

Oil Spill Commission and implications for the Arctic

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Chair, U.S. Arctic Research Commission

CSIS

7/12/11

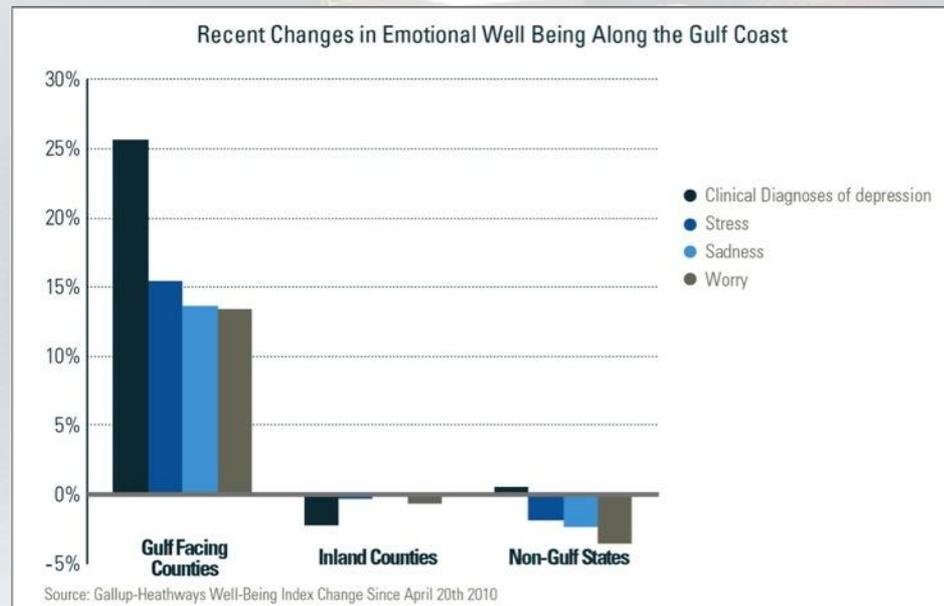


The Commission



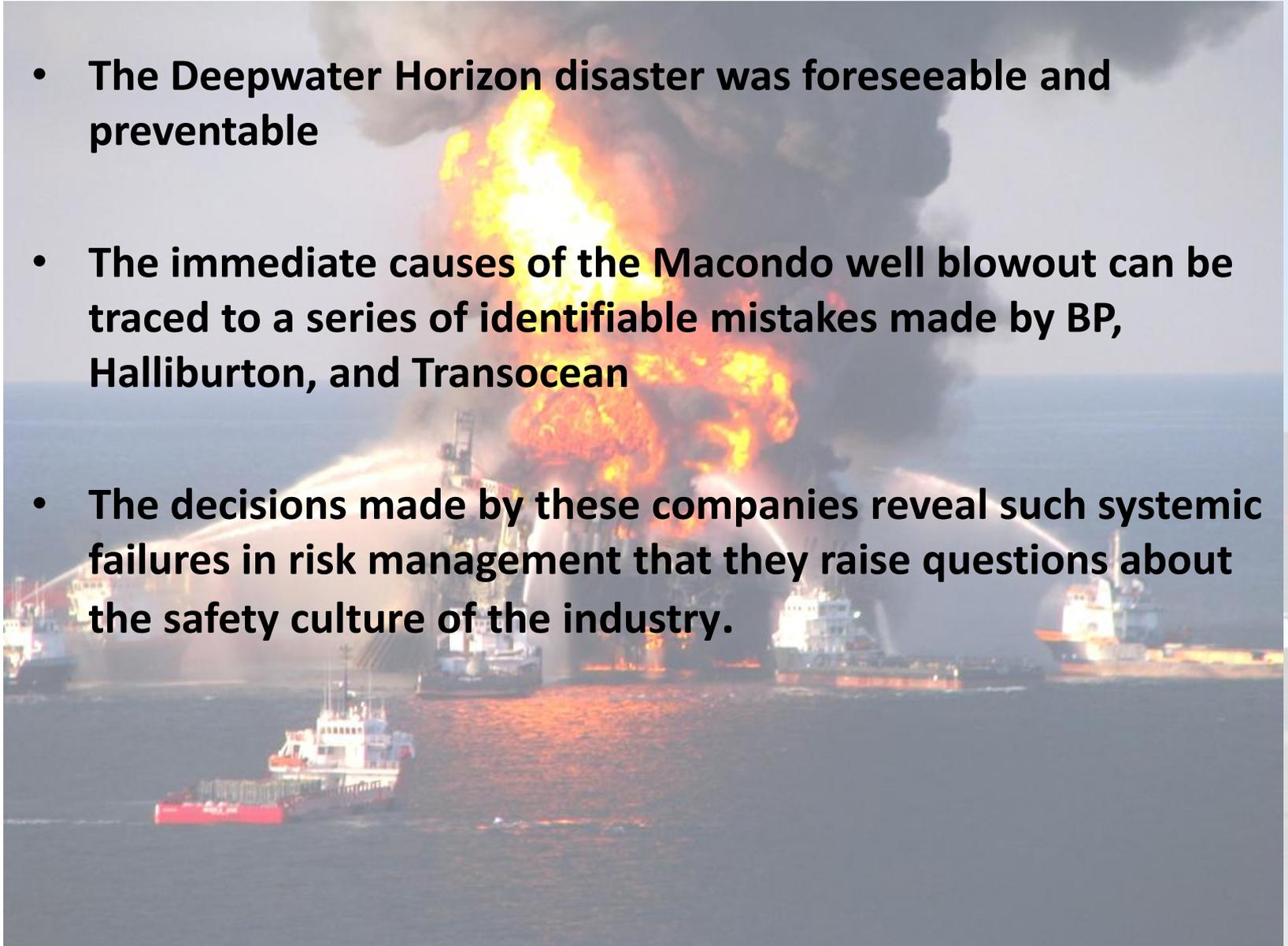
Costs of Blowout Significant

- Eleven men died, dozens injured
- Millions of gallons of oil released into Gulf
- 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



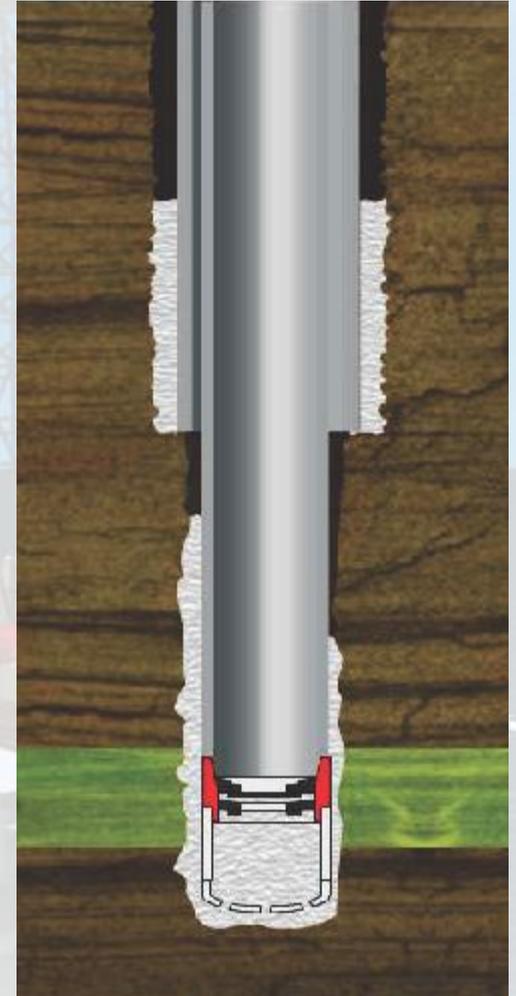
Key Findings on Causes of Explosion

- 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 raise questions about the safety culture of the 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
- Poor communication
- Haste, pressure and confusion



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

Recommendations for Federal Agencies

- Assign offshore energy management responsibilities to 3 entities
 - An independent safety authority
 - A Leasing and Environmental Science Office
 - An Office of Natural Resources Revenue
- Promulgate improved regulations and interagency coordination
- 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

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 and containment 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

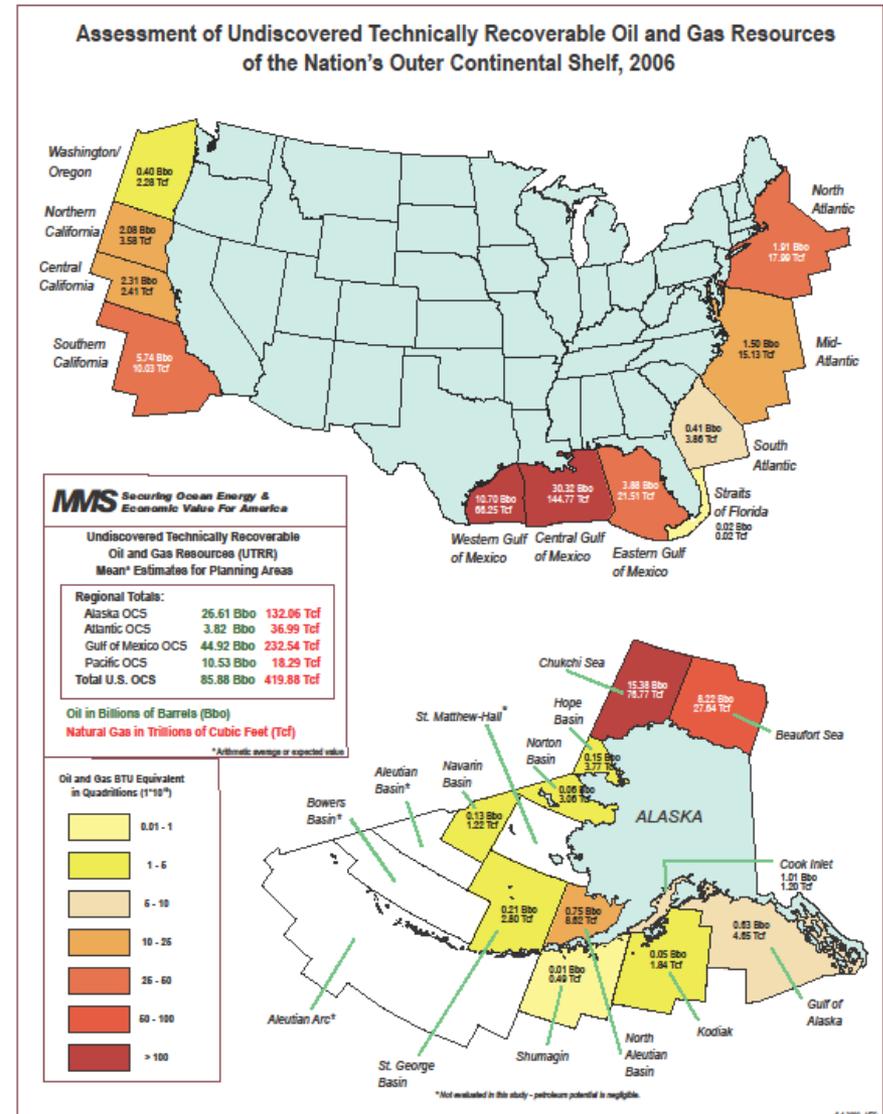
- The oil and gas industry should establish its own “Safety Institute”
 - The nuclear power industry did this after Three Mile Island accident
 - Develops and enforces industry standards of excellence
 - Operate independently of the American Petroleum Institute
- The oil and gas industry must adopt a “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

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

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

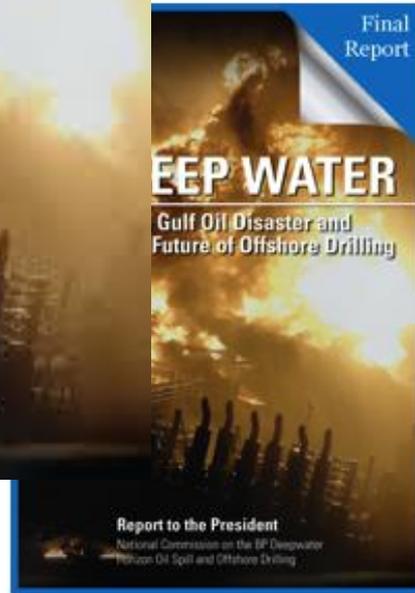
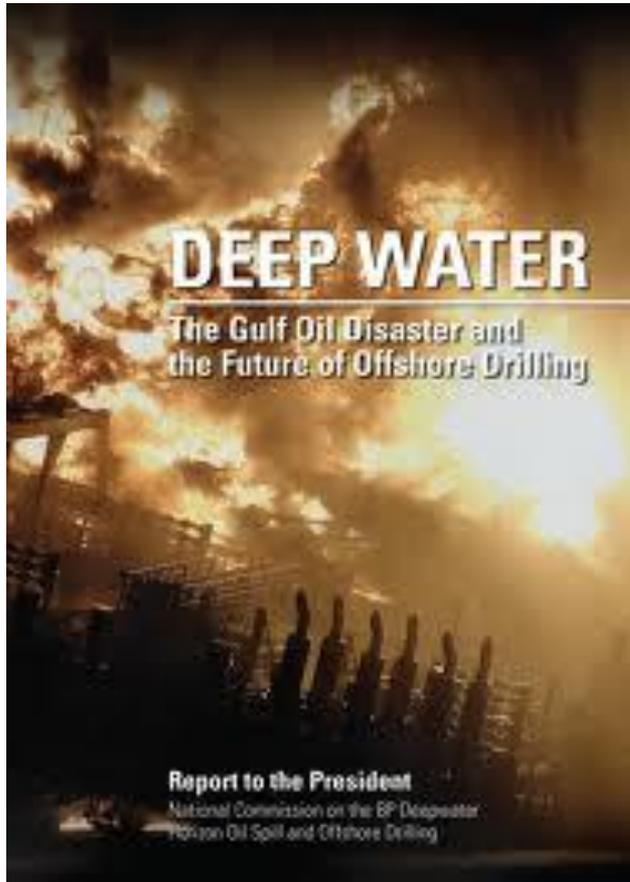


Recommendations for the Arctic

- 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



Reports and Website



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

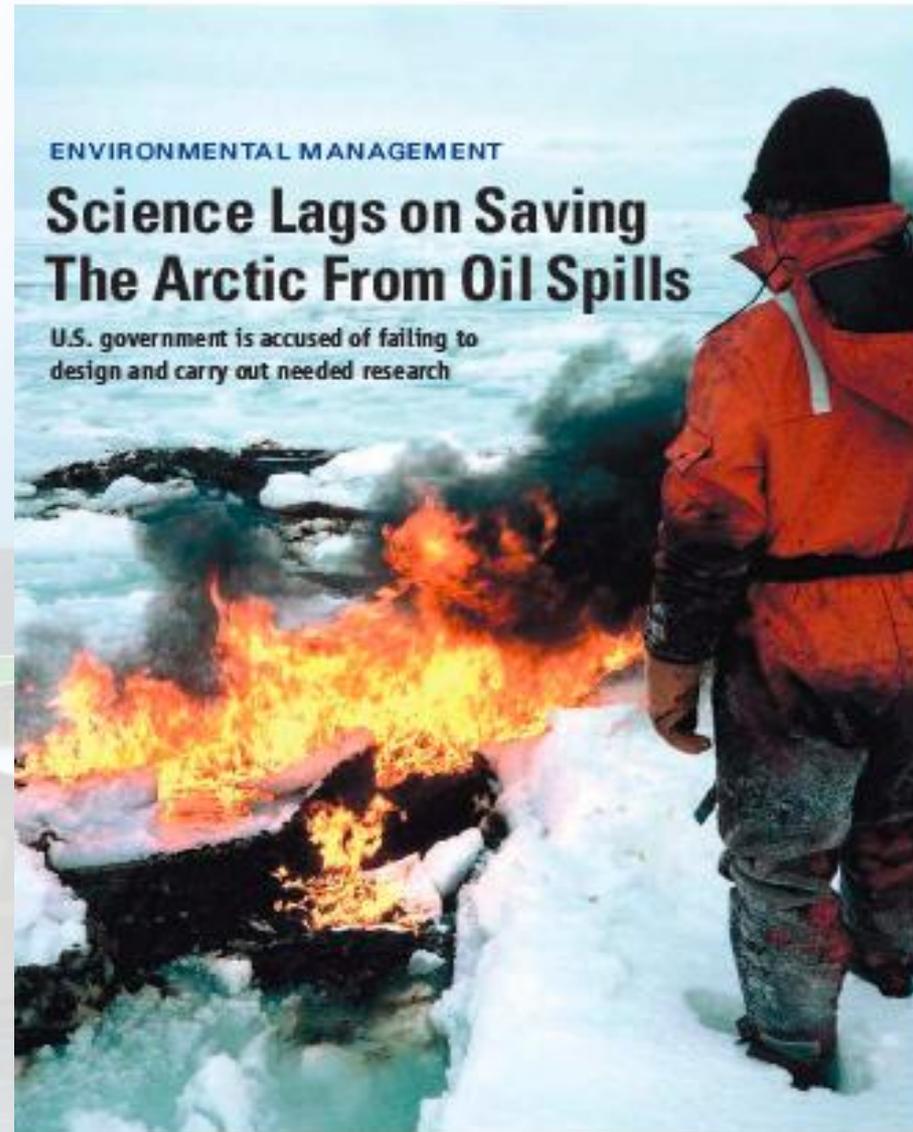
The screenshot shows a website layout. On the right, a large white box displays the 'Macondo' logo in a bold, black font with a red flame-like effect on the 'M'. Below the logo is the text 'THE GULF OIL DISASTER'. A blue banner in the top right corner of this box reads 'Chief Counsel's Report'. Below the logo, the text 'Chief Counsel's Report | 2011' and 'National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling' is visible. On the left, a 'What's New' section lists new content with blue links: 'Chief Counsel's', 'NEW! Interact', 'Press Conference: Final Report' (with a Twitter icon), and 'Forum: Final Report' (with a Facebook icon). A video player is partially visible above the 'What's New' section.

www.oilspillcommission.gov

Research needed on Arctic oil spills

What kind?

- Prevention
- Containment/Response
- Fate and Effects



Federal effort

- Interagency Coord. Comm. on Oil Pollution Research
- Oil Spill Recovery Institute
- Dept. of Interior
 - BOEMRE (tech. assess. & research program, Ohmsett facility)
 - USGS report (baseline science needs and gaps)
- NOAA
 - Office of Response and Restoration
 - Arctic ERMA (Environmental Response Management Application)
 - Coastal Response Research Center (UNH)
- USCG (R&D center, Groton, CT)
- EPA (toxicity of dispersants)
- DOT (US Arctic Marine Transportation Integration Action Team)

BOEMRE: Arctic Oil Spill Research



Arctic Oil Spill Response Research

**Mechanical Clean Up: 12
Studies**

In Situ Burn: 2 Studies

Workshops: 4

**Chemical Treating Agents: 7
Studies**

Remote Sensing: 7 Studies

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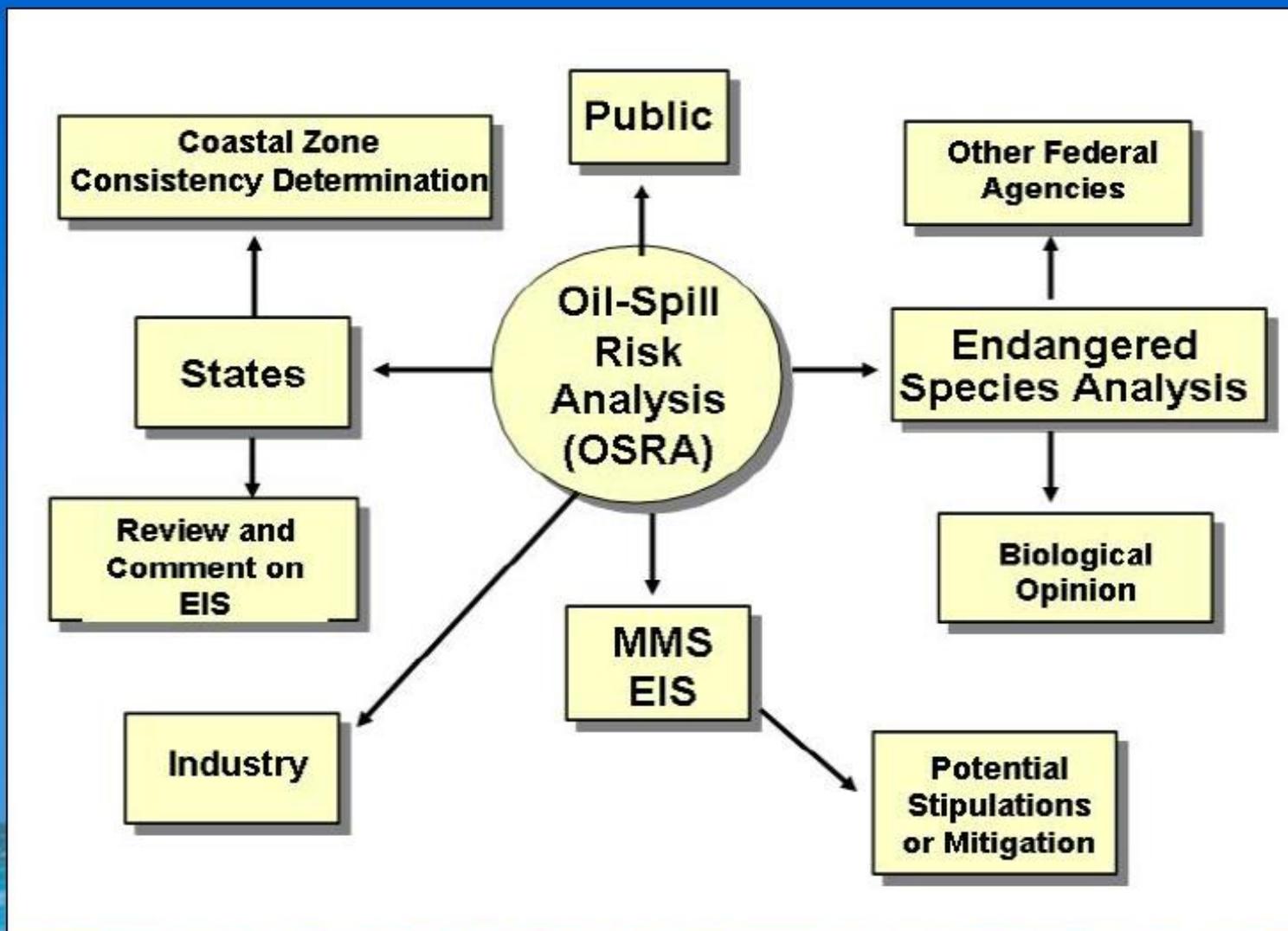
Three Options for Oil Spill Response For Arctic Environments

- Mechanical Containment and Recovery
- In Situ Burning of Oil
- Chemical Dispersants



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Oil Spill Risk Analysis



USCG Oil Spill Projects

1970s

- Surveillance, cleanup equipment (including Arctic countermeasures), fingerprinting development, some oil behavior

1980s

- New surveillance, trajectory predictions, OHMSETT support, mobile lab, Arctic Field Guides

1990s

- National Strike Force Equipment, revised surveillance, brief grant program, revitalize OHMSETT, regulatory analysis (double hulls), spill planning software, started in-situ burning and fast currents response.

2000s

- Laser fluorometry, submerged oil, response system analysis



NOAA's role in Spills

- Provide Scientific Support and Services to USCG
- Natural Resource Trustee
- Coastal Response Research Center
 - Partnership between NOAA and the Univ. of New Hampshire
- NOAA's Activities in Arctic Preparedness:
 - Arctic Disasters Workshop - Mar 2008
 - Joint Industry Project Oil-in-ice R&D Project
 - Arctic NRDA Workshop - Apr 2010
 - Arctic Environmental Response Management Application (ERMA®)
Project: NOAA/OSRI/CRRC
 - Stakeholders' Workshop - Apr 2011



Continuum of “Response” framework for ERMA

Response
(24 hours)

Emergency
Response Division
(ERD)



Assessment and
Restoration Division
(ARD)



Restoration -
Recovery
(Years/Decades)

Restoration Center
(RC)



Industry (SINTEF) fire boom experiment 2009



SINTEF: Full-scale testing of fire resistant booms in ice



Immediately after ignition. Burning 4.5 m³ of fresh Troll B crude with the Elastec/American Marine Boom system.



The burn at maximum burn intensity. Total burn time was 28 minutes and efficiency was approximate 98.

Project Tracking and Data Management in the US Arctic

- No “clearinghouse” exists for US-based Arctic research
- Information and metadata on projects are collected/housed in several places, i.e.,

Alaska Ocean Observing System

Arctic Research mapping Application (ARMAP)

North Slope Science Initiative/GINA

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USGS (under development)



USARC's "white paper" recommendations

- Update ICCOPR R&D research plan (vintage '97)
- Fund plan via Oil Spill Liability Trust Fund
- Expand "endowment" funding for OSRI
- Increase NSF & NOAA funding for basic science
- Improve Arctic physical oceanography knowledge
- Study metabolism of oil & gas and toxicity
- Stakeholder consultative process to plan research
- NOAA should co-chair (with USCG) ICCOPR

National Ocean Policy and National Ocean Council

- Strategic action plans, including “Changing Conditions in the Arctic” are being developed (www.whitehouse.gov).
- Comment period on full drafts will re-open this fall.
- One action related to oil spill response is:
“Improve Arctic environmental response management.”

Develop management systems and procedures to protect communities and ecosystems from oil spills and other accidents associated with resource extraction and Arctic marine transportation.

Specifically, inform the development and implementation of response coordination mechanisms such as ERMA a geospatial decision-support tool.

Thank You

U.S. Arctic Research Commission

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