

# Bringing Wetlands Projects to the Carbon Market: Establishing VCS Requirements

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Greenhouse Gas Strategies in a Changing Climate  
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San Francisco, CA



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# Ecosystems in focus for climate change mitigation

Forest



Peatland



Mangroves



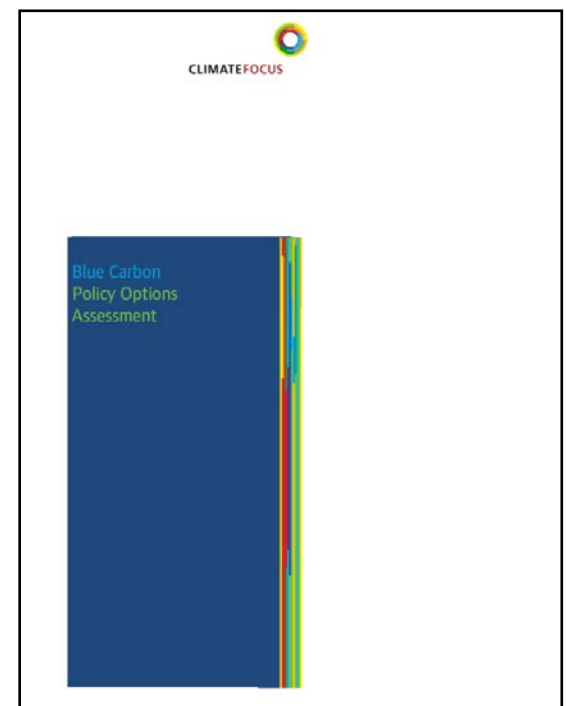
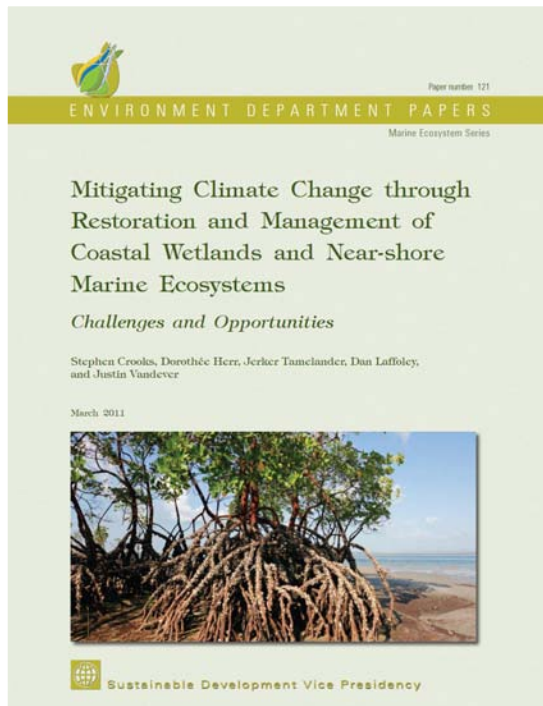
Tidal Marshes



Seagrass



# Blue Carbon Emissions – Policy and Economics

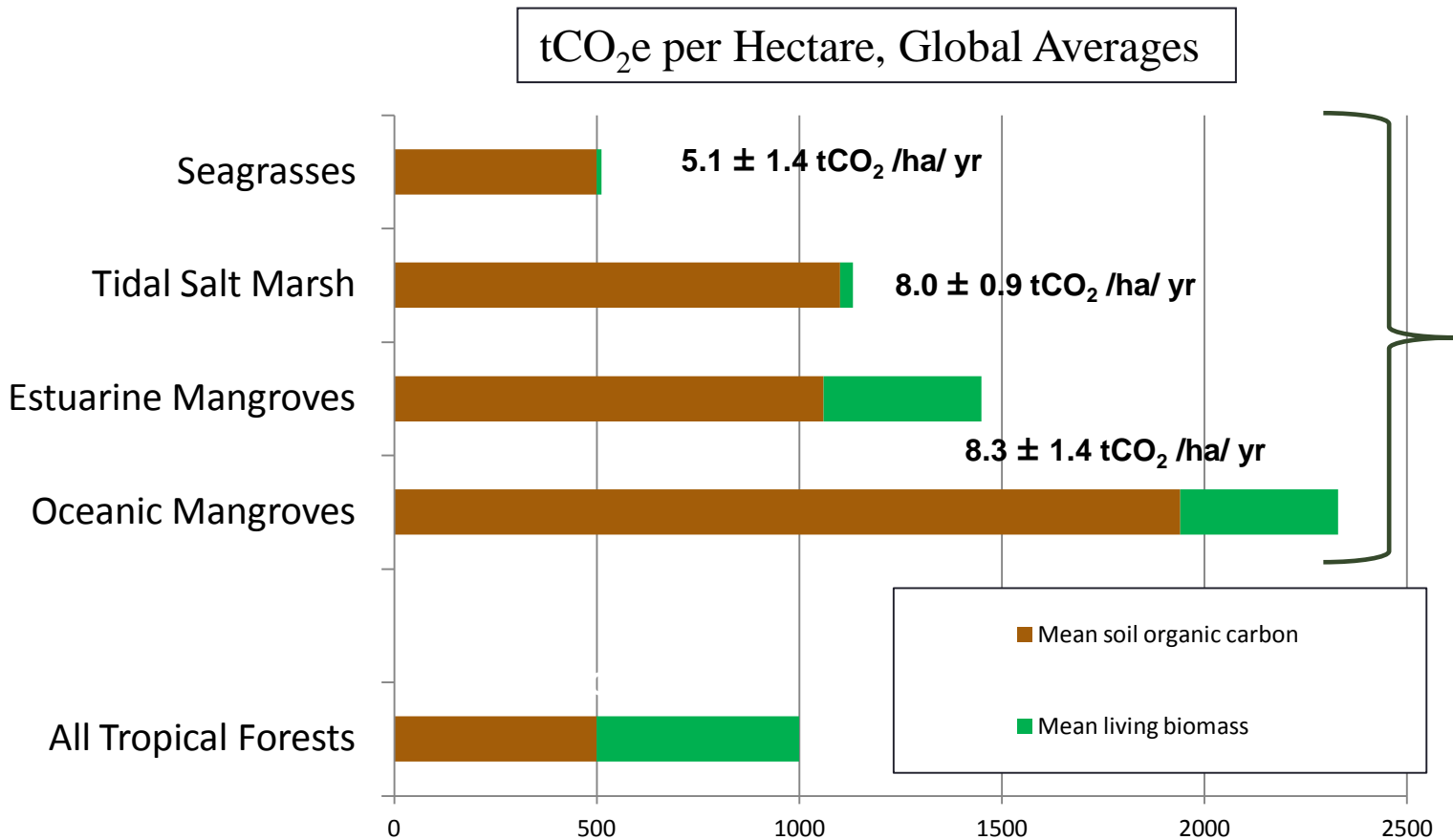


## Long-term sequestration in wetland soils



Carbon from plants settles in soil and builds up over thousands of years

# Distribution of carbon in coastal ecosystems



Data summarized in Crooks *et al.*, 2011; Murray *et al.*, 2011

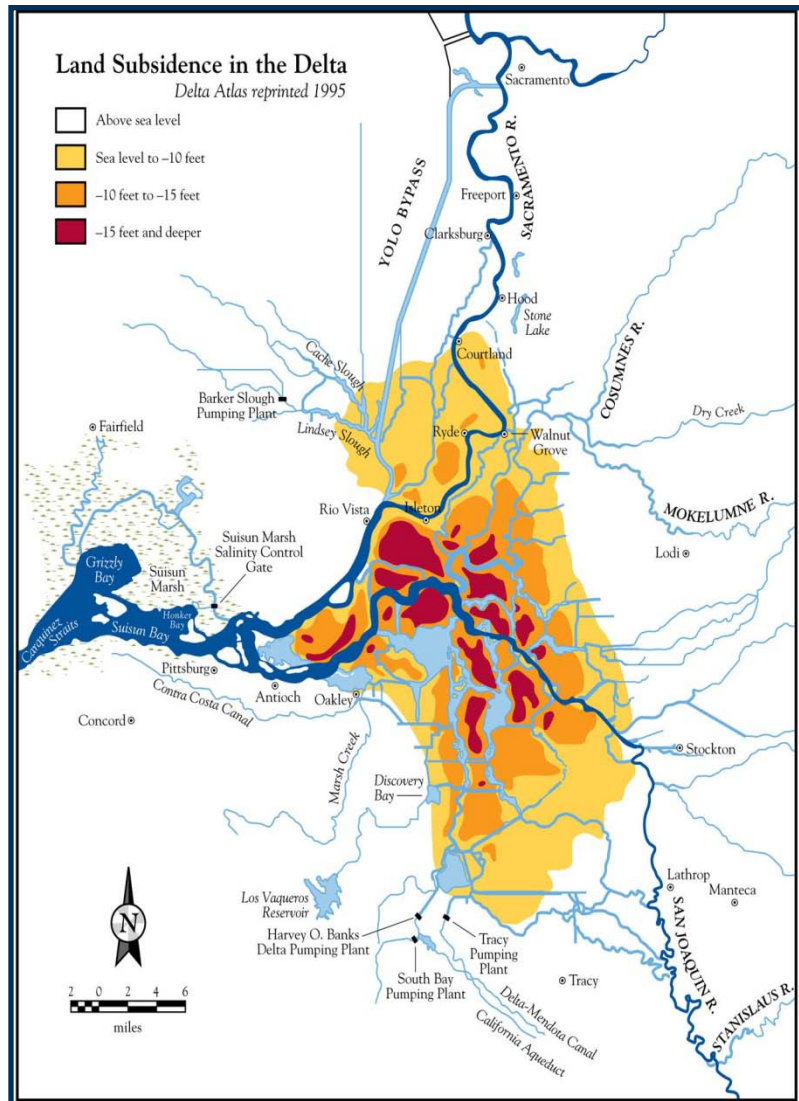
IPCC revising national  
GHG accounting  
guidance with improved  
consideration of wetlands

Peatlands  
Coastal wetlands  
Other wetlands

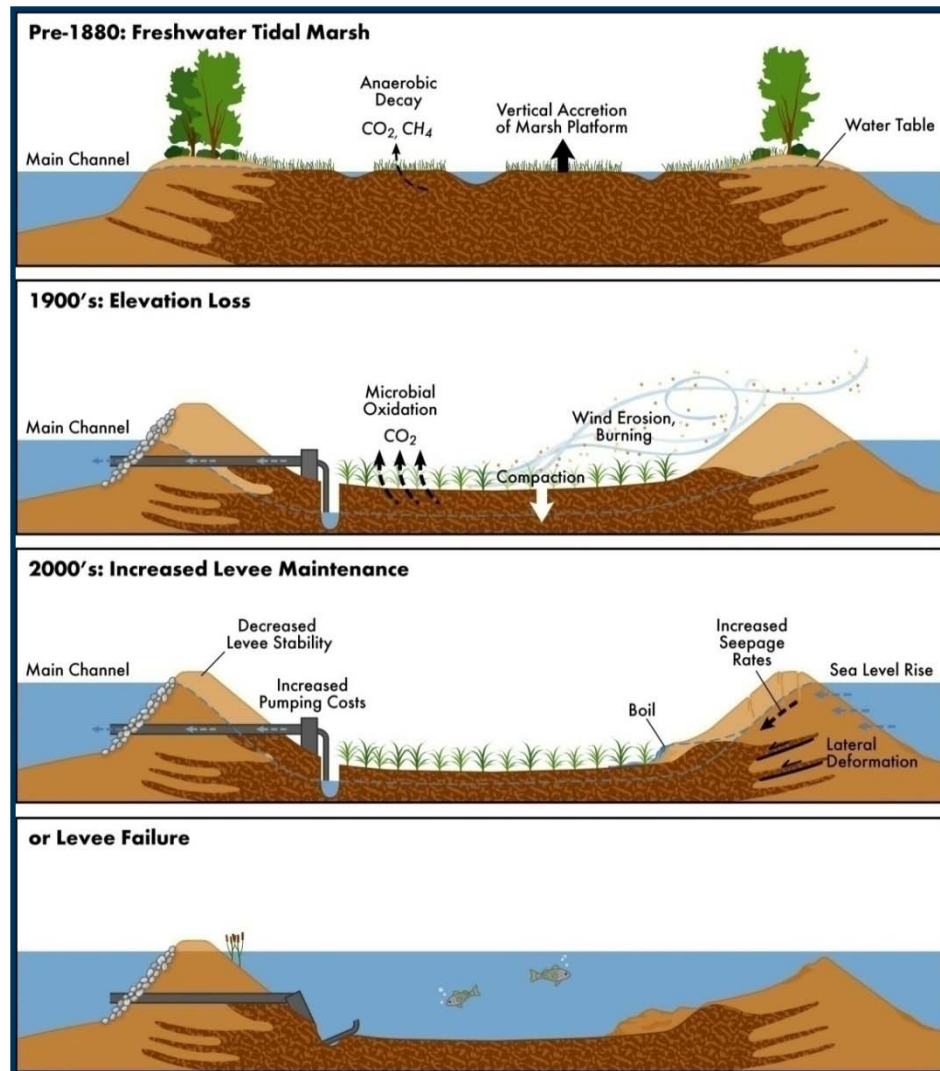
Due 2013



# ESA PWA Drained Wetlands: Very High Emissions



Sacramento - San Joaquin Delta



# Sacramento - San Joaquin Delta

Area under agriculture **180,000 ha**

Rate of subsidence (in) **1 inch**

**5 million tCO<sub>2</sub>/yr  
released from Delta**

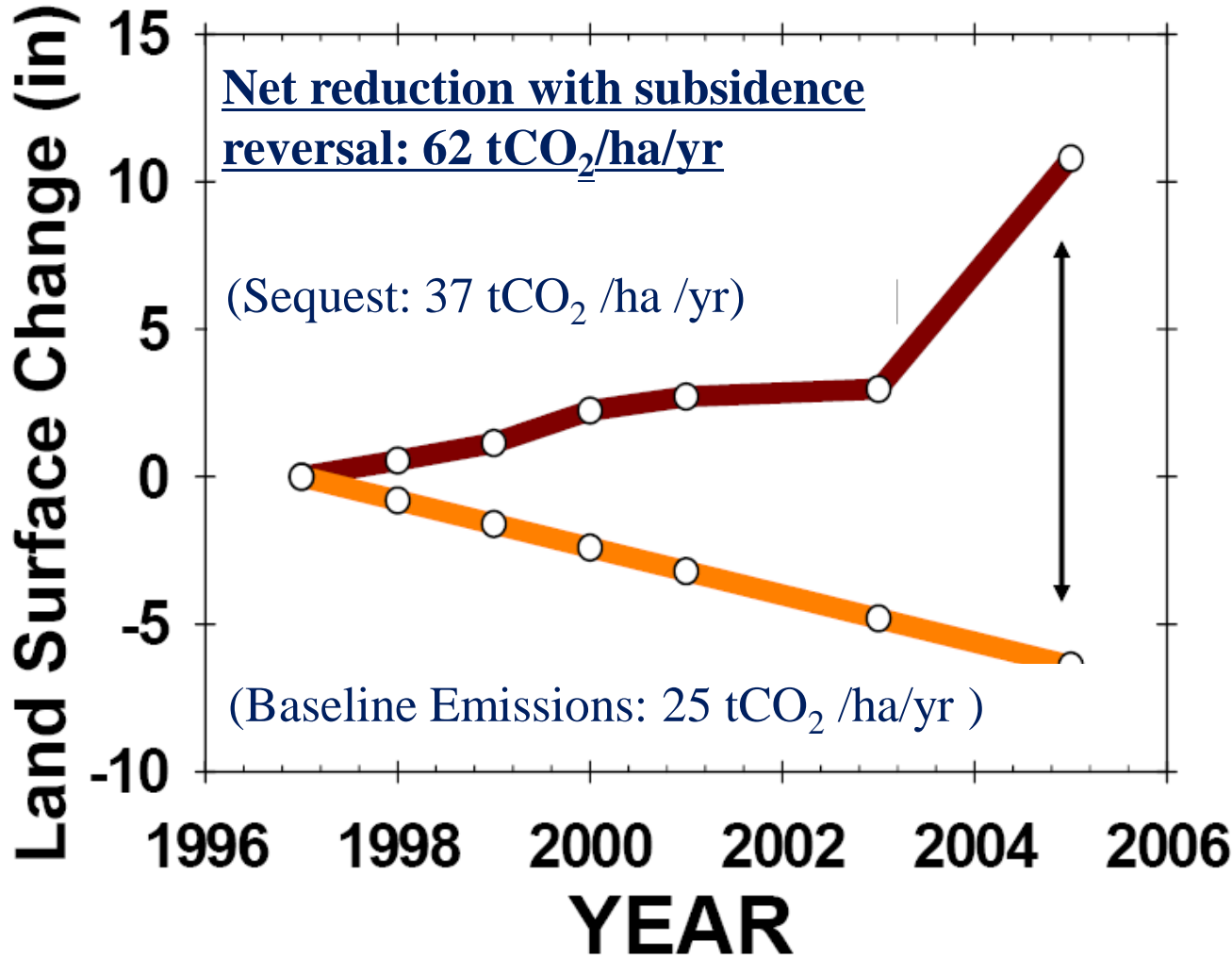
**1 GtCO<sub>2</sub> release in c.100 years  
4000 years of carbon emitted**

Equiv. carbon held in 25% of California's forests





# Sacramento - San Joaquin Delta Subsidence Reversal and Carbon Sequestration



# Restore America's Estuaries

Since 1995, protecting and restoring the lands and waters essential to the richness and diversity of coastal life.



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# Tidal Wetlands

- Sequester and store carbon at rates 2 to 4 X greater than mature tropical forests
- Provide habitat for wildlife, incl. threatened and endangered species
  - Provide numerous ecosystem benefits: water quality, flood control and reduction, storm protection, and recreational opportunities
  - Provide economic and jobs benefits



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# Tidal Wetlands

- More than 50% lost since 1800s
- 95% of San Francisco Bay wetlands lost
  - > 2% lost over last 5 years



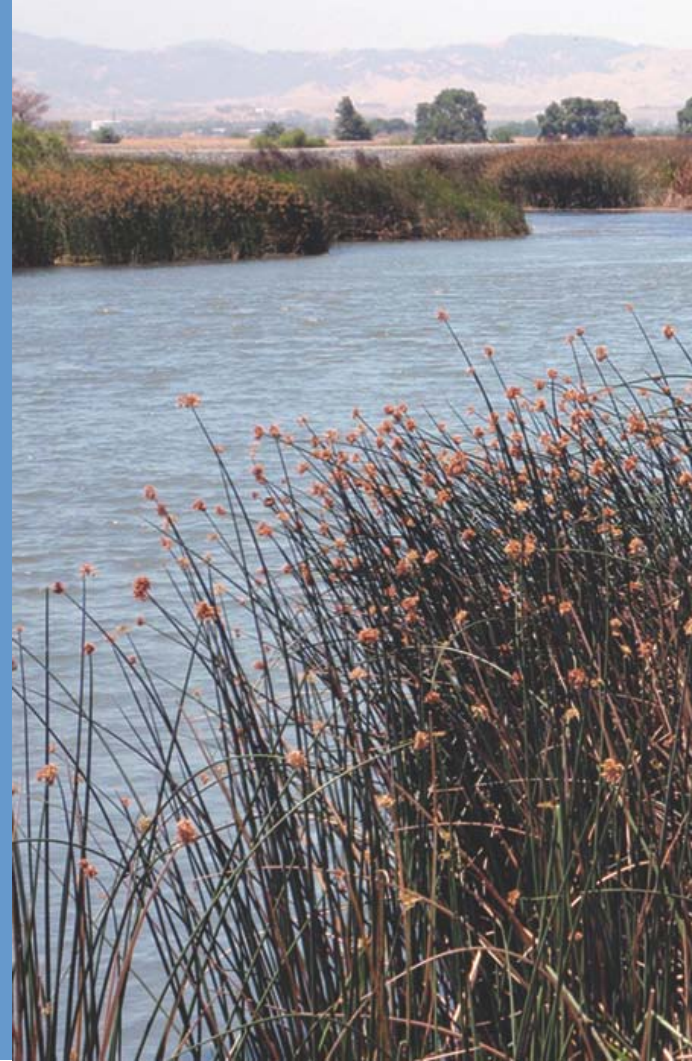
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# Tidal Wetlands GHG Offsets

Create a new category of high quality offsets  
with substantial ecological co-benefits

## Win-Win-Win

- Climate mitigation and adaptation
- Protect remaining tidal wetlands
- Restore degraded tidal wetlands



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# National Blue Ribbon Panel

Stephen Crooks, ESA PWA, Panel Chair

Tim Dillingham, American Littoral Society

Abe Doherty, California Coastal Conservancy & Ocean Protection Council

Jette Findsen, Science Applications International Corporation

Kathryn Goldman, Climate Action Reserve

Patrick Megonigal, Smithsonian Environmental Research Center

Ken Newcombe, C-Quest Capital

Lydia Olander, Nicholas Institute for Environmental Policy Solutions

Brad Raffle, Conservation Capital, LLC

Debbie Reed, DRD Associates

Diane Ross-Leech, Pacific Gas and Electric Company

Eric T. Sundquist, U.S. Geological Survey

Robert Twilley, Louisiana Office of Coastal Protection and Restoration

Michael Wara, Stanford Law School



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# Blue Ribbon Panel: Action Plan

## Foundational Issues

- Defining Project Types
- Eligibility/Additionality
- Quantifying GHG Reductions
- Permanence

## Demonstration Projects

- Managed Tidal Freshwater Marsh
- Salt Marsh
- Mississippi Delta



Findings of the  
National Blue Ribbon Panel  
on the Development  
of a **Greenhouse Gas Offset  
Protocol for Tidal Wetlands  
Restoration and Management**

## **ACTION PLAN TO GUIDE PROTOCOL DEVELOPMENT**

Based on a workshop  
convened by Restore  
America's Estuaries and  
held April 12-13, 2010

Prepared by Restore  
America's Estuaries, Philip  
Williams & Associates, Ltd.,  
and Science Applications  
International Corporation.

August 2010



[www.estuaries.org/climate-change](http://www.estuaries.org/climate-change)



# Action Plan Implementation Status: Foundational Issues

1. Defining Project Types (VCS)
2. Eligibility/Additionality (NOAA)
3. Quantifying GHG Reductions (NCEAS)
4. Permanence



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# Developing VCS Wetland Requirements

## Existing AFOLU Activities

- Afforestation, Reforestation, Revegetation (ARR)
- Agricultural Land Management (ALM)
- Improved Forest Management (IFM)
- Reduction Emissions from Deforestation and Degradation (REDD)
- (New in March) Peatland Rewetting and Conservation (PRC)
- Wetland Restoration and Conservation (WRC)



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# VCS Wetland Requirements

- Wetlands definition
- Eligible wetland categories
- Focus on hydrology, sedimentation and vegetation
- Sea level rise
- Four project activities: restoration, conservation, creation, management

## Timing

- Peer and VCS review in 2011
- Public review and launch in early 2012



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# Critical Path

Wetlands  
Methodology

Pilot Projects

Financial  
Instruments



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# Partners

ESA PWA • Science Applications International Corporation • Entergy • KBR • Maryland Department of Natural Resources • ConocoPhillips • America's Wetland Foundation • GenOn Energy • USDA Natural Resources Conservation Service • U.S. Fish & Wildlife Service • U.S. Geological Survey • California Coastal Conservancy and Ocean Protection Council • Louisiana Office of Coastal Protection and Restoration • AECOM • California Ocean Science Trust • Center for Collaborative Policy • CH2M HILL • Climate Action Reserve • Conservation Capital, LLC • Environmental Defense Fund • The Clayton Fund • The Nature Conservancy • The San Francisco Foundation • The Verified Carbon Standard



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Thank you!

For more information

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