United States Environmental Protection Agency

National Aquatic Resource Surveys

Office of Water, OWOW, Wetlands Division
Office of Research and Development

United States Environmental Protection Agency

EPAs Monitoring Initiative

- Numerous reports highlighting monitoring limitations
  - Incomplete data
  - Inability to characterize condition of water resources
- ASWPCA report on Water Quality Monitoring
  - Monitoring is fundamental, yet first to be cut
  - Funding shortfall exceeds $100 million
- EPA Monitoring Initiative (increase to State 106 grant)
  - $10 million for enhancing state monitoring programs
  - $8.5 million for collaboration on statistical surveys

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EPA's Monitoring Initiative

- Support State Monitoring Strategy
  - 10 element strategy
  - All waters/All Beneficial uses
- Support National Aquatic Resource Surveys
  - Lakes
  - Rivers and Streams
  - Coastal
  - Wetlands
- Funding through State 106 grants
  - Monitoring strategy ($174,000 per year)
  - Probability-based surveys ($8,000 per site)

National Aquatic Resource Surveys
General Goals

1. Produce national reports that describes the ecological condition of the nation's aquatic resources

2. Build state and tribal capacity to implement water quality monitoring and assessment programs

3. Advance the science of monitoring and assessment

Implementation of National Surveys

- Short-term strategy
  - Rotate through water resources
  - Standardized design
  - Standardized methods

- Longer-term vision
  - State-scale surveys roll into national surveys

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Basic Components of Surveys

- Randomized design to report on conditions at national and regional scales
- Standard field and lab protocols
- National QA program and data management
- Nationally consistent and regionally relevant data interpretation and reports

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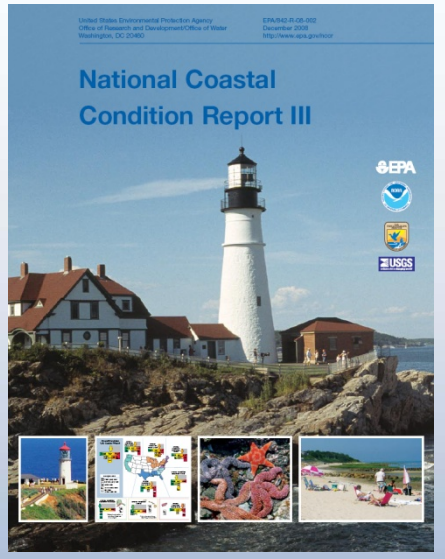
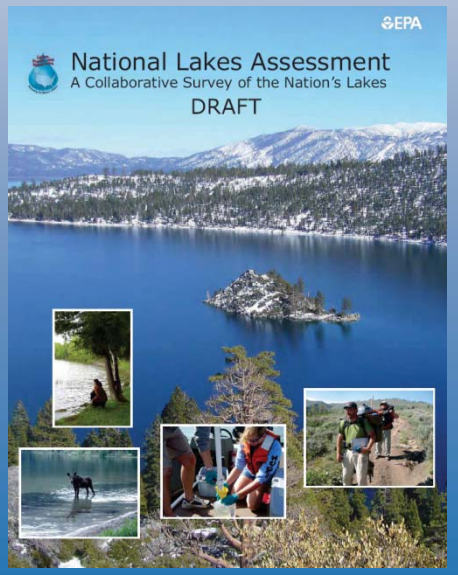
Implementation Challenges

- Workload capacity at states for field and lab work
- Integrating multiple methods
- Interpreting biological data
- Transferring analytical tools and techniques
- Expanding use of data to support management objectives

National Surveys Schedule

	Lakes	Rivers and Streams	Coastal	Wetlands
2005	Research			
2006	Design			
2007	Field	Design		
2008	Lab/Data	Field	Report*	
2009	Report*	Field	Design	Research
2010	Research	Lab/Data	Field	Design
2011	Design	Report	Lab	Field
2012	Field	Design	Report	Lab/Data
2013	Lab/Data	Field	Design	Report





National Wetland Condition Assessment

1. Produce a national report that describes the ecological condition of the nation's wetlands

2. Help States and Tribes implement wetland monitoring and assessment programs

3. Advance the science of wetlands monitoring and assessment

National Wetland Condition Assessment

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2007-2009	2010	2011	2012	2013
Research	**Design**	**Field**	**Lab/Data**	**Report**
Scientific issues Policy issues Supplemental data analysis Methods refinement	Target population Indicators Field/ Lab practices QA Plan	Training Site reconnaissance Sample collection Field QA	Lab analysis Lab QA Data entry Data QA	Data analysis Presentations Peer review Final report

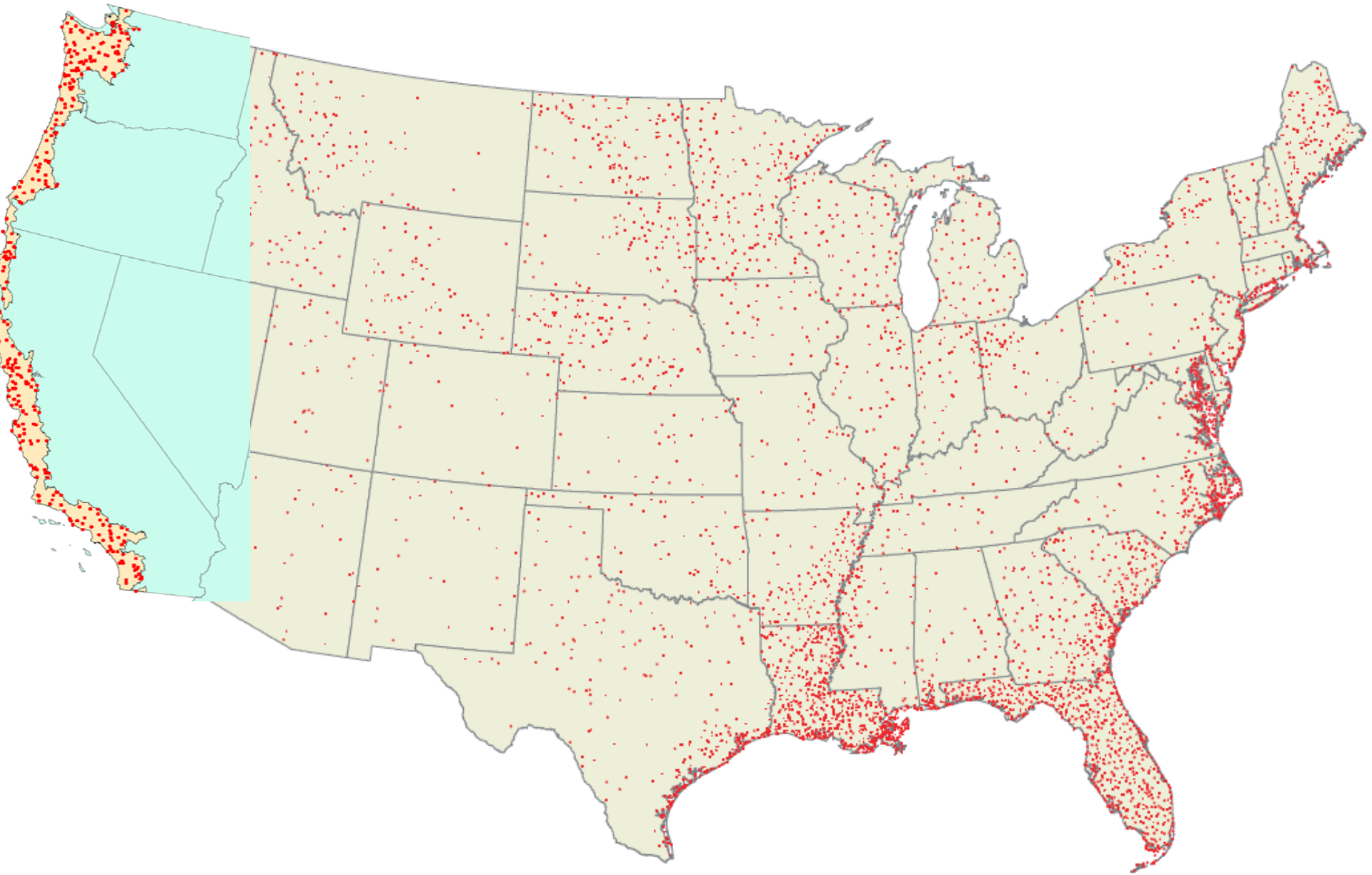
Process

February 2008	March 2008	Summer 2008	Fall 2008	Dec 2008
Webinars to Discuss Indicator "Selection Criteria"	Indicators Workshop in Portland, Oregon	EPA develops Indicator Straw Proposal	Webinar to Discuss Level 3 Indicator Straw Proposal Level 3 Indicator Comments Due	**National Meeting to finalize Draft Indicators** EPA begins work on Draft Field Operations Manual

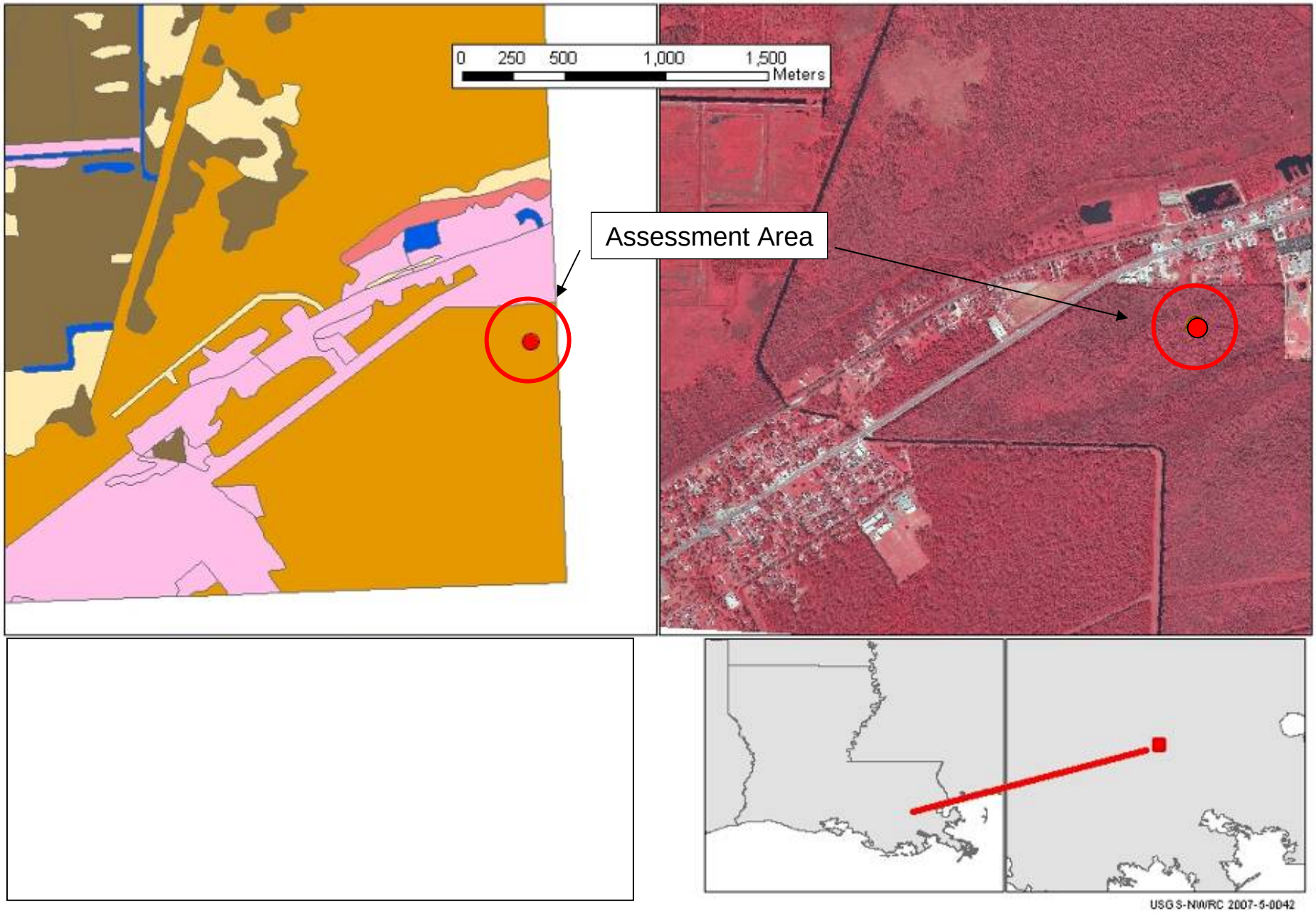
Timeline: 2009 - 2010

Winter/Spring 2009	June 2009	Summer 2009	2010
Reference Condition and Indicator Calibration Work Group Discussions	Technical Work Shop to finalize Draft Field Methods	Pilot Draft Methods Draft Methods and QAPP Site Selection	Peer Review Pilot Methods Select Candidate Reference Sites

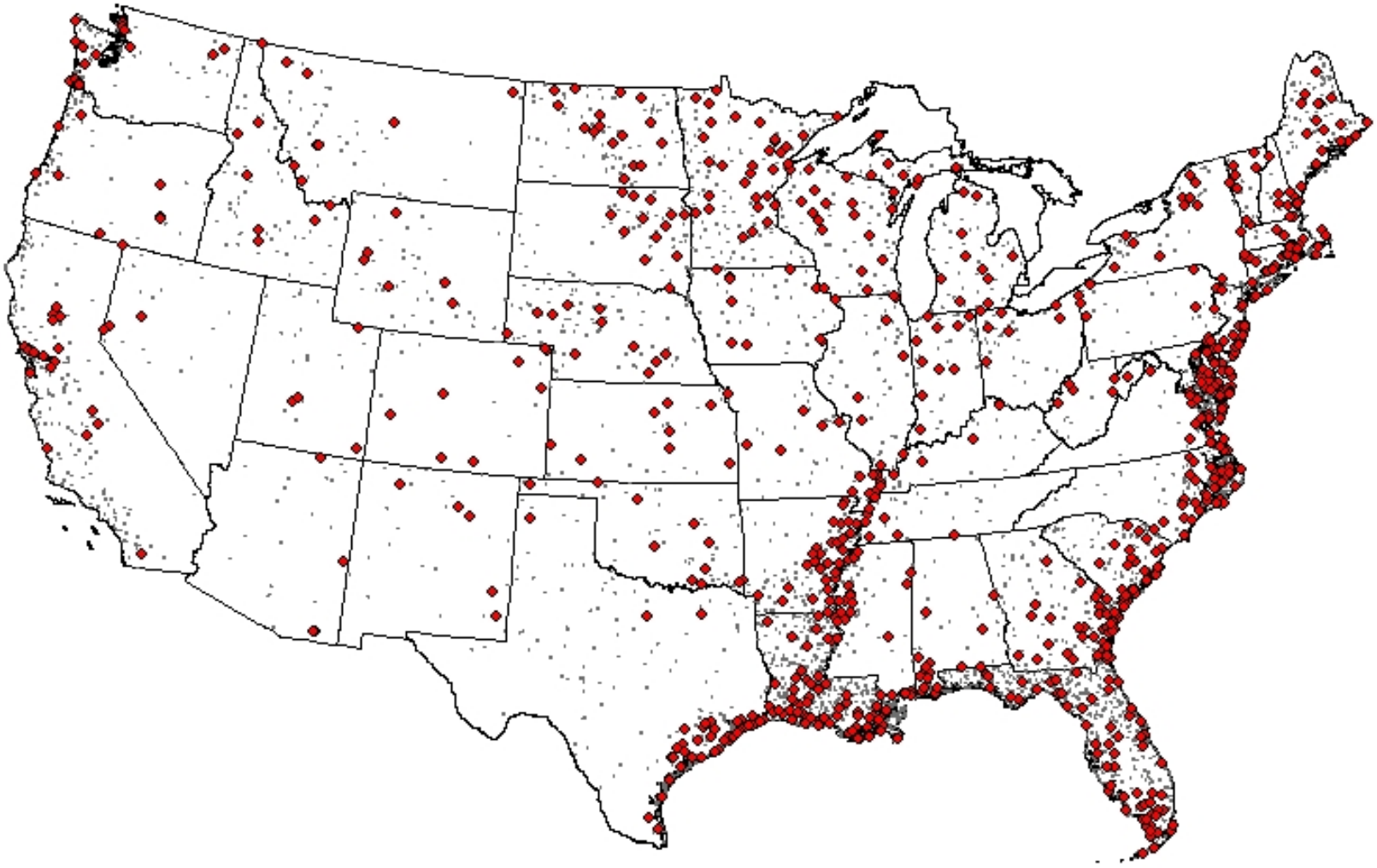
Status and Trends 2005 Plot Locations



Example of FWS S&T Plot: 2mi x 2mi



Initial sample draw



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Target Population

CLASSFICATION	COMMON NAME
Estuarine Intertidal Emergents	Saltwater Marsh, Brackish Marsh
Estuarine Intertidal Shrub/Scrub	Mangrove Forest, Swamp Tupelo
Palustrine Forested	Bottomland Hardwoods, Pine Savannah, Cypress Swamps, Vernal Pools
Palustrine Shrub/Scrub	Bogs, Pocosins, Buttonbush Marsh, Bayberry Fen, Meadowsweet Marsh
Palustrine Emergents	Prairie Potholes, Freshwater Marsh, Fens, Seeps & Springs, Wet Meadows
Palustrine Unconsolidated Bottom/Palustrine Aquatic Bed	Open Water Ponds (Natural or Urban)
Palustrine Farmed	*Rice paddies, 'wet' agricultural fields*

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Initial sample draw

CLASSFICATION	Sites
Estuarine Intertidal Emergents	5
Estuarine Intertidal Shrub/Scrub	0
Palustrine Forested	0
Palustrine Shrub/Scrub	0
Palustrine Emergents	7
Palustrine Unconsolidated Bottom/Palustrine Aquatic Bed	1
Palustrine farmed	*10*
	23 + 2 QA

Level 2 – Rapid Assessment

- "USA- RAM"
- Wetland "structure" assessment (HGM condition)
- Stressor ID (ditching, buffer disturbance, etc.)
- Condition and Stress Indices

Attributes
Landscape
Buffer
Hydrology
Physical Structure
Biological Structure

Abiotic Indicators

Soils

- Basic soil profile (auger),
- Hydric Soil Field Indicators,
- Soil chemistry

Water

- Water Depth,
- Water Chemistry,
- Contaminants

Photo courtesy of Janet Nestlerode

Biological Indicators

Plants

- Tailored to dominant vegetation, strong botanical skills, “office time” for IDs, press unknowns

Algae

- Soft Algae and Diatoms, Multi-Habitat Composite Sample

Photo courtesy of Janet Nestlerode

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Cost Break Down ($8,000 per sample)

- $6000 for field
  - All the field work and costs getting there

- $2000 for lab
  - $800 for soils
  - $300 for water chemistry
  - $400 for algae ids
  - $500 for plant ids and vouchers

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EPA support during survey

- Ensuring equipment and supplies available
- Coolers, beakers, vials, dry-ice, boxes shipping material
- Shipping costs for lab samples
- Tracking samples and site replacement
- Data management and analysis (including data flow to EPA and back to State)

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Funding options

- 106 funds to State Board through SWAMP

  - CA does field and lab work
  - CA does field only (EPA contract for lab analysis)
  - CA does lab only (EPA contractor does field work)
  - EPA contractor does field and lab work

  - Or some other combination of the above

Short-term timeline

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Initial site list to states and tribe

Site packet to states
- Aerial photos
- Landcover maps
- GIS files
- Google Earth files

Near final FOM and QAPP

FOM Workshops

-4/24 at NWQMC in Denver

- 5/16 at Corvallis

Declaration of state interest

State's and Tribes work with EPA Regions to develop work plans

Roles and Responsibilities (USEPA)

Office of Wetlands, Oceans, and Watersheds (OWOW)

- Program lead
- Coordinate surveys from research to reporting
- Fund planning, oversight, QA data management and reporting
- Secure funds for key enhancements

Office of Research and Development (ORD)

- Provide technical/scientific support for design, implementation, and analysis

EPA Region 9

- Coordinate with states and tribes (Terry is contact for SWAMP, Paul for CWMW)
- Support survey planning/implementation (Mostly Paul)
- Disperse funds to states (Terry does this)

Roles and Responsibilities (Partners)

States and Tribes

- Inform planning process and data interpretation
- Conduct field work and lab analysis
- Prepare state-scale analysis as appropriate

Federal Partners (USGS, USFWS, NOAA)

- Inform planning process
- Provide sampling frame for wetlands survey (USFWS)
- Provide support for supplemental indicators
- Assist with field sampling
- Use data to support decision-making

Other Partners (NEPs, universities, volunteers)

- Assist states in implementation and analysis

www.epa.gov/wetlands/survey

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Coordination with NWCA - Goals

- Highlight condition of CA wetlands in context of the national assessment

- Leverage effort to promote state wetland assessment program

Opportunities to Collaborate with NWCA

- Low cost
  - coordinate status & trends and reference sampling via common indicators
  - Serve up data/results via wetlands portal
- Moderate cost
  - Participation in sampling (training in methods)
  - Participate in data analysis and reporting efforts
- Higher cost
  - Intensify to provide ambient assessment for CA
  - Constrain geographically or by wetland type