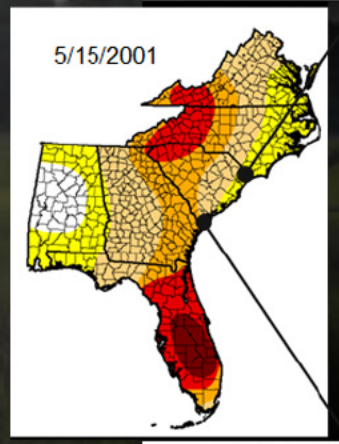


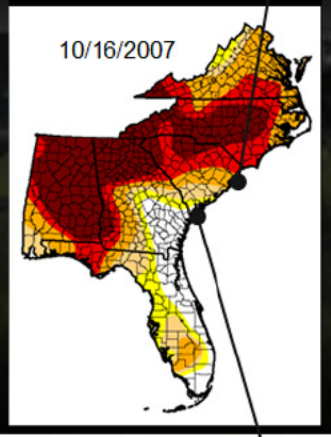
Coastal salinity classification	Description	Threshold values
CW4	Exceptional Freshwater Conditions	2
CW3	Extreme Freshwater Conditions	1.6
CW2	Severe Freshwater Conditions	1.3
CW1	Moderate Freshwater Conditions	0.8
CW0	Abnormal Freshwater Conditions	0.5
N0	Normal Salinity Conditions	0
CD0	Abnormal Salinity Conditions	-0.5
CD1	Moderate Salinity Conditions	-0.8
CD2	Severe Salinity Conditions	-1.3
CD3	Extreme Salinity Conditions	-1.6
CD4	Exceptional Salinity Conditions	-2

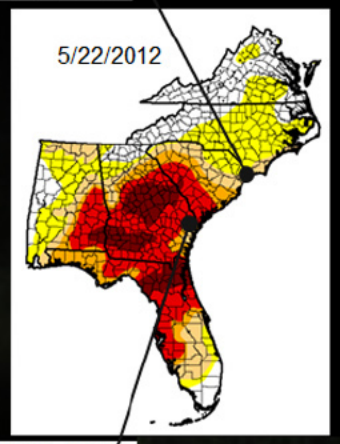
Comparison with Drought Monitor Maps

Savannah River



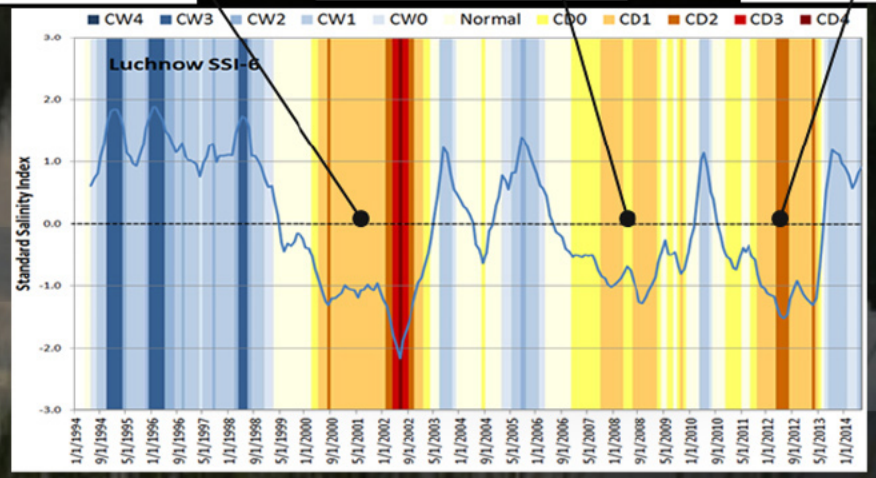




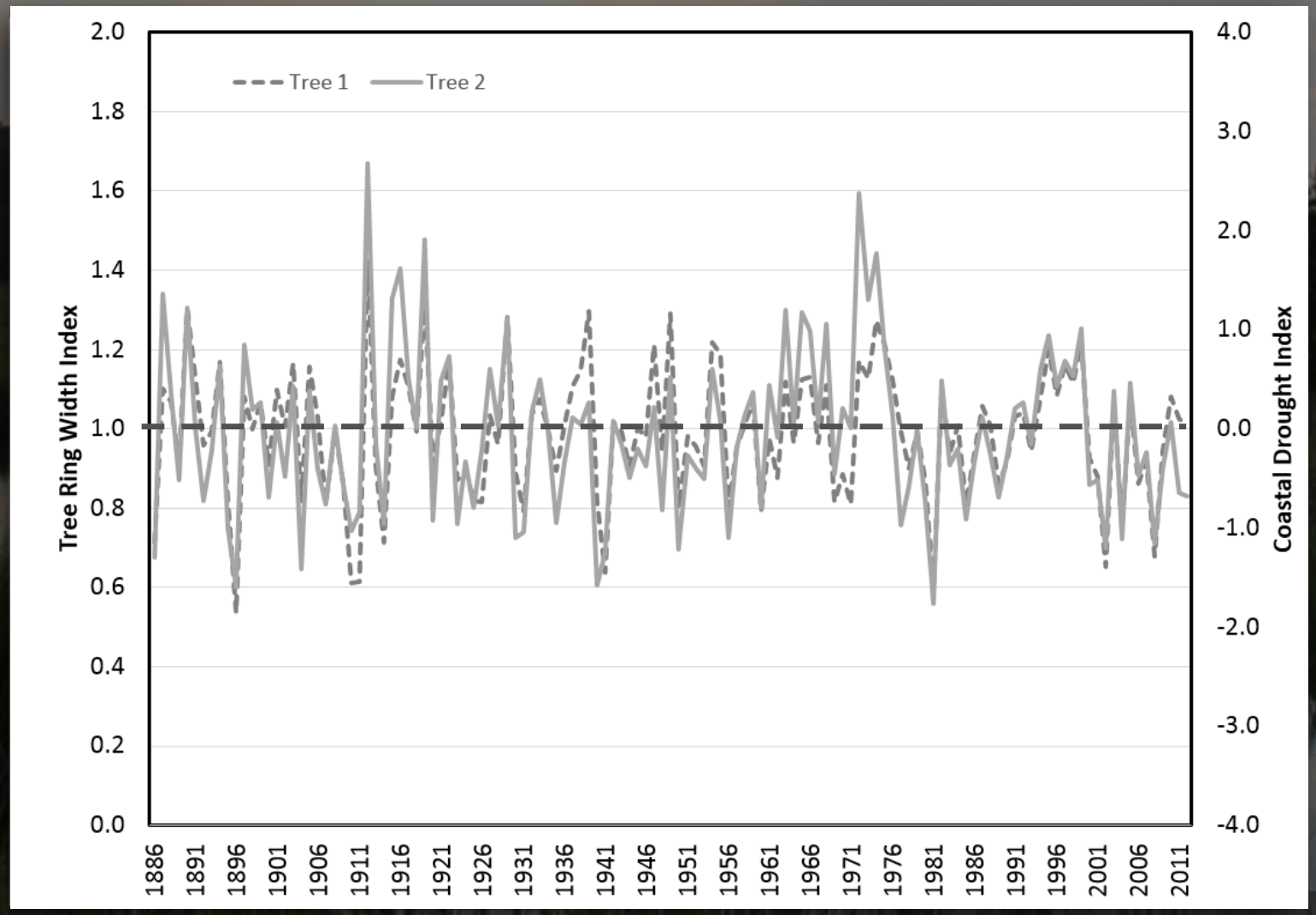


Coastal Salinity Index reflects regional drought intensities

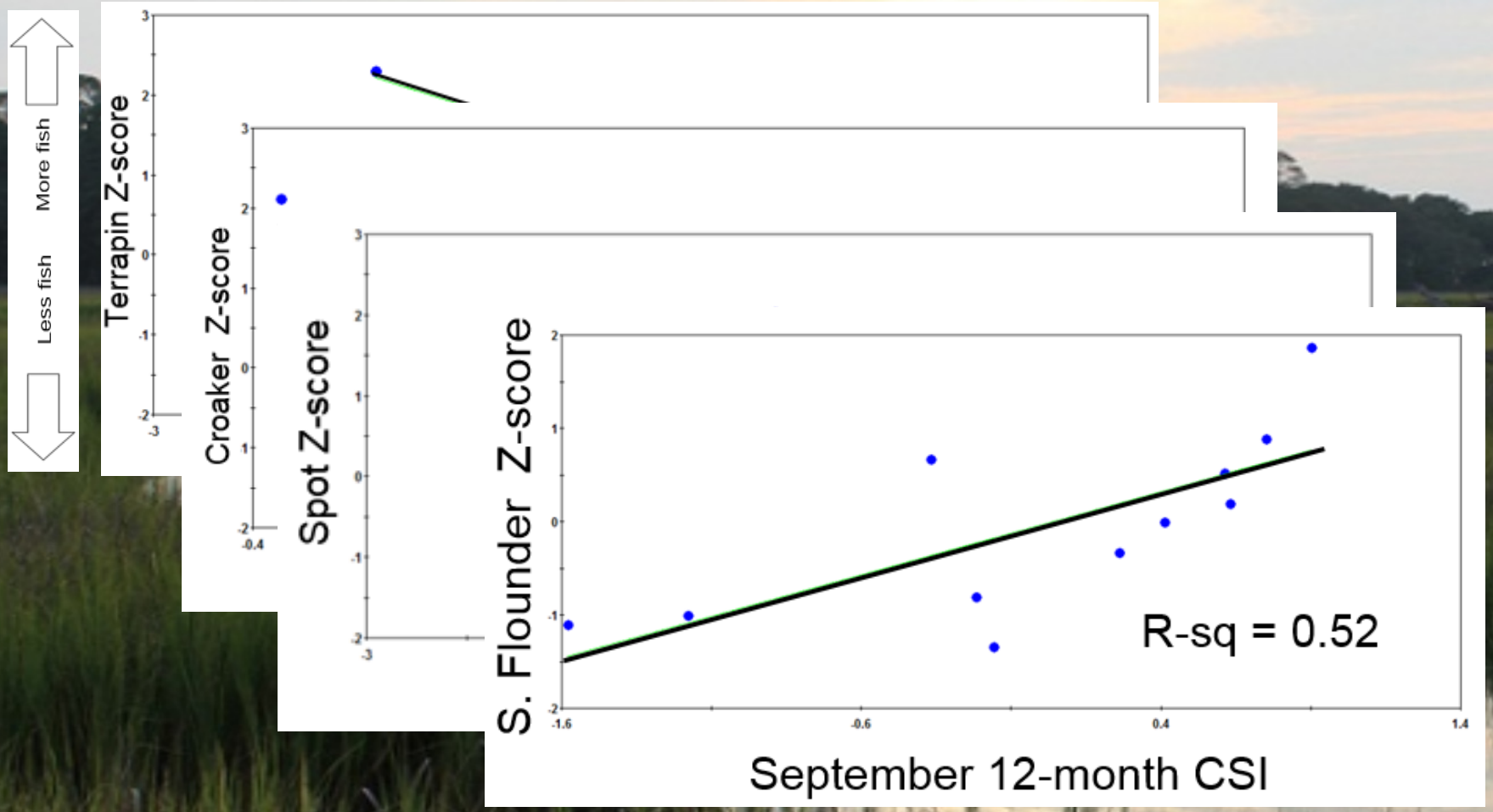
Waccamaw River



Savannah River: *Steamboat Cut*



Preliminary Linkage with Winyah Bay Fisheries Data



Annual Z-scores from monthly surveys

Saltier Fresher

Key Findings of the CSI:

- Applicable for various types of estuaries
- Can be used for regional/shoreline comparison
- Can be computed with shorter periods of salinity data
- Preliminary linkage to environmental response

Potential Next Steps

- Application of the CSI to other sites
- Make the computation of the CSI operational
- Develop software package for the consistent computation of the CSI
- Continue the linkage of the CSI to coastal response variables
- Evaluate other probability distribution for salinity data