



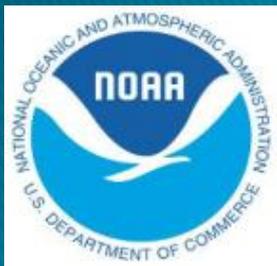
Natural Resource Damage Assessment for the Deepwater BP Oil Spill

B-WET Workshop

April 1, 2011

Tom Brosnan

NOAA Damage Assessment, Remediation and Restoration Program



What We Will Discuss

Overview of DWH NRDA Process & Status
Public Participation and Information Access
Q&A



NRDA 101



Tragically, oil spills happen...



Goal of Natural Resource Damage Assessment and Restoration

- ▶ **Compensate the Public for injuries to natural resources and for lost human uses**



Primary Authorities



- ▶ **Oil Pollution Act (OPA)**
- ▶ **Comprehensive Environmental Response, Compensation and Liability Act (Superfund)**
- ▶ **Clean Water Act (CWA)**
- ▶ **National Marine Sanctuaries Act (NMSA)**
- ▶ **Park System Resources Protection Act (PSRPA)**

Natural Resource Injuries

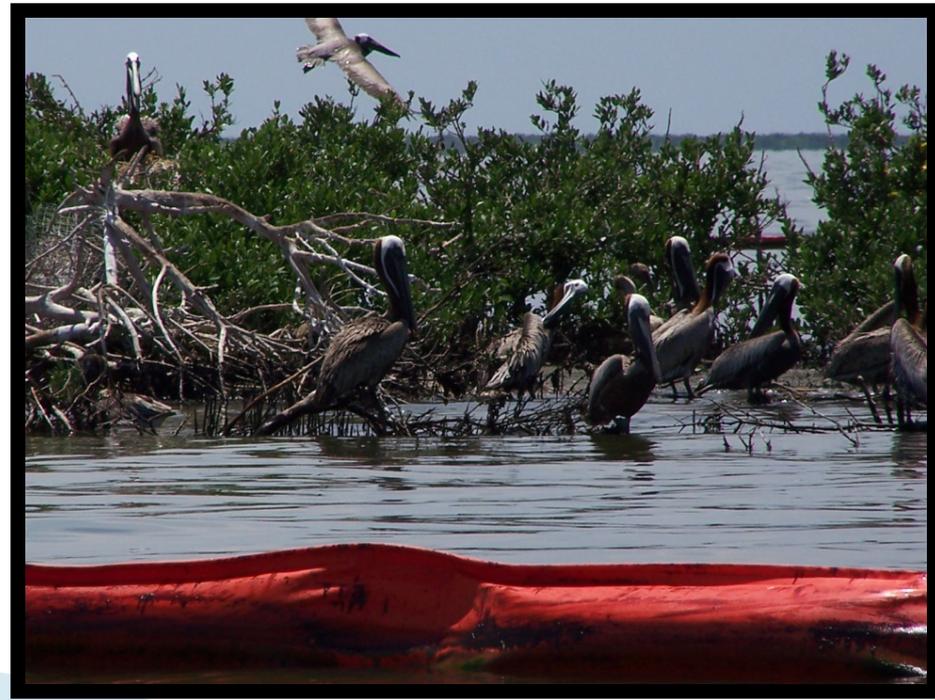
- **Injury** = measurable adverse change or impairment of a natural resource service, including human uses.

- **Resources:**

- **Biota** (e.g., birds, fish, invertebrates, wildlife, etc.), via death; disease; organ/tissue injury; reduced reproduction; behavioral abnormalities, etc.

- **Habitat** marsh, mangrove, mudflat, beach, corals, seagrass, etc.

- **Water, Soil, Sediment, Air**



DWH Trustee Council Membership

▶ Federal Trustees:

- U.S. DOC – NOAA
- U.S. DOI – FWS, NPS, BLM, BIA
- U.S. DOD – Navy

▶ State Trustees:

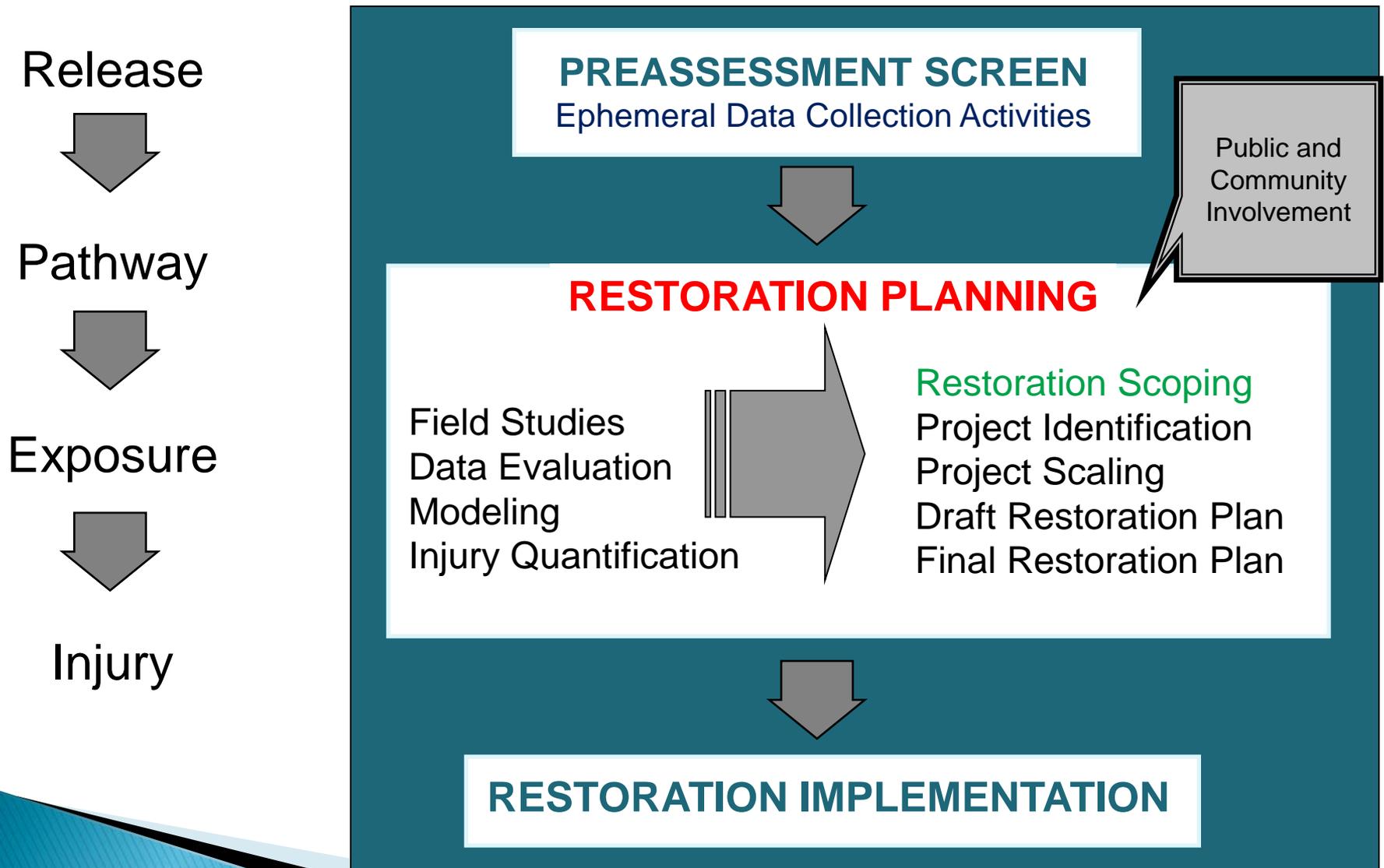
- Alabama
- Florida
- Louisiana
- Mississippi
- Texas

▶ Trustee Council:

- Goal: Work cooperatively to determine the magnitude and extent of injury to natural resources in the GOM from the DWH spill and fully restore those injured resources



Oil Pollution Act NRDA Framework



In Summary, Three Things...

▶ NRDA is Restoration-Focused

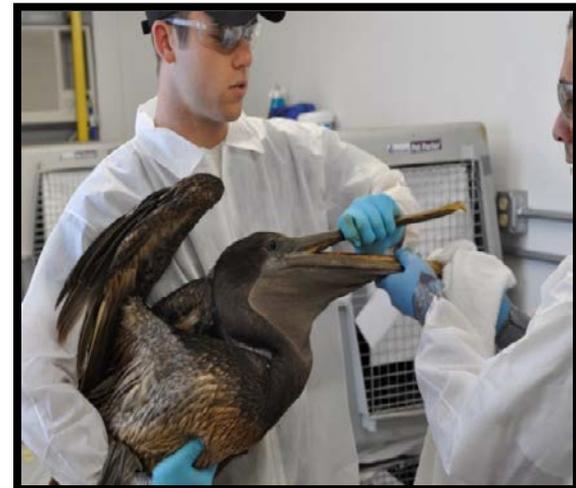
- Restoration is considered early and throughout the NRD process

▶ NRDA is a Cooperative Process

- Getting to restoration requires a common vision & coordination with:
 - Co-Trustees and the public
 - Moves more quickly if Responsible Party shares the same vision and works cooperatively with the Trustees

▶ NRDA is a Legal Process

- Trustees are required to demonstrate causality between the release & resource injury/lost use
- The polluter pays for assessment and restoration



NRDA for the Deepwater Horizon/BP Oil Spill



Current Assessment Activities for DWH

- ▶ Technical Working Groups (TWGs) of State and Federal natural resource trustees and BP implementing pre-/post-impact field studies for multiple resources:
- ▶ Includes water, sediment, tissue sampling and observations from planes, ships and shore
- ▶ Includes potential impacts from response actions



NRDA Assessment Activities

OIL IN THE OPEN WATER

Oil in the open water may affect the health of microscopic plants and animals that form the basis of the oceanic food web. The eggs and larvae of shrimp, fish, and other commercially and recreationally important species are at risk, as are adult fish, sea turtles, marine mammals, and ocean-going birds. Far beneath the surface, corals and other deepwater communities also may be affected.

WATER COLUMN AND SEDIMENTS

- Water quality surveys
- Transect surveys to detect submerged oil
- Oil plume modeling
- Sediment sampling

TURTLES AND MARINE MAMMALS

- Aerial surveys
- Tissue sampling
- Acoustic monitoring
- Satellite tagging

FISHERIES

- Plankton surveys
- Invertebrate surveys
- Adult fish surveys
- Larval fish surveys

OIL IN NEARSHORE HABITATS

Sensitive nearshore communities such as oyster beds and shallow-water corals may lie directly in the path of underwater oil and surface mousse riding the waves to shore. When the oil does hit land, it can severely impact coastal habitats including marshes, mudflats, mangrove stands, and sandy beaches. Organisms that use these habitats, such as birds, crabs, turtles, crocodiles and other aquatic and terrestrial species also are at risk.

SHORELINES

- Aerial surveys
- Ground surveys
- Observations of the quality of habitat
- Measurements of subsurface oil near the shore

TERRESTRIAL AND AQUATIC SPECIES

- Ground surveys
- Observations of the quality of habitat

AQUATIC VEGETATION

- Aerial surveys
- Field surveys in large beds of aquatic vegetation

BIRDS

- Aerial surveys
- Ground surveys
- Nearshore boat surveys
- Offshore boat surveys
- Radio telemetry

SHELLFISH

- Oyster surveys
- Tissue and sediment sampling
- Mussel collection
- Shrimp collection

OIL AND HUMAN USE

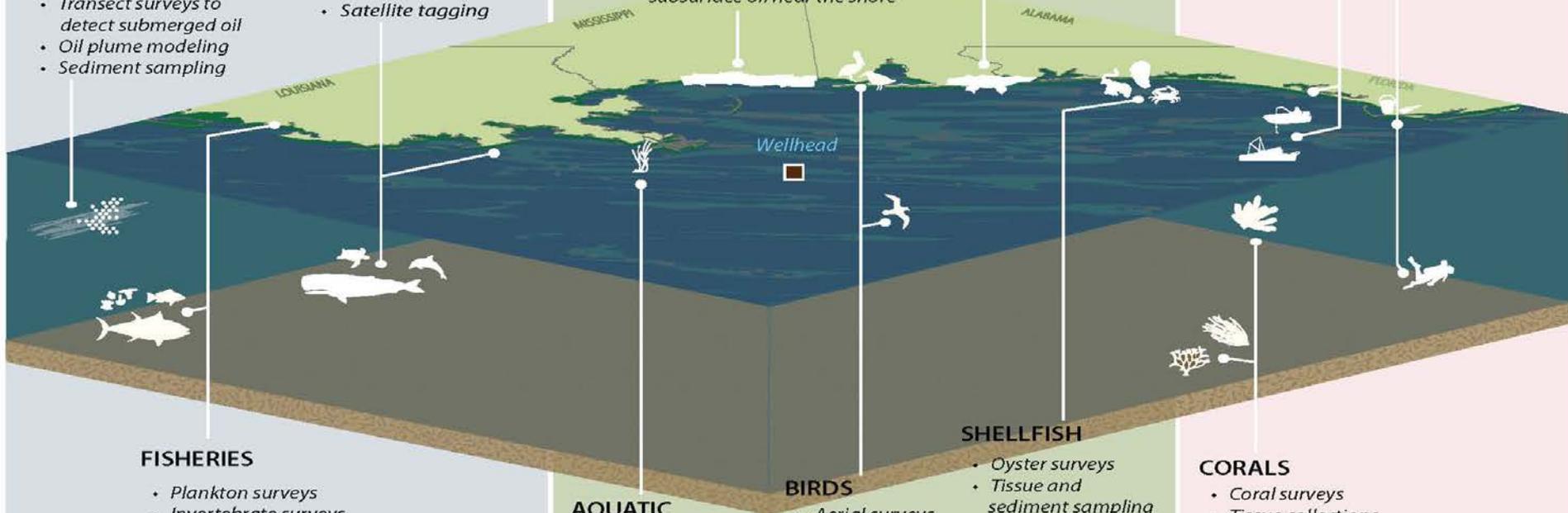
Humans, like wildlife, also rely on the ocean and coasts. From fishing to water sports and sunbathing to birdwatching, humans enjoy and rely on Gulf Coast waters and nearshore environments in many ways.

HUMAN USE

- Aerial surveys
- Ground surveys

CORALS

- Coral surveys
- Tissue collections
- Contaminant surveys



Sampling Snapshot as of Jan. 2011:

- ▶ Over 89 offshore research cruises
- ▶ ~28,000 NRDA environmental samples:
 - 13,677 water
 - 4,506 sediment, and
 - 6,012 tissue samples.
- ▶ ~4,200 linear miles of shoreline surveyed
- ▶ Wildlife:
 - Live oiled wildlife captured: >2,079 birds and 456 sea turtles.
 - Dead visibly oiled wildlife collected: 2,263 birds, 18 sea turtles; 5 marine mammals.
 - Several hundred transmitters on wide-ranging species
- ▶ Deepwater communities impacts



Public Involvement



NRDA: Public Notice and Involvement

1. Pre-assessment workplans and data released (ongoing)
2. NOI to Conduct Restoration Planning: (10/1/2010)
3. Public Information Meetings (Oct.–Dec. 2010)
4. Restoration/PEIS Scoping Meetings (3/16 – 4/6/2011, comments due by 5/18/2011).
5. Draft PEIS issued for comment: ~Fall 2011: public meetings, comments due 90 days later.
6. Final PEIS Issued 6–12 months later
7. Draft Restoration Plan –public meetings and public comment
8. Final Restoration Plan
9. Implement Restoration Projects



Objective of the Restoration Scoping Meetings (March 16-April 6, 2011)

- ◉ Begin public scoping:
 - ◉ Determine broad restoration alternatives for this spill
 - ◉ To help develop a Programmatic Environmental Impact Statement (PEIS)



Restoration Scoping

◎ What do you want restored, replaced, acquired/protected?

- Habitats?
- Resources?
- Recreational opportunities?
- Others?



◎ What restoration types will achieve this?

Examples of restoration types (a partial list)



Water quality improvements
Transplanting or propagating corals and
Beach and dune restoration structures
Other species

What is a PEIS?

- PEIS = Programmatic Environmental Impact Statement

- Provides a framework for:
 - early and ongoing integration of public input into restoration planning
 - evaluation of environmental and socioeconomic effects of several *types* of restoration
- Provides a broad foundation for a future restoration plan and will simplify environmental review of specific projects
- For an example PEIS, see:
http://sanctuaries.noaa.gov/library/fk/seagrass_fpeis04.pdf



Give Us Your Ideas

Give Us Your Ideas



NOAA and **other federal and state agencies** are leading efforts to assess impacts to, and determine appropriate restoration for, Gulf resources injured by the Deepwater BP oil spill. We are in the process of identifying the types of restoration activities that will be appropriate to restore the natural resources impacted by the spill. The public scoping process provides an opportunity for your input.

Make your voice heard at the links below and **read others' comments**.

[Submit a Comment](#)

Would you like to **provide input on the types of restoration** you feel are important or **do you have a comment on the restoration planning process**? Submit your comment to our public comment database.

When and How Will My Comments Be Considered?

The public scoping process for the **PEIS** will last 90 days, with the first draft being available for public review and comment in fall of 2011. The final PEIS is scheduled for completion within 18-24 months.

Next Steps

After the restoration scoping process is finalized (anticipated to be late 2012), the trustees will begin developing a restoration plan that identifies specific restoration projects. If you have project ideas, you can **submit them online**. Your project ideas will be evaluated when a Deepwater Horizon restoration plan is developed (likely in early- to mid-2013).

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[BP Oil Spill](#)

[Restoration Scoping](#)

[What is Restoration Scoping?](#)

[What's a PEIS?](#)

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Access to Information



NRDA Workplans and Data

Below you will find study plans for each phase of the Natural Resource Damage Assessment, as well as other documents related to the legal case NOAA and co-trustees are building on the Deepwater BP oil spill.

The study plans reflect **input and advice from experienced scientists and resource managers** as well as leading experts who specialize in studying oil spills and natural resources in the Gulf of Mexico. As data from the studies become available, the Trustees may adapt study approaches or methods, or consider conducting additional studies, to ensure that the impacts of the oil spill can be fully identified and measured.

+ Background Information:

Pre-Assessment Workplans

Note: the following summaries and objectives for each workplan below are often paraphrased from the plans. For more detail, see the plans.

Links to view the data (or map of sample locations, etc.) from plans will be identified with the following icon:  Please note, these links are best viewed using Mozilla Firefox.

NRDA Workplans and Data				
Sorting order: <input type="checkbox"/> Type <input type="checkbox"/> Category <input type="checkbox"/> Workplan <input type="checkbox"/> Date				
Type	Category <input type="checkbox"/>	Workplan	Date	Data
Aquatic	Coral & Deepwater Communities	Shallow Coral Tier 1 Plan  11.72mb, pdf	07/26/2010	
This work plan has three major objectives with a geographic focus for documenting baseline conditions for shallow water corals, including documenting baseline/pre-impact condition of: 1. shallow-water corals along the Florida Reef Tract; 2. shallow-water corals in the Florida Middle Grounds; and 3. shallow-water corals in the East and West Flower Garden, Stetson, and Sonnier Banks. Each method focuses on different aspects of the ecosystem and generates unique measurement endpoints.				
Aquatic	Fish	Investigative Plan for Fish and Invertebrate Kills in the Northern Gulf of Mexico  29mb, pdf	12/14/2010	
Objectives: (1) to gather information on location and causes (if known) and counts by species of fish kills in the last ten years to help establish a baseline for variability of fish kills between years; and (2) documentation and investigation of reported fish kills from April 20, 2010 until the presence of MC 252 oil is no longer detected in concentration that could likely cause fish kills.				
Aquatic	Fish	Investigative plan to monitor and assess the potential for impacts of the Deepwater Horizon Oil Spill on Whale Sharks in the northern Gulf of Mexico using satellite tag technology  28.1, pdf	08/14/2010	
Objectives: (1) to document movements of whale sharks in the northern Gulf of Mexico including the time of occurrence in the spill area to evaluate the potential for exposure to oil or dispersants; and (2) to document the disappearance or continued presence of whale sharks. The plan is to deploy 60 satellite tags to whale sharks as a reliable method to assess the behavioral aspects within an area of the Gulf of Mexico that is identified as essential feeding habitat.				

NOAA Deepwater Information Resources

NOAA GULF SPILL RESTORATION
DAMAGE ASSESSMENT, REMEDIATION, AND RESTORATION PROGRAM

HOME ABOUT US DAMAGE ASSESSMENT BP OIL SPILL WHAT YOU CAN DO MULTIMEDIA FOR THE PRESS Search Here

Join Our Mailing List
Receive regular updates about the Natural Resource Damage Assessment process.
Sign Up Now

RESEARCHING THE SPILL JOIN OUR MAILING LIST DEEPWATER BP OIL SPILL VIDEO SIX MONTHS AFTER THE SPILL

Latest News
First Round of Natural Resource Damage Assessment Public Meetings Completed, Trustees Turn Toward Next Steps
Read More...

Recent Publications
January 7, 2011
Fact Sheet – Restoration Approaches (Vietnamese Translation – pdf, 889 KB)
January 7, 2011
Fact Sheet – Assessment and Restoration (Vietnamese Translation – pdf, 779 KB)

Events Calendar
January 2011
Mon Tue Wed Thu Fri Sat Sun
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30

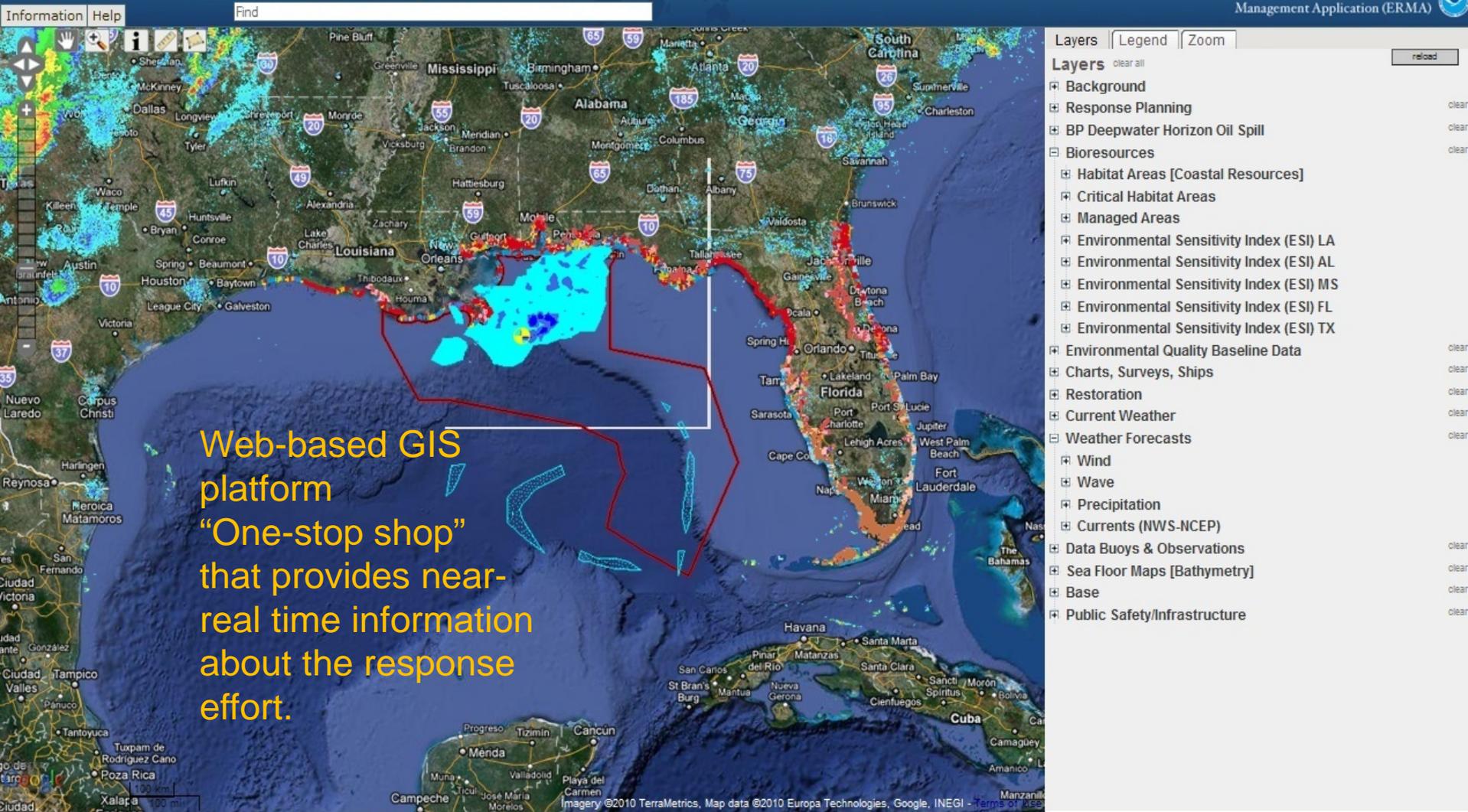
*Sign up for our NRDA email updates!
Or call: 1-888-547-0174*

- ▶ Assessment/Restoration
 - www.gulfspillrestoration.gov
- ▶ Response Information
 - deepwaterhorizon.noaa.gov/
 - Trajectories
 - Closures
 - Tools
- ▶ NOAA Deepwater Library
 - www.noaa.gov/deepwaterhorizon.noaa.gov
- ▶ Federal DWH Web Portal
 - www.restorethegulf.gov
- ▶ Gulf of Mexico Sea Grant:
 - <http://gulfseagrants.tamu.edu/oilspill/index.html>

GeoPlatform.Gov – Monitoring Oil Spill Response and Restoration

WWW.GEOPATFORM.GOV/GULFRESPONSE

Environmental Response Management Application (ERMA)



Web-based GIS platform
“One-stop shop”
that provides near-real time information about the response effort.

Scale: 1: 7M Zoom Level: 6 Location: 24.88644°, -82.55127°

National Oceanic and Atmospheric Administration | Environmental Protection Agency
U.S. Department of the Interior | U.S. Department of Homeland Security | University of New Hampshire | Privacy policy | Email Comments

Powered by ERMA®

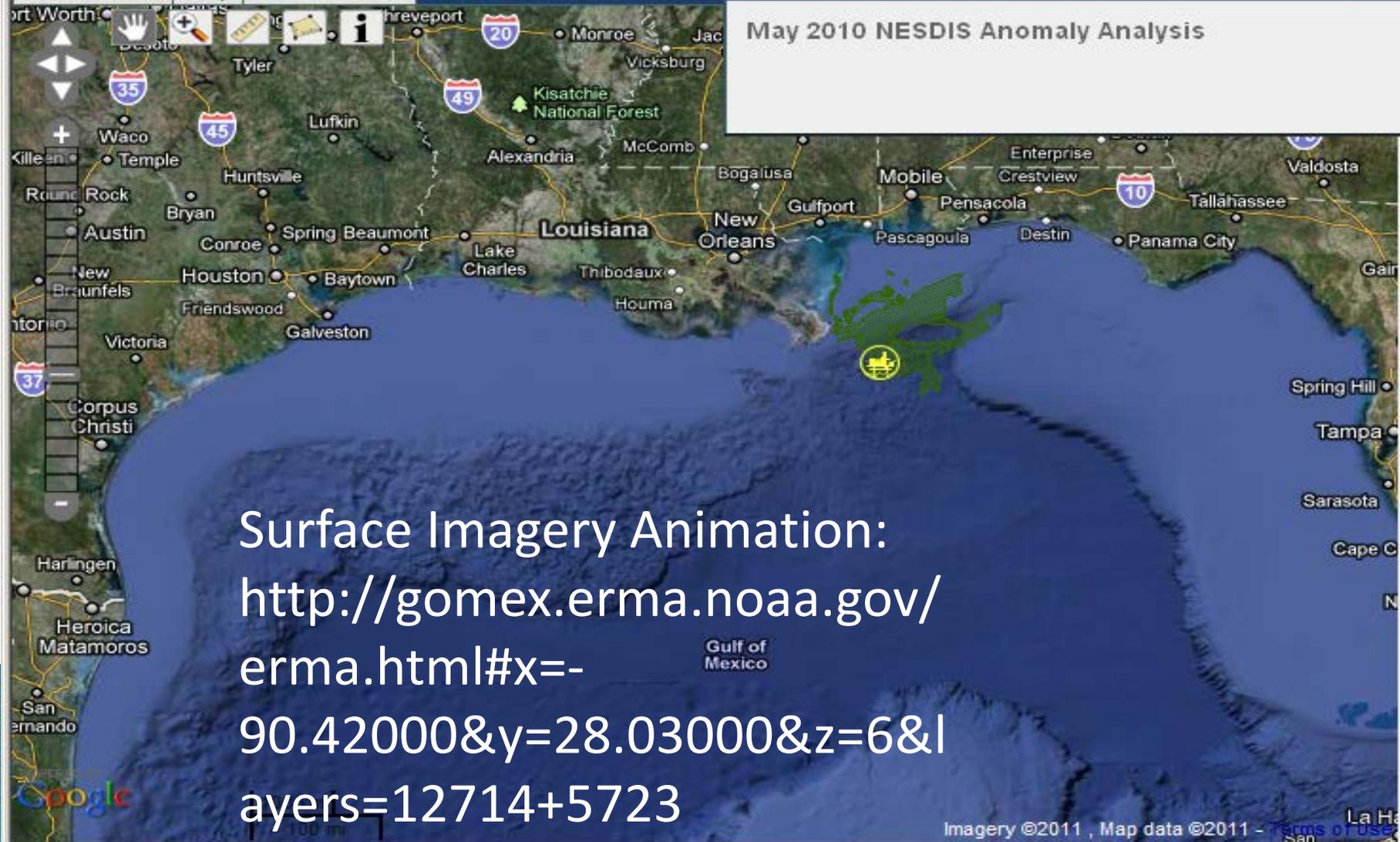
Done

Internet 90%

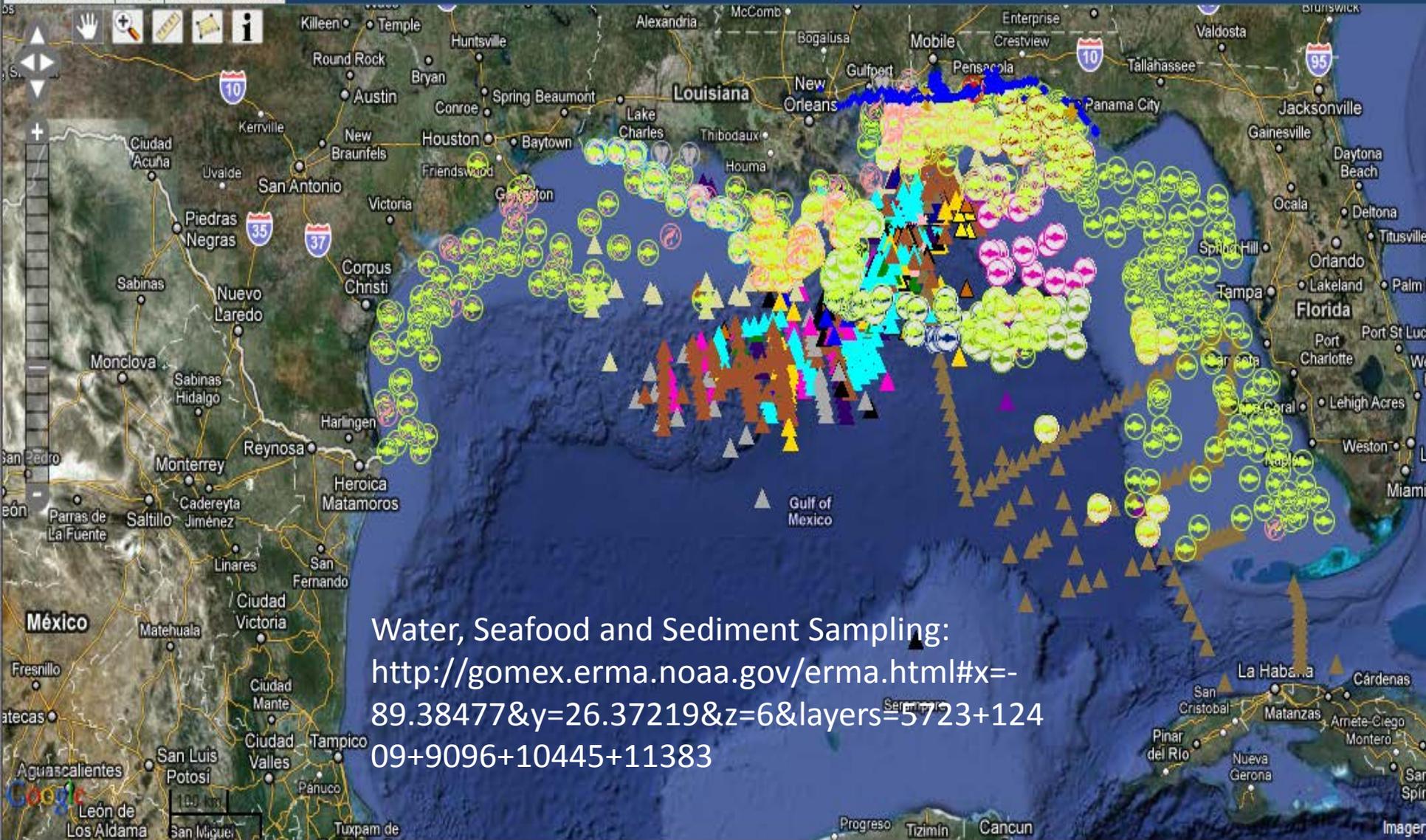
Geoplatform Example Displays

- ▶ Surface Imagery Animation: <http://gomex.erma.noaa.gov/erma.html#x=-90.42000&y=28.03000&z=6&layers=12714+5723>
- ▶ Water, Seafood and Sediment Sampling: <http://gomex.erma.noaa.gov/erma.html#x=-89.38477&y=26.37219&z=6&layers=5723+12409+9096+10445+11383>
- ▶ Shoreline July 15: <http://gomex.erma.noaa.gov/erma.html#x=-87.97852&y=29.32472&z=7&layers=7706+6592+6579+5355>
- ▶ Maximum shoreline oiling observed <http://gomex.erma.noaa.gov/erma.html#x=-89.37378&y=29.68328&z=8&layers=7706+5355+14958+14957>
- ▶ Cumulative Turtles, Oct 19 <http://gomex.erma.noaa.gov/erma.html#x=-87.97852&y=29.32472&z=7&layers=7706+5355+12702>
- ▶ Cumulative Mammals Oct 19 <http://gomex.erma.noaa.gov/erma.html#x=-87.97852&y=29.32472&z=7&layers=7706+5355+12701>
- ▶ Cumulative Birds Oct 19 <http://gomex.erma.noaa.gov/erma.html#x=-87.97852&y=29.32472&z=7&layers=7706+5355+14581>
- ▶ OSAT All Sediment, Aquatic Life <http://gomex.erma.noaa.gov/erma.html#x=-89.49463&y=28.36240&z=6&layers=14295+14296+14297+14298+7706>
- ▶ OSAT All Water, Aquatic Life: <http://gomex.erma.noaa.gov/erma.html#x=-89.49463&y=28.36240&z=6&layers=14289+14290+14291+14293+7706>

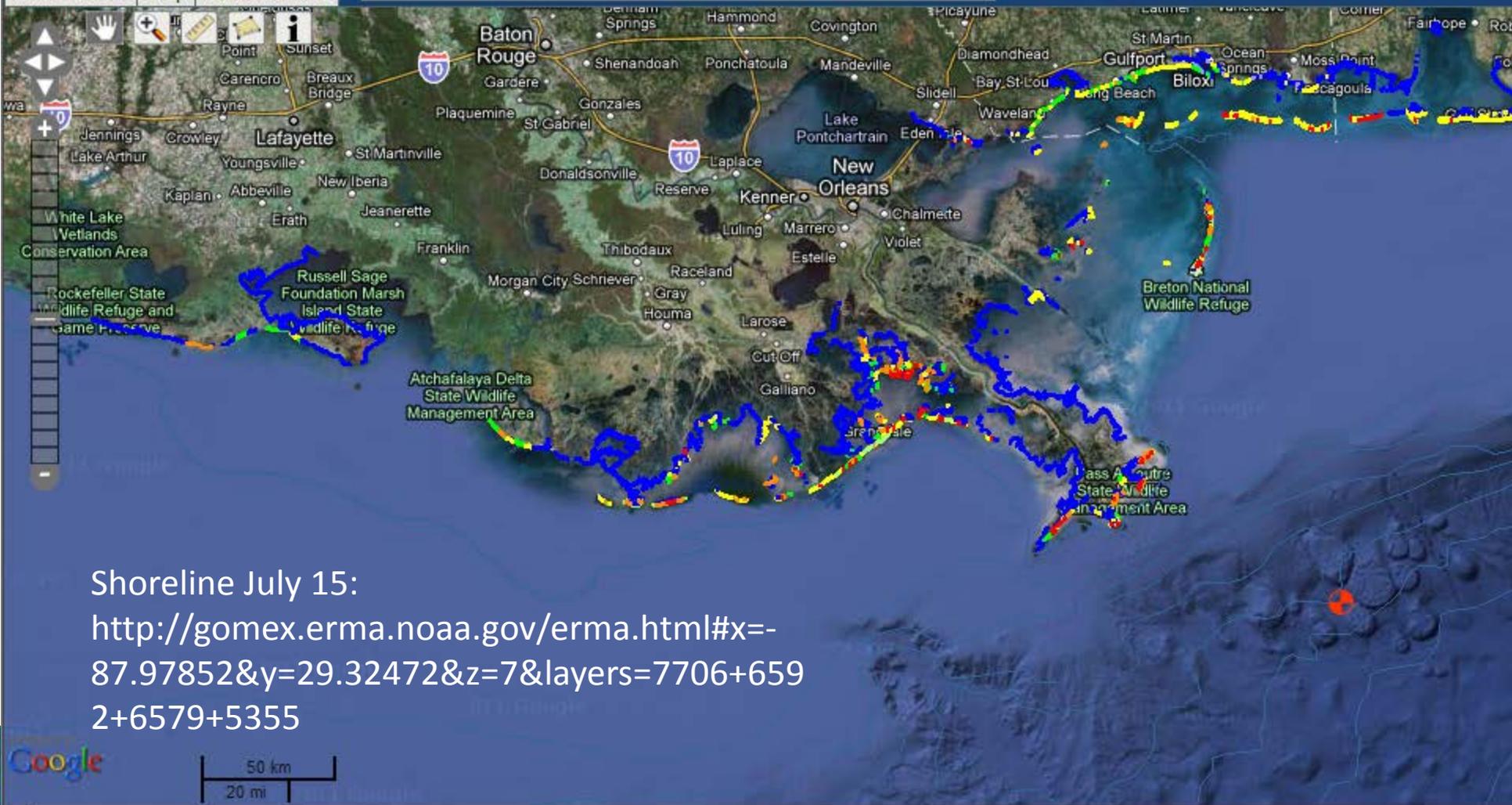
May 2010 NESDIS Anomaly Analysis



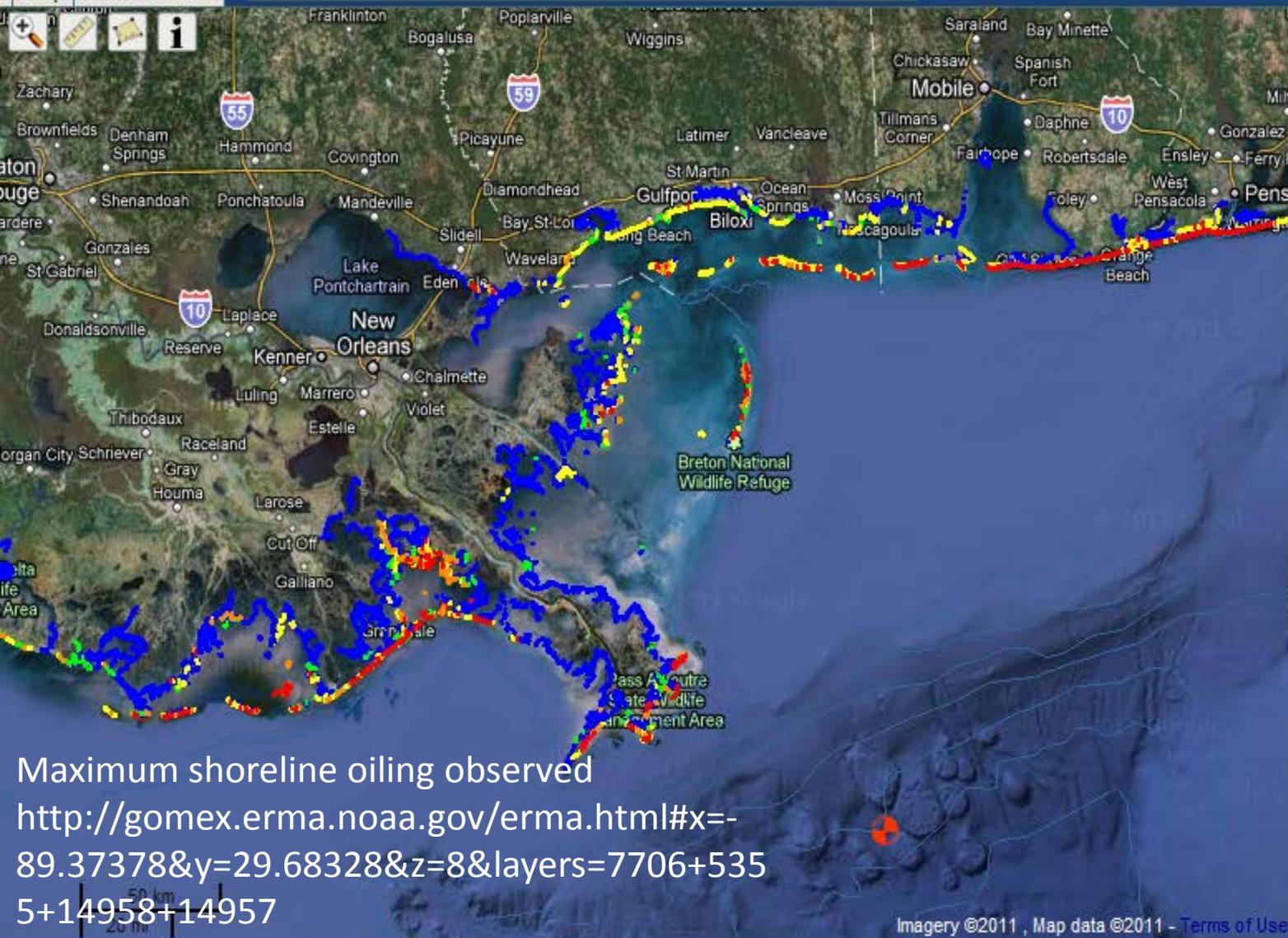
Surface Imagery Animation:
<http://gomex.erma.noaa.gov/erma.html#x=-90.42000&y=28.03000&z=6&layers=12714+5723>



Water, Seafood and Sediment Sampling:
<http://gomex.erma.noaa.gov/erma.html#x=-89.38477&y=26.37219&z=6&layers=5723+12409+9096+10445+11383>



Shoreline July 15:
<http://gomex.erma.noaa.gov/erma.html#x=-87.97852&y=29.32472&z=7&layers=7706+6592+6579+5355>



BP Deepwater Horizon Wreck

Deepwater Horizon Wreck

Deepwater Horizon Wreck

11-Nov-10 Mobile SCAT Max

- Heavy
- Moderate
- Light
- Very Light
- No Oil Observed
- Trace < 1%

23-Jan-11 Houma SCAT Max

- Heavy
- Moderate
- Light
- Very Light
- No Oil Observed
- Trace < 1%

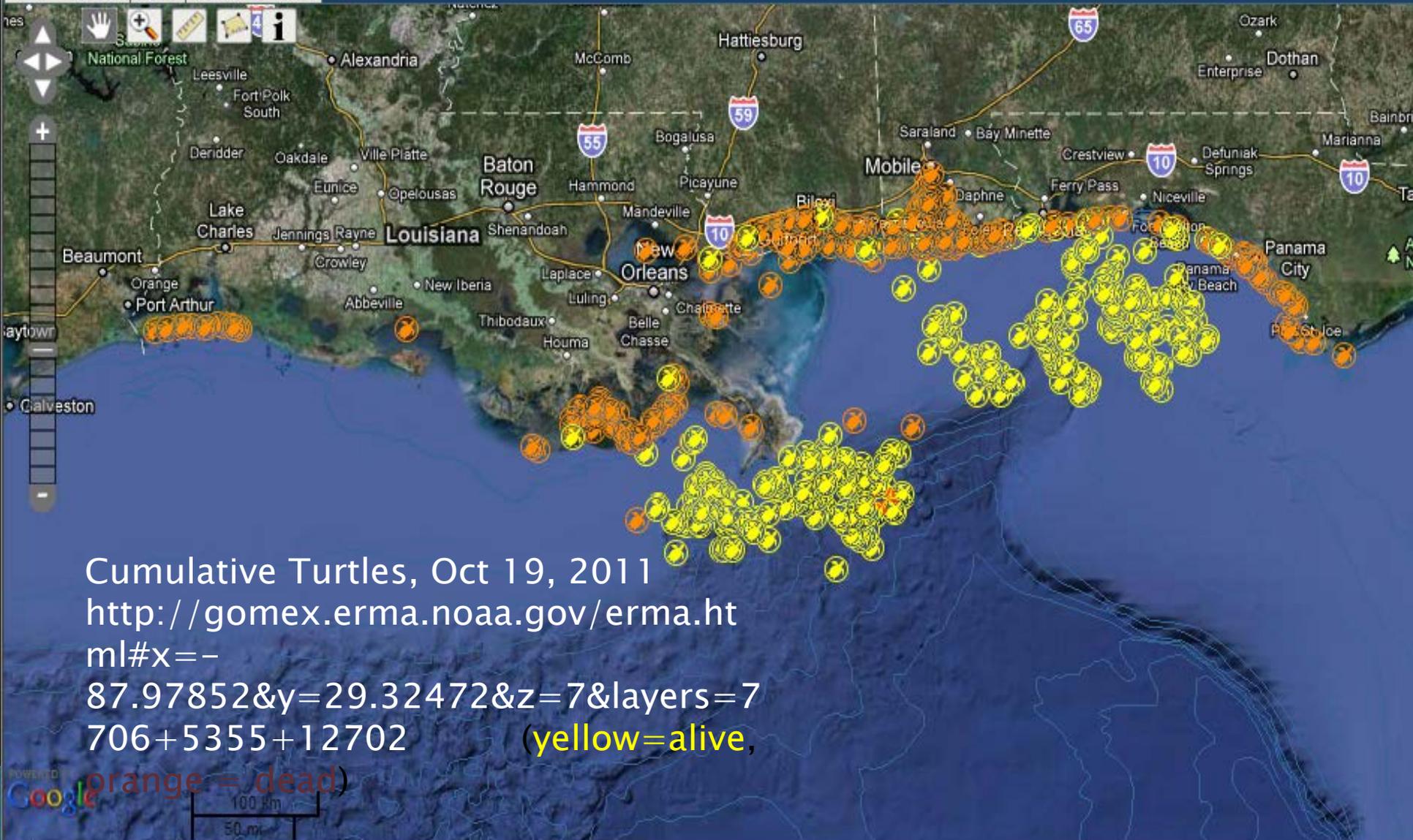
Bathymetry

Gulf of Mexico Bathymetry

Gulf of Mexico Bathymetry

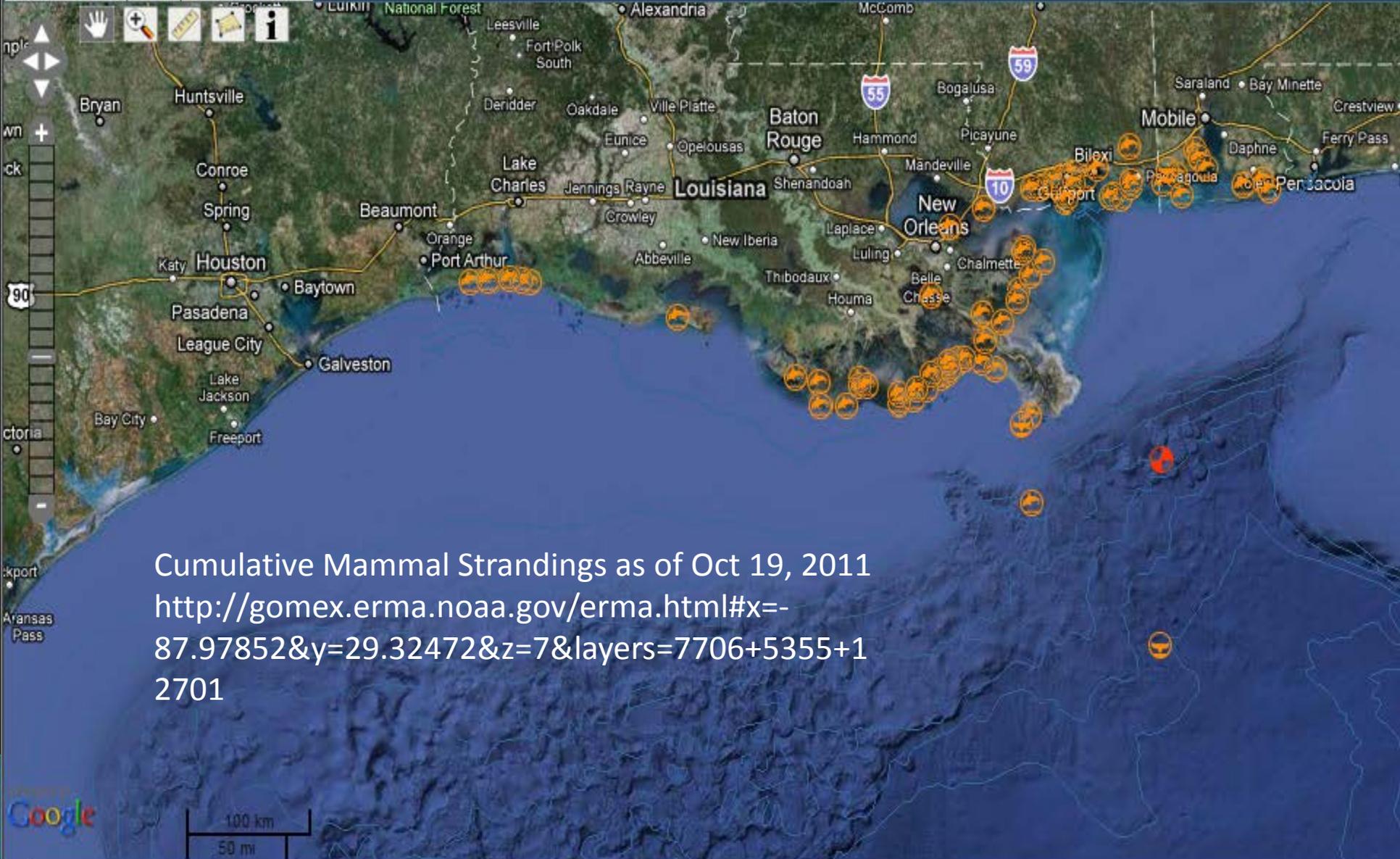
Maximum shoreline oiling observed
<http://gomex.erma.noaa.gov/erma.html#x=-89.37378&y=29.68328&z=8&layers=7706+5355+14958+14957>

Information Help Recent Data Find



Cumulative Turtles, Oct 19, 2011
<http://gomex.erma.noaa.gov/erma.html#x=-87.97852&y=29.32472&z=7&layers=7706+5355+12702>
(yellow=alive, orange = dead)

↑N Scale: 1: 3M Zoom Level: 7 Location: 27.73216°,-86.03394°



Cumulative Mammal Strandings as of Oct 19, 2011
<http://gomex.erma.noaa.gov/erma.html#x=-87.97852&y=29.32472&z=7&layers=7706+5355+12701>

Questions?

