



NOAA Satellites and Information

National Environmental Satellite, Data, and Information Service



NOAA Coastal Data Development Center Overview of Data Management Activities

SAFMC ArcIMS Workshop

October 13-14 2004

Peter Hoar

NCDDC Ecosystem Program Manager



Presentation Overview

- About NCDDC
- Meeting Data Management Requirements
- Questions



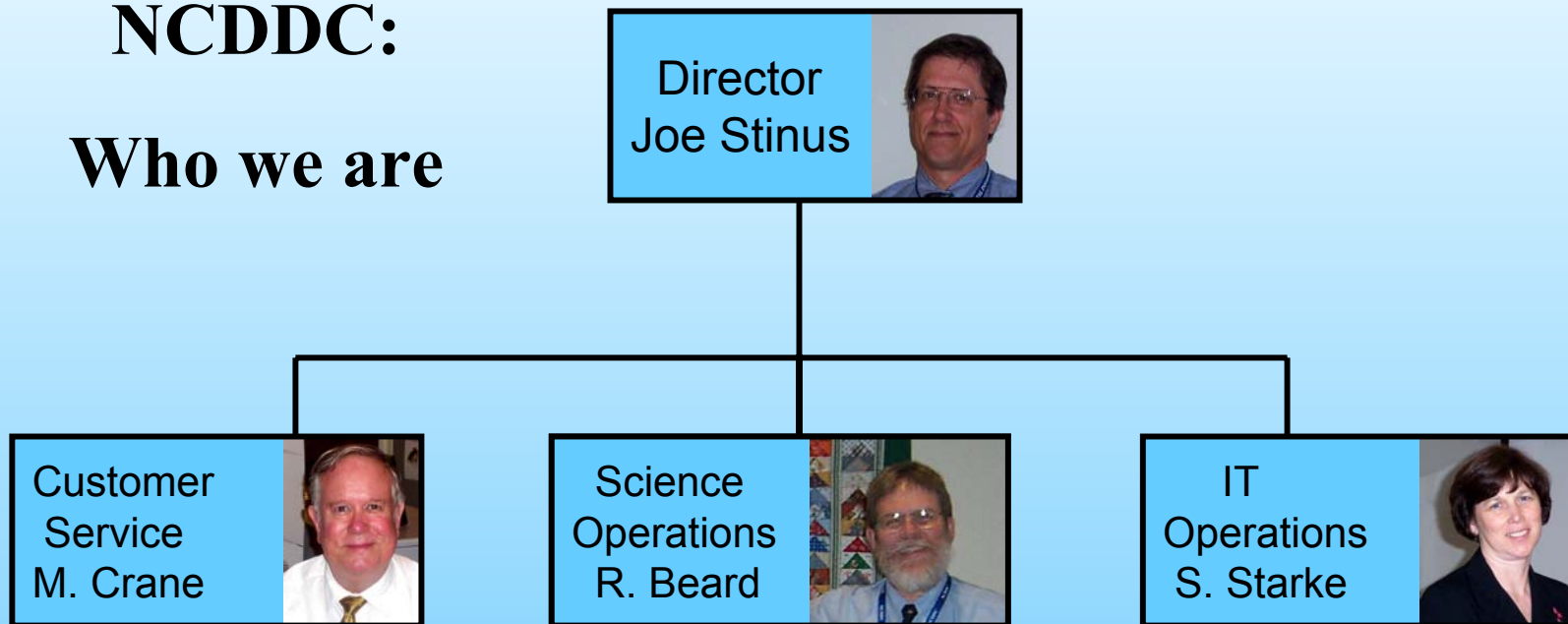
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NCDDC:

Who we are



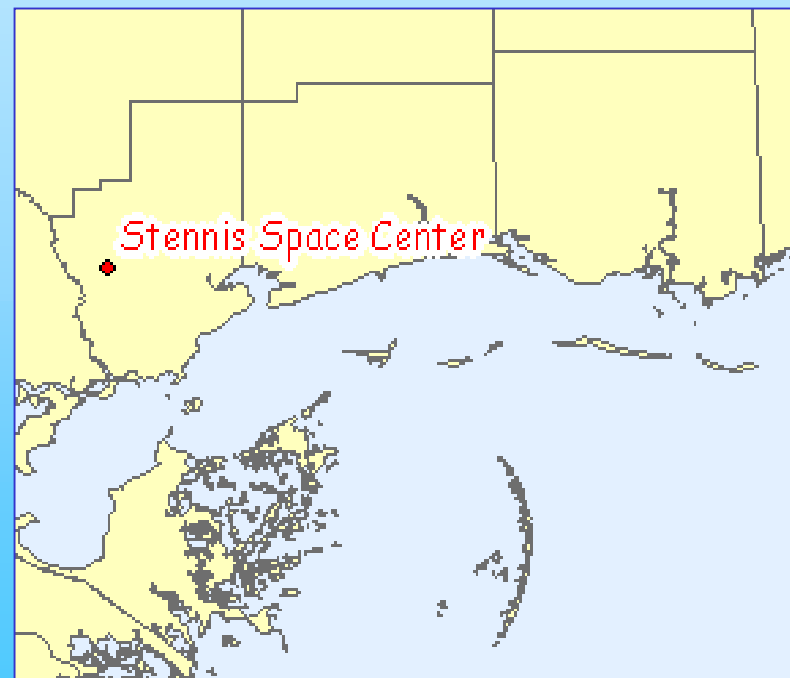
Total Personnel

Federal: 12 Contractor: 26



NCDDC: Location

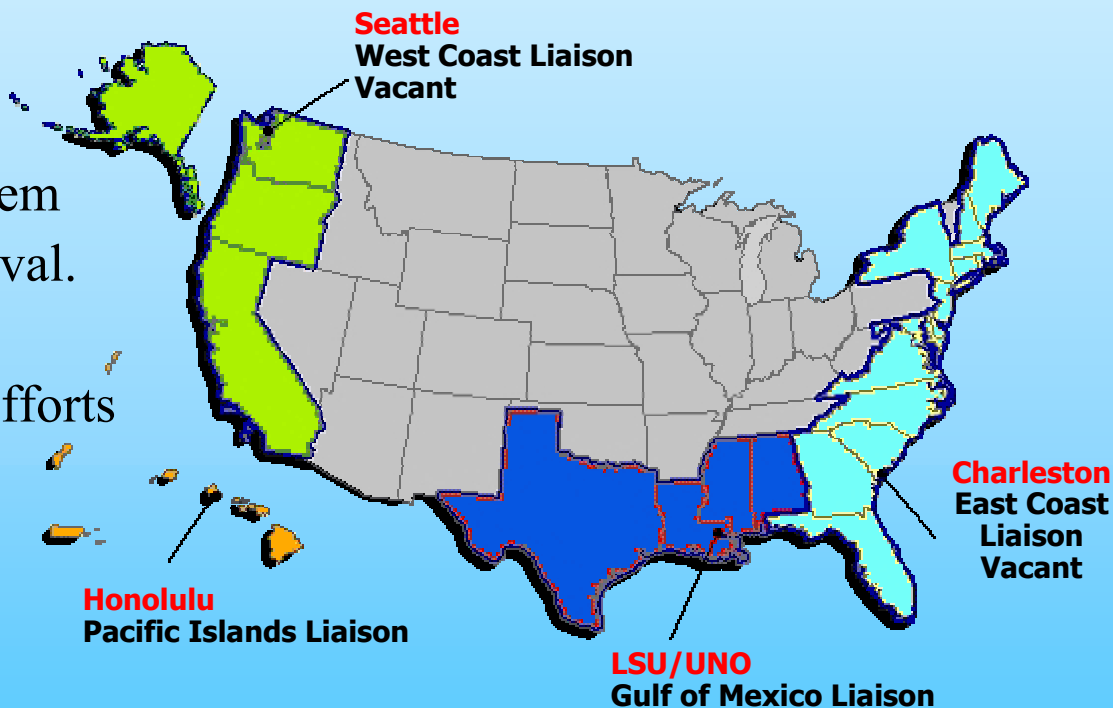
- Located at the Stennis Space Center
 - A unique ‘Federal City’
 - Home to more than 40 Federal & State Agencies
 - NOAA
 - NWS, NMFS, NESDIS, NOS
 - NASA, Navy, Coast Guard;
 - EPA, USGS;
 - Contractors & Vendors
 - Small Business Incubator;
 - Universities;
 - Many others . . .





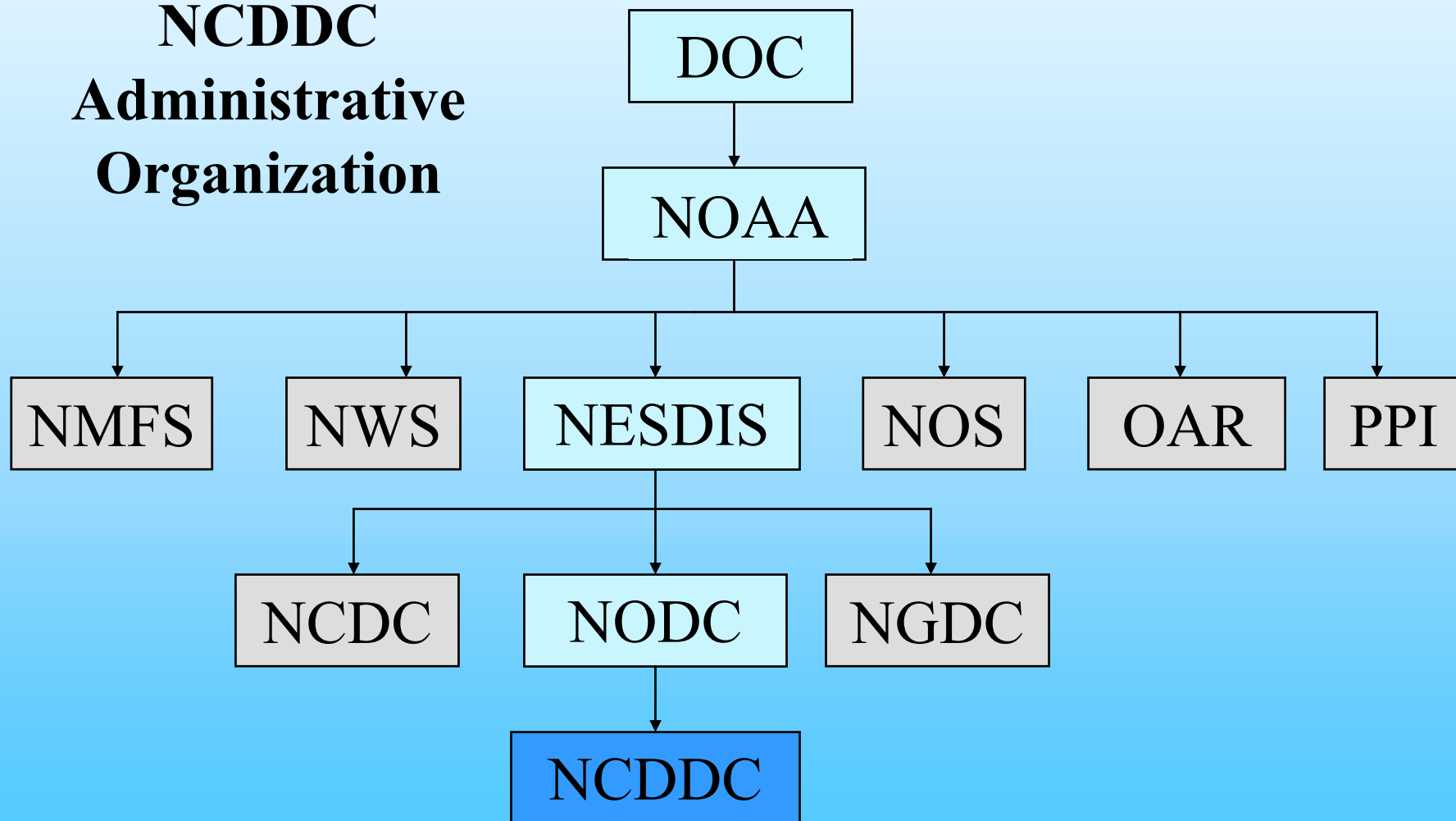
Regional Offices

- Represent NCDDC at regional meetings and workshops.
- Provide assistance in ecosystem data access, archival and retrieval.
- Facilitate data management efforts in each region.
- Sponsored partnerships, e.g., NCCOS-Charleston.



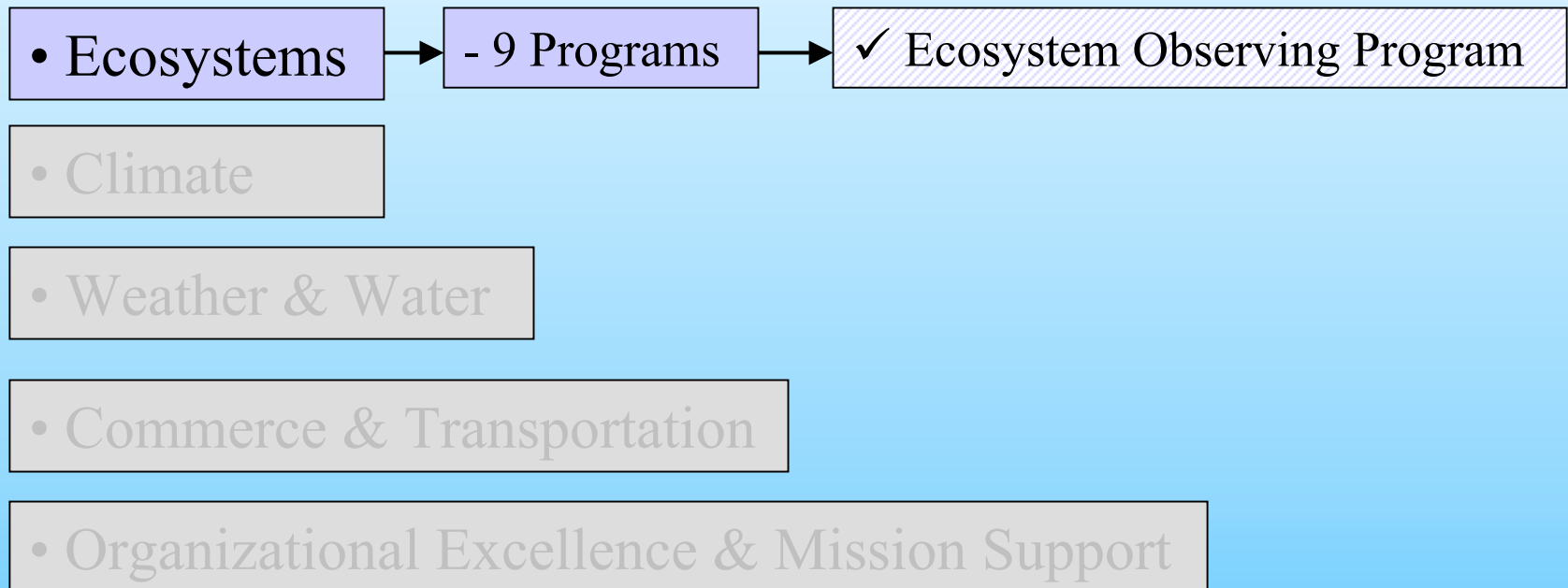


NCDDC Administrative Organization





Strategic Organization: NOAA Mission Goals





NCDDC: Mission

- To support ecosystem stewardship and to provide access to the Nation's coastal and marine data resources

NCDDC: Capabilities

- Practical implementation of Data Management services
 - Dynamic web capabilities and services
 - Metadata management via training, creation and publication
 - Software development to facilitate data access and retrieval
 - Geospatially enabling data for display, query and analysis



Presentation Overview

- About NCDDC
- Meeting Data Management Requirements
- Questions



Presentation Overview

- About NCDDC
- Meeting Data Management Requirements
 - Secure web access to project management & metadata tools
 - Metadata discovery & delivery of remotely held data
 - Map-based discovery & delivery of data geospatially enabled at NCDDC
 - Map-based discovery & delivery of remotely held data
- Questions



Project Organization and Management

The screenshot shows a Microsoft Internet Explorer browser window displaying the NOAA Ocean Explorer Explorations website. The page title is "OE Content Management System - Working Groups". The browser's address bar shows the URL "http://oceanexplorer.noaa.gov/explorations/workinggroups/". The page content includes a navigation menu on the left with options like Home, Library Management, Working Groups, Cruise Reports, Data Management Process, Data Manager, Digital Atlas, Metadata, and Video and Photo. The main content area is titled "Working Groups" and contains a central message: "This is a central access point to the various working groups. Local roles are set within each group to control access by community members." Below this message, there are five sub-sections, each with a folder icon and a description: "Video and Photo" (contains documents and files for the IPT Video and Photo Working Group), "Digital Atlas" (contains documents, files, etc. for the OE Pilot Project/Digital Atlas Working Group), "Metadata" (contains documents and other pertinent information to support the Metadata Working Group), "Data Manager" (a repository for the Data Manager Working Group), and "Data Management Process" (contains documents, files, etc. for the Data Management Process Working Group). The "Cruise Reports" section is also listed but does not have a description. The browser's status bar at the bottom shows "Done" and "Internet".



MERMAid: Metadata Creation and Management

The screenshot displays the MERMAid web application interface, which is used for metadata creation and management. The interface is shown within a Microsoft Internet Explorer browser window.

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National Coastal Data Development Center

Home < Metadata Resources < T
About Us | Services | Me
References

Metadata Enterprise Resource

NCDDC provides individuals, publish me Metadata allows us metadata any way t personnel) (1) user-c manage the individ tracking; a FGDC comp into and m

In the nea metadata will play leverage t discovery metadata features.

Additional Tools

NOTE: Some links on this page take y

NCDDC Application Server

Manage Data XML View HTML View Text View Undo

Range of Dates/Times at /training/students/stu00/exercises/hawaii/idinfo/timeperd/timeinfo/rngdates

Saved changes. (2003-05-21 15:55)

For data validation, mouse over the element names marked in red.

✎ - Mandatory element ✎ - Mandatory-if-applicable element ✎ - Optional element

Name	Value	Format	Description
Beginning Date	20010901	date	The first year (and ally month, or and day) of the
Beginning Time			st hour (and ally minute, or minute and second) of the day for the event.
Ending Date	20010815		or or the
Ending Time			d or d) of vent.

Validation Instructions
The date 20010901 is chronologically ahead of the date 20010815.

Suggested Values/Formats
Unknown free date (YYYY, YYYYMM, YYYYMMDD)

Range of Dates/Times - Microsoft Internet Explorer
Beginning Date
Beginning Date -- the first year (and optionally month, or month and day) of the event.
Type: date
Domain: "Unknown" free date
Short Name: begdate

Save Changes and Validate Save Changes as In Progress

Logged in as stu00
Manage Account Go



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- About NCDDC
- **Meeting Data Management Requirements**
 - Secure web access to project management & metadata tools
 - **Text-based metadata discovery & delivery of remotely held data**
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- Questions



Internet Accessible Capabilities

NOAA Satellites and Information
National Environmental Satellite, Data, and Information Service

Home < Projects

[About Us](#) | [Services](#) | [Metadata Resources](#) | [Regional Offices](#)

[HABSOS](#) | [Ocean Exploration](#) | [Coastal Risk Atlas](#) | [Coastal Eco](#)



There are a variety of coastal and observing systems that routinely monitor the coastal environment. These include federal, state, or managed observing systems that are national in scope as well as systems that are only on a particular coastal region, port, or estuary. This site provides a view of real-time and recent data generated by these systems through an Internet Map Server and provides links to information about these systems. The site also provides information on the development of an Integrated Ocean Observing System (IOOS). The IOOS integrates existing systems with an increased number of regionally managed in situ and remote observing systems to improve public safety, monitor the health of our ecosystems, and enhance our understanding of long term climate trends.



In "The State of the Nation's Ecosystems" report, the Heinz Center identified harmful algal blooms (HAB) as one of the core indicators to the health of the nation's ecosystems. Alarming increases in the frequency, extent, and severity of HABs appear to be increasing. Although the economic and ecological effects of HABs are not well understood, there are no consistent data available to validate this concern. HABSOS is an integrated information system for managing HAB data, events, and effects.



United States natural disaster losses are estimated to be between \$10 billion and \$20 billion annually, much of which is concentrated along the nation's coasts. Communities that have undertaken hazard vulnerability assessments and implemented mitigation measures have experienced significant economic, environmental, and quality of life benefits. The Coastal Risk Atlas (CRA) is a project that will identify and provide access to coastal data needed to perform comprehensive vulnerability assessments using techniques developed and proven by the NOAA Coastal Services Center.



Coastal ecological systems are units – such as estuaries, coral reefs, islands, or regions like the Gulf of Mexico – within which all organisms interact among themselves and with the physical environment. The U.S. coastal zone encompasses more than 6,400 miles, and is divided into seven biogeographic regions comprising thousands of marine and coastal ecosystems. Studies of these ecosystems have produced massive amounts of data, most of which are currently inaccessible. The Coastal Ecosystem Program is designed to make these data readily accessible through the NCDDC data portal, GIS-mapping, and linkage to partner organizations throughout the coastal science and management community.

NCDDC Coastal EcoSystems Program - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://www.ncddc.noaa.gov/Habitat

Firefox Help Firefox Support Plug-in FAQ Fleet Numerical Mete... National Weather Se...

Home

Go to 2004 Gulf of Mexico Hypoxia Watch

Advancing applied coastal science through efficient access to the coastal ecological data record

Coastal ecological systems are defined as units – such as estuaries, coral reefs, islands, or regions like the Gulf of Mexico – within which all organisms interacting among themselves and with the physical environment develop a clearly definable structure, diversity, and energy flow. And since humans are fundamentally a part of most ecosystems, most coastal data – whether biological, physical, or human-related – are ecological in nature. Thus, the coastal ecological data record is very large, and, until the advent of computer and Internet technology, has been largely inaccessible to the coastal science and management community. Now that computer, Internet, and GIS-mapping technology have become capable of accessing, managing, transferring, and displaying tremendous quantities of data, it is feasible to greatly improve data management and access to the coastal ecosystem data record.

- Accomplishments
- Projects
- GIS Mapping
- Data Search**
- Forum Community
- Library
- Program Links
- Hypoxia Watch
- Site Map
- Disclaimer



Data Discovery and Delivery

NCDDC | Gulf of Mexico Search - Netscape

http://portal.ncddc.gov/

NOAA Satellites and Information
National Environmental Satellite, Data, and Information Service

Need help? [Click here for Help File](#)

Theme
Theme Keywords: All
Enter any extra Theme keywords you would like to use:
SEAMAP

Time
Please use the following date format: YYYY, YYYY/MM, or YYYY/MM/DD

```

# Southeast Area Monitoring and Assessment Program (SEAMAP) database
# See corresponding metadata file for definitions of parameters and cross references for codes
#
# Query parameters used:
# StartDate = 1990/01/01
# EndDate = 2002/08/31
# East = -93.4
# West = -106.6
# North = 37.6
# South = 25.8
# Genus = Penaeus
# Species = aztecus
#
# 2885 records returned out of a total of 2885.
#
# Cruise Station Event Entry Bicode Yoy N W Taxon Pasc GearType Startev Endev TimeZone StartLat EndLat StartLon
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Map created by National Coastal Data Development Center. 0 85mi



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NOAA Satellites and Information
National Environmental Satellite, Data, and Information Service

Home < Projects

[About Us](#) | [Services](#) | [Metadata Resources](#) | [Regional Offices](#)

[HABSOS](#) | [Ocean Exploration](#) | [Coastal Risk Atlas](#) | [Coastal Eco](#)

COASTAL OCEAN OBSERVING SYSTEMS

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HABSOS

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COASTAL ECOSYSTEMS

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NCDDC Coastal EcoSystems Program - Mozilla Firefox

http://www.ncddc.noaa.gov/Habitat

Firefox Help | Firefox Support | Plug-in FAQ | Fleet Numerical Mete... | National Weather Se...

COASTAL ecosystems

Home

[Go to 2004 Gulf of Mexico Hypoxia Watch](#)

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NOAA Satellites and Information

National Environmental Satellite, Data, and Information Service



ECOSYSTEMS Maps:



The ECOSYSTEMS

link for the ECOSYSTEMS... this site does not allow downloads or print application can be used in Internet Explorer or greater. The map is a scripting error graphics and fr

Gulf of Mexico Viewer:

This on-line mapping tool was created by NOAA's National Center in conjunction with NOAA's National Marine Fisheries Service. The purpose of this application is to combine fish habitat information with interactive data mapping and access to Gulf of Mexico Fishery Resources. The purpose of this application is to combine fish habitat information with interactive data mapping and access to Gulf of Mexico Fishery Resources. The purpose of this application is to combine fish habitat information with interactive data mapping and access to Gulf of Mexico Fishery Resources.

Coastal Ecosystems Program Gulf of Mexico

Reload Map

Table of Contents

- Intertidal Marine
- Subtidal Marine
- Upland
- National Wetlands(MS)
- Subtidal Estuarine
- Intertidal Estuarine
- Pelagic
- Limnetic Lacustrine
- Littoral Lacustrine
- Tidal Riverine
- Lower Perennial Riverine
- Upper Perennial Riverine
- Intermittent Riverine
- Intertidal Marine
- Subtidal Marine
- Upland
- State-Federal Jurisdiction Line
- Estuarine Areas - Gulf of Mexico
- Brown Shrimp, Adult, Increasing Salinity
- Not present
- Present
- Rare
- Common
- Abundant

Zoom In Zoom Out GDM Extent Pan Identify Print Download

Select Location

By State: Mississippi

By Area of Interest: Mississippi Sound

Zoom To

Map Relative Abundance of Estuarine Species

Common name: Brown Shrimp

Life Stages: Adult

Season: Increasing Salinity

Add To Map Delete From Map

Click for information about relative abundance maps

Help

Salinity Information for Mississippi Sound
Decreasing Salinity (Nov-Jan), Low Salinity (Feb-Apr), Increasing Salinity (May-July), High Salinity (Aug-Oct)

Species Available for Mapping in Mississippi Sound

Species Name	Adult	Juvenile

Use the Legend tab in the Table of Contents to find abundance color key for selected estuarine species.

Refresh Map Zoom In

http://www.ncddc.noaa.gov/Habitat/GIS_mapping/ECOSYSTEM_Description_Layers

mapped in relationship to the available habitat information.

Description

Launch Map



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Coastal Ocean Observing Systems

- Partners: NDBC, GoMOOS, COMPS, CO-OPS, TABS, TCOON, others...
- Data Sets
 - Surface Marine Weather
 - Chemical, Bio-optical
 - Physical Ocean Measurements

http://www.ncddc.noaa.gov/COOS/GIS_Mapping/COOS_Description_Layers



Data Retrieval and Aggregate Processing



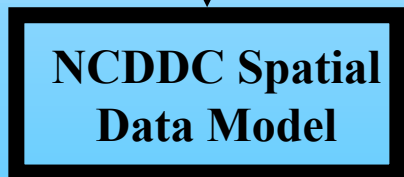
GoMOOS DoDs Server
(netCDF files)



The software collects
all data hourly



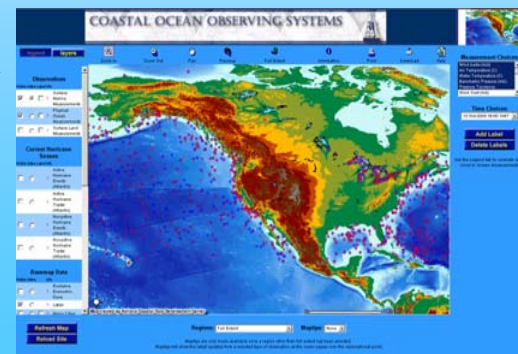
- The software collects all data weekly;
- Data stored in NetCDF format, subset by date



Data are converted to
a universal format



- Parses the data;
- Populates the SDE table
- Transforms to shapefile



IMS points to SDE



Coastal Ocean Observing Systems

COASTAL OCEAN OBSERVING SYSTEMS

legend layers

Zoom In Zoom Out Pan Previous Full Extent Information Print Download Help

Observations
Visible Active Label Info

? Surface Marine Measurements
 ? Physical Ocean Measurements
 ? Surface Land Measurements

Current Hurricane Season
Visible Active Label Info

? Active Hurricane Events (Atlantic)
 ? Active Hurricane Tracks (Atlantic)
 ? Nonactive Hurricane Events (Atlantic)
 ? Nonactive Hurricane Tracks (Atlantic)

Basemap Data
Visible Active Info

? Exclusive Economic Zone
 ? Lakes
 ? Major Cities

Map created by National Coastal Data Development Center

Regions: Gulf of Mexico - Southeast Atlantic Maptips: Surface Land Obs (english)

Refresh Map Reload Site

Maptips are only made available once a region other than full extent has been selected. Maptips will show the latest updates from a selected type of observation as the cursor passes over the observational point.

Measurement Choices:
Wind bars (m/s)
Air Temperature (C)
Water Temperature (C)
Barometric Pressure (mb)
Pressure Tendency
Wind Gust (m/s)

Time Choices:
12-Oct-2004 20:00 GMT

Add Label Delete Labels

Use the Legend tab to correlate label colors to chosen measurements.

Last Update (in GMT)

Station: 42039
Date: 12-Oct-2004
Time: 19:00
Wind Speed: 11.4kts
Wind Direction: 270° (W)
Wave Height: 4.9ft
Dominant Period: 7sec
Air Temperature: 77°F
Barometric Pressure: 1010.3mb
Pressure Tendency: -1.6mb

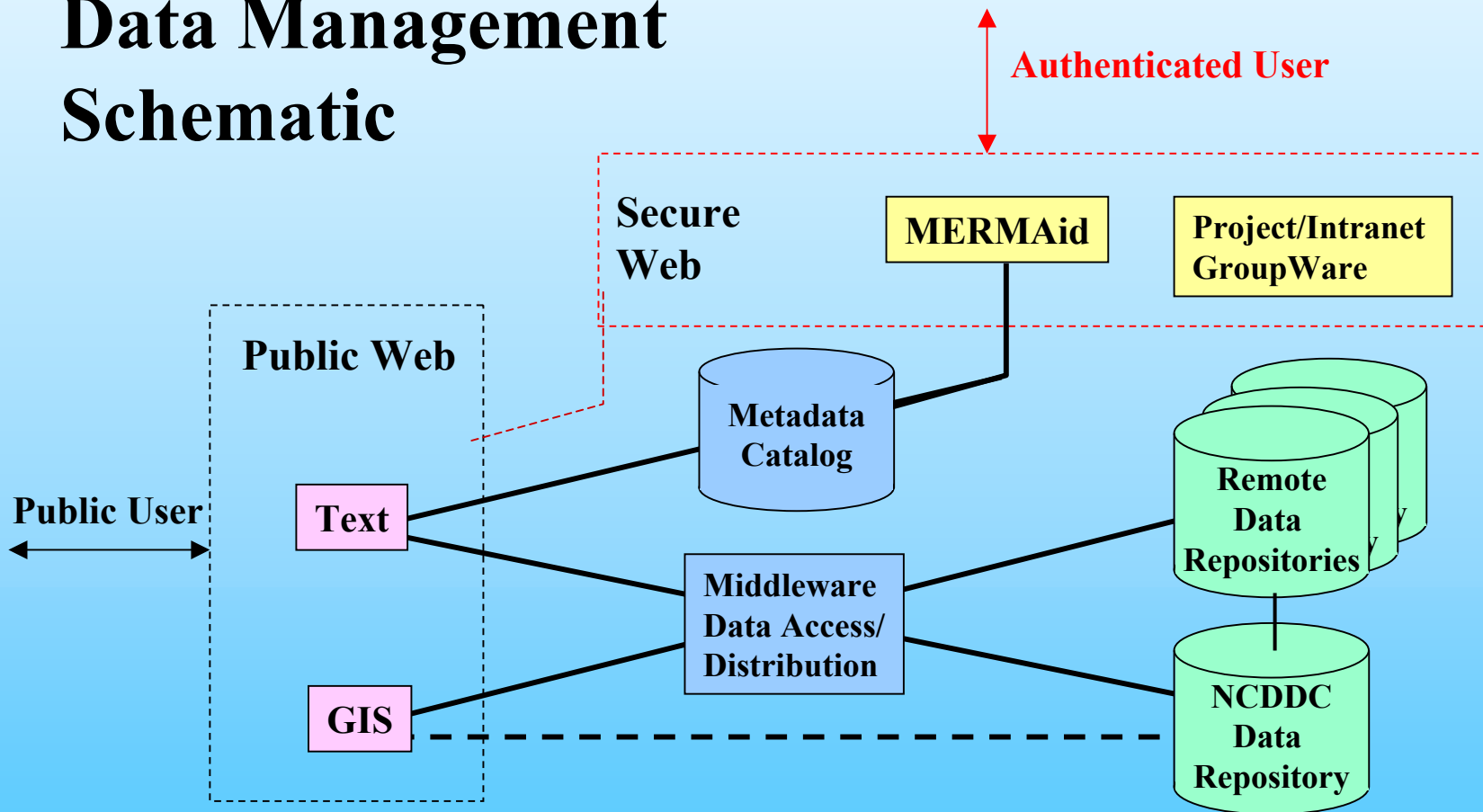
Position cursor over any observation on the map. Table will automatically update with latest readings.

Data Sets:

- Meteorological
- Oceanographic
- Surface Land
- Imagery products



Data Management Schematic





On-going Development

- Building the metadata catalog
 - Training, grants & contracts
- Connecting to additional data sources

Future Directions

- Building metadata on-the-fly
- Generating fused geospatial data products on-the-fly
- Application services



NOAA Satellites and Information

National Environmental Satellite, Data, and Information Service



<http://www.ncddc.noaa.gov>
National Coastal Data Development Center
Stennis Space Center, Mississippi
228-688-2936