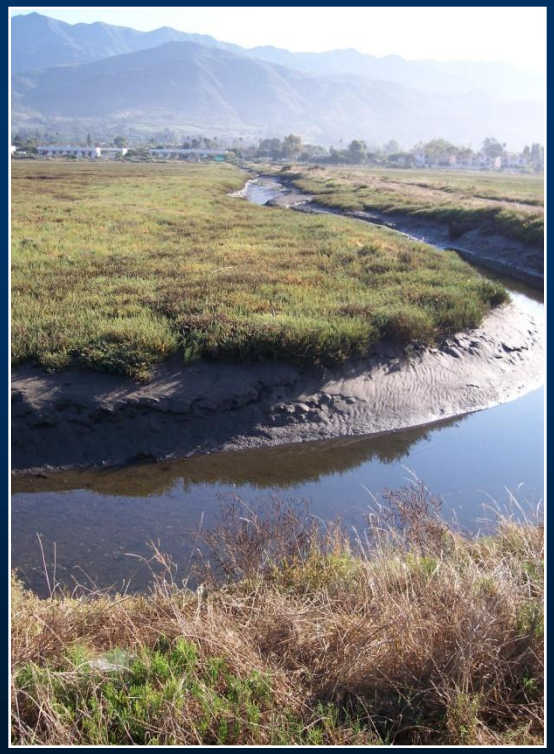
Survey of Estuarine Wetlands in California using Rapid Assessment



Christopher Solek
Southern California Coastal Water Research Project

SCCWRP Symposium – January 20, 2009

California's Estuarine Wetlands

- State policy of "No Net Wetland Loss"
- Billions of dollars invested to protect and restore estuarine wetlands In California

Information Needs for Estuarine Wetlands

- Where are they located (distribution)?
- How many acres exist (extent) ?
- Are they ecologically healthy (condition)?
    - are there regional differences?
    - what are the sources of stress?

Statewide Assessment of California's Estuarine Wetlands

Three Elements:

- Estuarine wetland extent and geographic distribution → Wetland inventory (mapping)
- "Baseline" of wetland health and stressors → Ambient condition assessment with CRAM
- "Context" for restoration projects → Project assessment with CRAM and compare with ambient condition

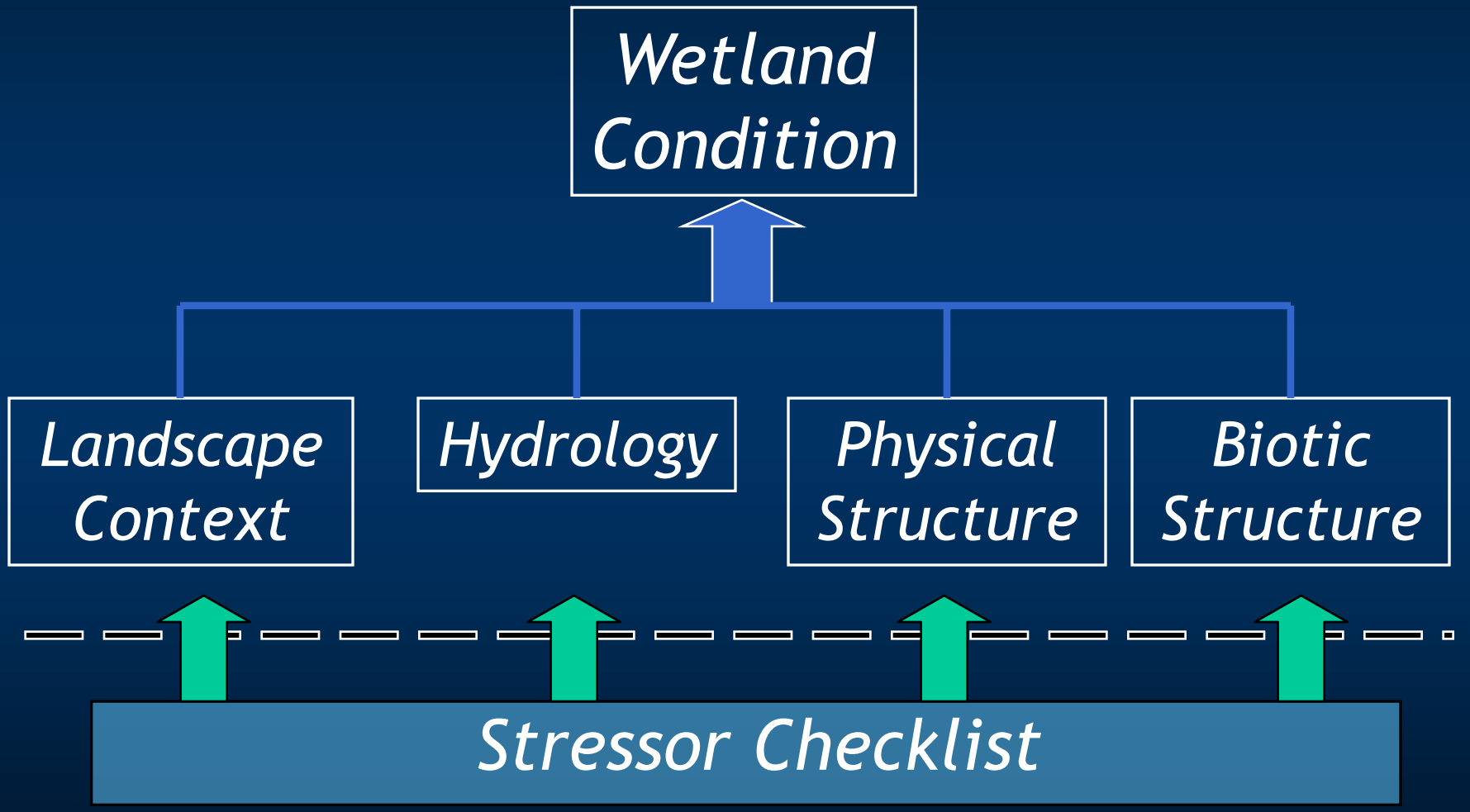
Statewide Assessment of California's Estuarine Wetlands: Mapping

- Inventory of all perennial estuaries in CA
- National Wetland Inventory (NWI) as base dataset
- Maps updated and revised by regional teams using NAIP imagery

Statewide Assessment of California's Estuarine Wetlands: Condition Assessment

- Focus on four coastal regions
- Perennially tidal saline estuaries targeted
- 150 sites probabilistically selected
- Used CRAM to assess condition

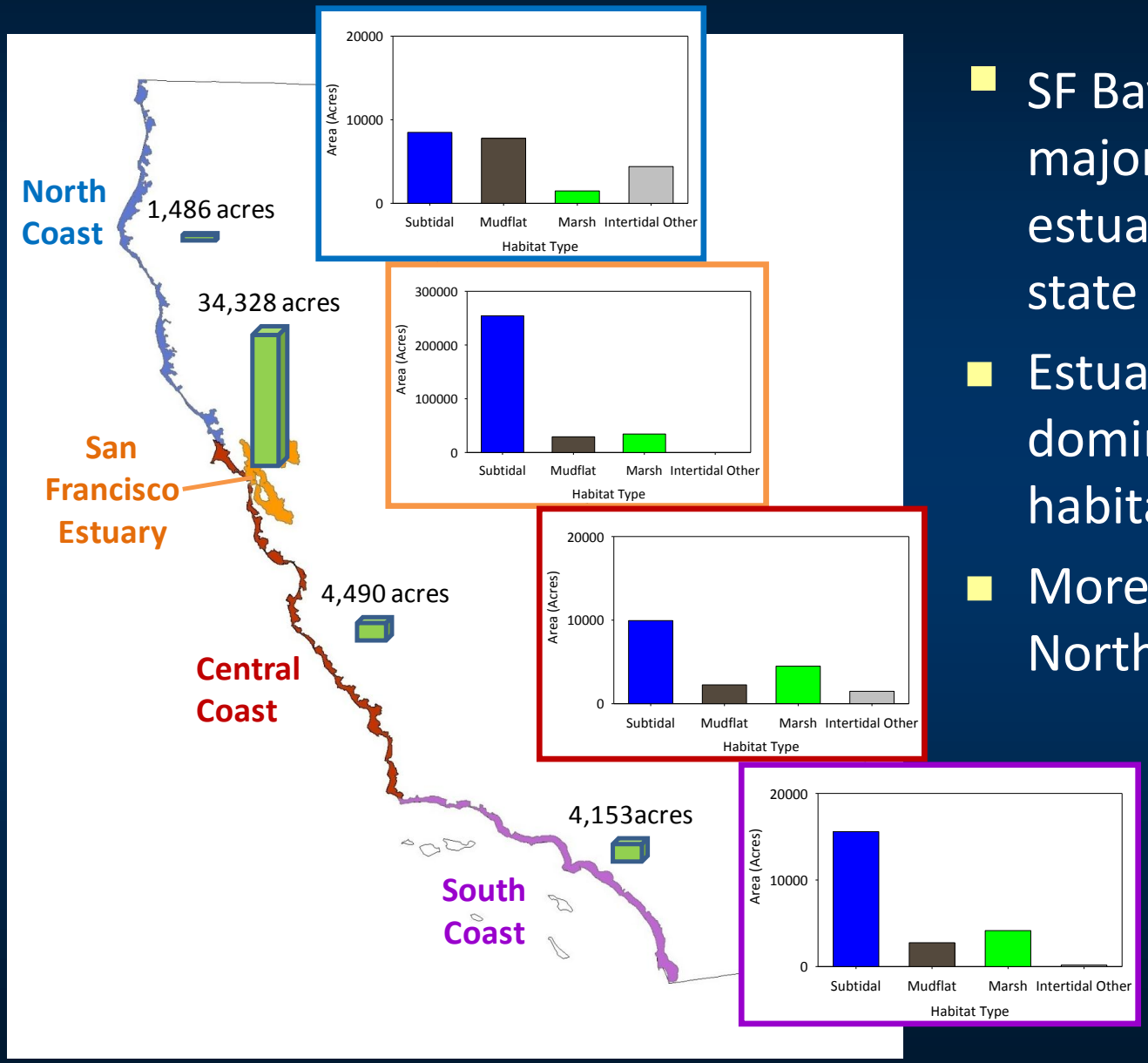
California Rapid Assessment Method for Wetlands (CRAM)



Statewide Assessment of California's Estuarine Wetlands: Project Assessment

- Focus on three coastal regions
- 30 restoration projects assessed with CRAM
- 120 total acres assessed
- Compare with ambient condition

Wetland Extent and Distribution

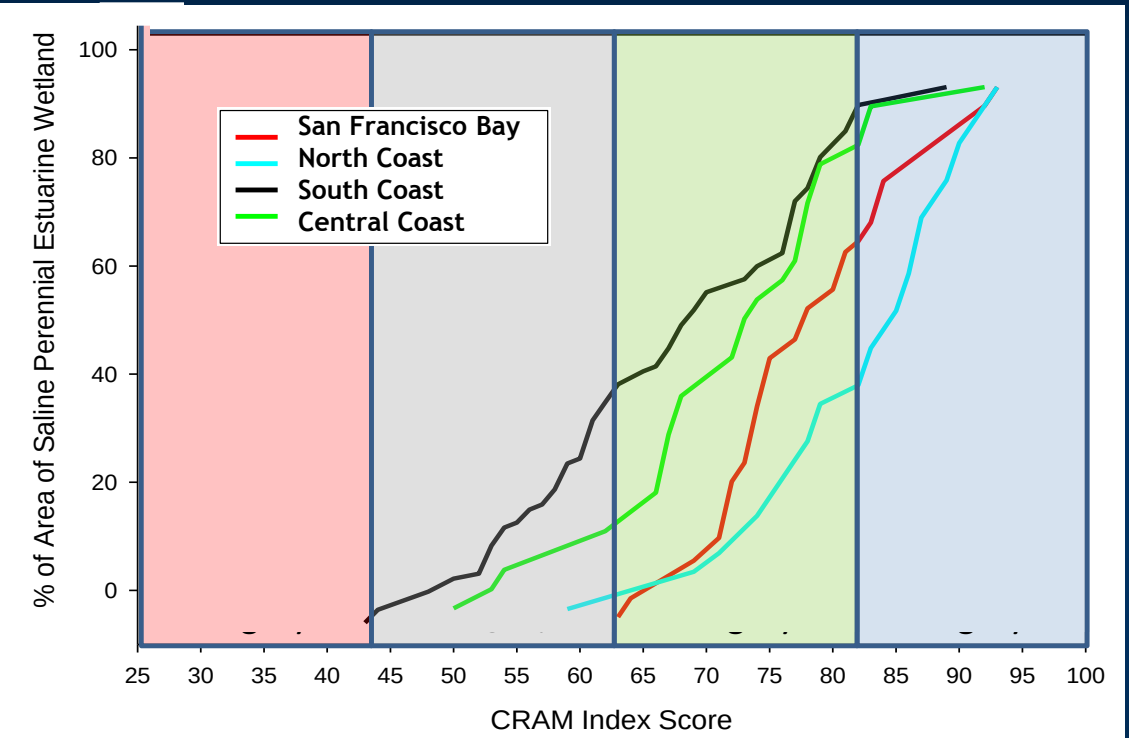


- SF Bay has the majority (88%) of estuarine acreage in state
- Estuarine habitat dominated by subtidal habitat statewide
- More mudflats in North Coast

Ambient Wetland Condition

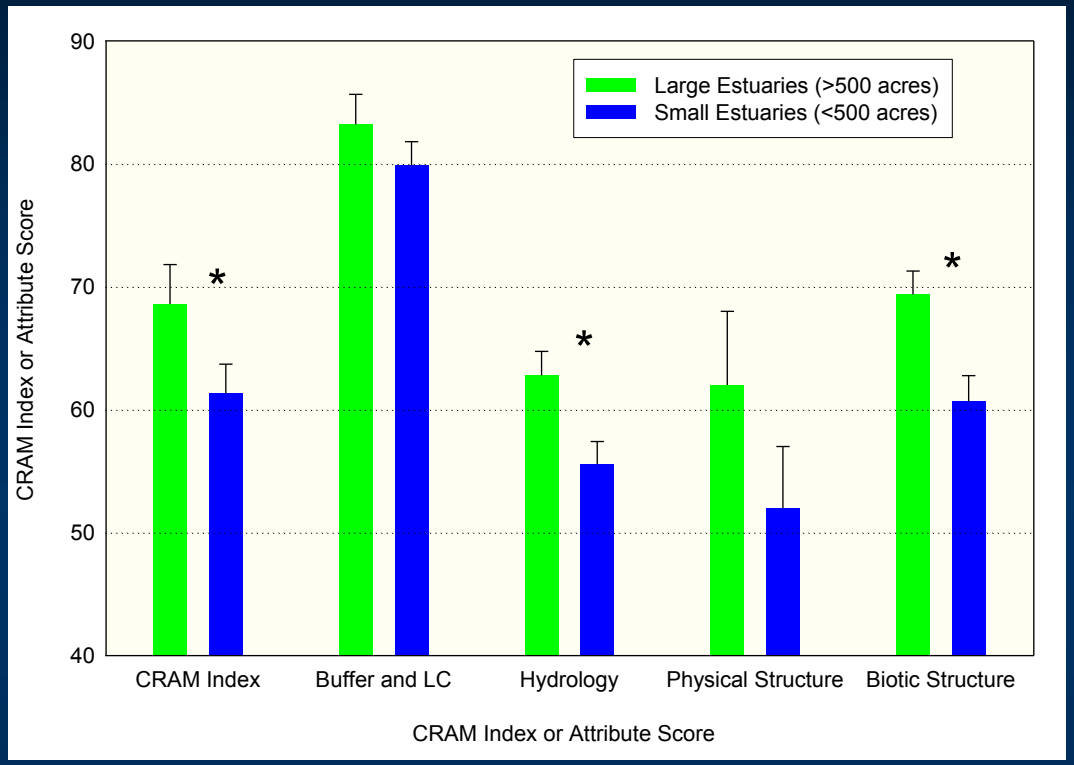
- Landscape and Buffer context highest scoring attribute for CRAM
- Physical structure lowest scoring attribute for CRAM
- Statewide ambient condition strongly influenced by the SF Bay

Regional Differences in Condition



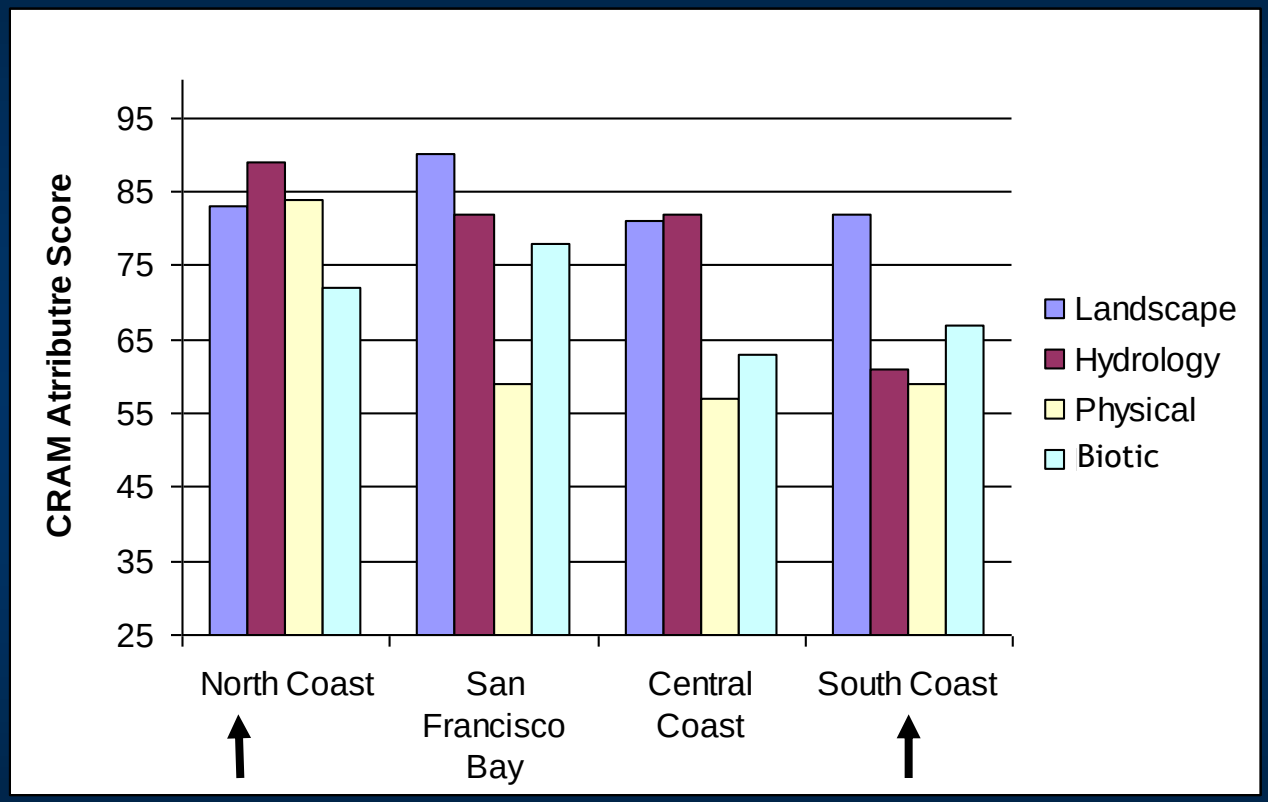
- Gradient in condition from North to South Coast

Wetland Size and Condition



- 75% of estuarine wetlands in South Coast are located in large estuaries
- Wetlands in large estuaries had significantly higher CRAM index scores

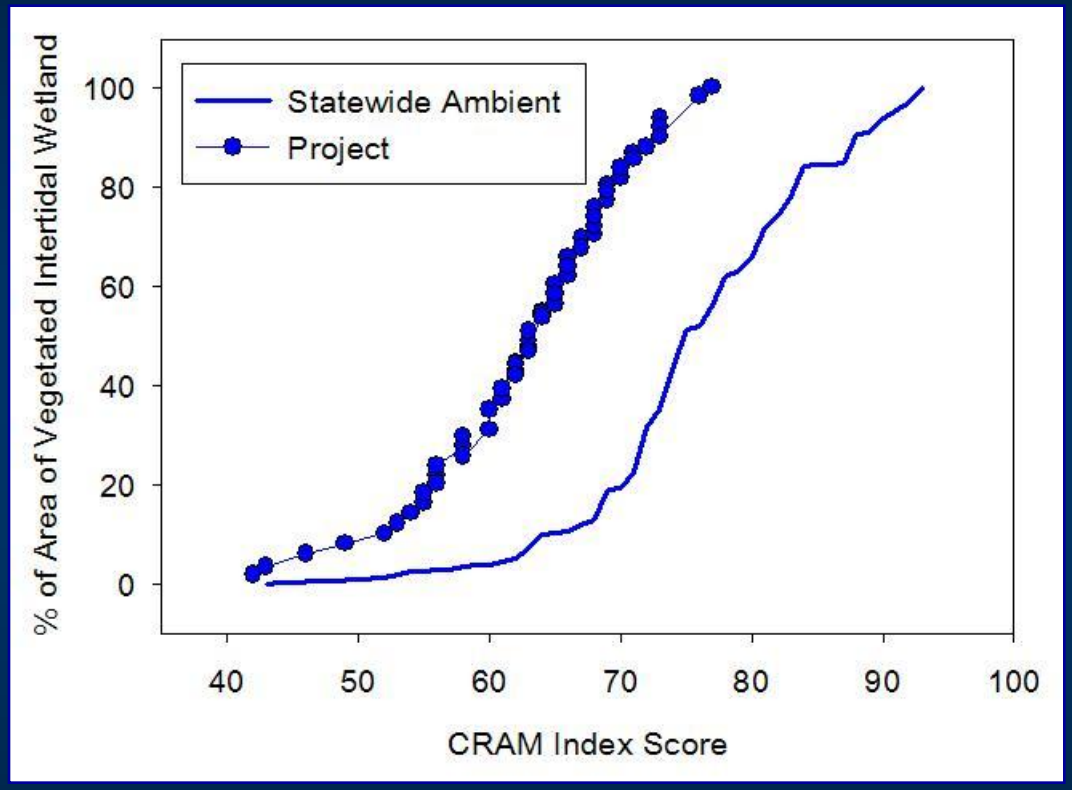
Stressor Data Provide Clues to Understand CRAM Condition Scores



Invasive plants
Dikes/levees
Excess sediment

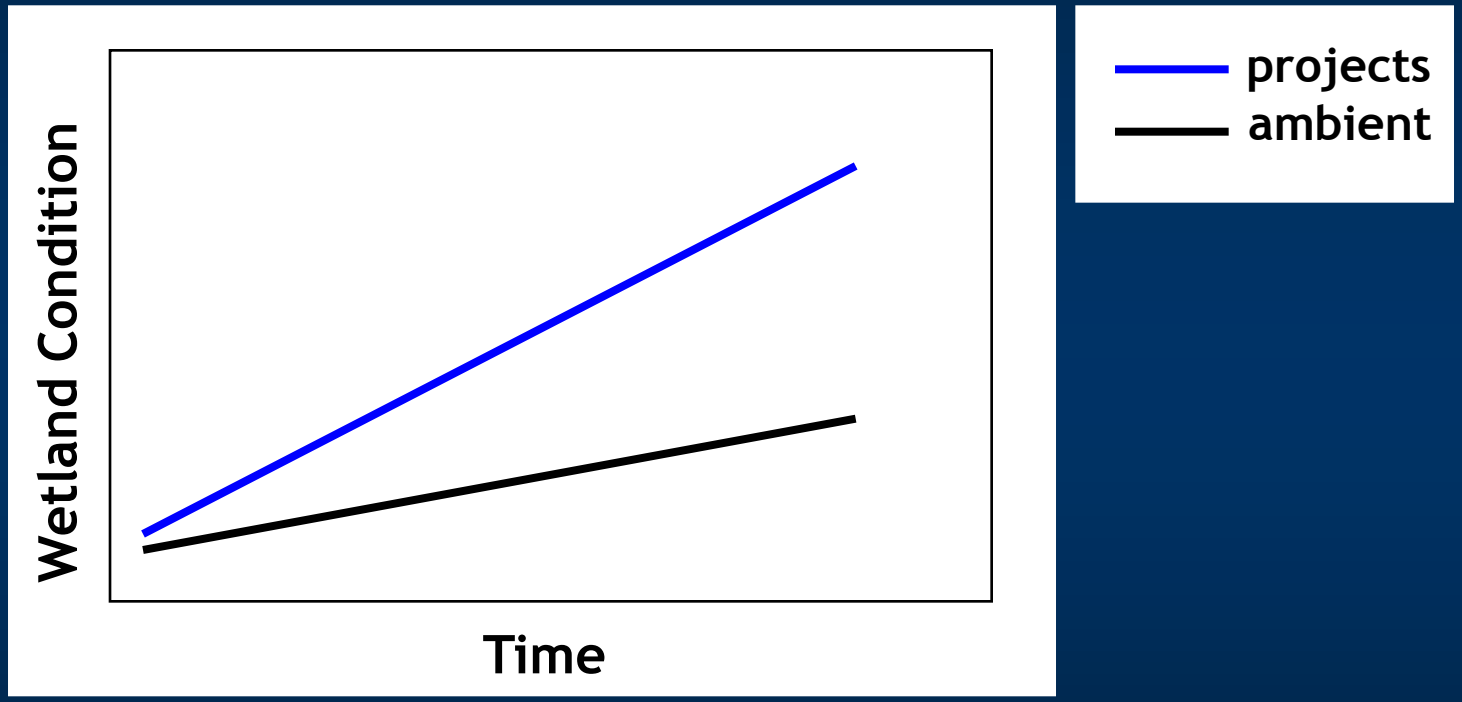
Dikes/levees
NPS runoff
Contaminants

Comparison of “Projects” vs. Ambient



- Project CRAM scores 5-20% lower than ambient condition

Comparison of “Projects” vs. Ambient



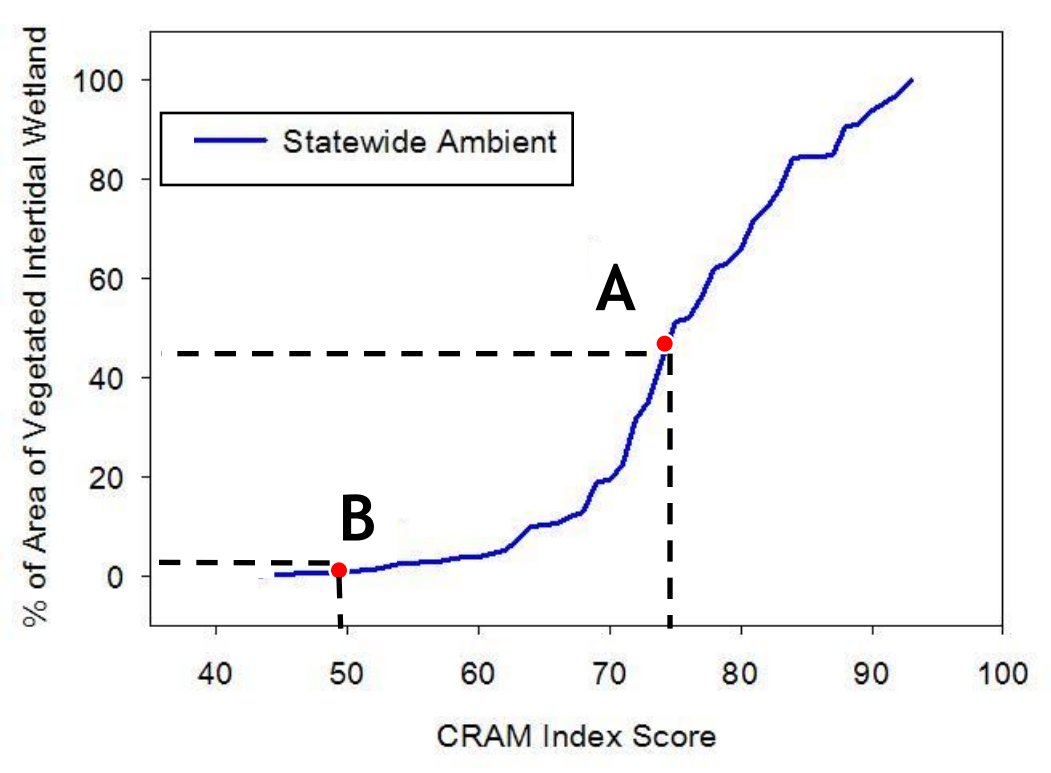
- Performance of projects over time relative to ambient condition

Looking Toward the Future

- Regional recommendations to address stressors and guide restoration activities
  - SCCWRP Technical Report 572
- Comparisons of estuarine restoration projects with ambient condition now possible
- Repeat ambient and project surveys to look at trends over time
- Develop science-based performance criteria for project sites to scale expectations for mitigation/restoration activities


Thank you!
SCCWRP
Established 1969
SAN FRANCISCO ESTUARY INSTITUTE
Region-wide Science for Ecosystem Management
Moss Landing Marine Laboratories
CALIFORNIA COASTAL TRAIL
Local Leadership
Regional Stewardship
Global Significance

“Projects” within Ambient Context



Statewide ambient condition provides the context for project scores