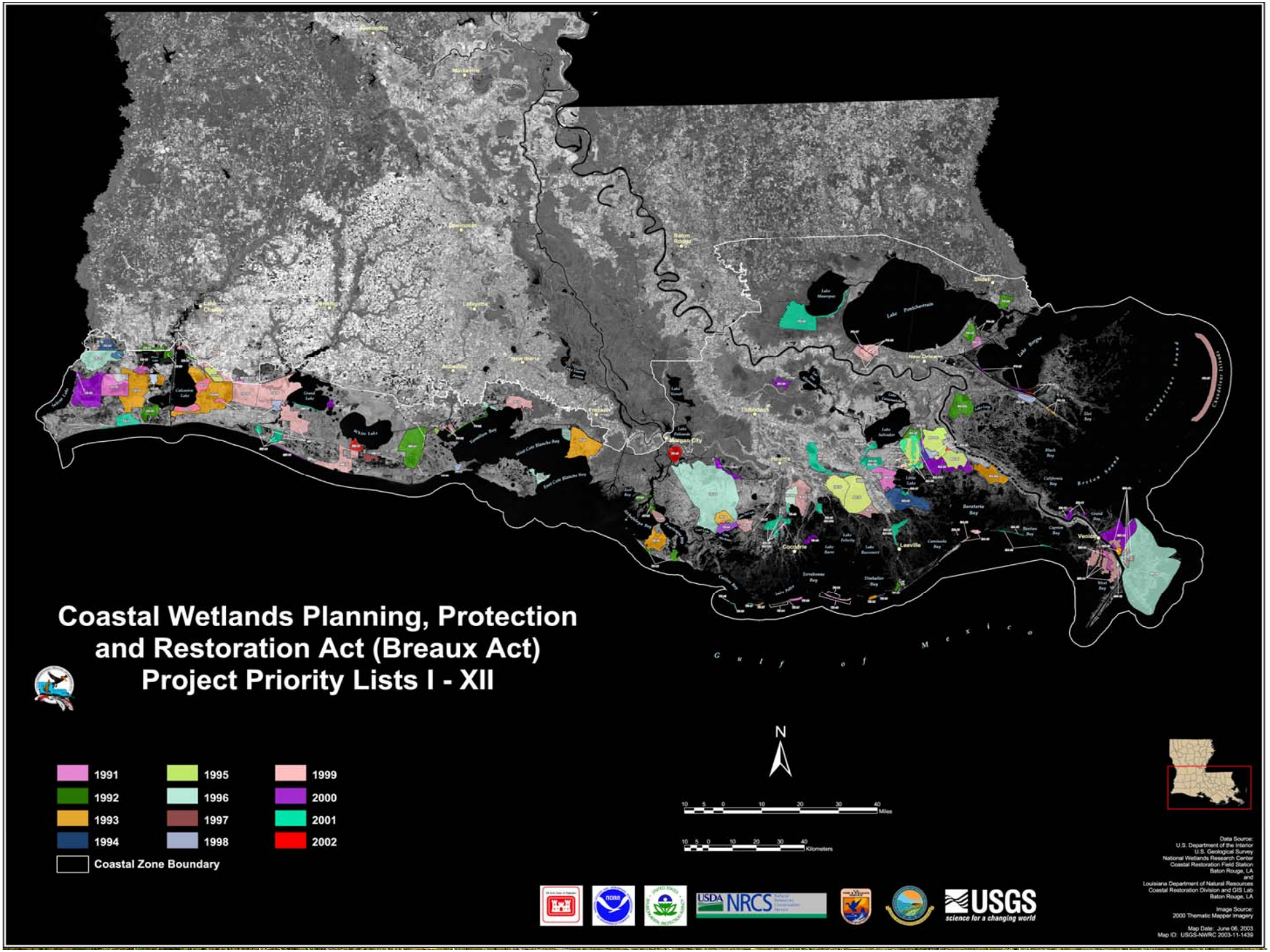
Coastwide Reference Monitoring System – *Wetlands* (CRMS-*Wetlands*) Project Update

Louisiana Department of Natural Resources
Coastal Restoration Division

U.S. Geological Survey
National Wetlands Research Center


Coastal Wetlands Planning, Protection and Restoration Act (Breaux Act) Project Priority Lists I - XII
1991
1992
1993
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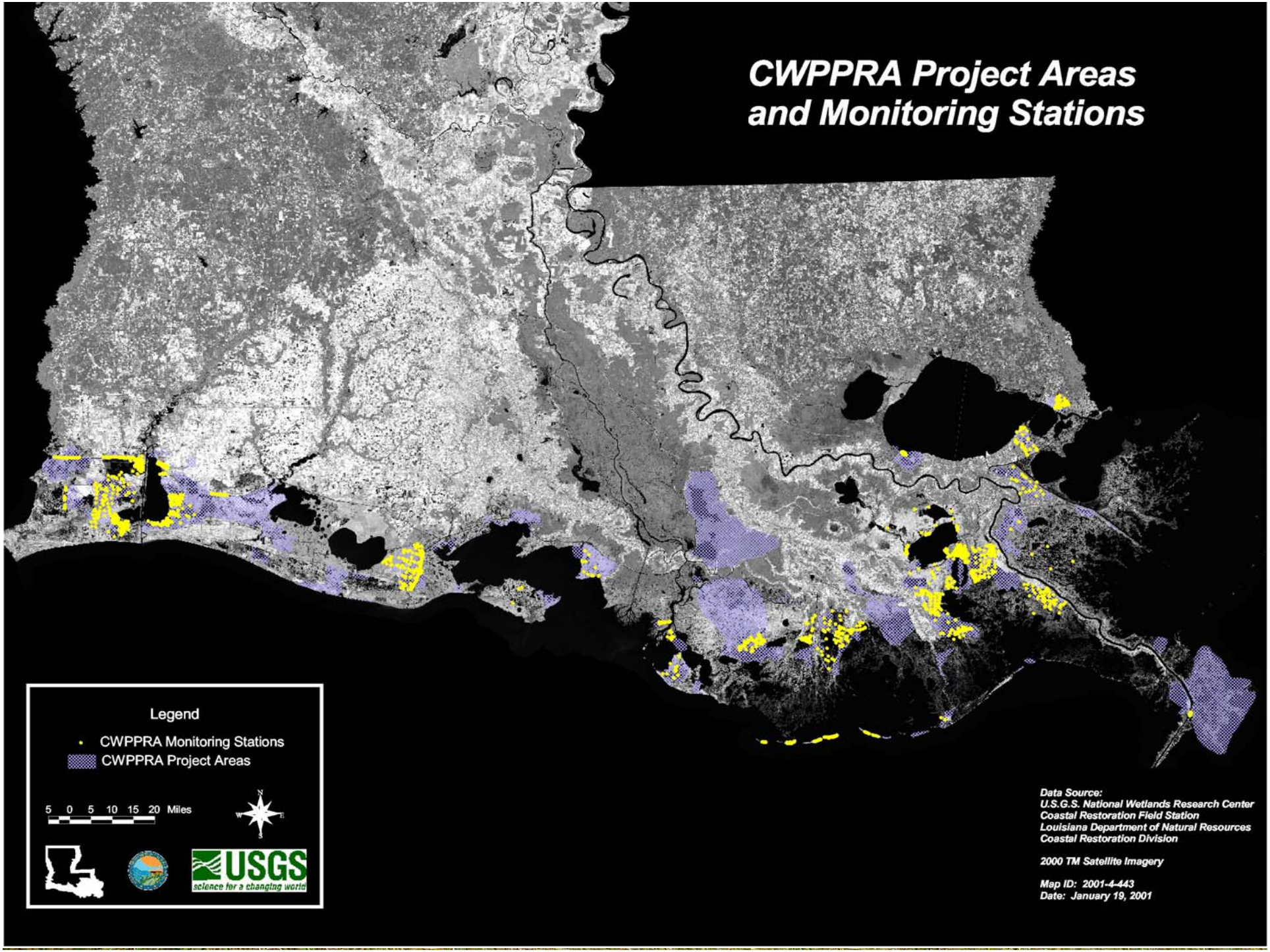
2002
Coastal Zone Boundary
N
Miles
Kilometers
Gulf of Mexico
Data Source:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA
and
Louisiana Department of Natural Resources
Coastal Restoration Division and GIS Lab
Baton Rouge, LA
Image Source:
2000 Thematic Mapper Imagery
Map Date: June 06, 2003
Map ID: USGS-NWRC 2003-11-1439
USGS
science for a changing world

CWPPRA Monitoring Mandates

"an evaluation of the effectiveness of each coastal wetlands restoration project in achieving long-term solutions to arresting coastal wetlands lost in Louisiana"

"a scientific evaluation of the effectiveness of the coastal wetlands restoration projects carried out under the plan in creating, restoring, protecting and enhancing coastal wetlands in Louisiana"


CWPPRA Project Areas
and Monitoring Stations
Legend
CWPPRA Monitoring Stations
CWPPRA Project Areas
5 0 5 10 15 20 Miles
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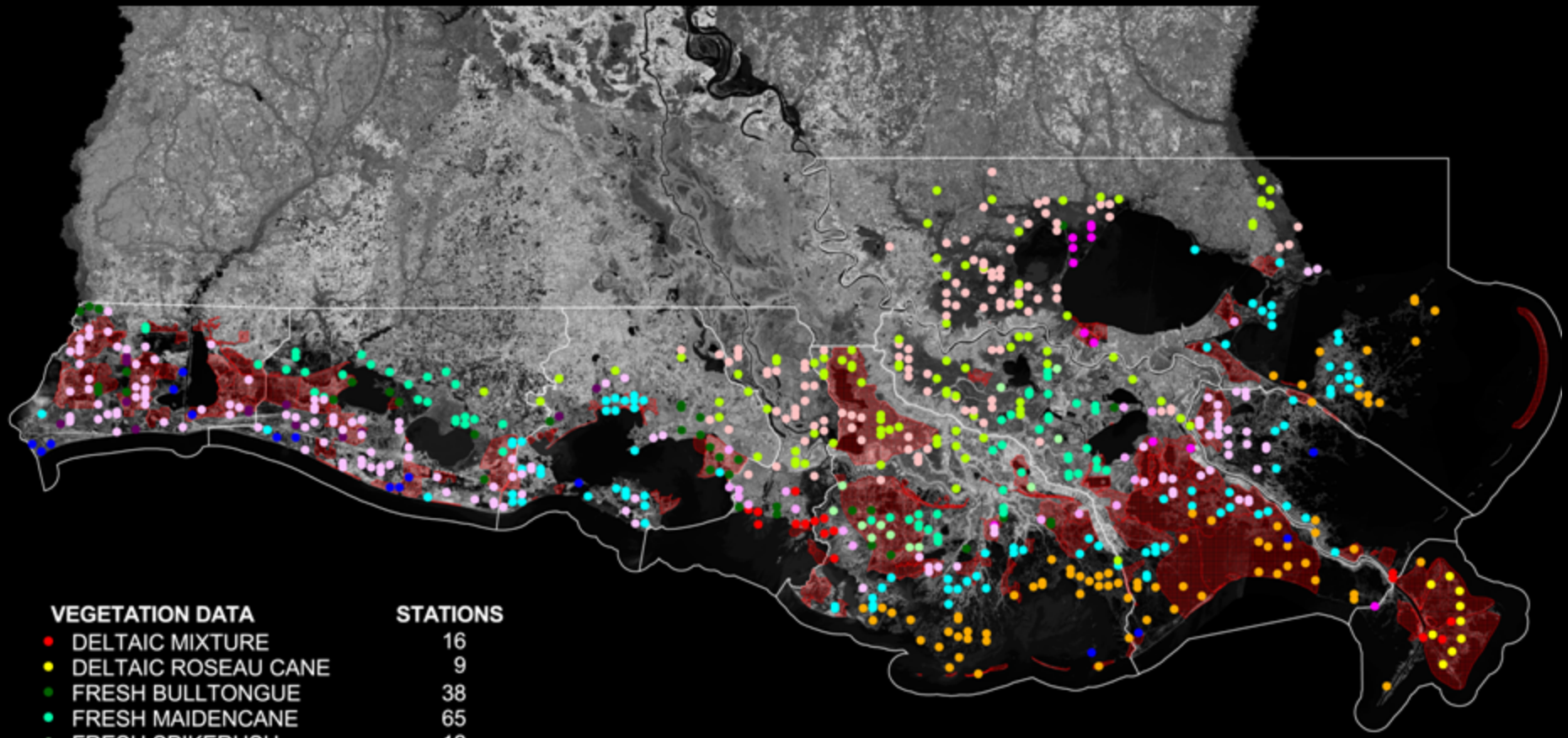
USGS
science for a changing world
Data Source:
U.S.G.S. National Wetlands Research Center
Coastal Restoration Field Station
Louisiana Department of Natural Resources
Coastal Restoration Division
2000 TM Satellite Imagery
Map ID: 2001-4-443
Date: January 19, 2001

Coastwide Reference Monitoring System

Purpose:

- **To improve our ability to determine the effectiveness of individual coastal restoration projects.**
- **Provide information to evaluate coastal wetlands at the ecosystem, basin, and restoration project scale.**
- **To determine the ecological condition of coastal wetlands based on the variables measured to ensure that the strategic coastal plan for Louisiana (Coast 2050 and LCA) is effective in recreating a sustainable coastal ecosystem.**

CRMS – *Wetlands* Sampling Stations



VEGETATION DATA	STATIONS
DELTAIC MIXTURE	16
DELTAIC ROSEAU CANE	9
FRESH BULLTONGUE	38
FRESH MAIDENCANE	65
FRESH SPIKERUSH	12
MESOHALINE MIXTURE	16
MESOHALINE WIREGRASS	95
OLIGOHALINE BULLTONGUE	12
OLIGOHALINE MIXTURE	13
OLIGOHALINE SPIKERUSH	18
OLIGOHALINE WIREGRASS	135
POLYHALINE OYSTERGRASS	76
SWAMP	107
BOTTOMLAND HARDWOOD	88
TOTAL	700

CWPPRA Project Area
HYDROLOGIC BASIN

N

FIELD SURVEY:
Dr Robert Chabreck
Department of Forestry, Wildlife, and Fisheries
Louisiana State University

R. Greg Linscombe
Louisiana Department of Wildlife and Fisheries

MAP PRODUCTION:
U.S. Department of the Interior
U.S.G.S. National Wetlands Research Center
Coastal Restoration Field Station
Louisiana Department of Natural Resources
Coastal Restoration Division
2000 TM Satellite Imagery
Map ID: 2001-4-613
Date: May 24, 2001

20 0 20 40 Miles

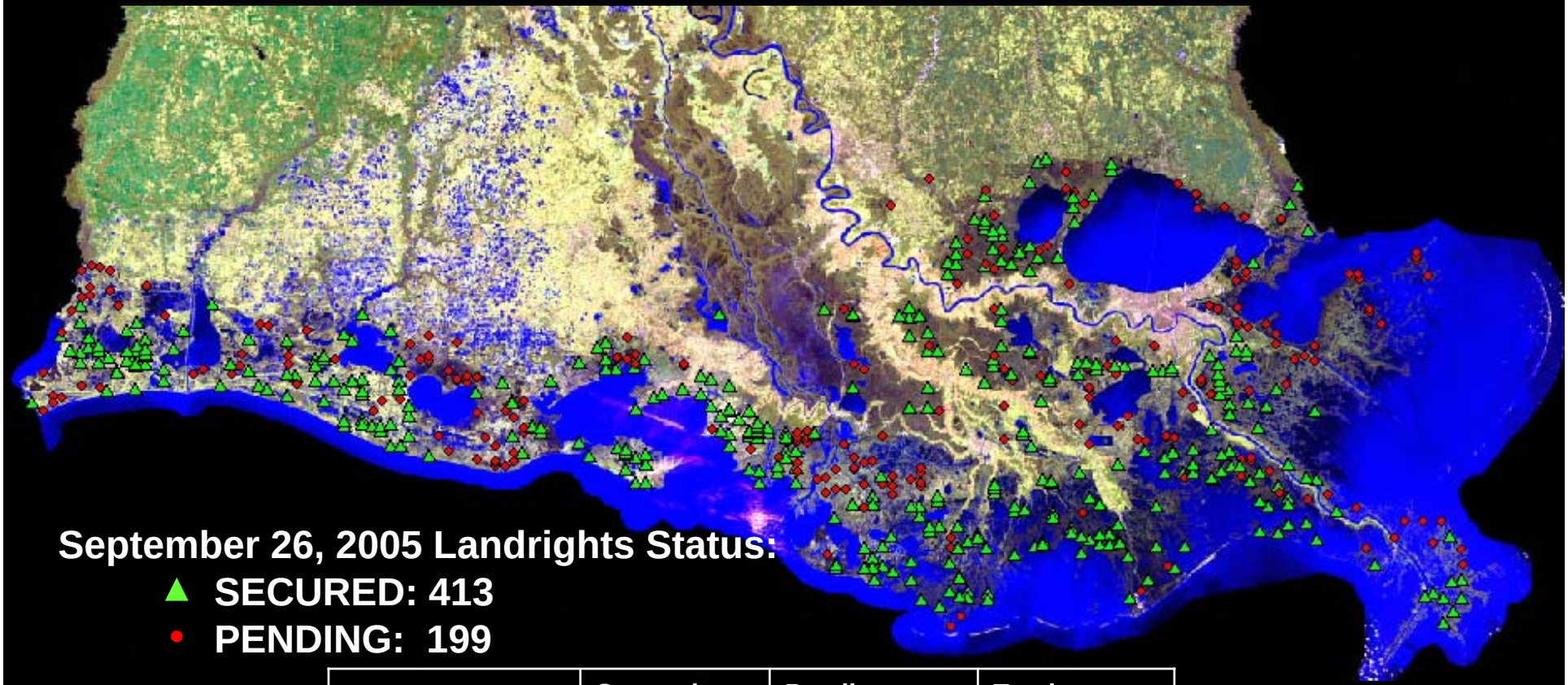
CRMS - *Wetlands* Design

- **612 CRMS-*Wetlands* sites to be established over the next 3 years. 200 sites will be collected annually with the remainder in a 3-year cycle. Year 1 sites in 2005/2006 and again in 2008/2009.**

- **104 stations in Barataria Basin will be sampled every year for first four years and re-sampled (Monte Carlo simulations) to assess power of design.**

- **Aspects of ecosystem structure and function will be measured at each site including elevation dynamics, vegetative assemblage, and hydrologic parameters to support functional model development.**

Coastwide Reference Monitoring System - *Wetlands*



September 26, 2005 Landrights Status:

- ▲ **SECURED: 413**
- ● **PENDING: 199**

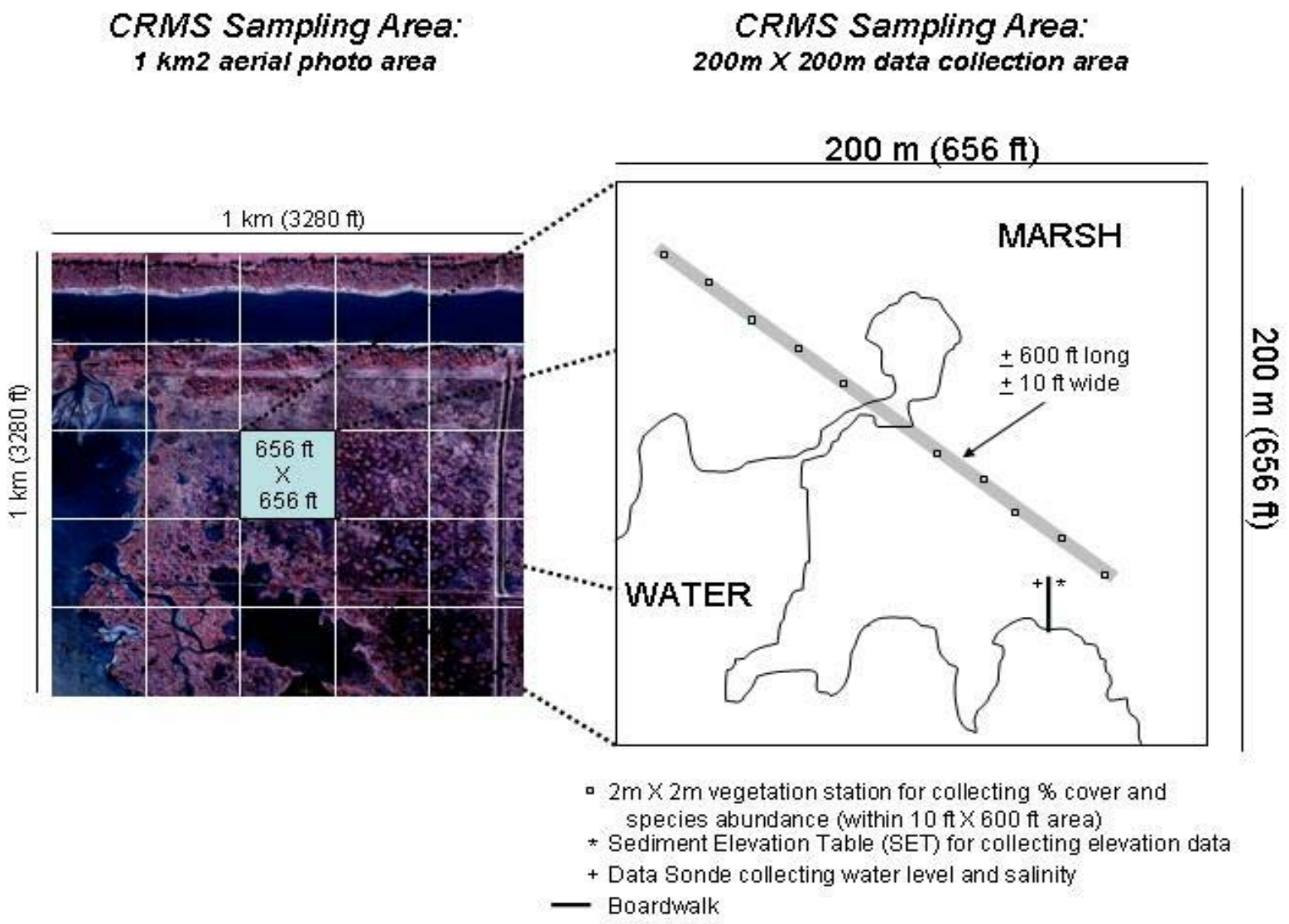
	Secured	Pending	Total
Annual Stations	138	49	187
Year 1 Stations	92	51	143
Year 2 Stations	96	42	138
Year 3 Stations	87	57	144
Total	413	199	612

LANDRIGHTS

Data collection at each site

Parameter	Method	Scale	Frequency
Land to Water Ratio	Satellite Imagery	Hydrologic Basin	3 years
Land to Water Ratio	Digital Aerial Photography	CRMS Site (1 Km^2)	3 years
Emergent Vegetation	Braun Blanquet: % Cover, Species Richness, Height of Dominant Species	(10) 2m x 2m plots/CRMS Site	Annually during peak biomass
Forested Vegetation	DBH and Canopy Cover	(5) 20m x 20m plots/CRMS Site	Annually during peak biomass
Vertical Accretion	Feldspar Plots/Cryogenic Cores	3 plots/CRMS Site	Bi-annually
Marsh Elevation Change	Rod Surface Elevation Table (RSET)	4 directions/CRMS Site	Bi-annually
Porewater Salinity	10 and 30 cm deep wells Syringe/Sipper	3 wells per depth/CRMS Site and at Vegetation Plots	Monthly Annually
Surface Water Salinity, Temp and Water Level	Submersible Data Logger	in available water within 200 m of CRMS Site or in a well	Hourly
Soil Characteristics	Core samples profiled into 4 cm increments to 24 cm. Bulk Density, OM%, Soil Salinity, pH, and Moisture.	3 cores, 18 archived samples/CRMS Site	Decade

TYPICAL CRMS SITE SAMPLING & DATA COLLECTION AREAS



Site Characterization

Site Characterization Sheet (Page 1 of 3)

Site: CRMS0489 (Annual) **Basin:** TV

Date and Time (CST) of Site Visit: 06/15/2005 @ 08:46 **Agency:** CES

Field Personnel: B. Handley, G. Thibodeaux, J. Cancienne, R. Broussard **Weather:** Clear, 90°F, Winds SW @ 0 - 5mph

1. Site Location and Access: Has site been relocated from original CRMS centerpoint? Yes

	Easting:	Northing:
Site Coordinates (Center Point; UTM, NAD83 Meters)	641213	3275486

Access: Nearest City: Burns Highway Access: Rt. 317

Boat Ramp: Burns Point Rec. Area Landing

Type of Water Vessel: Any

Directions from field office: Follow Hwy. 14 east to US-90. Take US-90 south to the Rt. 317 exit toward Burns Point/Centerville. Turn right and take Rt. 317 to Burns Point. The Rec. Area will be on the right. Pay $1.00 entry fee. The ramp is at the end of the road.

Direction from boat ramp to site: Follow the coast to the north. Just past the second large keyhole, enter a small bayou. The sonde is placed on the right side about 30m/100ft. up the bayou. The center is 15m/50ft into the marsh from there.

Site Restrictions: Contact Clyde Breaux (337-836-9481) for Delores Arnaud prior to visit.

Location of Secondary Benchmark: TV04-SM-03

Other: See Site Location and Access (continued), Page 3

2. Continuous Recorder Details:

	Easting:	Northing:
Coordinates of Location (UTM, NAD 83 Meters)	641203	3275496

Recommended Set-up (Wooden post, Mono-pole, Well): Wooden post

Description of area [describe water body (size, depth, consistency of bottom), distance from edge, salinity]: 15ft/5m wide, 2.25ft/0.6m deep, very steep-sided, moderately firm-bottomed trenasse; 30.3°C, 47.1µS, 0.2ppt; sonde 2ft/0.6m from edge.

3. Boardwalk Details:

	Easting:	Northing:
Coordinates of Access Point (UTM, NAD83 Meters)	641213	3275486
Direction/Bearing of Access Boardwalk (degrees)	No access boardwalk required	
Approximate length of Access (Additional) Boardwalk (ft)	No access boardwalk required	
Direction/Bearing of Base Boardwalk (degrees)	138°	

4. Site Layout Details: (airboat access direction, vegetation transect orientation, RSET location, etc)

Airboat access is from the SW, veg. transect NE-SW, RSET SW of base boardwalk

5. Photos:

Number	Direction	Time Stamp	Number	Direction	Time Stamp
1	N	9:43			
2	E	9:43			
3	S	9:43			
4	W	9:43			

Site Characterization Sheet (Page 2 of 3)

Site: CRMS0489 (Annual) **Basin:** TV

Date and Time (CST) of Site Visit: 06/15/2005 @ 08:46 **Agency:** CES

6. Vegetation:

Dominant Species: *Sagittaria lancifolia, Leersia oryzoides*

Current Marsh Type: Fresh Bulltongue

Visser/Sasser Marsh Type: Oligohaline Spikerush

7. Marsh Characteristics:

Other Species Present: *Eleocharis tuberculosa, Vigna luteola, Schoenoplectus californicus, Typha latifolia, Cladium mariscus* ssp. *jamaicense, Polygonum* spp., *Daucus carota, Pontederia cordata, Panicum hemitomon, Ipomoea sagittata, Symphyotrichum tenuifolium, Eichhornia crassipes*

Vegetation Characteristics (average height, grazing, burning, herbivory, wrack deposition, etc): Vegetation generally 5ft/1.5m tall; no evidence of grazing, burning, or wrack, but active herbivory by caterpillars

Marsh Stability (brokenness, soil consolidation, edge shearing): Very firm and well consolidated, no edge shearing.

Water on Marsh (depth, salinity): N/A

Other: This site was reclassified from Oligohaline Spikerush to Fresh Bulltongue due to the abundance of *S. lancifolia* during site characterization on June 15, 2005. Although spikerush was present it was not a dominant or codominant species.

8. Floating Marsh:

Recommended Set-up (Floating or Static): N/A

Mat thickness (ft): N/A Distance from mat surface to firm substrate: N/A

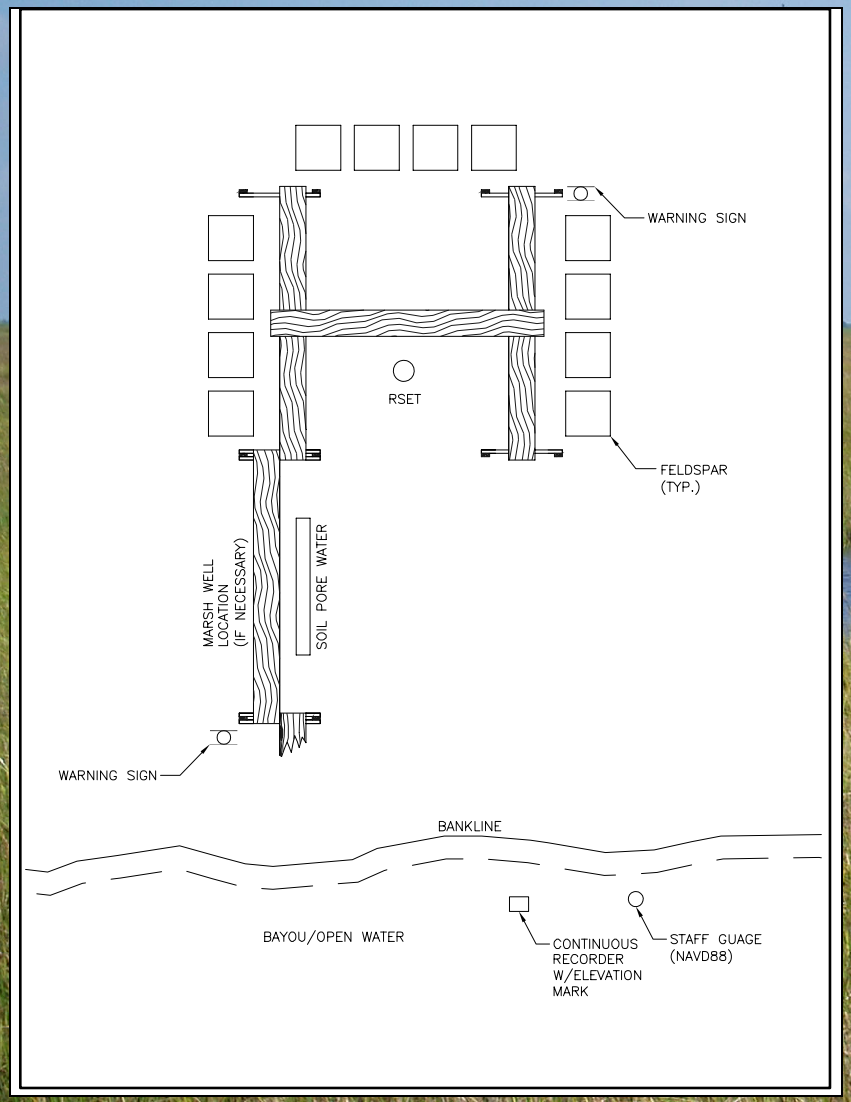
Mat characteristics: N/A

9. Potential Site Problems:

The bay can be quite choppy and the shoreline is receeding. Otherwise this site is ideal.

Landowner's property does not extend far NW of bayou, be very careful with land rights.

Site schematic and photos



Site Features

SET Rod and Collar

Porewater Wells

Recently Burnt

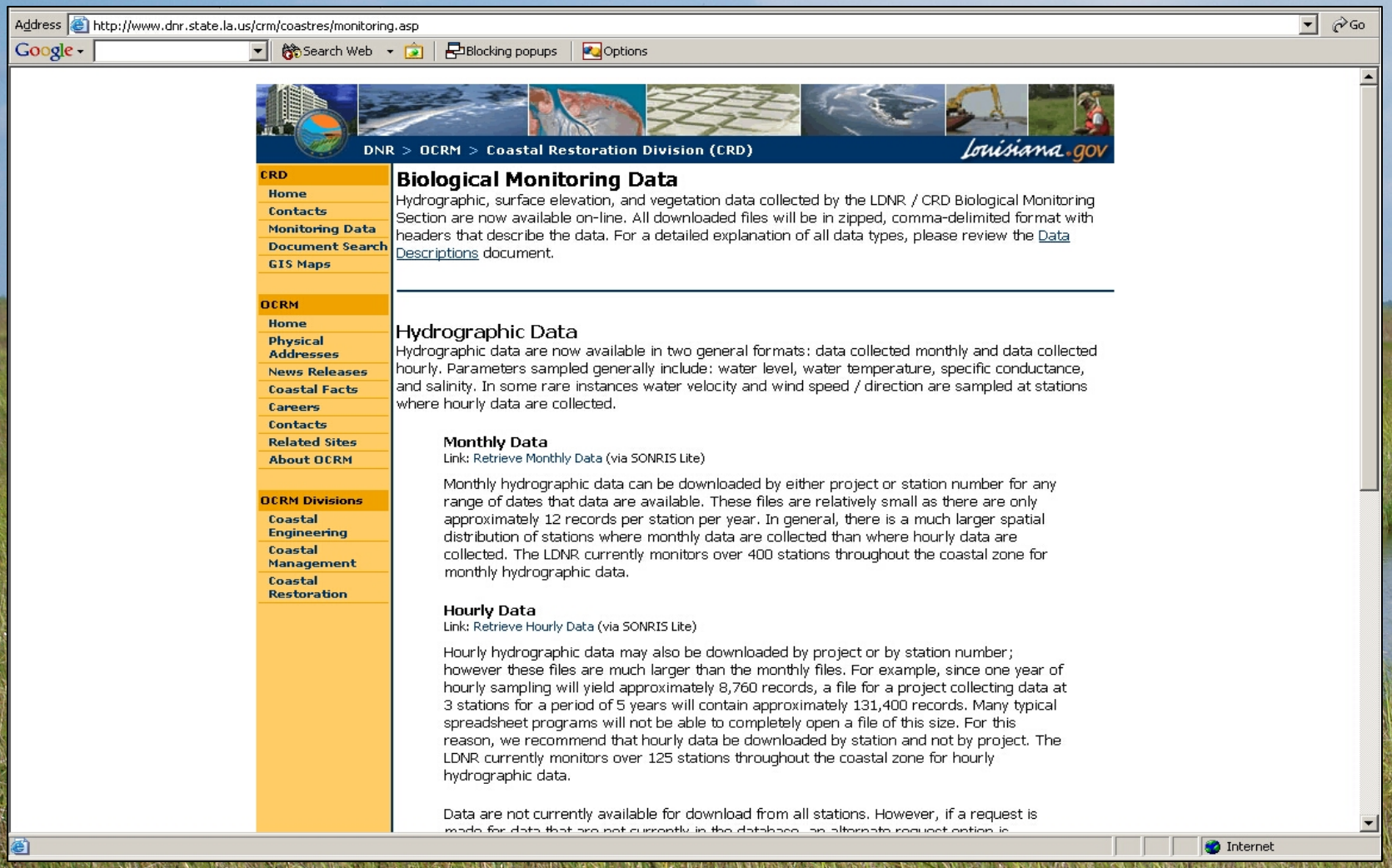
Project Status
Milestones

- Landrights
  - 413 of 612 sites secured
- Cost Share Agreement
  - signed June 8, 2004
- Standard Operating Procedures Manual
  - finalized August 15, 2005
- Contractor Selection
  - secured February 1, 2005
- Data Collection Equipment
  - contract secured June 2005
- Secondary Benchmarks
  - installed 66 additional benchmarks in July and August 2005
- Contractor Training
  - phased training in March and August 2005
- Site Construction
  - began in July 2005

Project Status

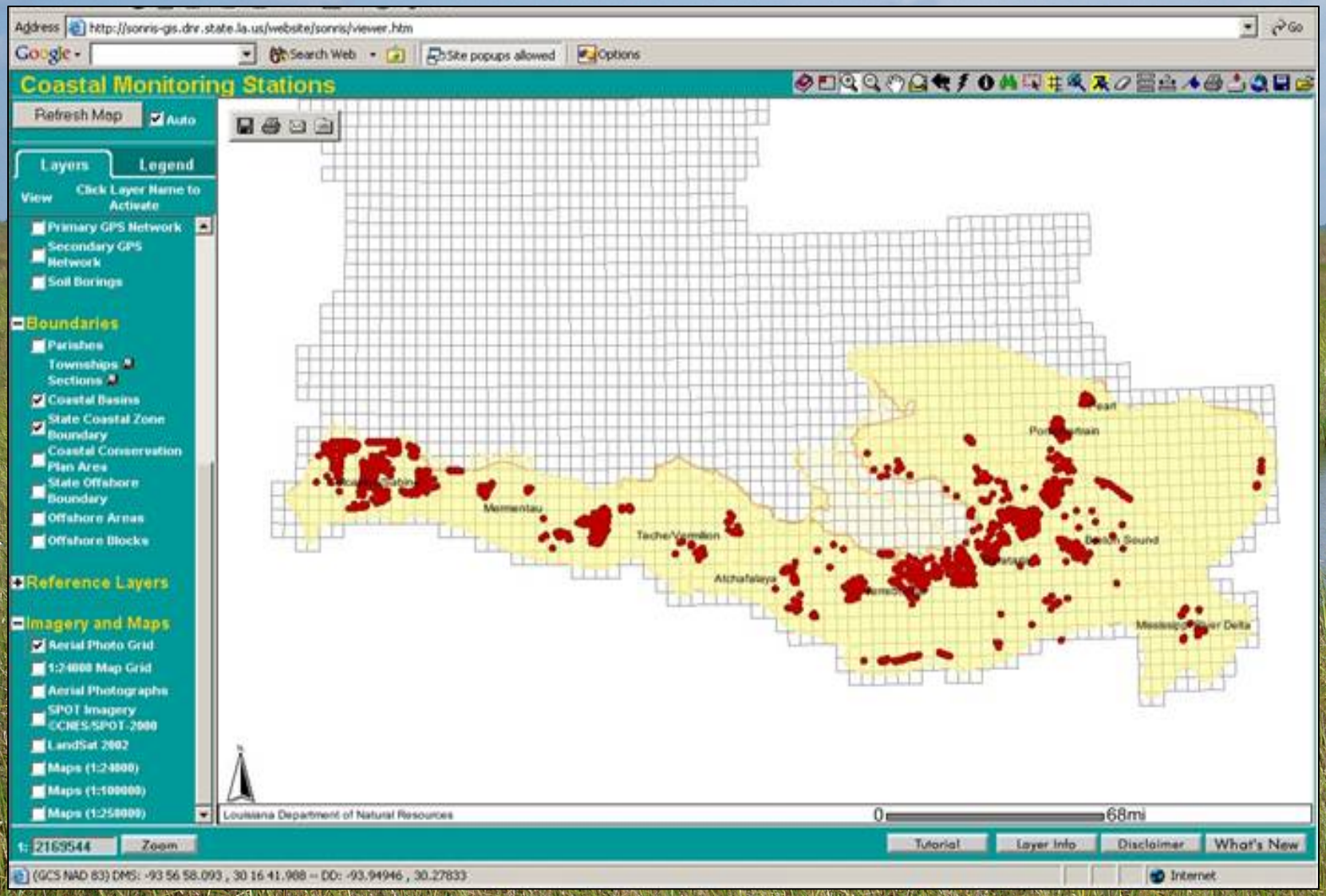
- **The CRMS construction and monitoring contract was awarded to Coastal Estuary Services, LLC (CES; a partnership between Shaw and CH2MHILL).**
- **Site establishment, construction, and initial data collection has begun on Year 1 and Annual CRMS-*Wetlands* Sites. 40 sites have been constructed and surveyed to NAVD88. Those sites are currently being assessed for damages from Hurricanes Katrina and Rita.**
- **Landrights are secured for 413 sites (68%). Landrights acquisition for the remaining 199 sites continues.**
- **Coastwide digital ortho-imagery acquisition will occur between October 15 and December 15, 2005**
- **Website and Data Delivery Systems complete. Interactive graphing capabilities under development.**

Public Data Retrieval



CRMS-*Wetlands* monitoring data will be available through LDNR's data server, SONRIS Lite: http://www.dnr.state.la.us/crm/coastres/monitoring.asp

Linked spatial data and document retrieval



http://lacoast.gov/chart/default2.aspx - Microsoft Internet Explorer

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LaCoast

Louisiana loses...

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CRMS Overview
- FAQs
- Presentations
- Contacts

Administrative Support Documents

Data Downloads
- Spatial
  - Satellite Imagery
  - Aerial Photography
- Non-Spatial
  - Query using interactive map
  - Query by text

Metadata

Data Products
- Interactive Graphs
- Maps

Reports

Feedback
- Guestbook
- Email LaCoast

Site
- Privacy
- Accessibility
- FOIA

PROVISIONAL DATA SUBJECT TO REVISION

Station Type: Continuous Hourly

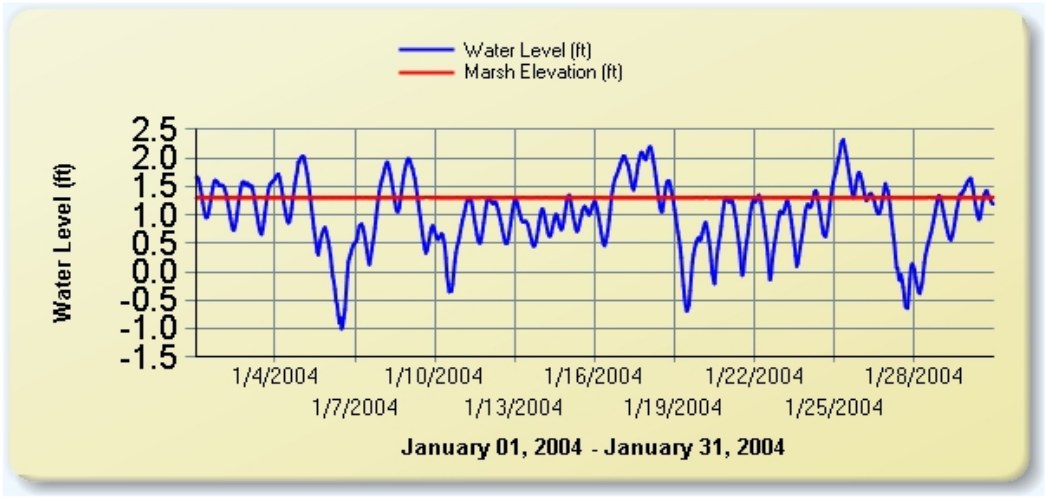
Station: CS21-07R

Parameter: ☐ Salinity ☑ Water Level ☐ Water Temp

○ 30 days ○ 60 days ○ 90 days

Create Graph

Start Date: 01/01/2004



Done Internet

CRMS-*Wetlands* References

- **Steyer, G. D., C. E. Sasser, J. M. Visser, E. M. Swenson, J. A. Nyman, and R. C. Raynie. 2003. A proposed coast-wide reference monitoring system for evaluating wetland restoration trajectories in coastal Louisiana. Environmental Monitoring and Assessment 81:107-117.**
- **Visser, J. M., R. H. Chabreck, C. E. Sasser, R. G. Linscombe. 2000. Marsh Vegetation Types of the Chenier Plain, Louisiana, USA. Estuaries 23(3):318-327.**
- **Visser, J. M., C. E. Sasser, R. H. Chabreck, and R. G. Linscombe. 1998. Marsh vegetation types of the Mississippi River Deltaic Plain, USA. Estuaries 21(4B):818-828.**

- **Web links: www.savelawetlands.org; www.lacoast.gov**