Challenges

- Aging outfall infrastructure
- Nutrient removal requirements
- Loss of habitat for endangered species
- Sea level rise and extreme water levels
- Greater constraints on public resources
- Existing regulatory framework
Hold the Line

- Armored levee
- Sediment eroded
- Subsided Bayland
- Sweep zone
Ecotone Slope

- to create historic transitional habitat;
- to attenuate waves to reduce flood risk;
- to polish discharge by subsurface seepage.
A Future Shoreline?
Co-benefits

• Wastewater
  – Wet weather equalization
  – Denitrification

• Ecological
  – Creates historic ecotone
  – High tide refugia
  – Allows transgression of marshes

• Flood Risk Management
  – Increases wave attenuation
  – Reduction in levee size and maintenance
  – Removal of infrastructure from hazard zone
Pilot Project

• to refine design;
• to further regulatory dialogue.
An Adaptation Strategy?

- Existing levees
- Enhance existing wetlands, realign levees
- Ecotone slope
- Realign

Thresholds:
- 0ft
- 1ft
- 2ft
- 3ft
- 4ft
- 5ft

Decisions:
- Threshold
- Effective

Lead Time:
- 0ft to 1ft
- 1ft to 2ft
- 2ft to 3ft
- 3ft to 4ft
- 4ft to 5ft
Not an Adaptation Strategy! – Start Now
Questions?

Jeremy Lowe
jlowe@esassoc.com