

DEEPWATER

A View from Inside the National Oil Spill Commission

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National Commission on the
BP DEEPWATER HORIZON OIL SPILL
AND OFFSHORE DRILLING



The Commission

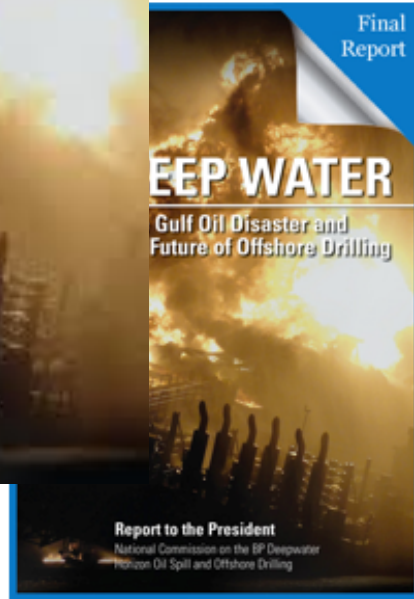
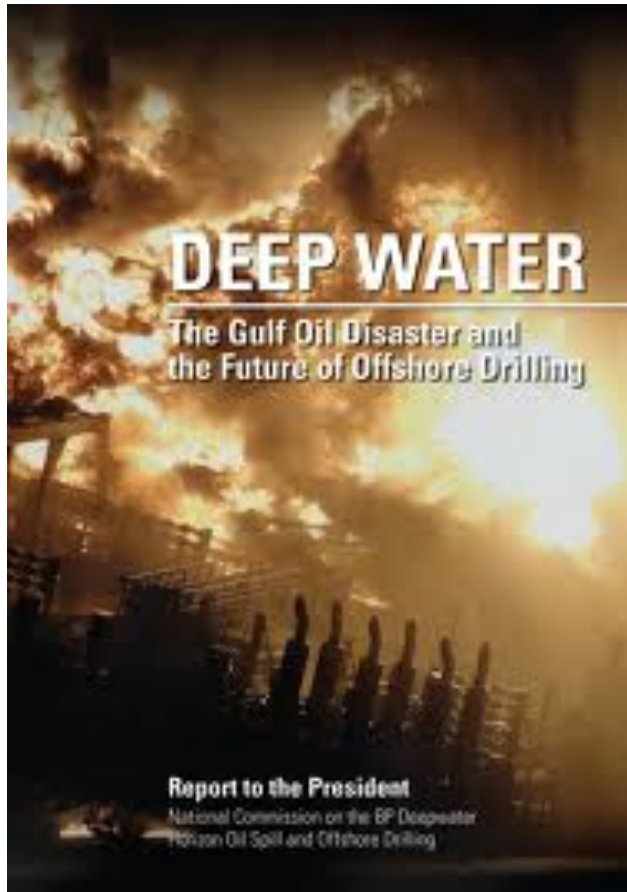


Our Mission

- **Created by Executive Order 13543, dated May 21, 2010**
- **The President asked the Commission to**
 - Examine the relevant facts and circumstances concerning the root causes of the Deepwater Horizon oil disaster;
 - Develop options for guarding against, and mitigating the impact of, oil spills associated with offshore drilling, taking into consideration the environmental, public health, and economic effects of such options
- **The Commission did not attempt to:**
 - Fix legal culpability
 - Reformulate US energy policy



Reports and Website



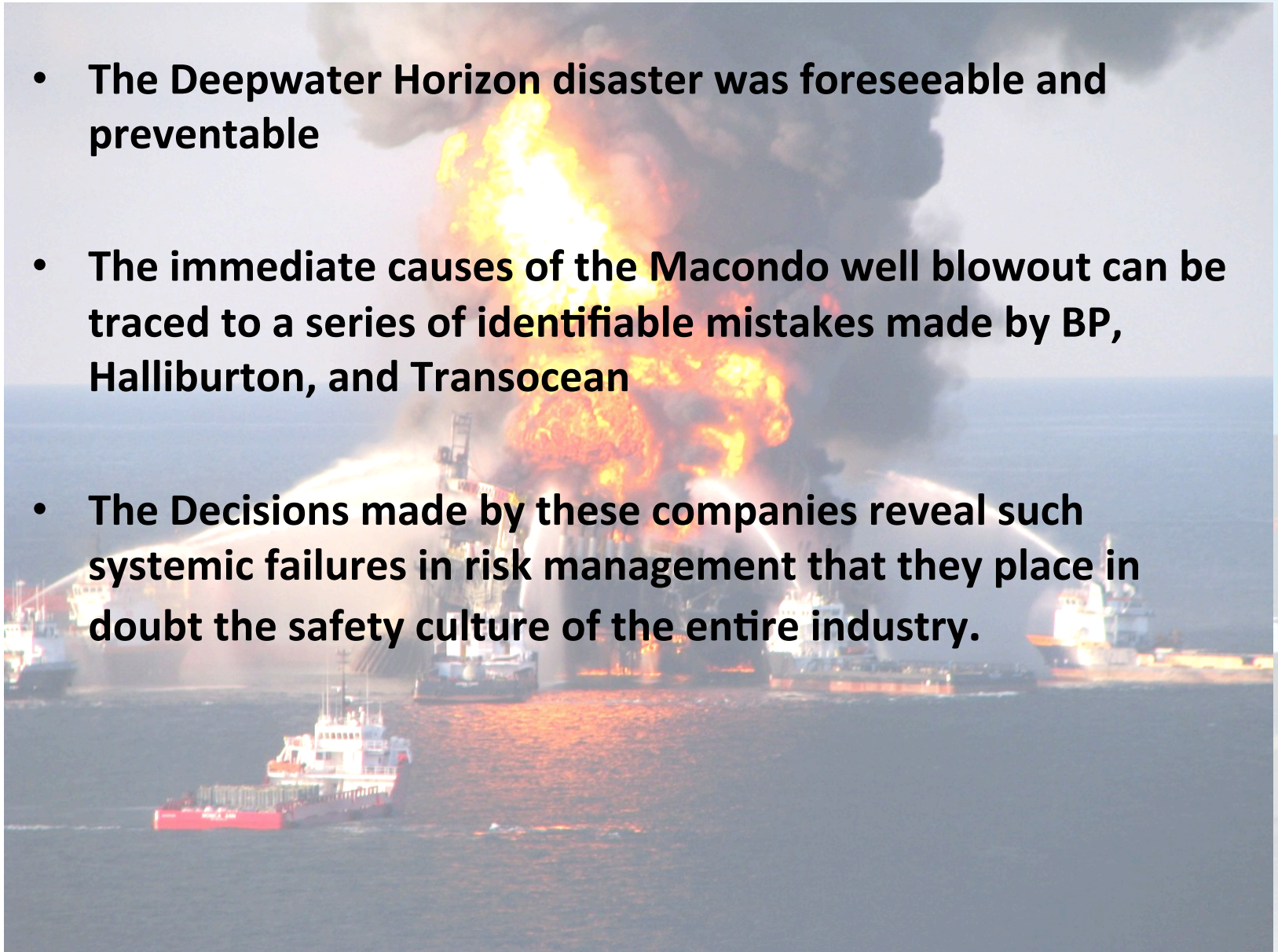
Printed copies of the report can be obtained from [The Government Printing Office](#), and [Amazon](#)



www.oilspillcommission.gov

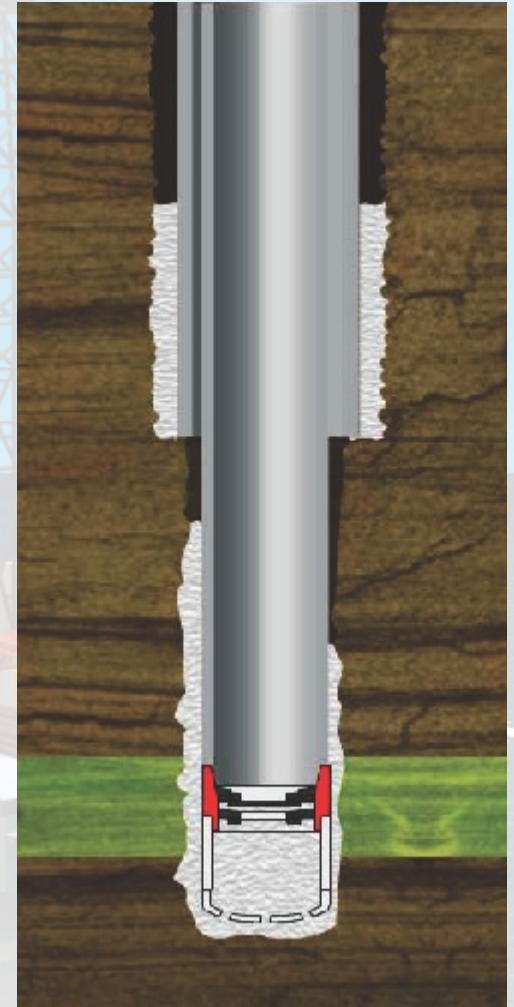
Key Findings on Causes of Explosion

- **The Deepwater Horizon disaster was foreseeable and preventable**
- **The immediate causes of the Macondo well blowout can be traced to a series of identifiable mistakes made by BP, Halliburton, and Transocean**
- **The Decisions made by these companies reveal such systemic failures in risk management that they place in doubt the safety culture of the entire industry.**



Major Factors Leading to Blowout

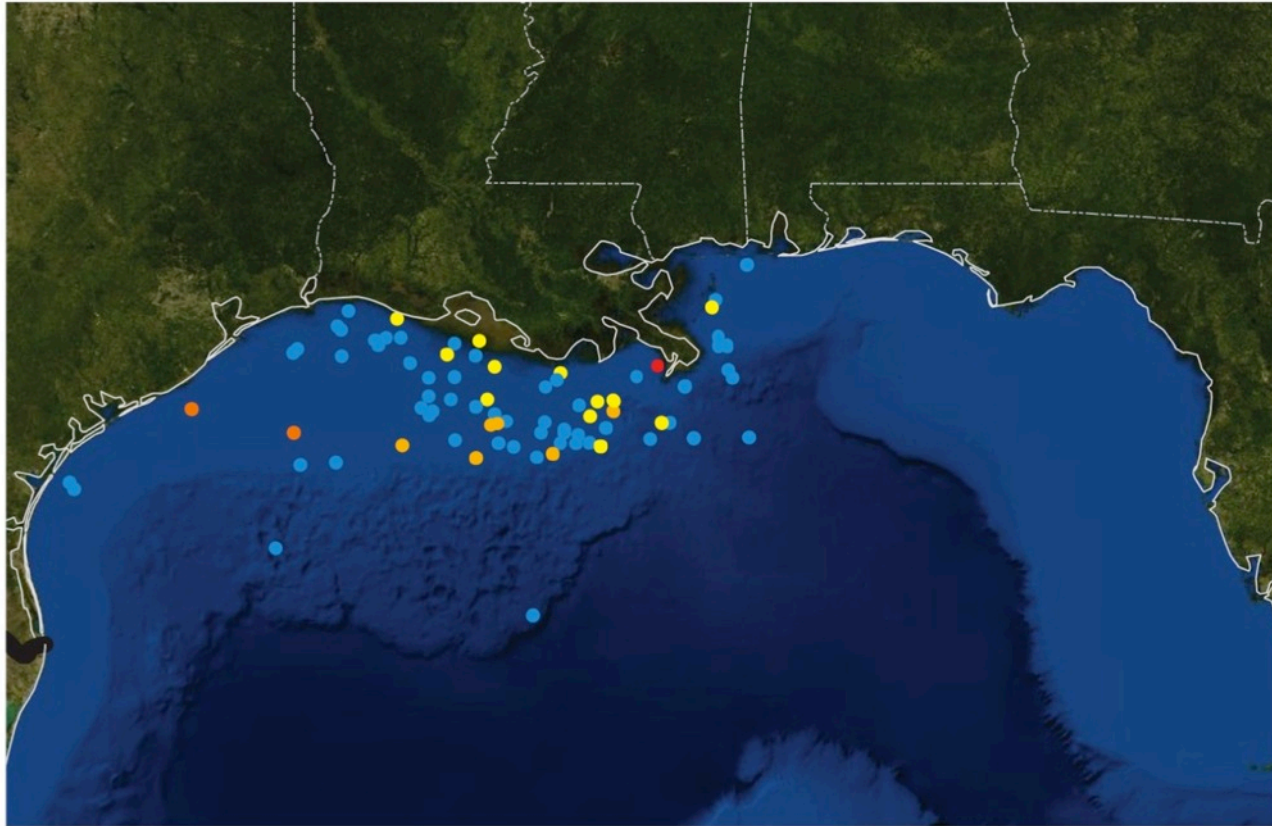
- Flawed design for cement slurry
- High risk cementing procedures
- Misinterpretation of negative pressure tests
- Risky Temporary Abandonment Procedures
- Inattention to signs of “kicks”
- Failure to respond appropriately once the blowout began
- Bad communication
- Hurry and confusion



Examples of Decisions that Increased Risk for the Macondo Well while Potentially Saving Time

Decision	Riskier than Alternative	Less Time Than Alternative?	Was Decision Necessary?	Decision-maker
Not waiting for more centralizers	Yes	Saved Time	No	BP on shore
Not reevaluating cement slurry design	Yes	Saved Time	No	Halliburton on shore
Not waiting for foam stability results	Yes	Saved Time	No	Halliburton (and perhaps BP) on shore
Not running diagnostics on float equipment to ensure conversion or seal	Yes	Saved Time	No	BP on shore and rig
Using combined spacer and not flushing from system	Yes	Saved Time	No	BP and MI-Swaco on shore and rig
Displacing mud from riser before setting plug	Yes	Unclear	No	BP on shore
Setting surface cement plug 3000 feet deep in seawater	Yes	Unclear	No	BP on shore
Not running cement evaluation log	Possibly	Saved Time	No	BP on shore
Not installing additional plugs or barriers	Yes	Saved Time	No	BP on shore
Undertaking simultaneous operations that could confound kick detection	Yes	Saved Time	No	Transocean (and perhaps BP) on rig
Bypassing pits and flow out meter during displacement	Yes	Saved Time	No	Transocean (and perhaps BP) on rig

Macondo Loss of Control Not Unique



Loss of Well Control Accidents and Resulting Consequences

- Loss of Well Control
- Panel Investigation
- Fire or Explosion
- Fatalities
- Fire or Explosion with Fatalities or Injuries

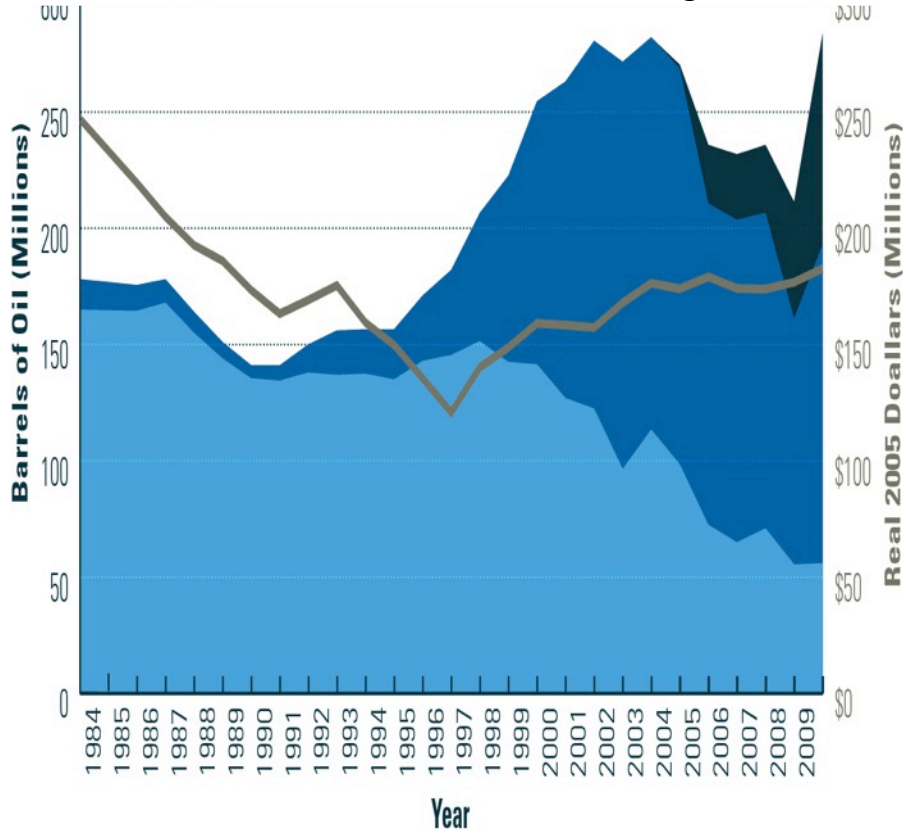
Government Also Failed

- Government regulations did not address several key causes of the blowout
- Regulators lacked the resources or technical expertise to address many issues.
- The regulator, MMS, faced conflicts of interest in its diverse responsibilities:
 - Promote offshore leasing
 - Collect revenues from offshore leasing
 - Conduct environmental reviews
 - Review plans and issued permits
 - Conduct audits and inspections
 - Enforce safety and environmental regulations



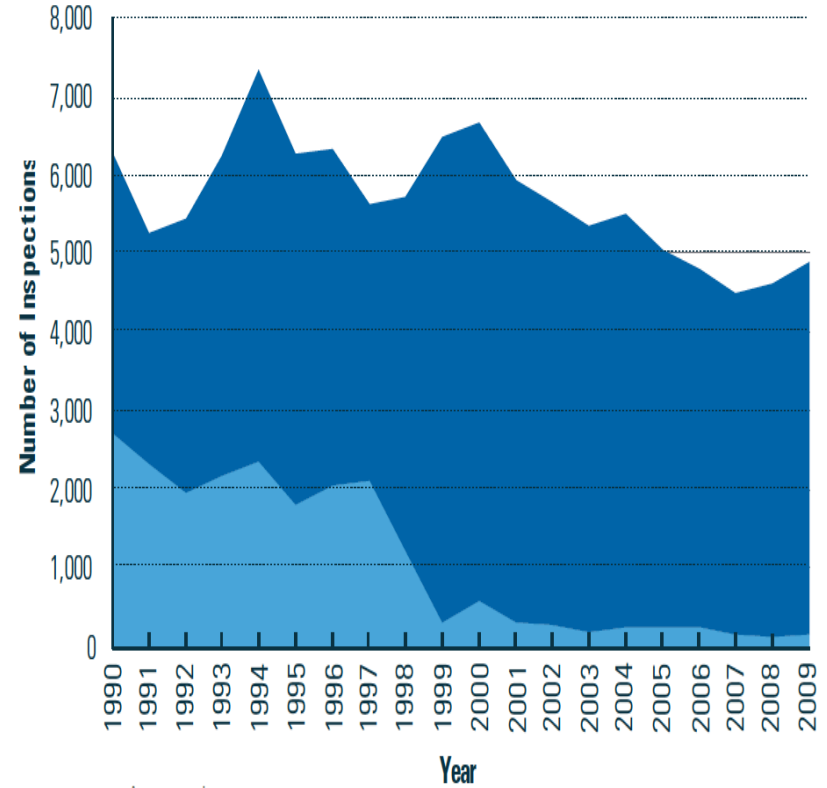
MMS Resource Constraints

OCS Oil Production and MMS Budget



- Ultra-Deep (5,000+ ft)
- Deep (1,000-4,999 ft)
- Shallow (0-999 ft)
- OEMM Enacted Budget

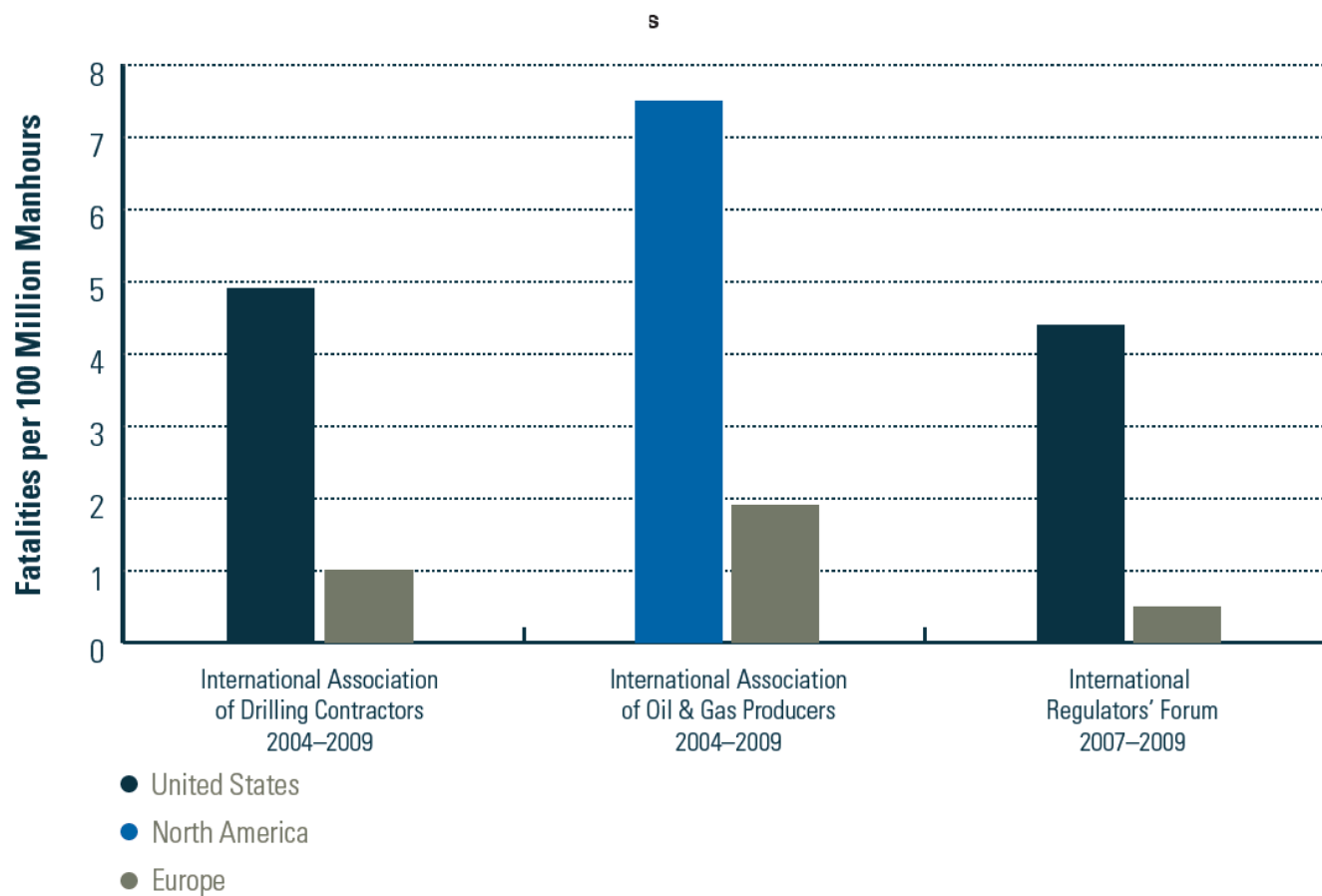
MMS Inspections



- Announced
- Unannounced

Lower Fatality Rate in European than US Operations

Fatalities from Offshore Oil and Gas Operations:
Europe and the United States

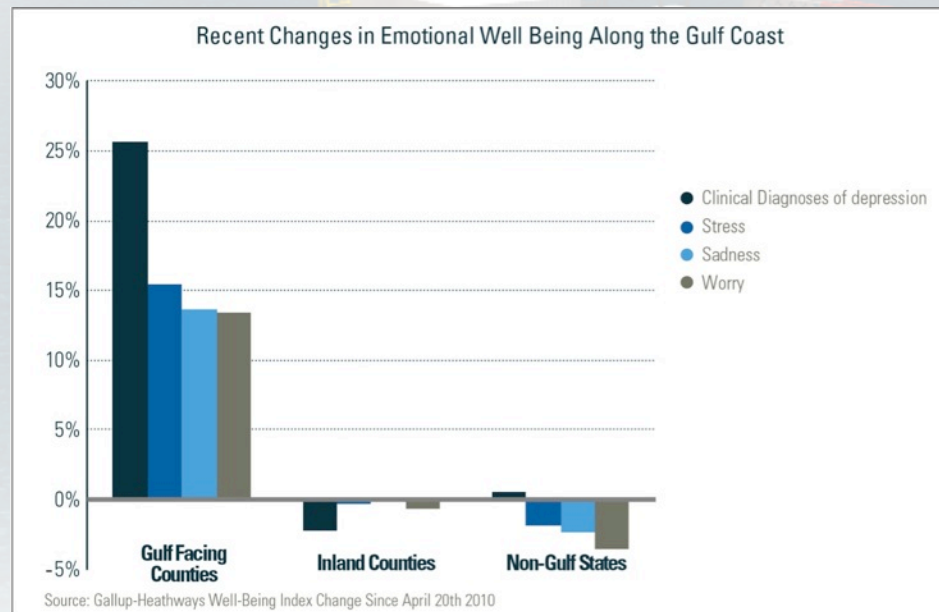


Response Capacity Inadequate

- Neither industry nor the government was prepared for a disaster of the magnitude of the *Deepwater Horizon*
- Response technologies have changed very little since the *Exxon Valdez* spill occurred 20 years ago
- The technologies and methods available to cap or control a failed well in deep water were inadequate
- Inadequate information about the long term effects of dispersants
- Inadequate planning for a large-scale, difficult-to-control spill
- Inadequate coordination between government agencies

Costs of Blowout Significant

- Response Costs
- Environmental Damage
 - Marine and coastal ecosystems already severely stressed
 - Long-term impacts not yet known
- Economy
 - Seafood Industry
 - Tourism Industry
 - Oil and gas industry
- Residents of Gulf
 - Impacts on health
 - Increased depression

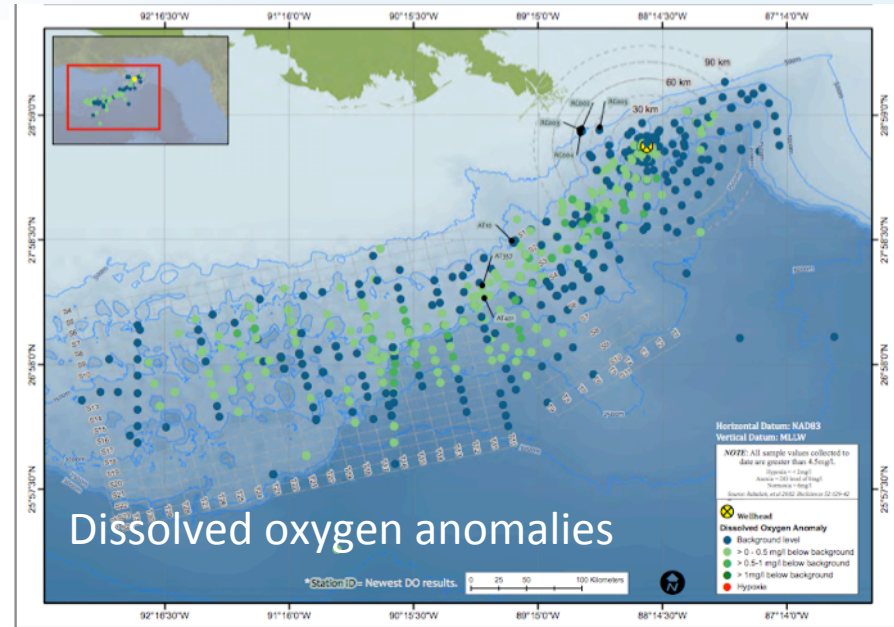
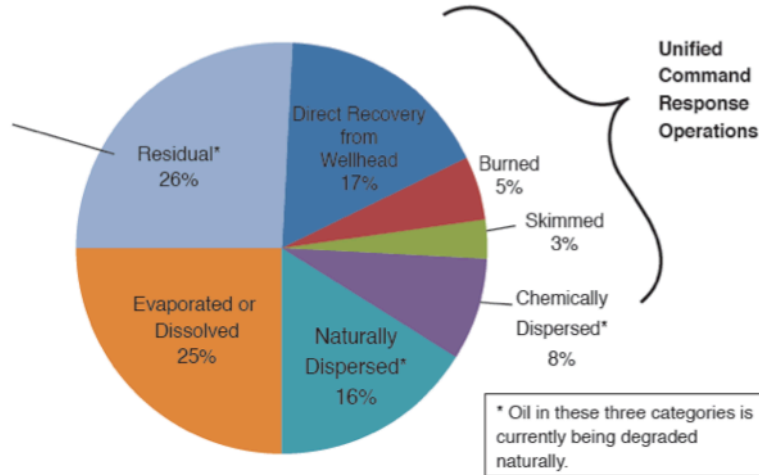


What Happened to the Oil and Gas?

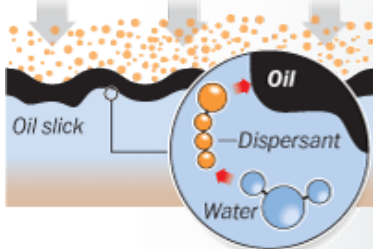
Deepwater Horizon Oil Budget

Based on estimated release of 4.9m barrels of oil

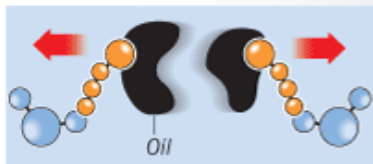
Residual includes oil that is on or just below the surface as light sheen and weathered tar balls, has washed ashore or been collected from the shore, or is buried in sand and sediments.



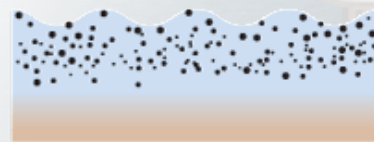
1 A molecule of dispersant has two ends: One end is attracted to oil, the other is attracted to water.



2 This nudges the water and oil apart, reducing the surface tension between the two.



3 It is now easier for wind and waves to break the oil slick into tiny droplets.



4 Microorganisms in the water take over, naturally degrading the oil.

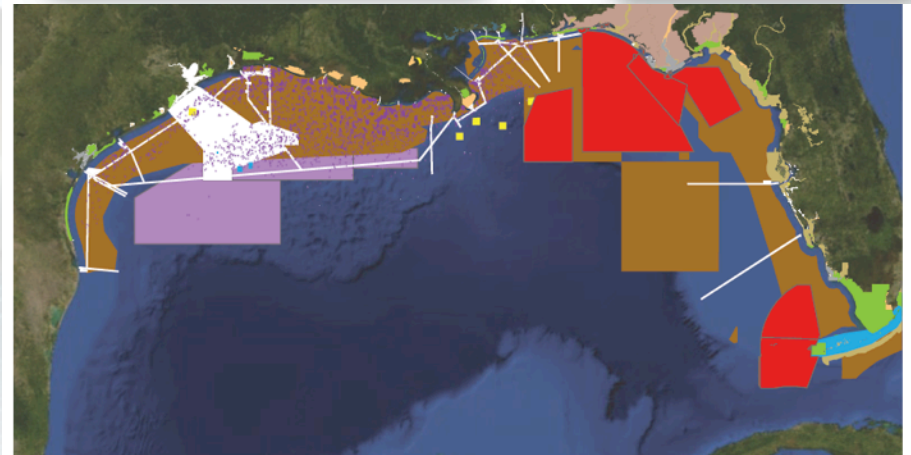
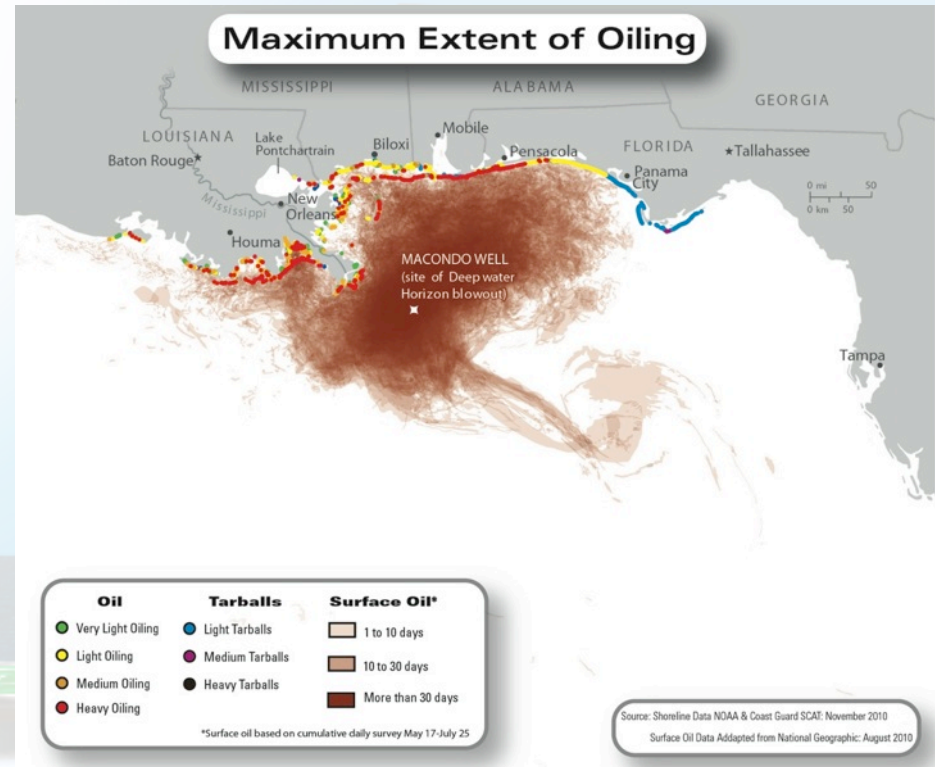


Dispersant action



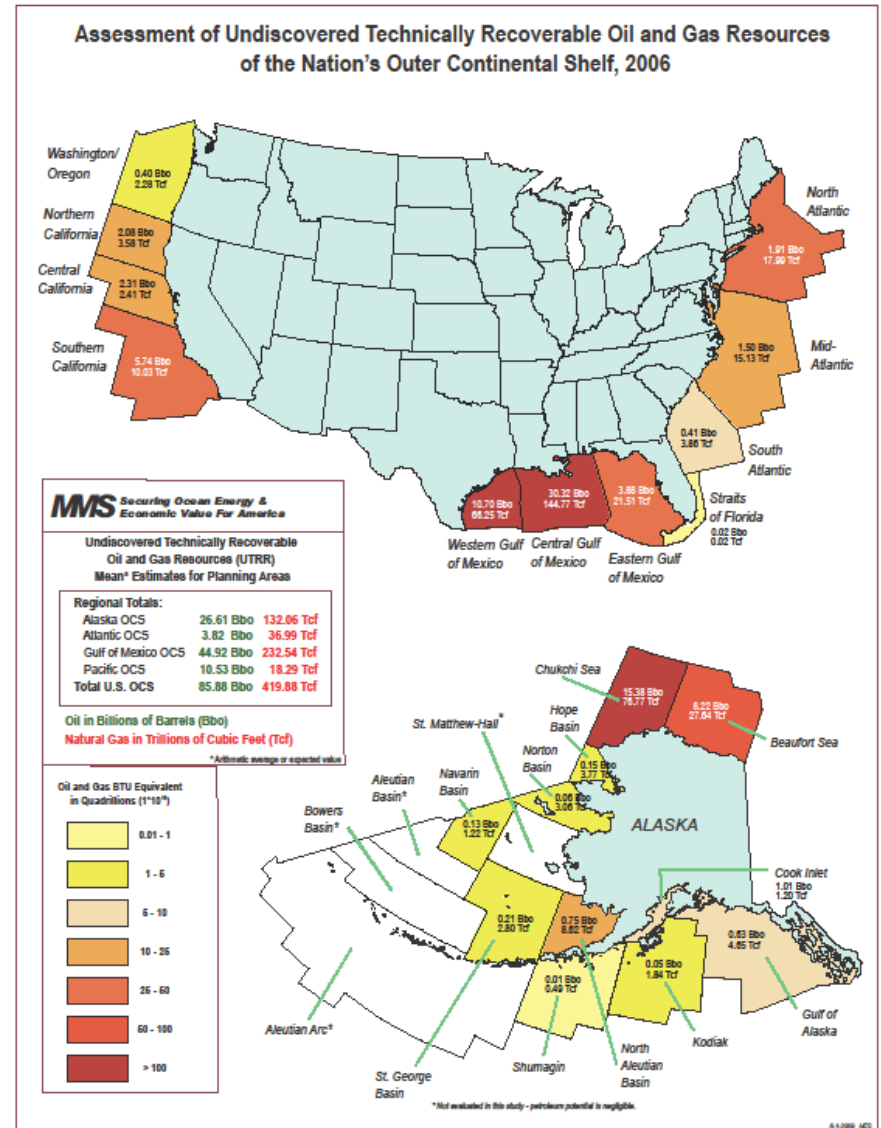
Need For Restoration

- Oil spill just added to other problems
 - Rapid land loss
 - Hypoxia
 - Katrina-Rita-Gustav-Ike
- Coastal and marine resources are severely degraded
- The Gulf needs:
 - Sustained, dedicated funding
 - A Gulf-wide council with decision making authority
- Increased attention should be given to new tools such as Marine Spatial Planning



The Future

- Offshore drilling will become more complex and riskier
 - Deeper, higher pressure
 - New regions
 - More remote (Alaska)
- Offshore drilling in nations adjacent to the U.S. is likely to accelerate
 - Mexico and Cuba in the Gulf
 - Russia and Canada in Arctic
- Offshore deepwater drilling can be done safely



Recommendations for Federal Agencies

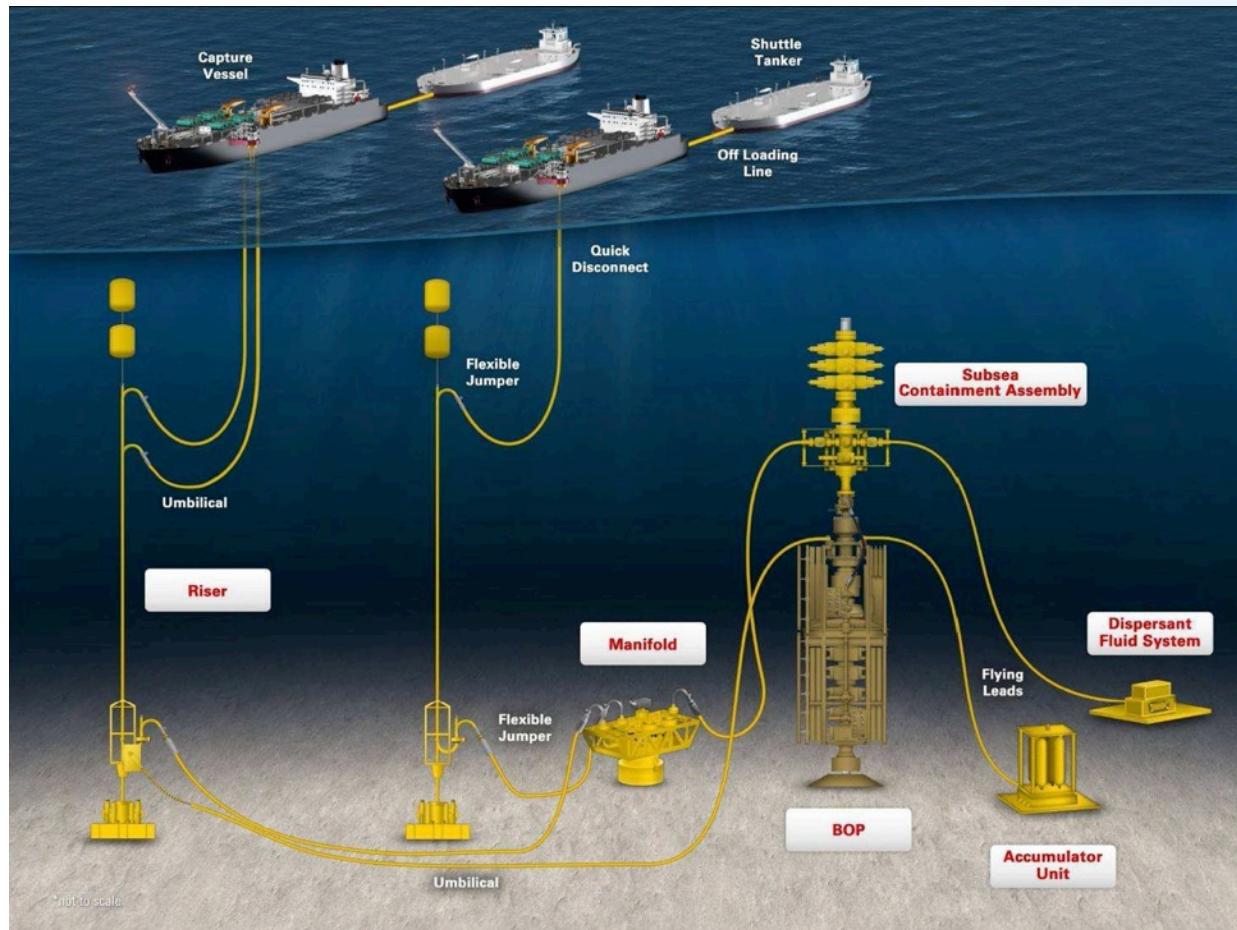
- Assign offshore energy management responsibilities to 3 entities
 - An independent safety authority within Interior
 - A Leasing and Environmental Science Office
 - An Office of Natural Resources Revenue
- Promulgate improved regulations
- Develop management system incorporating “safety case” approach
- Promote adoption of consistent international best practice standards
- Improve NEPA environmental reviews
 - Stronger interagency consultation (particularly with NOAA)
 - Implemented by Office of Environmental Science

Response and Containment Recommendations

- Improve oil spill response capabilities
 - Better planning: broader reviews, incorporate “worst-case” scenarios
 - Establish special processes for spills of national significance
 - Strengthen state and local involvement
 - Increased research and development
 - Improved regulations governing dispersants
 - More careful evaluation of extraordinary measures, e.g. sand berms
- Improve well containment capabilities
 - Government should acquire technical expertise
 - Industry should have adequate well containment capability readily available
 - Improve ability to estimate well flow rates accurately
 - Safer well design
 - Better and more sensors



Safety and Containment Opportunities



Marine Well Containment Corporation Concept



Capping stack (February 2011)

Recommendations for Congress

- Establish independent Bureau of Safety and Environmental Enforcement
 - Would oversee all forms of offshore energy exploration, development, and production
- Establish fees as dedicated source of funding for regulators
- Provide full dedicated funding for R&D to improve response techniques
- Significantly increase liability cap and financial responsibility requirements
- Increase allowable payouts from oil spill liability trust fund
- Establish a state-federal gulf coast ecosystem restoration council with long-term funding
- Dedicate 80% of Clean Water Act penalties to Gulf restoration

Recommendations for Industry

- The oil and gas industry should establish its own “Safety Institute”
 - The nuclear power industry did this after Three Mile Island accident
 - Develops and enforces industry standards of excellence
 - Operate independently of the American Petroleum Institute
- The oil and gas industry must adopt a “culture of safety” as a collective responsibility
 - A focused commitment to constant improvement and zero failure rate
 - Other high risk industries have agreed to hold themselves and peers accountable for safety
 - Set up mechanisms to make this real
- Should benchmark safety and environmental practice rules against recognized global best practices
- Should have containment technologies immediately available

Recommendations for the Arctic

- Drilling must be done with the utmost care because of the sensitive Arctic environment
- An immediate, comprehensive research program to provide a foundation of scientific information is needed
- Industry and the Coast Guard should address gaps with respect to:
 - Oil-spill response
 - Containment
 - Search and rescue
- The U.S. should promote the development of international drilling standards for the Arctic



My Own Advice For Louisiana

- Advocate the transformation to safer offshore exploration and development — you have the most to lose and the most to gain.
- Aggressively develop a Louisiana-based, technical industry for well safety and containment with global business opportunities.
- Use the Commission's recommendations on restoration funding to advance comprehensive coastal restoration.
- Build a rigorous and responsive science and technology capacity to credibly guide industry safety, oil spill response and coastal restoration.

For More Information



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Web Site: **www.oilspillcommission.gov**

Reports – *All available in PDF format from web site*

- Final Report: **Deep Water** – *also available in paperback from the Government Printing Office, Amazon.com, and Barnes and Nobel*
- Chief Counsel's Report: **Macondo** – *also available in interactive multimedia mode on web site*
- **The Gulf Spill** – *A multimedia summary of the Commission's findings available on the web site*
- Summary Report: **Deep Water: Recommendations**

Thank you!



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Questions or Comments?

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by Tom MacKenzie, USFWS, May 3, 2010