Plum Island Ecosystems (PIE LTER)
Changing connectivity is altering ecosystem functioning

ANNE GIBLIN
SCIENCE COUNCIL MEETING
RIO MAR PR
**Land connections change with climate and human activities**

Nutrients are highly retained in PIE watersheds but fluxes increase with increased precipitation - climate so far has overwhelmed trends in development

Sediment fluxes, which are already low, have been decreasing (beavers?)

Data from Wollheim and students

Weston 2014
Sea - Increased connection to the ocean and southern species from rising sea-levels and warming ocean temperatures - changing biotic communities.

Data from Morris

Major biogeographic boundary

Pershing et al 2015
Atmosphere - changing climate, storms...

Sediment is lost at the marsh edge by lateral erosion, redeposited on the marsh – ice rafting may be quite important.

For the high marsh, precipitation appears to be important in C storage and hence accretion.

Low and decreasing connection to the watersheds and increased oceanic conductivity as well as climate change may greatly alter the marsh over the next century.