

Northern Gulf Institute Response to the Deepwater Horizon Incident

**Gulf Coast and Atlantic States Regional Task Force of the
Southern Legislative Conference (SLC)**

**October 29, 2010
Stennis Space Center**



NGI
NORTHERN GULF INSTITUTE

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Northern Gulf Institute
A NOAA Cooperative Institute

www.NorthernGulfInstitute.org

NGI – A NOAA Cooperative Institute

Research Themes & Partners

- Ecosystem-Based Management
- Coastal Hazards and Resiliency
- Climate Change & Climate Variability Effects on Regional Ecosystems
- Geospatial Data, Information & Visualization in Environmental Science



White water to brown water to blue water



31 State Watershed of the Northern Gulf



Major Environmental Concerns



Concept

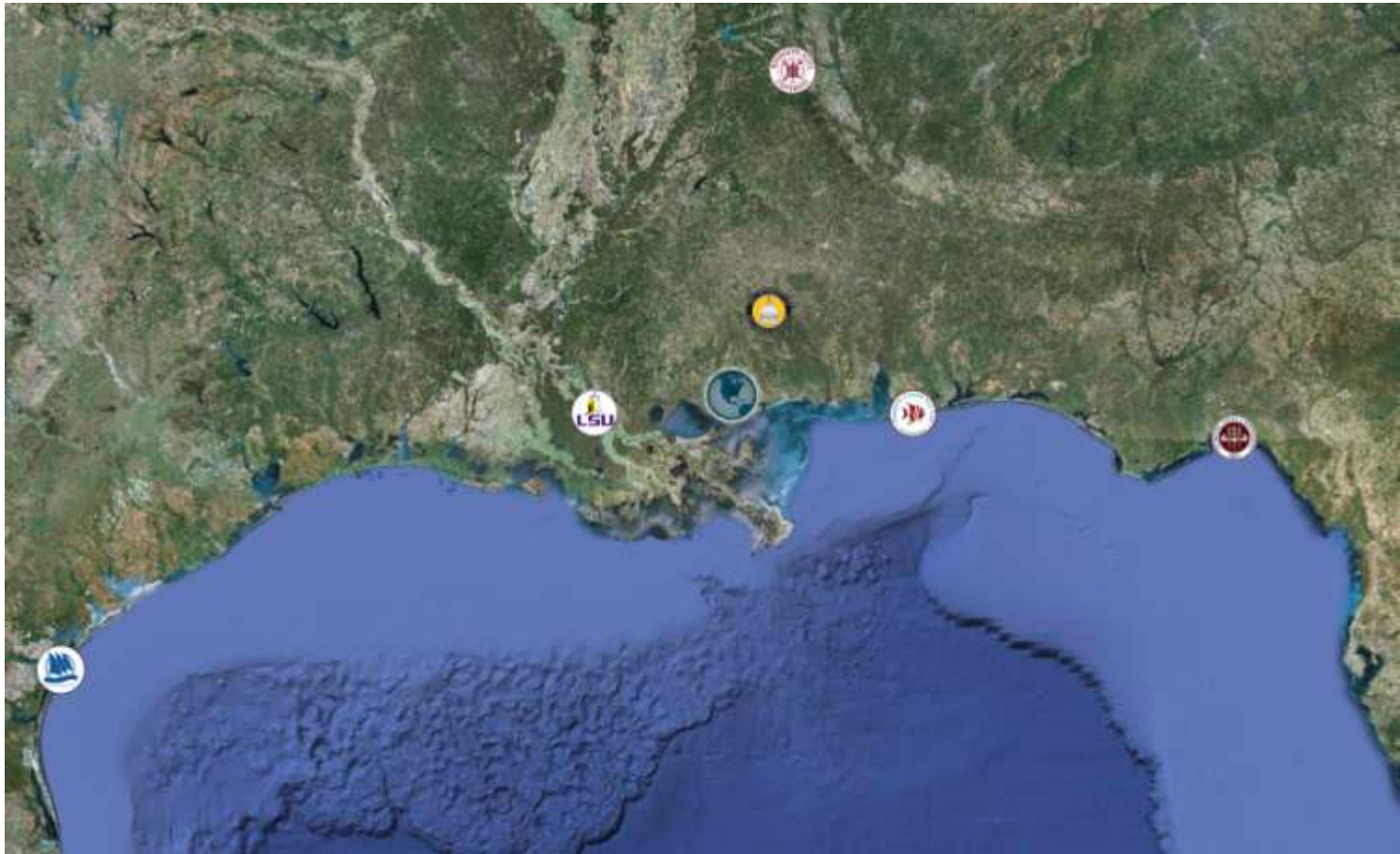
Northern Gulf Institute

- **Critical needs in northern Gulf, underserved by NOAA**
- **Opportunity for pilot effort to closely link divisions across NOAA with regional universities**
- **Integrated research, outreach, education programs**
- **Strong affiliation with other federal agencies**
- **Coordinates research and transitions results**
- **Created October 2006**



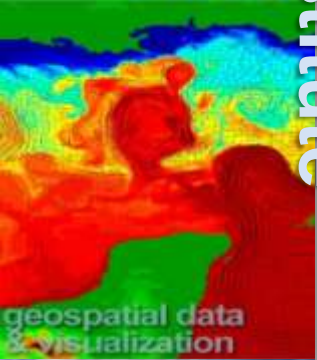
Complementary Academic Strengths

Distribution of Academic Research Members



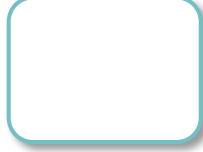
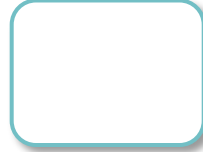
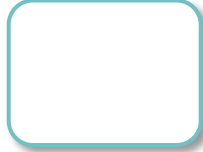
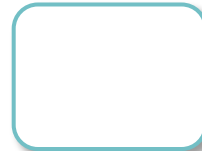
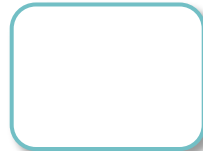
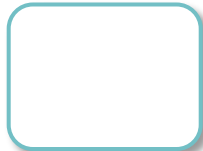
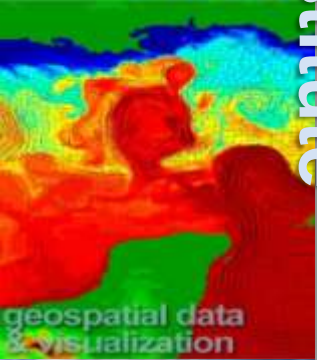
NGI Year 4 Collaborations

northern gulf institute



NGI Individual Grant Collaborations

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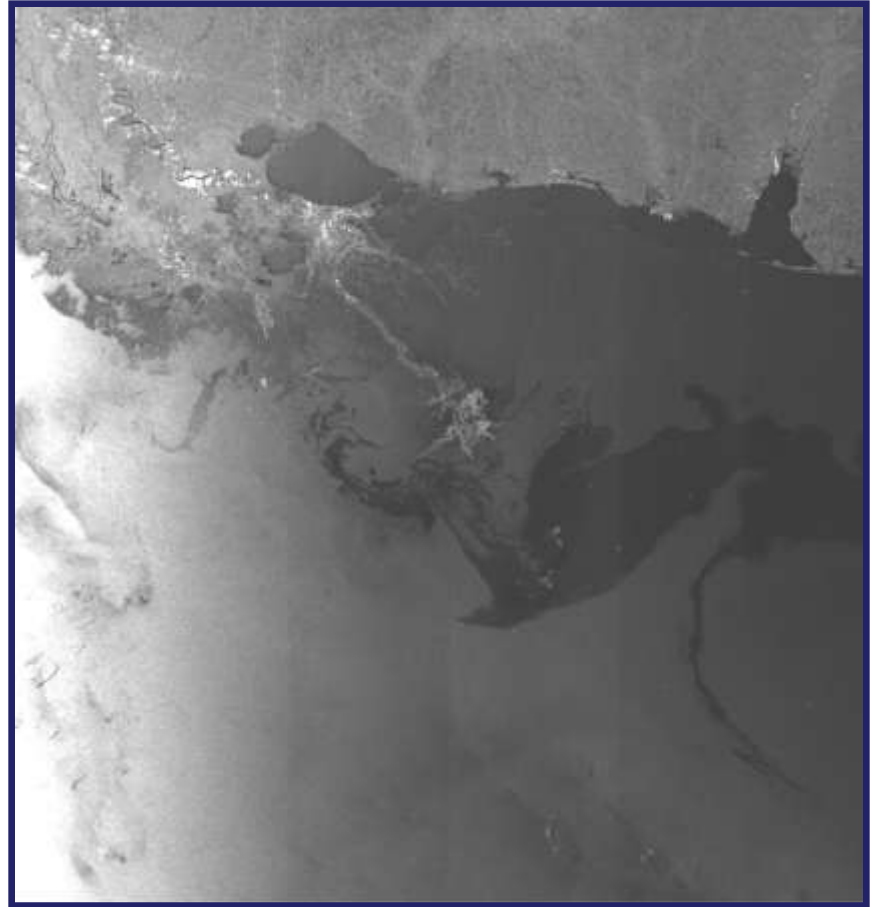
Source	Date	Barrels per day	Gallons per day
BP estimate of worst case (with no BOP)	Permit	162,000	6,800,000
United States Coast Guard	23 April (after sinking)	0	0
BP	24 April	1,000	42,000
Official estimates	29 April	1,000 to 5,000	42,000 to 210,000
Official estimates	27 May	12,000 to 19,000	500,000 to 800,000
Official estimates	10 June	25,000 to 30,000	1,100,000 to 1,300,000
<u>Latest official estimate</u>	19 June	35,000 to 60,000	1,500,000 to 2,500,000
Internal BP documents worse case (with no BOP), released by Congress	20 June	up to 100,000	up to 4,200,000

Deepwater Horizon Oil

<http://www.esl.lsu.edu/home/>

Envisat1 Image from
[CSTARS](#), May 21, 2010

Courtesy Nan Walker,
LSU Earth Scan Lab



Deepwater Horizon Oil

<http://earthobservatory.nasa.gov/IOTD/>

NASA EOS
22 Jun 2010



Deepwater Horizon Oil

<http://earthobservatory.nasa.gov/IOTD/>

NASA EOS
29 Jun 2010
Petit Bois
& Horn Islands



Deepwater Horizon Site



5/26/10 Photo, Courtesy Dr. Steve Lohrenz DMS, USM

Statutory Authorities Related to the Deepwater Horizon Spill



Oil Pollution Act

Clean Water Act

National Contingency Plan (regulation, not statute)

Endangered Species Act

Marine Mammal Protection Act

Magnuson-Stevens Fishery Conservation Management Act
(fishery closures, seafood safety)

Food, Drug, and Cosmetic Act (seafood safety)

Coastal Zone Management Act

Outer Continental Shelf Management Act (MMS permitting)

National Environmental Policy Act

Administrative Procedure Act (enviros use this for standing to sue fed agencies)

Clean Air Act (for air quality issues in spill-impacted areas)

Toxic Substances Control Act (dispersants, sort of)

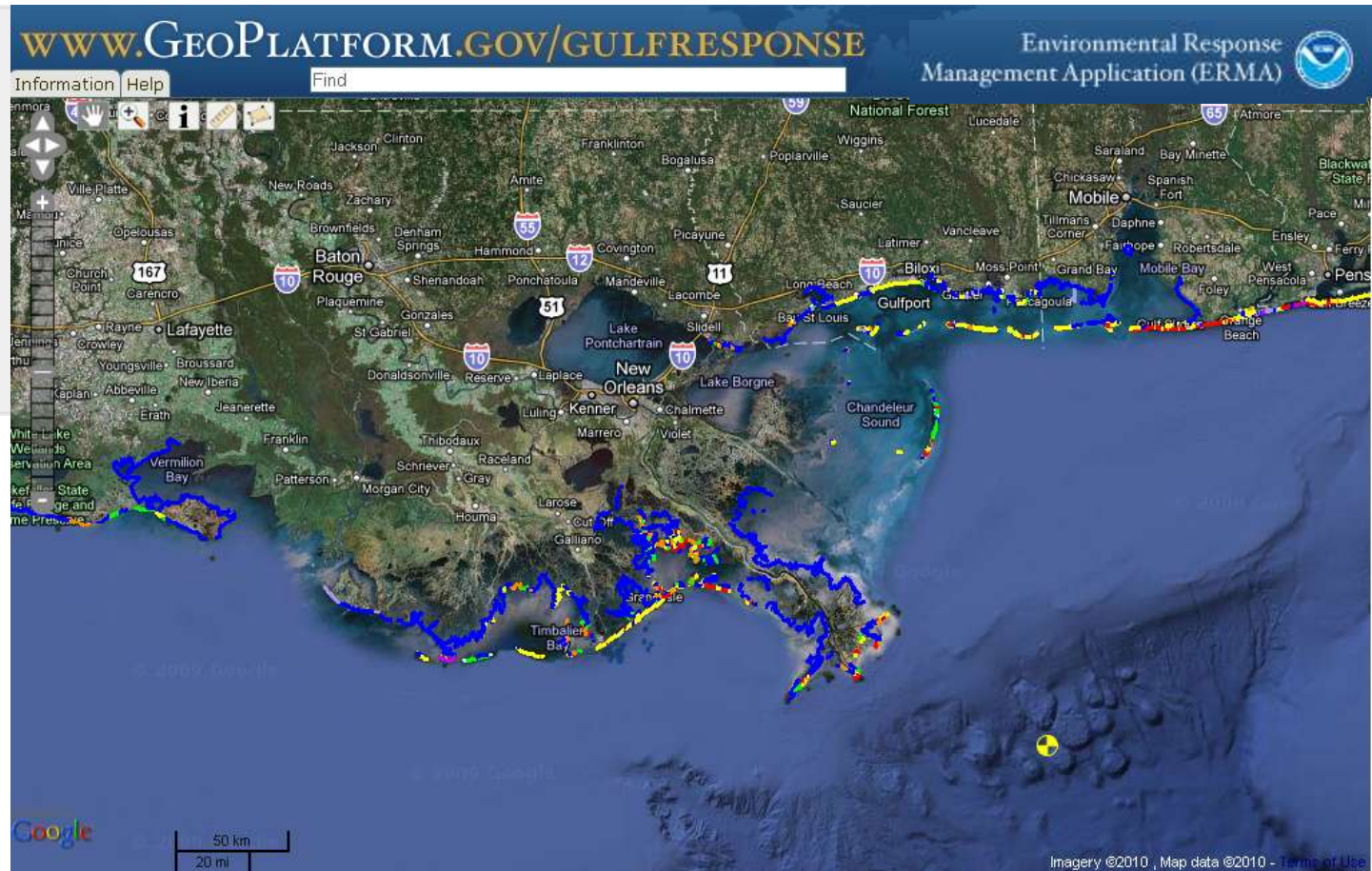
National Marine Sanctuaries Act (possibly, if oil hits the Keys or Flower Gardens)

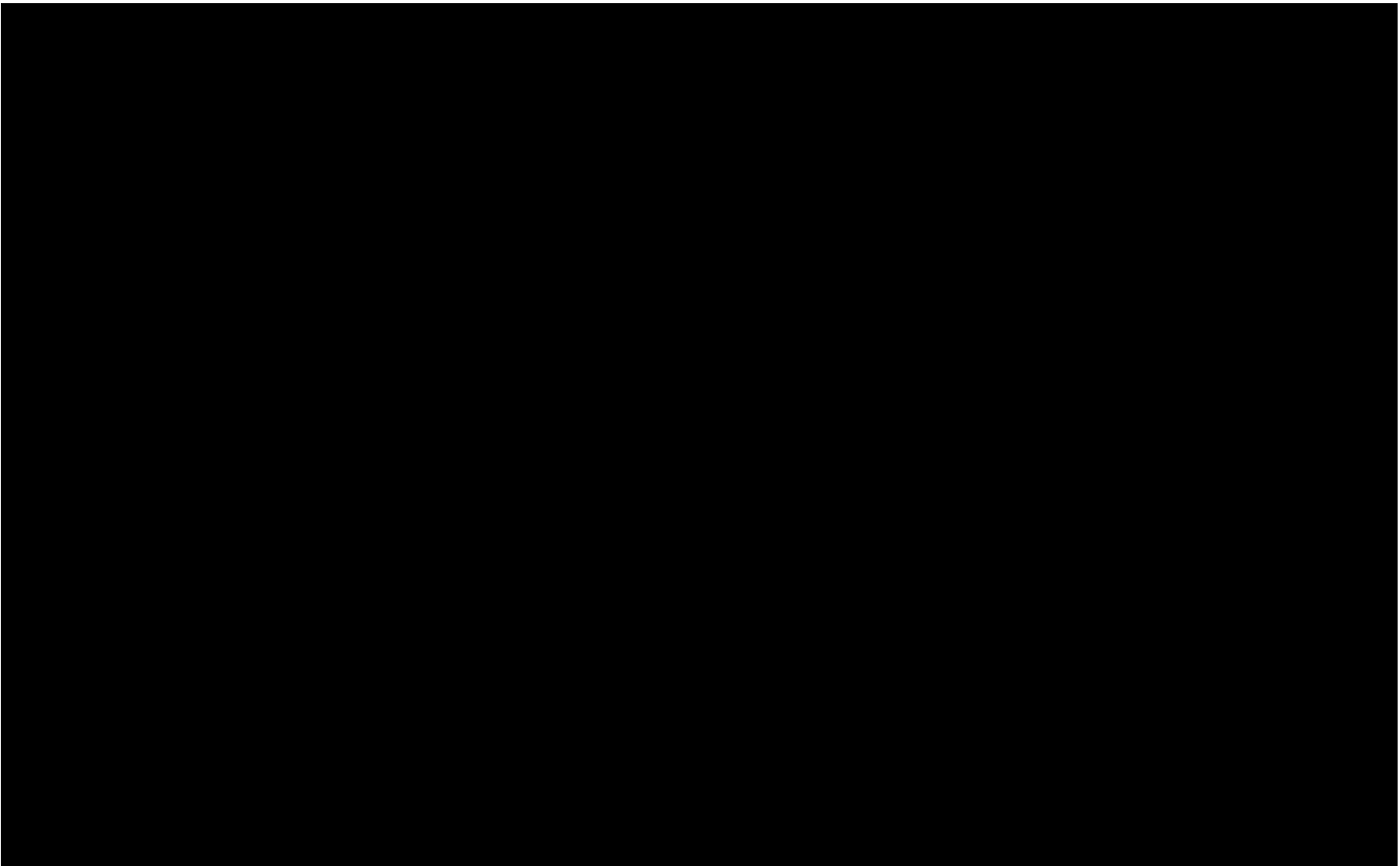
Deepwater Horizon Oil

Observed Oil as of 7 July 2010 & Potential Ecological Impacts

Latest Observed 07-06-2010

-  Heavy Oiling
-  Moderate Oiling
-  Light Oiling
-  Very Light Oiling
-  Heavy Tarballs
-  Moderate Tarballs
-  Light Tarballs
-  Negligible Tar Balls
-  No Oil Observed





Courtesy of NOLA.com



Physical Oceanography

http://www7320.nrlssc.navy.mil/IASNFS_WWW/

NRL IASNFS

Nowcast

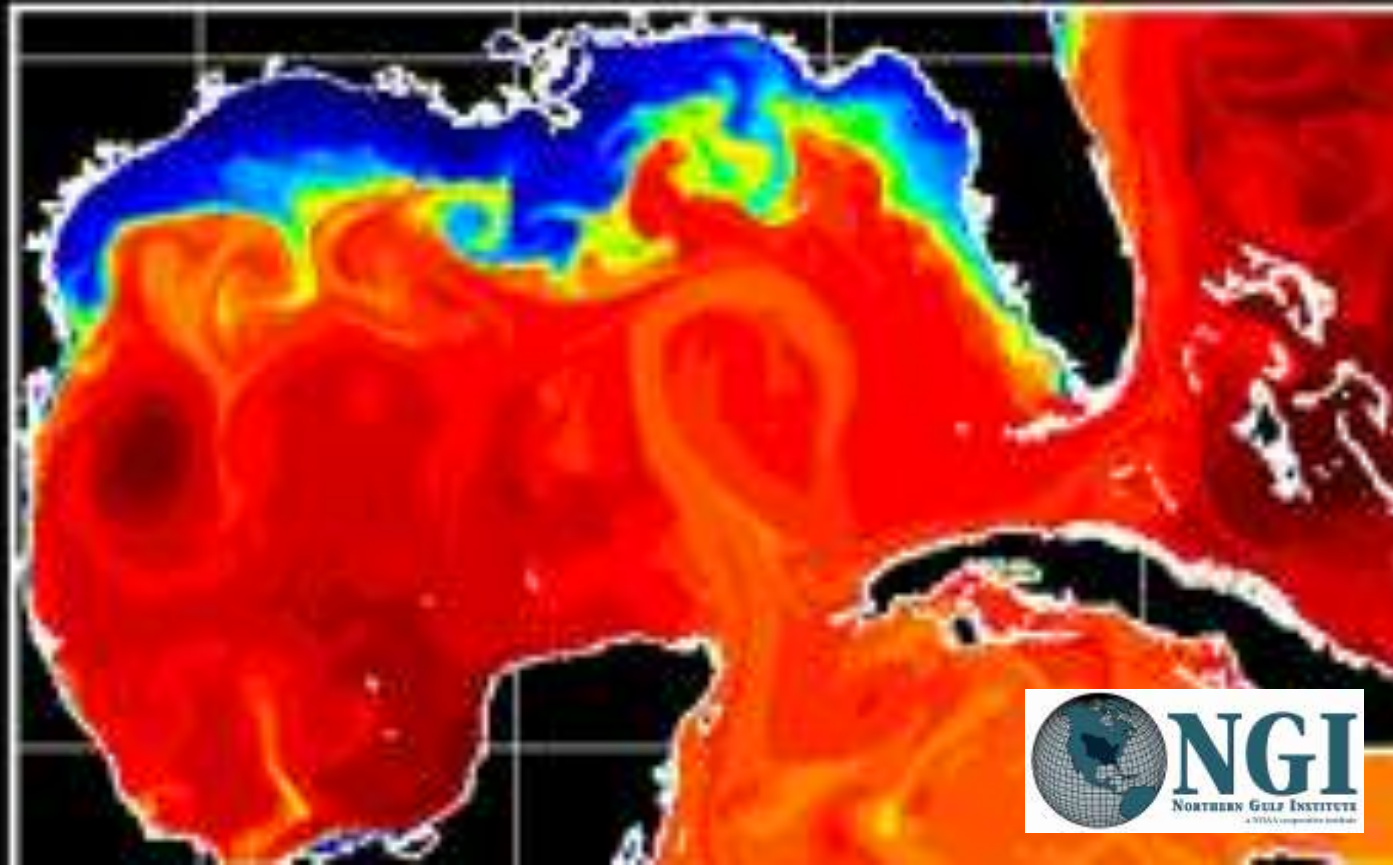
90°W

80°W

30°N

25°N

20°N

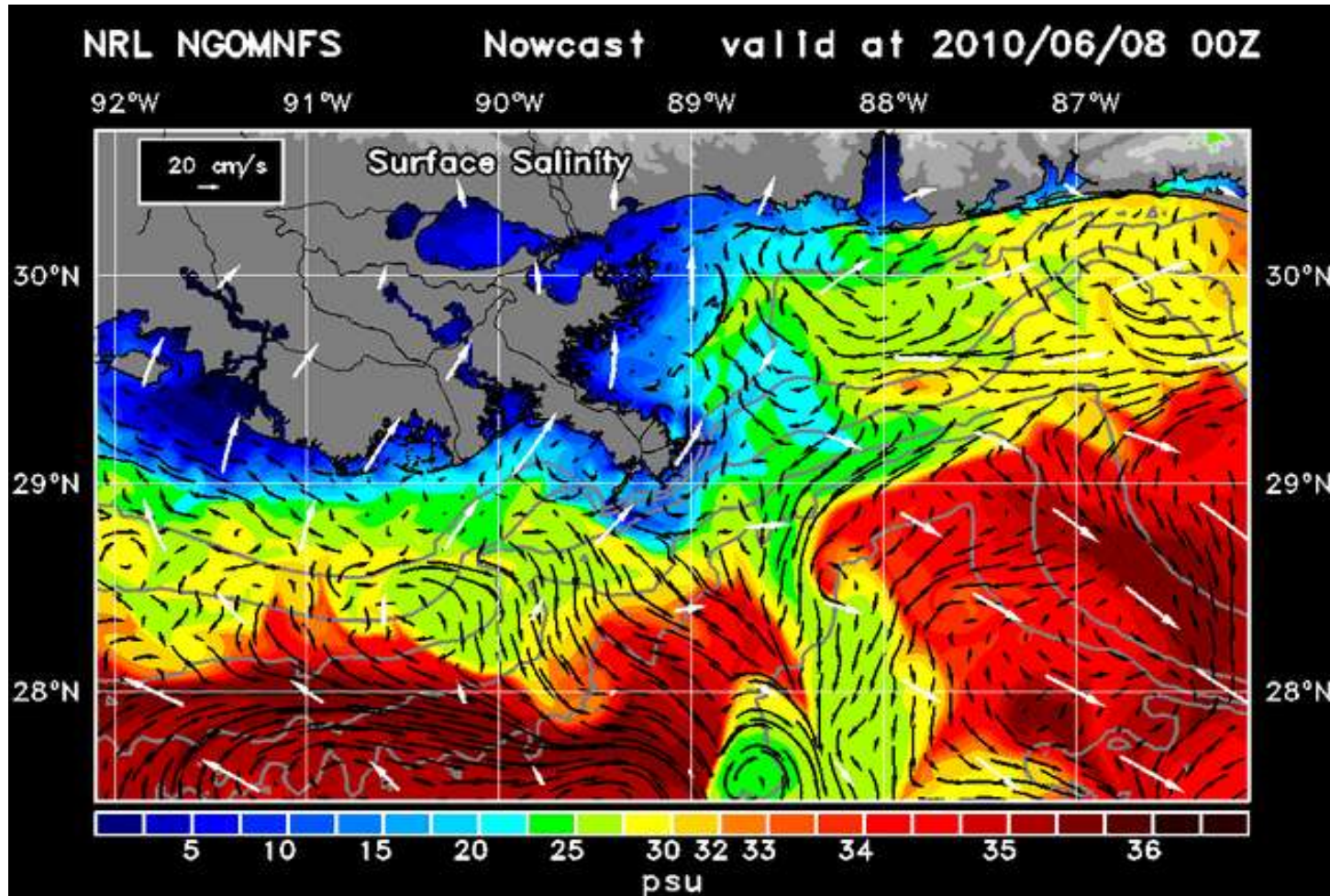


Animation
courtesy
Dr. Dong
Shan Ko,
NRL



Physical Oceanography

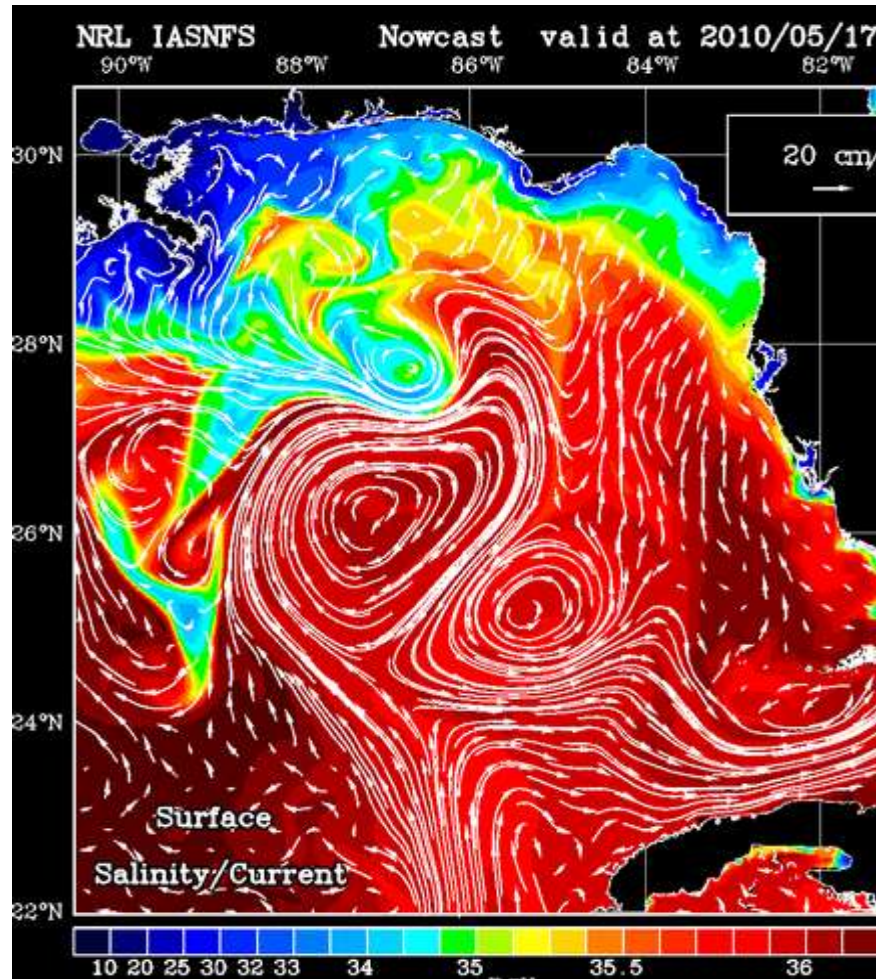
http://www7320.nrlssc.navy.mil/IASNFS_WWW/NGOMNFS_WWW/



Animation courtesy
Dr. Dong Shan Ko,
NRL



Physical Oceanography



Courtesy Dr. Dong
Shan Ko, NRL

Surface Oil Impact on Marine Life



Surface Oil Impact on Marine Life



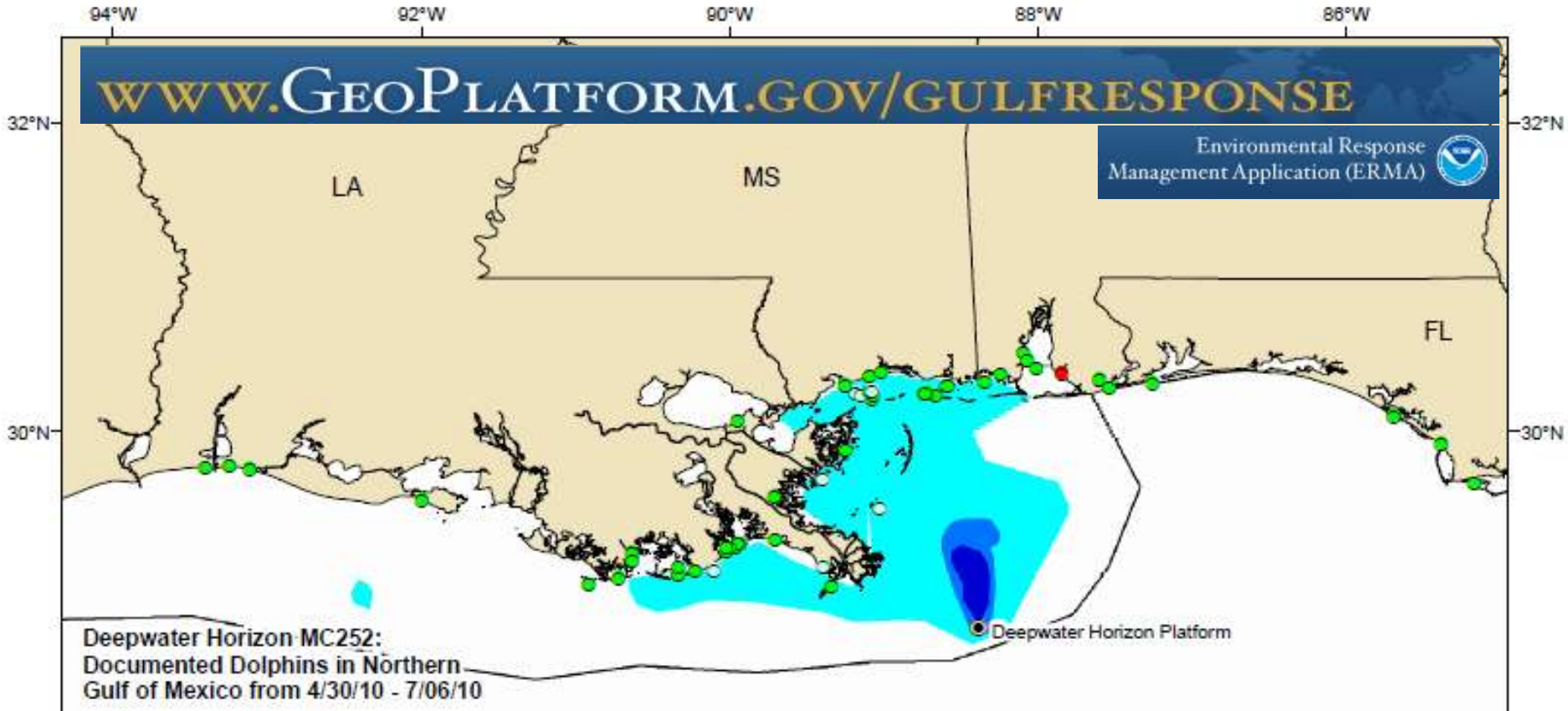
Surface Oil Impact on Marine Life



NOAA

Deepwater Horizon Oil

Documented Dolphin Strandings 4/30 – 7/6 2010



Surface Oil Impact on Marine Life Beach Contamination



Ships navigating through oil



May 5, 2010



May 17, 2010

EPA Photos

Oil Slick



May 19, 2010

2:30 PM CST

EPA Photo



<http://www.defenseimagery.mil>; VIRIN: 100519-G-5380K-036 – John Kepsimelis, USCG

Open-water Oil Burn



May 6, 2010

Open-water Oil Burn



Temporary Drill Rig (flame is burning methane gas)





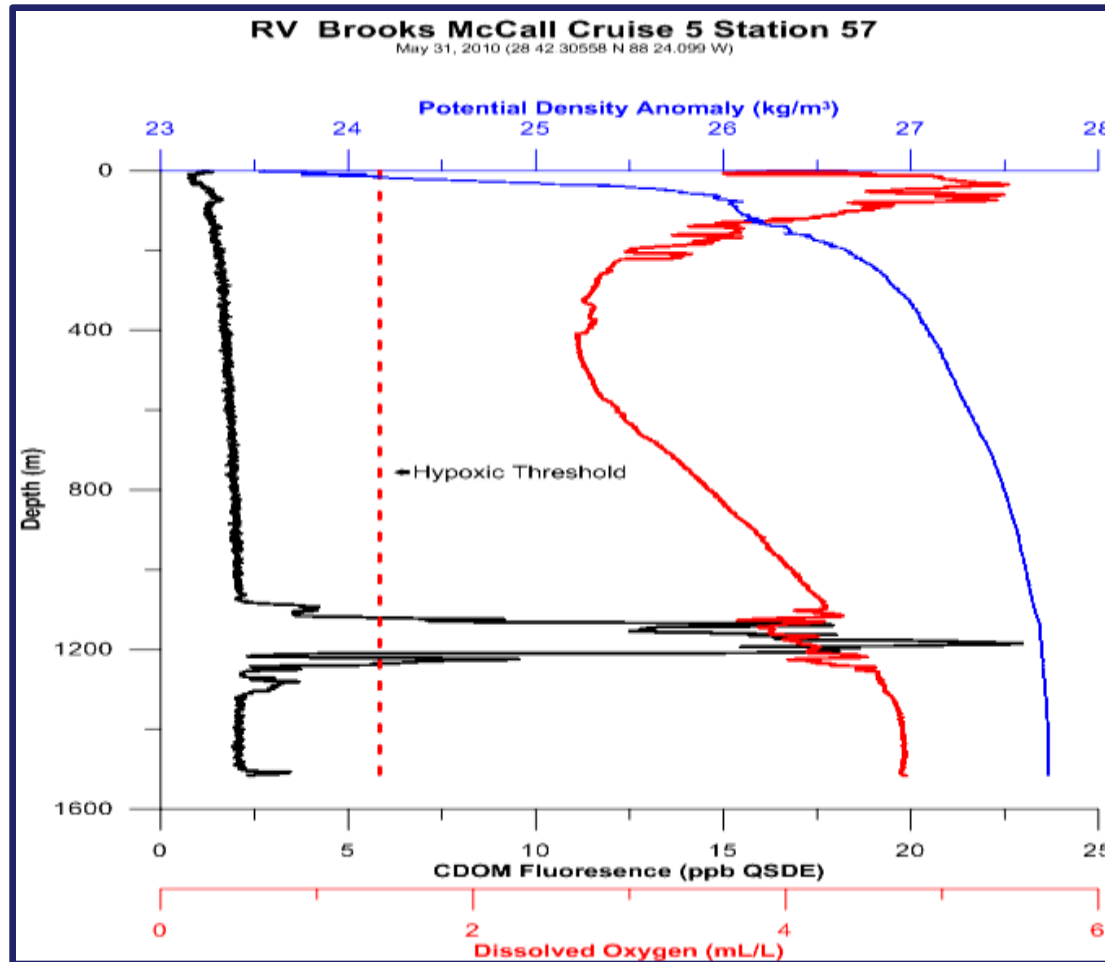
Technical Sergeant Adrian Cadiz

US Air Force public affairs

Components of COREXIT 9500 and 9527

CAS Registry Number	Chemical Name
57-55-6	1,2-Propanediol
111-76-2	Ethanol, 2-butoxy-*
577-11-7	Butanedioic acid, 2-sulfo-, 1,4-bis(2-ethylhexyl) ester, sodium salt (1:1)
1338-43-8	Sorbitan, mono-(9Z)-9-octadecenoate
9005-65-6	Sorbitan, mono-(9Z)-9-octadecenoate, poly(oxy-1,2-ethanediyl) derivs.
9005-70-3	Sorbitan, tri-(9Z)-9-octadecenoate, poly(oxy-1,2-ethanediyl) derivs
29911-28-2	2-Propanol, 1-(2-butoxy-1-methylethoxy)-
64742-47-8	Distillates (petroleum), hydrotreated light

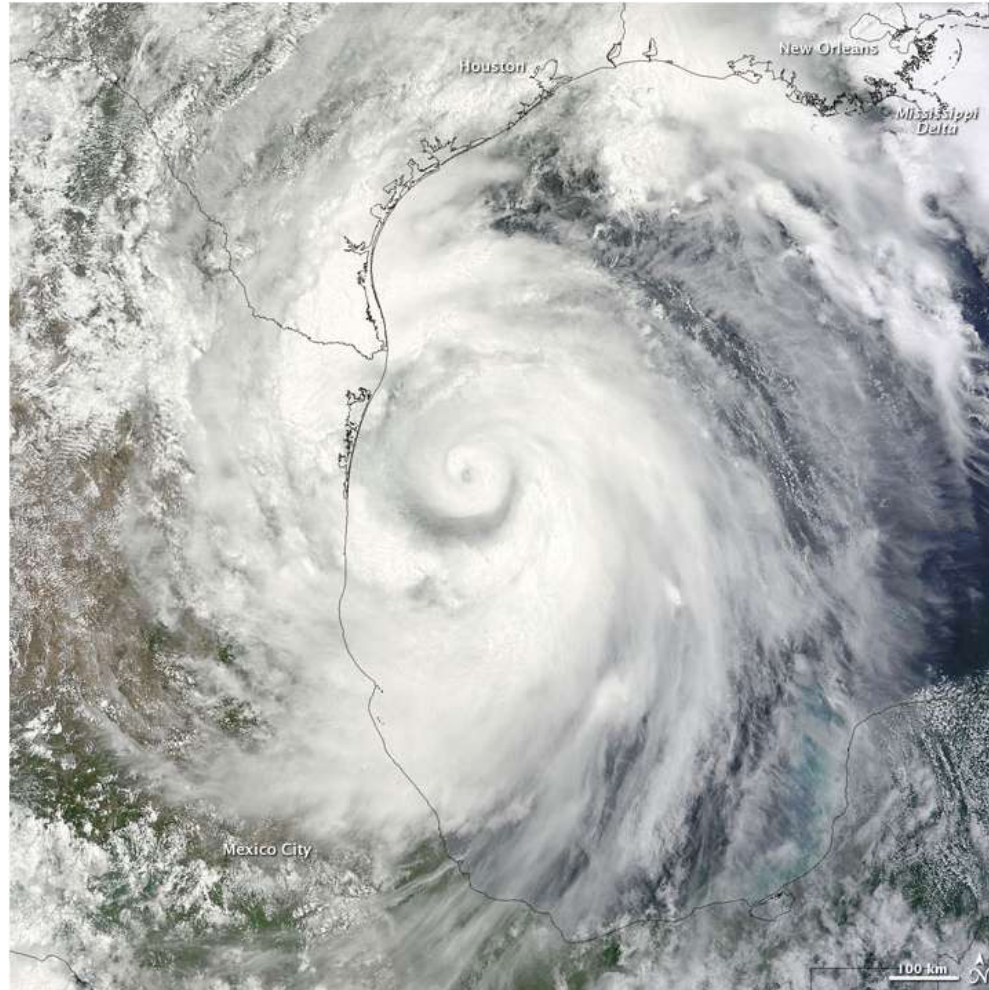
Impact of Oil at Depth on Marine Life



Meteorology

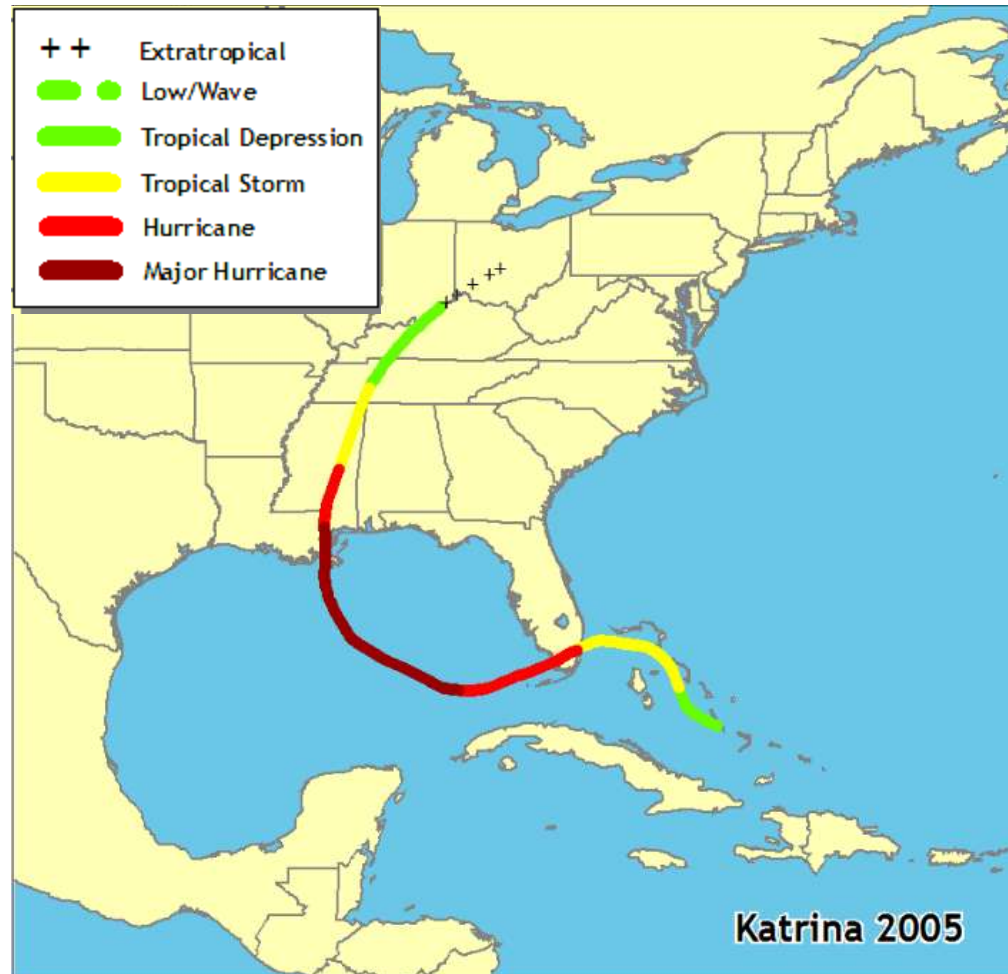
Adding Hurricanes to the Mix

NASA EOS
Hurricane Alex
30 June 2010



Meteorology – Worst Case?

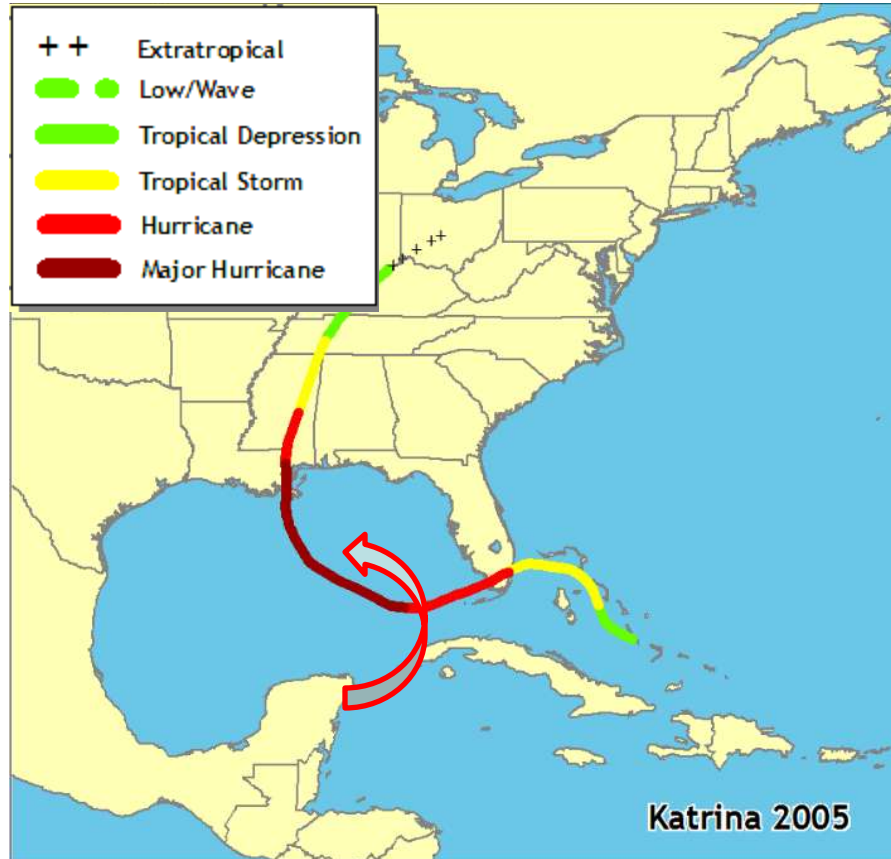
<http://www.nhc.noaa.gov/HAW2/english/history.shtml>

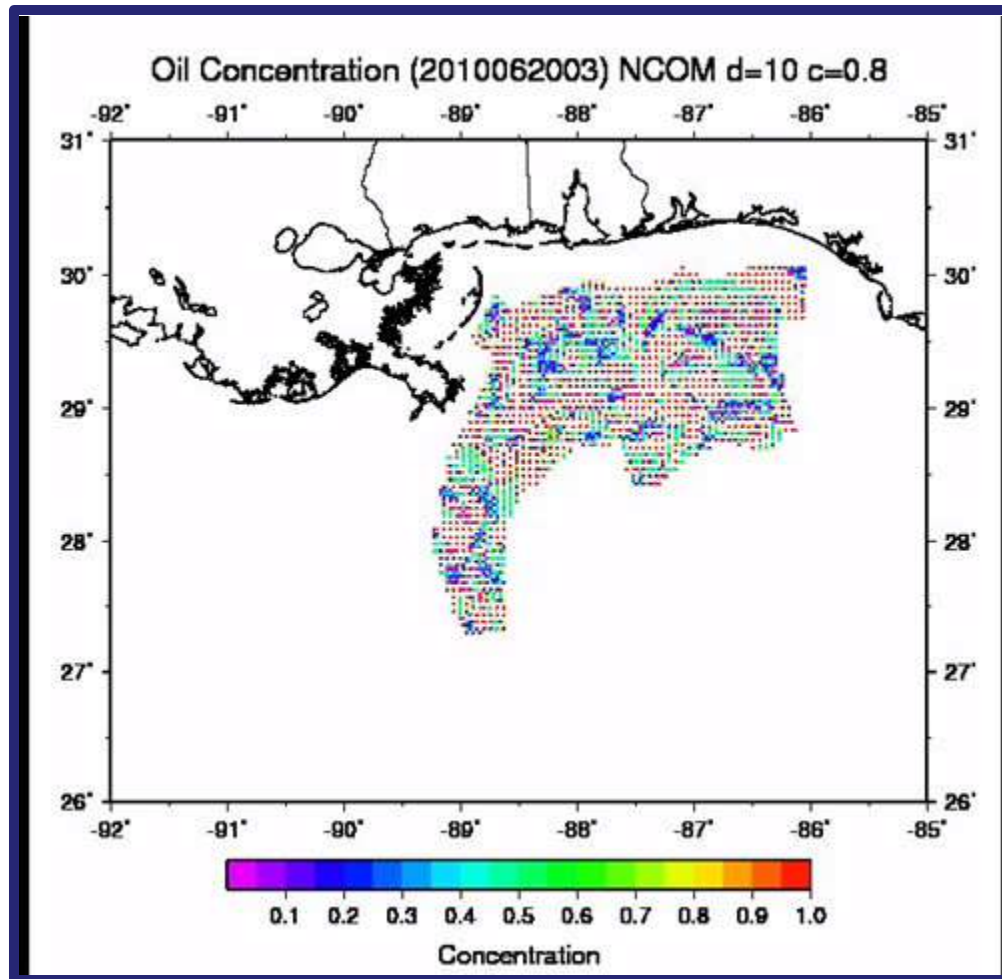


Meteorology – Worst Case?

<http://www.nhc.noaa.gov/HAW2/english/history.shtml>

Approximate radius
tropical storm force winds





Courtesy of NOLA.com

BP and the Gulf of Mexico Alliance

- Mid-Summer--BP announces a 10-year grant of \$500M for university research
- Florida Institute of Oceanography, the Northern Gulf Institute, Louisiana State University and Dauphin Island Sea Lab were awarded \$30M for emergent research
- The Governor's (TX, MS, LA, FL, AL) Gulf of Mexico Alliance will manage the remaining \$450M (over the next 9 years)



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