CRMS Website Training

April 2014

http://www.lacoast.gov/crms
**Restoration project types:** diversions of freshwater and sediments, marsh creation, shoreline protection, sediment and nutrient trapping, hydrologic restoration, and vegetation planting

- CWPPRA was congressionally funded in 1990 and mandated 20 years of restoration project monitoring
- CWPPRA program uses multiple restoration techniques - size and types of projects vary
- Initially the program used paired project and reference sites - with time, difficult to find “uninfluenced” reference
- Inconsistent monitoring variables and collection frequencies across projects with short data records
• To improve our ability to determine the effectiveness of individual coastal restoration projects.
• Provide information to evaluate coastal wetlands at the project, basin, and coastwide scales.
• To determine the ecological condition of coastal wetlands to ensure that the strategic coastal planning for Louisiana (Coast 2050, LCA, Louisiana Master Plan) is effective in recreating a sustainable coastal ecosystem.
Coastwide Reference Monitoring System - *Wetlands*

**CRMS Design and Assessment**

- Funded by CWPPRA in 2003
- ~ 390 CRMS sites
- Sites inside & outside of CWPPRA projects
- Sites in swamp, fresh, intermediate, brackish, and salt marsh
- Allows for multi-scale assessments through CRMS report cards
- Data used for future scenario modeling
Questions to address through CRMS:

Did the restoration program:
  - reduce coastal wetland loss?
  - sustain a diversity of vegetation types within basins?

Is the restoration program effective in reducing major stressors on wetlands (i.e., flooding regime, salinity, elevation change)?

Which project types are the most effective in creating, restoring, protecting and enhancing wetlands?
Coastwide Reference Monitoring System - Wetlands Site Design

CRMS Site vs. CRMS Station

Non-spatial data collection

Spatial data collection

Typical Marsh Site

Typical Swamp Site
Coastwide Reference Monitoring System - Wetlands Site Data Collection

1km² scale: High resolution aerial photography based land:water analyses to investigate land change through time.

200m² scale: Field data collection using standardized data collection protocols and consistent sampling intervals.
<table>
<thead>
<tr>
<th>Data Type</th>
<th>Parameter</th>
<th>Method</th>
<th>Scale</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land change</strong></td>
<td>Land:Water Ratio</td>
<td>Satellite Imagery</td>
<td>Hydrologic Basin</td>
<td>3 years</td>
</tr>
<tr>
<td></td>
<td>Land:Water Ratio</td>
<td>Digital Aerial Photography</td>
<td>CRMS Site (1 km²)</td>
<td>3 years</td>
</tr>
<tr>
<td><strong>Vegetation</strong></td>
<td>Emergent Vegetation</td>
<td>Braun Blanquet: % Cover, Species Richness, Height of Dominant Species</td>
<td>(10) 2m x 2m plots per marsh site or (9) plots per swamp sites</td>
<td>Annually during peak biomass</td>
</tr>
<tr>
<td></td>
<td>Forested Vegetation</td>
<td>DBH, Canopy Cover, Understory veg</td>
<td>(3) 20m x 20m Forested plots &amp; (9) 6m X6m Understory plots per site</td>
<td>3 yrs during peak biomass</td>
</tr>
<tr>
<td><strong>Soils</strong></td>
<td>Soil Characteristics</td>
<td>Core samples profiled into 4 cm increments to 24 cm. Bulk Density, OM%, Soil Salinity, pH, and Moisture.</td>
<td>3 cores, 18 archived samples per site</td>
<td>6 to 10 years</td>
</tr>
<tr>
<td></td>
<td>Vertical Accretion</td>
<td>Feldspar Plots/Cryogenic Cores</td>
<td>3 plots per site</td>
<td>Twice per year</td>
</tr>
<tr>
<td></td>
<td>Marsh Elevation Change</td>
<td>Rod Surface Elevation Table (RSET)</td>
<td>4 directions per site</td>
<td>Twice per year</td>
</tr>
<tr>
<td><strong>Hydrology</strong></td>
<td>Soil Porewater</td>
<td>10 and 30 cm syringe sippers</td>
<td>3 samples per depth per site and at vegetation plots</td>
<td>Variable and annually</td>
</tr>
<tr>
<td></td>
<td>Surface Water Salinity, Temp and Water Level</td>
<td>Submersible Data Logger</td>
<td>in available water within 200m of CRMS site or in a well</td>
<td>Hourly</td>
</tr>
</tbody>
</table>
Wetland restoration efforts conducted in Louisiana require monitoring the effectiveness of individual projects as well as monitoring the cumulative effects of all projects in restoring, creating, enhancing, and protecting the coastal landscape. The effectiveness of the traditional paired-reference monitoring approach in Louisiana has been limited because of difficulty in finding comparable test sites. CRMS is a multiple reference approach that uses aspects of hydrogeomorphic functional assessments and probabilistic sampling.

This approach includes a suite of sites that encompass the range of ecological conditions for each stratum, with projects placed on a continuum of conditions found for that stratum. Trajectories in reference sites are then compared with project trajectories through time. The approach could serve as a model for evaluating wetland ecosystems.

www.lacoast.gov/crms
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- Provide web mapping viewer
- Summarize and visualize data at multiple scales
- Provide on-the-fly user defined graphics and tools
- Simplify querying and downloading of data
- Develop multi-metric ecological indices
- Develop report card

www.lacoast.gov/crms
Data
  • Spatial Data / Tabular SONRIS Data Tool / Tabular CRMS Bulk Download

Mapping
  • SONRIS / Basic Map Viewer

Library
  • Maps / Presentations / SONRIS Reports / CRMS Reports

Visualization
  • Charting / Bulk Charting / Conceptual Models

Program
  • Administrative links / Data Citation / Data Descriptions / Publications
Program menu contains links to:

• Administrative Information
  • Supporting or Reference Documents
  • CRMS Related Publications
  • Privacy and Accessibility Statements
  • Freedom of Information Act
  • Data Citation
• Contacts from both USGS and CPRA
• Data Description Information
  • Includes analytical framework documents
  • Report card analysis explanations


• Data menu contains links to:
  • Spatial Data:
    Available for each CRMS site (some multi-year)
    • Aerial Mosaic
    • Land/Water Analysis
  • Tabular Data
    • Links back to SONRIS data download tools
    • CRMS bulk data download tools
CRMS bulk data download

**All values** for selected years, for selected stations (queue processes first come first serve)

- **Hydro**
  - Hydro Averages
  - Hydro Index
  - Percent Flooded
  - Water Level Range

- **Vegetation**
  - Basal Area
  - Floristic Quality Index
  - Marsh Class
  - Veg Percent Cover

- **Soil**
  - Calculated Elevation Change
  - Submergence Vulnerability Index

- **Spatial**
  - Percent Land
Library menu contains links to:

- Maps: Available for each CRMS site (some multi-year)
- Presentations
- Reports (via SONRIS)
- CRMS Report Card
Mapping menu contains links to:

- SONRIS Viewer
- Basic Map Viewer
Visualization menu contains links to:

- Charts...Lots of Charts.
  - Surface Elevation/Accretion
  - % Organic / Bulk Density
  - Vegetation
  - Forested
  - Porewater
  - Hydrographic (Salinity, Temp, Water Level)
  - Precipitation
  - Report Card
Using the charting interface

Web-based restoration efforts conducted in Louisiana require monitoring the effectiveness of individual projects as well as monitoring the cumulative effects of all projects in restoring, creating, enhancing, and protecting the coastal landscape. The effectiveness of the traditional paired-reference monitoring approach in Louisiana has been limited because of difficulty in finding comparable test sites. CRMS is a multiple reference approach that uses aspects of hydrogeomorphic functional assessments and probabilistic sampling.

This approach includes a suite of sites that encompass the range of ecological conditions for each stratum, with projects placed on a continuum of conditions found for that stratum.
1. Pick a Data Category
   1. Hydro
2. Pick a Parameter
   1. Salinity
1. Pick a Data Category
   1. Hydro
2. Pick a Parameter
   1. Salinity
3. Pick a Scale
   1. Station
4. Enter Start / End Dates
   1. 1/1/2001
   2. 12/31/2011
   3. Apply Date Filter
1. Pick a Data Category
   1. Hydro
2. Pick a Parameter
   1. Salinity
3. Pick a Scale
   1. Site
4. Enter Start / End Dates
   1. 1/1/2001
   2. 12/31/2011
5. Apply Date Filter
6. Pick Site
1. Pick a Data Category
   1. Hydro
2. Pick a Parameter
   1. Salinity
3. Pick a Scale
   1. Site
4. Enter Start / End Dates
   1. 1/1/2001
   2. 12/31/2011
5. Apply Date Filter
6. Pick Site
1. Pick a Data Category
   1. Hydro
2. Pick a Parameter
   1. Salinity
3. Pick a Scale
   1. Site
4. Enter Start / End Dates
   1. 1/1/2001
   2. 12/31/2011
5. Apply Date Filter
6. Pick Site
7. View Chart
8. Save Chart Image
9. Download Data (optional)
1. Pick a Data Category
   1. Hydro
2. Pick a Parameter
   1. Salinity
3. Pick a Scale
   1. Site
4. Enter Start / End Dates
   1. 1/1/2001
   2. 12/31/2011
5. Apply Date Filter
6. Pick Site
7. View Chart
8. Save Chart Image
9. Download Data (optional)
Multi-Station Charting

1. Pick a Data Category
   1. Hydro
2. Pick a Parameter
   1. Water Level
3. Pick a Scale
   1. Multi Station
4. Enter Start / End Dates
   1. 1/1/2001
   2. 12/31/2011
5. Apply Date Filter
6. Pick Stations
Multi-Station Charting

1. Pick a Data Category
   - Hydro

2. Pick a Parameter
   - Salinity

3. Pick a Scale
   - Multi Station

4. Enter Start / End Dates
   - 1/1/2001
   - 12/31/2011

5. Apply Date Filter

6. Pick Stations

7. View Chart

8. Download Data (optional)

Water Level

Water Level NAVD 88 (ft)

January 28 2001 - December 28 2005
Data Source: Monthly Averages
1. Pick a Data Category
   1. Hydro
2. Pick a Parameter
   1. Salinity
3. Pick a Scale
   1. Multi Station
4. Enter Start / End Dates
   1. 1/1/2001
   2. 12/31/2011
5. Apply Date Filter
6. Pick Stations
7. View Chart
8. Download Data (optional)
Interactive Hydro Chart

Great for hydro data exploration without having to download data.
Interactive Hydro Chart – same site with the multiple parameters
Interactive Hydro Chart – multiple sites with the same parameter
Interactive Hydro Chart – full period of record shows monthly averages
Interactive Hydro Chart – smaller time range increases frequency of visualized data (i.e., hourly vs. monthly)
Bulk charting

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This approach includes a suite of sites that encompass the range of ecological conditions for each stratum, with projects placed on a continuum of conditions found for that stratum. Trajectories in reference sites are...
Multiple charts with same set up.
Bulk Charting

Previous Charting Version

- Charting
- Bulk Charting
- Data Download
- Reporting

Bulk Charting

- Hydro
- Vegetation
  - Forested
  - Herbaceous
  - Site Floristic Quality Index
  - Project/Reference FQI
  - Marsh Class
- Soil
- Spatial
- Report Card Charts

Basin: All Basins  Project: All Projects

Choose Colors  Cancel

- Spartina patens
- Typha latifolia
- Phragmites australis
- Distichlis spicata
- Schoenoplectus robustus
- Paspalum vaginatum
- Amaranthus bigelovii
- Paspalum distichum
- Symphyotrichum subulatum
- Other

piazzas@usgs.gov  Submit Request
CRMS Data Download

Data available through this website are calculated or derived values based on the original data which are available from the SONRIS database (SONRIS)

- Hydro
- Vegetation
- Soil
- Spatial
Data Download

Data available through this website are calculated or derived values based on the original data which are available from the SONRIS database (SONRIS).

### Hydro

- Hydro Averages
- **Hydro Index**
- Percent Flooded
- Water Level Range

### Vegetation

### Soil

### Spatial

<table>
<thead>
<tr>
<th>Year</th>
<th>Select All</th>
<th>Deselect All</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
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<tr>
<td>2008</td>
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<tr>
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<tr>
<td>2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Submit
Data Download

Data available through this website are calculated or derived values based on the original data which are available from the SONRIS database ([SONRIS](#)).

Hydro
- Hydro Averages
  - Hydro Index
- Percent Flooded
- Water Level Range

Vegetation

Soil

Spatial

Water Year is October 1 - September 30

Year:

<table>
<thead>
<tr>
<th>Year</th>
<th>Select All</th>
<th>Deselect All</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td></td>
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</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Submit

Basin: [All Basins]  Project: [All Projects]

<table>
<thead>
<tr>
<th>Site Code</th>
<th>Select All</th>
<th>Deselect All</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRMS0002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRMS0003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRMS0006</td>
<td></td>
<td></td>
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<tr>
<td>CRMS0047</td>
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<td>CRMS0056</td>
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<td>CRMS0063</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRMS0065</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Show Map Selector  Email Address: youremail@email.com

Submit Request
Spatial selection has been added to Charting.
Spatial selection has been added to Charting.
Spatial selection has been added to Charting.

Select Mode - Drag the Mouse inside the map to select stations.
Spatial selection has been added to Charting.
Spatial selection has been added to Charting.

- Water Level Range
- Hydro Completeness
- Salinity
- Water Level
- Temperature
- Continuous
- Site Hydro Index
- Soil Porewater
- Precipitation

Interactive Hydro

- Vegetation
- Soil
- Spatial
- Report Card Charts

Selection limited to 10 items:
- AT04-01
- AT04-02
- AT04-03
- AT04-04
- AT04-06
- BA01-01
- BA01-02
- BA01-03
- CRMS0498-H01
- CRMS0499-H01
- CRMS0504-H01
- CRMS0520-H01
- CRMS0522-W01
- CRMS0523-H01
- CRMS0524-W01
- CRMS0529-H01

Show Map Selector | Submit Request
Spatial selection has been added to Charting.
Spatial selection has been added to Charting.
CRMS Report Card

Wetland restoration efforts conducted in Louisiana require monitoring the effectiveness of individual projects as well as monitoring the cumulative effects of all projects in restoring, creating, enhancing, and protecting the coastal landscape. The effectiveness of the traditional paired-reference monitoring approach in Louisiana has been limited because of difficulty in finding comparable test sites. CRMS is a multiple reference approach that uses aspects of hydrogeomorphic functional assessments and probabilistic sampling.

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CRMS
Coastwide Reference Monitoring System

Coastwide Reference Monitoring System (CRMS)
Site Level Report Card
Site: CRMS0003
Year: 2011

Literature Cited


Using the mapping interface

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CRMS Viewer now implements ESRI’s ArcGIS JavaScript API which allows mouse wheel scrolling to zoom in and out of the map.
Full Screen Button hides the top menu.

Full Screen Button changes when the top menu is hidden.
Layers Button shows and hides the Layers Menu

Layers Menu Shown:

Layers Menu Hidden:
Tools Button brings up the Tools Menu.

Tools Button darkens when the menu is shown.
Zoom Button zooms to the rectangle drawn on the map.

The icon darkens when the mouse is in the “zoom” state.
Zoom To Full Extent Button resets the map back to the original area and zoom level.

+/- Buttons zoom in and out.

Manila dropdown shows how to interact with the current active layer.

Single-click the yellow symbology on the map to view CRMS Site information.
Interface

Used to create a save state on the map.

Link created to save the current state of the map.
Expand layer to display more layer options.

Make this the current active layer.
CRMS Active Layer

Coastwide Reference Monitoring System

Layers Menu
- CRMS
- CWPPRA
- Hydro Basins
- Vegetation
- Soils
- Public Lands
- MP 2012
- Land/Water
- Base Layer

Single-click the yellow symbology on the map to view CRMS Site Information.

Long: -93.829, Lat: 31.688

Source: Esri, DigitalGlobe, GeoEye, Earthstar, CNES/AIndra, USDA, USGS, AeroGRID, IGN, and the Int. GPS-overlay
CRMS Active Layer

Download a KML file to use in Google Earth.

Zooms to the site and shows the site information bubble.

Checkbox adds/removes the 1 km\(^2\) Buffer layer to the map.

Checkbox adds/removes the 200 m\(^2\) Buffer layer to the map.

Checkbox adds/removes the Real Time Hydro Sites layer to the map.

Checkbox adds/removes the Floating Marsh Sites layer to the map.

Classify invokes the tools menu with the classification option selected.
CRMS Active Layer

Click a point for Information Bubble
Information Bubble

The information bubble appears when a CRMS site is clicked. The Site Info tab is automatically chosen when the bubble pops up on the screen.
The Water tab contains all hydrologic information for the selected site.

Salinity – Brief overview of salinity data for the site. Also charts most recent salinity data for the site.
The Water tab contains all hydrologic information for the selected site.

Water Level – Brief overview of water level data for the site. Also charts most recent water level data for the site.
Information Bubble

The Water tab contains all hydrologic information for the selected site.

Water Temperature – Brief overview of water temperature data for the site. Also charts most recent temperature data for the site.
The Water tab contains all hydrologic information for the selected site.

Hydro Index – All Hydro Index charts available for the site.

The Hydrologic Index (HI) jointly assesses the suitability of two critical aspects of wetland hydrology, average salinity and percent time flooded, in maximizing vegetation primary productivity for the 5 different marsh classifications in coastal Louisiana (swamp, fresh, intermediate, brackish, and saline). The index score ranges from 0 - 100, and the score corresponds to the percent of maximum vegetation productivity expected to occur if the separate effects of salinity and inundation on productivity interact in a multiplicative fashion, according to the following formula:

\[ HI = \text{fld} \times \text{sal} \]

where fld is the percent maximum productivity attributable to percent time flooded, and sal is the percent maximum productivity attributable to the average annual salinity. Relationships describing how percent maximum productivity varies with salinity and percent time flooded were taken from the Habitat Switching Module of the LCA ecosystem restoration study (U.S. Army Corps of Engineers 2004).

The HI is calculated for a given water year, which begins October 1 and ends the following September 30.
The Water tab contains all hydrologic information for the selected site.

Water Level Range – All water level range charts available for the current site.
The Vegetation tab contains all vegetation information for the selected site.

Herbaceous – Species driven percent cover chart.

Species composition data from the 1997 Chabreck and Linscombe vegetation survey were used by Visser et al. (1998, 1999, 2000) to assign marsh vegetation types (deltaic mixture, deltaic roseau cane, fresh bulltongue, fresh maidsencane, fresh spikerush, mesohaline mixture, mesohaline wiregrass, oligohaline bulltongue, oligohaline mixture, oligohaline spikerush, oligohaline wiregrass, polyhaline oystergrass) to CRMS sites. Sites within forested wetlands were assigned as swamp based on swamp classifications from the 1998 Louisiana GAP analysis project.


The Vegetation tab contains all vegetation information for the selected site.

Forested – Species driven basal area chart.
The Vegetation tab contains all vegetation information for the selected site.

Floristic Quality Index

What does this chart mean?
The Vegetation tab contains all vegetation information for the selected site.

Marsh Classification – The chart displays marsh class by station over time, the top bar is marsh class at the site level, and the bottom line is marsh class at the site level using the helicopter survey data.
The Soil tab contains all soil information for the selected site.

Percent Organic – Soil profiles taken at site establishment.
The Soil tab contains all soil information for the selected site.

Bulk Density - Soil profiles taken at site establishment.
Information Bubble

The Soil tab contains all soil information for the selected site.

Surface Elevation/Accretion – currently displays site level elevation change and accretion and gives rates for shallow subsidence.
The Spatial tab contains all spatial information for the selected site.

Land/Water with acre breakdowns
The Spatial tab contains all spatial information for the selected site.

Site Specific maps at the 1km² scale.
The Spatial tab contains all spatial information for the selected site.

Aerial Photography
The Report Card tab contains all report card information for the selected site.
The Tools tab lets you do an Acreage Assessment on the selected site.

Acreage Assessment – Use the acreage assessment tool to determine acreage breakdowns of the available coastwide vegetation surveys or land/water data.
CWPPRA Active Layer

Zoom to function zooms to the project and shows the information bubble for it.

Checkbox adds/removes the Constructed projects layer to the map.

Checkbox adds/removes the Not Constructed projects layer to the map.

Checkbox adds/removes the Project Infrastructure layer to the map and shows the legend.
The information bubble appears when a CWPPRA project is clicked. The Project Info tab is automatically chosen when the bubble pops up on the screen.

State ID: CS-20
Name: East Mud Lake Marsh Management
Sponsors: NRCS and OCPR
Type: Marsh Management

Links:
- CS-20 General Fact Sheet (2.45 MB)
- CS-20 Monitoring Plan (1.17 MB)
- CS-20 Comprehensive Monitoring Report (2.77 MB)
- CS-20 Wetland Value Assessment (1.03 MB)

Objectives:
- Prevent wetland degradation in the project area by reducing vegetative stress, thereby improving the abundance of emergent and submergent vegetation. This will be achieved through hydrologic structural management to reduce water levels and salinities.
- Stabilize shoreline of Mud Lake through vegetative plantings.

Goals:
- Decrease rate of marsh loss
- Increase vegetative cover along shoreline of East Mud Lake
- Increase coverage of emergent vegetation in shallow, open-water areas
- Increase abundance of vegetation in presently vegetated portions of project area
The Water tab contains all hydrologic information for the selected project.

Summary – Gives a brief overview of the hydro data available for the project.

### Summary

<table>
<thead>
<tr>
<th></th>
<th>Mean Annual Salinity</th>
<th>Salinity 10%</th>
<th>Salinity 90%</th>
<th>% Time Flooded</th>
<th>Tide Range (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2012</strong></td>
<td>CS20-106</td>
<td>19.7</td>
<td>12.6</td>
<td>30.3</td>
<td>64.5</td>
</tr>
<tr>
<td></td>
<td>CRMS0672-H01</td>
<td>19.0</td>
<td>9.8</td>
<td>30.5</td>
<td>77.9</td>
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<tr>
<td></td>
<td><strong>Project Mean</strong></td>
<td>19.4</td>
<td>11.2</td>
<td>30.4</td>
<td>71.2</td>
</tr>
<tr>
<td></td>
<td>CS20-14R</td>
<td>20.5</td>
<td>11.1</td>
<td>28.2</td>
<td>--</td>
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<tr>
<td></td>
<td>CS20-15R</td>
<td>15.7</td>
<td>6.4</td>
<td>27.7</td>
<td>48.4</td>
</tr>
<tr>
<td></td>
<td><strong>Reference Mean</strong></td>
<td>18.1</td>
<td>8.8</td>
<td>28.0</td>
<td>47.2</td>
</tr>
</tbody>
</table>

<70% - The available data covers less than seventy percent of the entire water year (Oct. 1 - Sept. 30).

**Salinity 10%:** 90% of all hourly salinity records for the given water year exceed the value for salinity 10%.

**Salinity 90%:** 10% of all hourly salinity records for the given water year exceed the value for salinity 90%.
The Water tab contains all hydrologic information for the selected project.

Salinity – Charts most recent data for hydro stations located within the project.

NOTE: Only stations with data recorded in the previous two years are shown in the station list.
The Water tab contains all hydrologic information for the selected project.

Water Level – Charts most recent data for hydro stations located within the project.

NOTE: Only stations with data recorded in the previous two years are shown in the station list.
The Water tab contains all hydrologic information for the selected project.

Water Temperature – Charts most recent data for hydro stations located within the project.

NOTE: Only stations with data recorded in the previous two years are shown in the station list.
The Water tab contains all hydrologic information for the selected project.

Water Level Range – Charts water level range data for hydro stations located within the project.
The Vegetation tab contains all vegetation information for the selected project.

Marsh Class – Charts project and project reference Marsh Classification over multiple years.
The Vegetation tab contains all vegetation information for the selected project.

Project/Ref FQI – Project Scale Floristic Quality Index Chart.
The Vegetation tab contains all vegetation information for the selected project.

Side by Side – Side by side comparison of Marsh Class using the raster image created from helicopter surveys.
The Report Card tab contains all report card information for the selected project.

Report Card-Summary of project scale information compiled into a report card.
The Tools tab lets you do an Acreage Assessment on the selected project.

Acreage Assessment – Use the acreage assessment tool to determine acreage breakdowns of the available coastwide vegetation surveys or Land/Water data.
Hydro Basins Active Layer
Hydro Basins Active Layer

Information Bubble

The information bubble appears when a Hydro Basin is clicked. The Basin Info tab is automatically chosen when the bubble pops up on the screen.

More basin level descriptive information will be posted soon....
The Report Card tab contains all report card information for the selected basin.

Report Card – Summary of basin scale information compiled into a report card.
The Tools tab lets you do an Acreage Assessment on the selected basin.

Acreage Assessment – Use the acreage assessment tool to determine acreage breakdowns of the available coastwide vegetation surveys or Land/Water data.
Vegetation Active Layer
Main Year selects the primary polygon layer on the map.

Diff Year selects the secondary polygon layer on the map.

Points checkbox adds/removes the Vegetation data points.

Checkbox adds/removes the Vegetation Polygons layer. The slider changes the transparency of the layer.

Assessment link invokes the acreage assessment tool menu for the currently selected year.
If Points is checked, the site specific vegetation data is shown when clicked.
The Vegetation Type Change is shown when two different years are chosen for the Main Layer and Diff Layer.
Soils Active Layer
The Soil Type information window pops up when a soil area is clicked.
Public Lands Active Layer

State Lands checkbox adds/removes LA Department of Wildlife and Fisheries layer.

The Public Lands information window pops up when a Public Lands polygon is clicked.
Checkbox to put the lines of the Master Plan 2012 on the map

Checkbox to put the points of the Master Plan 2012 on the map

Checkbox to put the polygons of the Master Plan 2012 on the map
The Master Plan information window pops up when a Master Plan polygon is clicked.
Other Layers

Land/Water
**Other Layers**

**Land/Water**

Changes the Land/Water layer’s year.

Slider changes the transparency of the layer.

Assessment link invokes the acreage assessment tool menu for the currently selected year.
Other Layers

Base Layers

Coastwide Reference Monitoring System

Single-click the yellow symbology on the map to view CRMS Site information.

Layers Menu

World Imagery
- DOQQ 2008 NC
- DOQQ 2008 CIR
- DOQQ 2010 CIR
- DOQQ 2012 CIR
- World Shaded Relief
- World Street
- World Topography
- World Grayscale

CRMS
- CWPPRA
- Hydro Basins
- Vegetation
- Soils
- Public Lands
- ARP 2012
- Land/Water
- Base Layer

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DOQQ radio buttons add the selected DOQQ layer to the map.

Other radio buttons change the base/background layer of the map.
A Type, Attribute, and Year must be chosen to Classify the CRMS sites. All of the Attributes except for the Marsh Classification have a color chooser option.

- Vegetation
  - FQI
  - Marsh Classification
- Hydro
  - Hydro Index
  - Salinity
  - Water Level
- Soil
  - Calculated Elevation Change (CEC)
  - Submergence Vulnerability Index (SVI)
Classify Tool
CRMS Tools

Classify Tool
CRMS Tools

Classify Tool

Tools Menu
- Type: Hydro
- Attribute: Salinity
- Year: 2012

Change Colors/Intervals
- Range: 0 to 26
- Intervals: 3

Classify Clear

Assessment

Range & Color/Basin Name

<table>
<thead>
<tr>
<th></th>
<th>AT</th>
<th>BA</th>
<th>BS</th>
<th>CS</th>
<th>ME</th>
<th>MR</th>
<th>PO</th>
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<td>16</td>
<td>15</td>
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<td>13</td>
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<tr>
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<td>6</td>
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</tbody>
</table>

Less Stats
A Type, Attribute, and Year must be chosen to classify the CRMS sites. All of the attributes except for the Marsh Classification have a color chooser option.

A custom polygon can be drawn on the map to assess the area of the polygon drawn.
CRMS Tools

Acreage Assessment Tool
Tools Tab Persistence

CRMS6038 - 1Km² Acreage Assessment

Click a Year to Assess
CRMS6038 1Km² Land/Water for 2008

- Land: 211.94 acres (84.41%)
- Water: 39.13 acres (15.58%)
- Total: 251.07 acres

Expand

Coastwide Vegetation
Tools Tab Persistence

CRMS0461 - 1Km² Acreage Assessment

Click a Year to Assess
CRMS0461 1Km² Land/Water for 2008

<table>
<thead>
<tr>
<th>Year</th>
<th>Land</th>
<th>Water</th>
<th>Total</th>
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<tbody>
<tr>
<td>1956</td>
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<td>1978</td>
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<tr>
<td>1988</td>
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<td>2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>236.74 acres (94.29%)</td>
<td>14.34 acres (5.71%)</td>
<td>251.07 acres</td>
</tr>
</tbody>
</table>

Coastwide Vegetation

Expand
Request Password:
E-mail: comeauxm@usgs.gov
Questions?

http://www.lacoast.gov/crms

piazzas@usgs.gov
comeauxm@usgs.gov