Oil and Gas in the Arctic: Can Scientific Research Help Improve Decisions and Reduce Risk?

Barrow, Alaska

November 8, 2012

Fran Ulmer

Member, National Commission of the BP DWH Oil Spill Commission

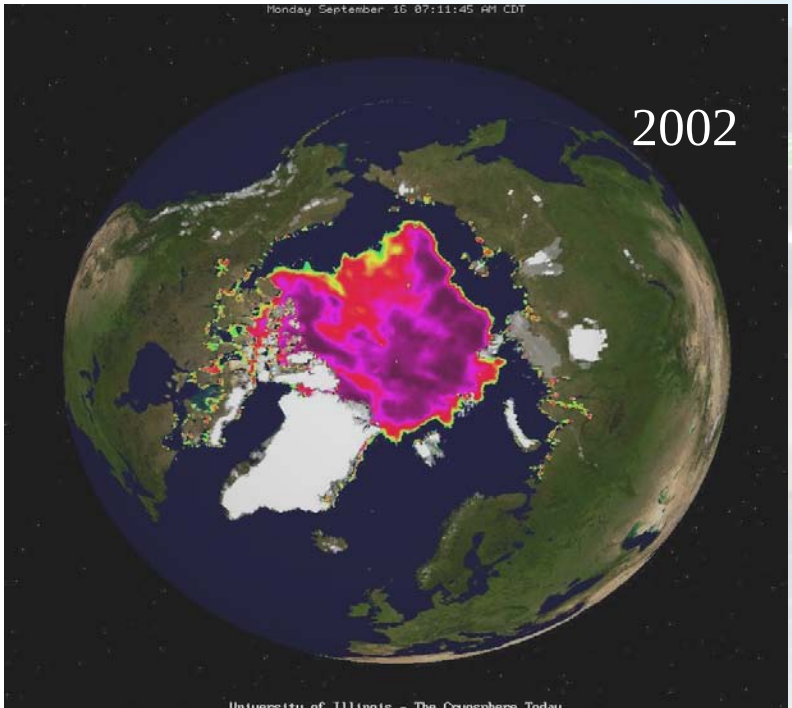
Chair, US Arctic Research Commission

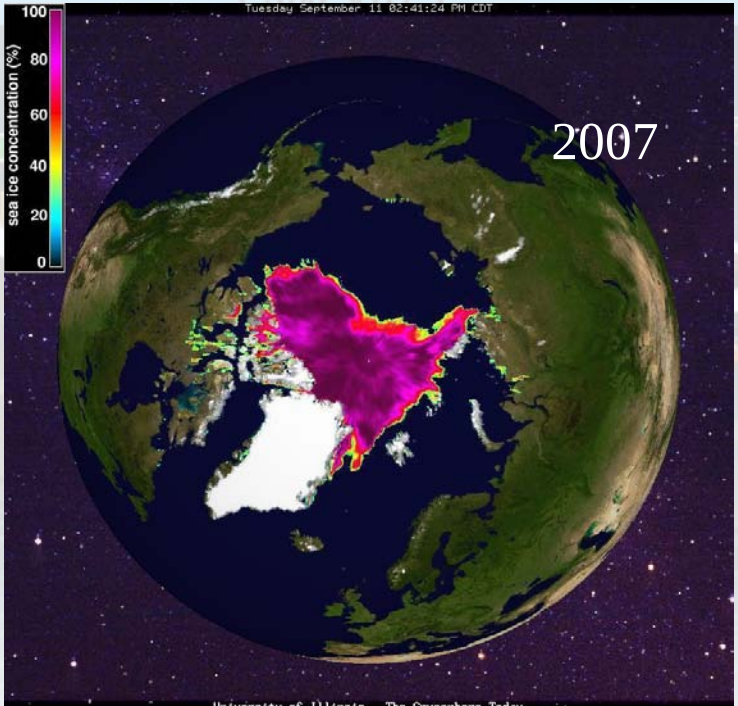
National Commission on the
BP DEEPWATER HORIZON OIL SPILL
AND OFFSHORE DRILLING

UNITED STATES ARCTIC
RESEARCH COMMISSION

Arctic Focus

- Many Arctic related issues in the news
- Climate change is major policy driver
- Concern about ecosystems, communities





VERY Rapid Change

- Warmer temperatures
- Less sea ice
- Thawing permafrost
- Vulnerable species

Human Activity Increasing

- Increased shipping activity
- Oil and gas development
- Tourism/fishing
- Infrastructure planning
- Research investment

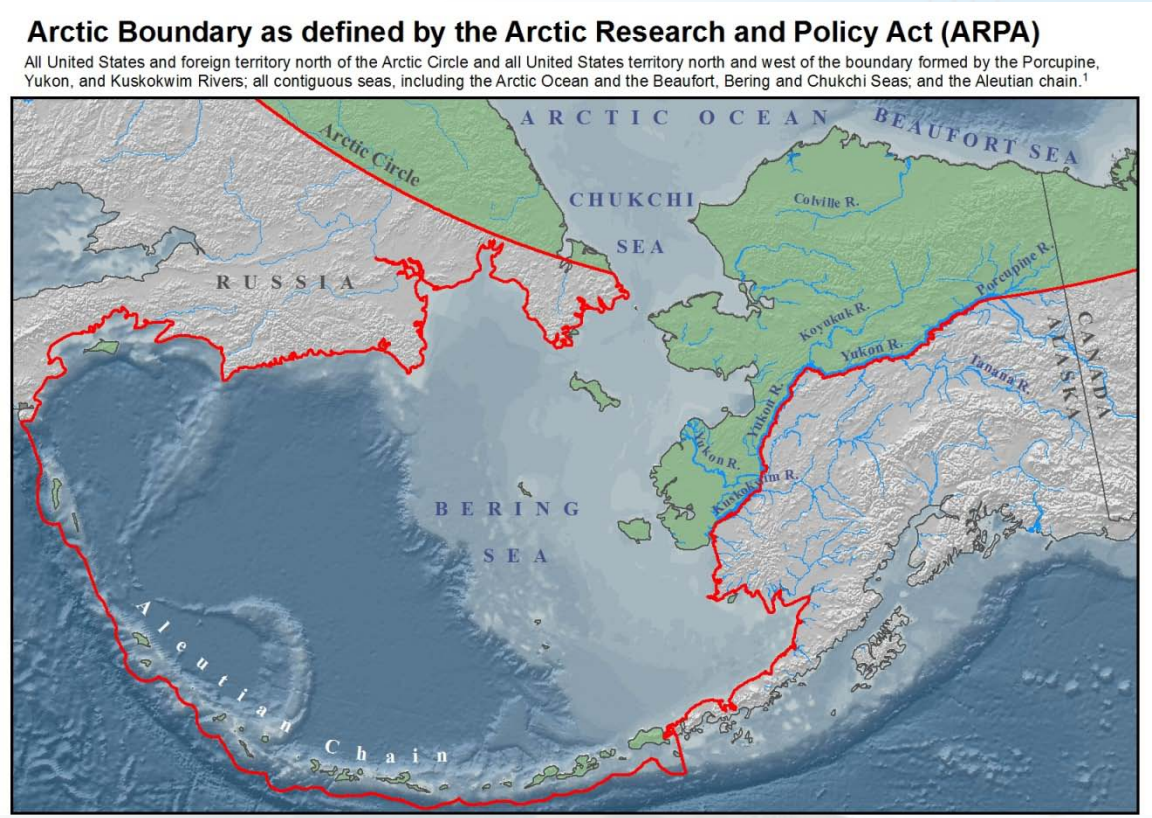
Shipping and Navigation

- Infrastructure essential
- Training
- Mapping and charting
- Navigation aids
- Communication
- IMO Polar Code

Fisheries

- Complex international regulations
- Science-based management regimes
- Lack of sufficient observation and understanding of Arctic Ocean ecosystems
- Cooperative international research essential
- Moratorium?
- Special areas?

U.S. ARCTIC RESEARCH COMMISSION



Fran Ulmer, Chair

U.S. Arctic Research Commission

Duties of the Commission

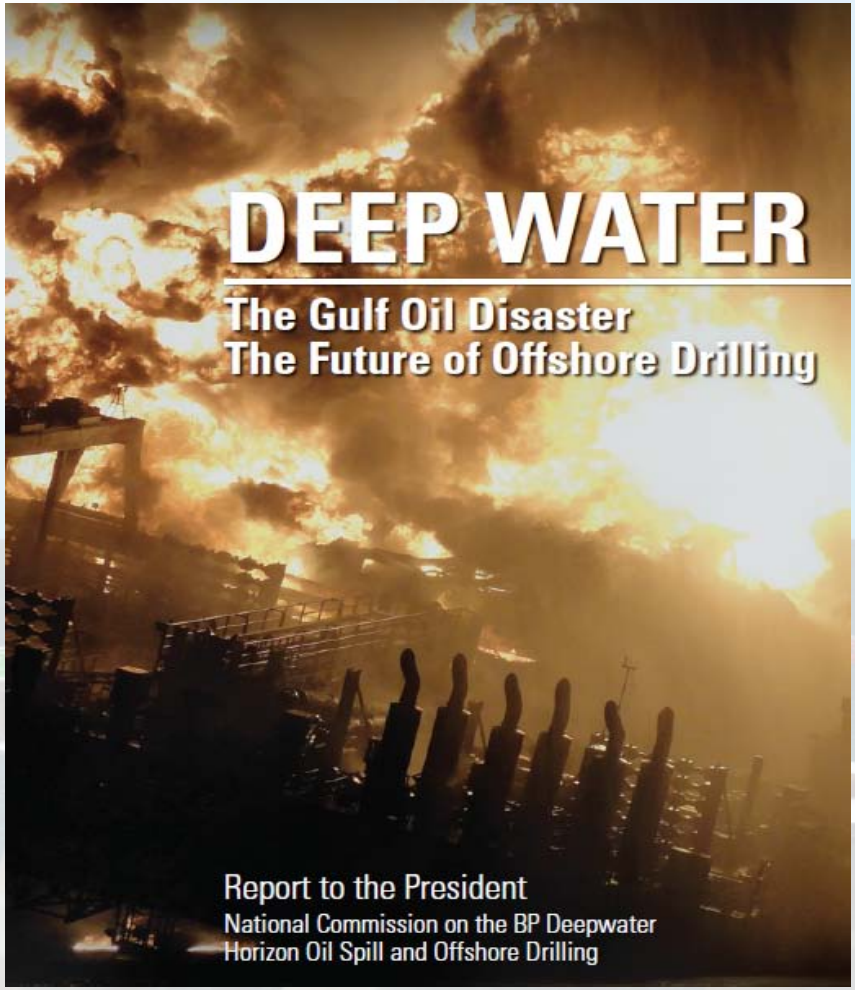
- National Arctic research policy
- Facilitate Arctic research cooperation
- Review federal Arctic research programs
- Recommend improved methods for data sharing
- Cooperate with the State of Alaska
- International scientific cooperation

2012 Research Goals

- Environmental Change
- Arctic Human Health
- Civil Infrastructure
- Natural Resource Assessment and Earth Science
- Indigenous Languages, Identities, and Cultures

Recommendations to federal agencies, industry and Congress

www.oilspillcommission.gov



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

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Recommendations for the Arctic

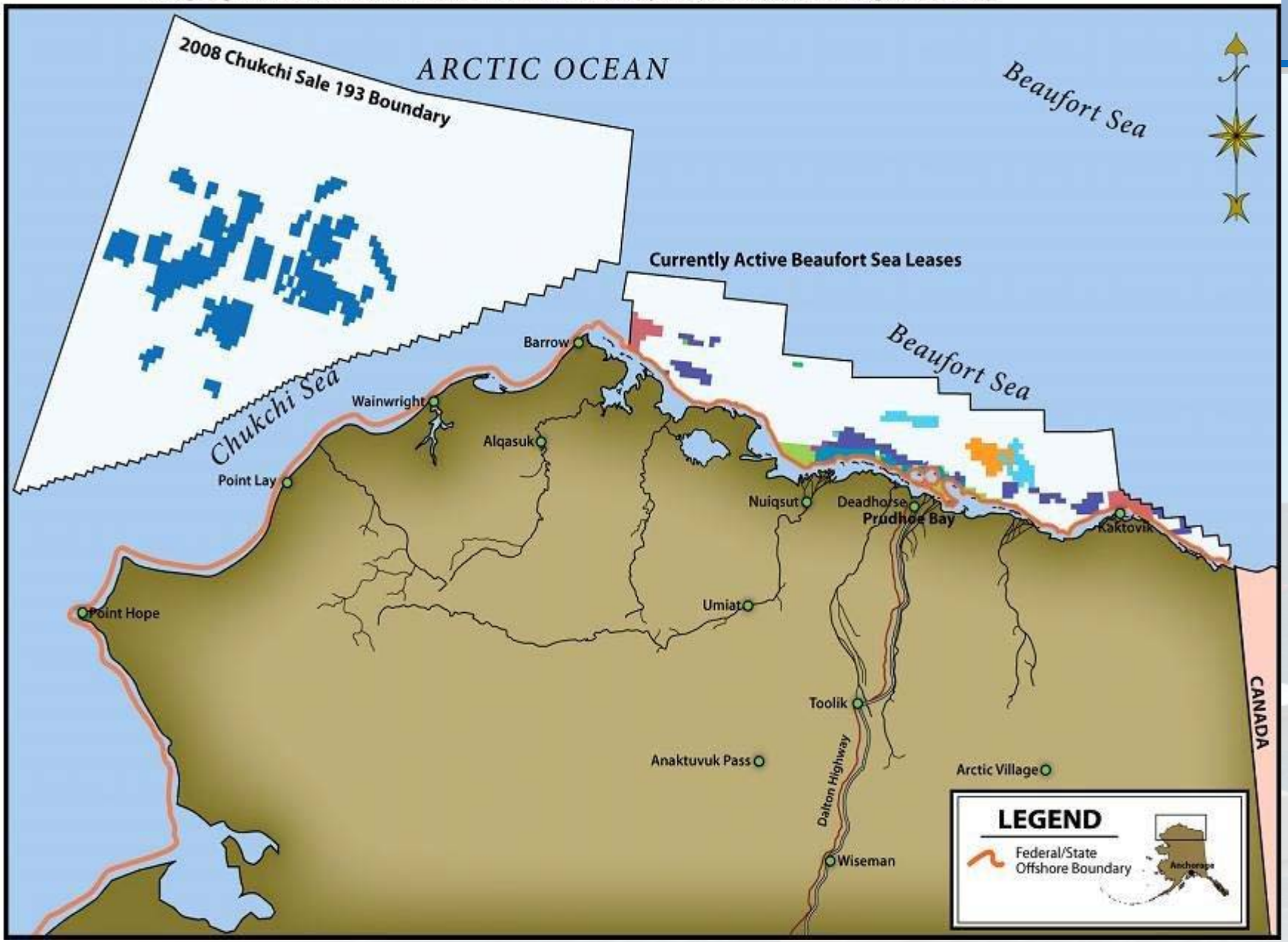
- Drilling must be done with the utmost care because of the sensitive Arctic environment
- An immediate, comprehensive research program to provide a foundation of scientific information is needed
- Industry and the Coast Guard should address needs with respect to:
  - Oil-spill response
  - Containment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

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

- 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

Map of Active Lease Areas in Arctic OCS (Chukchi and Beaufort Seas)



Challenges Specific to Arctic Resource Development

Remote, cold, dark, expensive and unique

- Threats to subsistence culture
- Limited infrastructure
- Cumulative impacts
- International players
- Response in icy conditions
  -Human health & safety concerns
  -Appropriate technology/tools

Response in Icy Conditions

Human health and safety concerns

• An effective response requires environmental and oil spill conditions safe enough for people to operate response tools.

•Questions remain about the fates and impacts of dispersant and herders for those who depend upon marine animals for subsistence.

•Research is needed on the impacts of *in situ* burning, especially in the near-shore environment

Appropriate technology/tools

•R&D priorities for prevention, oil spill detection/monitoring and response. Must be functional in cold, icy conditions.

Research Needs

- Improved tools are needed to **measure and map** oil spill thickness to identify areas of pooled oil that may be thick enough to collect or burn.

- Mechanical response tools are needed that are effective in spring **broken ice** and fall freeze-up conditions.

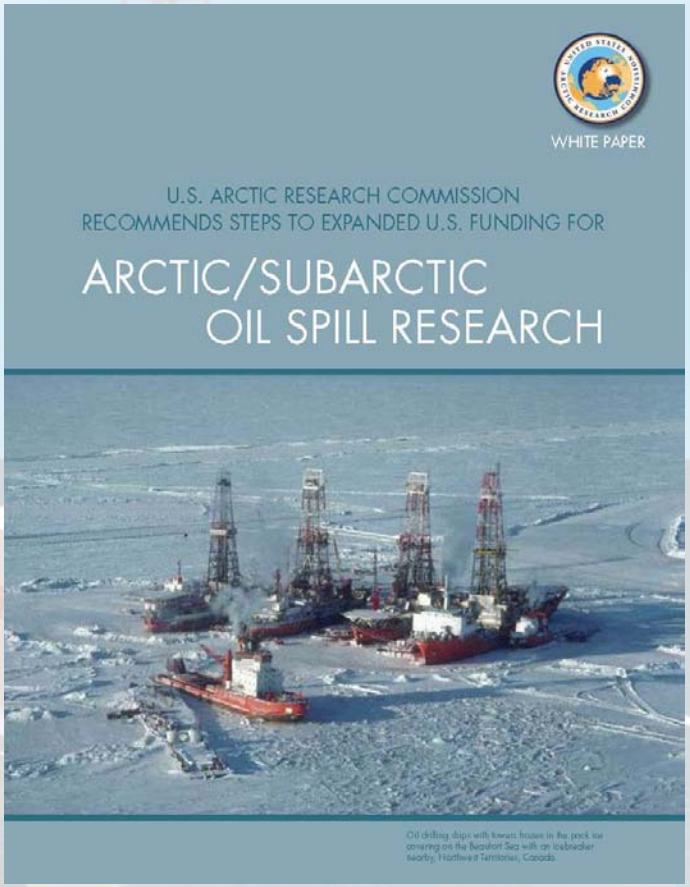
- Improved tools are needed to **detect** and map oil among drifting broken ice and encapsulated in and under ice.

- Methods and tools are needed to **recover** oil trapped under ice and to respond to subsea spills.

USARC's Oil Spill White Paper

2010 USARC Recommendations:

- Expanded endowment funding for research
- Increased funding for NOAA and NSF ecological baseline research programs in the arctic
- Oil spill trajectory research
- Research into fate, metabolism and effects of spilled oil in the environment
- Improved stakeholder consultation in planning research and development objectives
- A reinvigoration of ICCOPR



Agreements and Strategies to Improve Research and Response

- Increase emergency response assets, equipment, supplies, training
- Expand communications capabilities
- Improve logistical support for responders
- Implement Arctic Council Search
- and Rescue Agreement
- Develop and adopt Arctic Council Task Force on Oil Spill Preparedness and Response

Baseline data to properly design mitigation strategies and assess environmental impacts

- Upcoming Arctic research synthesis (North Pacific Research Board, National Science Foundation, several federal agencies, industry)

- USGS Gap Analysis

- BOEM Environmental Studies Program

- Shell/CP/Statoil/NOAA sharing data

- Other initiatives (non profit organizations, academia, local governments, industry)

Environmental Response Management Application

ERMA® is a web-based Geographic Information System (GIS) tool designed to assist both emergency responders and environmental resource managers. ERMA integrates and synthesizes various types of information, provides a common operational picture to those involved in an incident, and improves communication and coordination between responders and stakeholders.

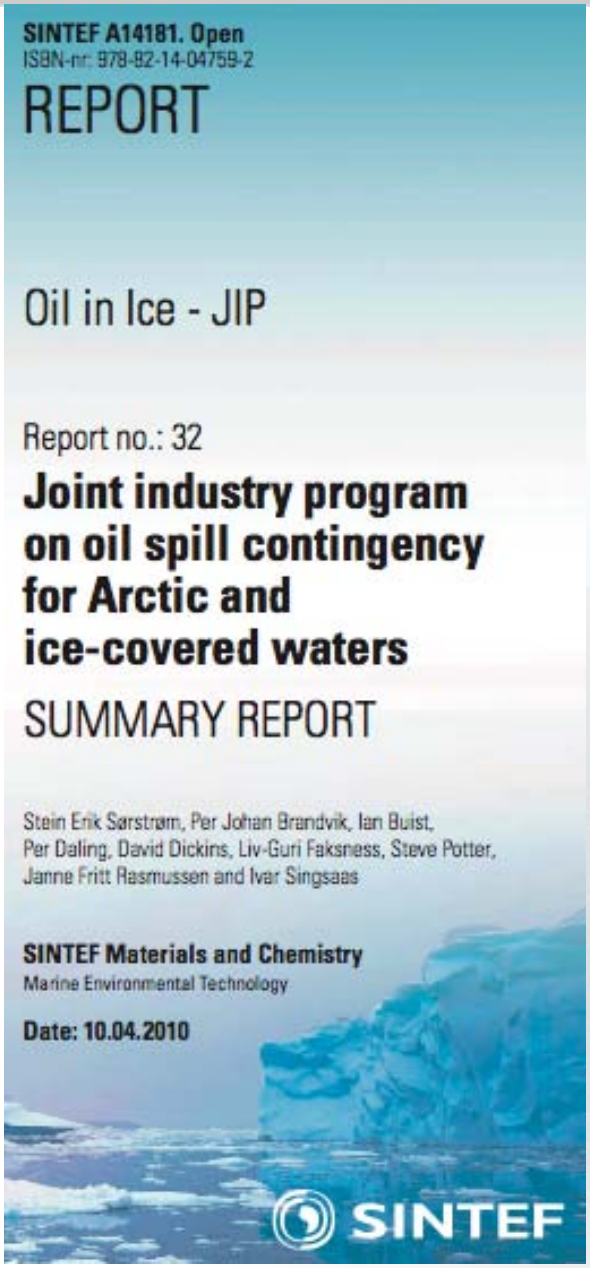
Oil Spills in Arctic Ice Covered Waters…

Summary of Current Federal Research Activities:

- BOEM (Environmental Studies Program)
- BSEE (Ohmsett facility)
- NOAA (OR&R Arctic ERMA)
- DOD (CRREL in NH)
- USCG (ICCOPR)

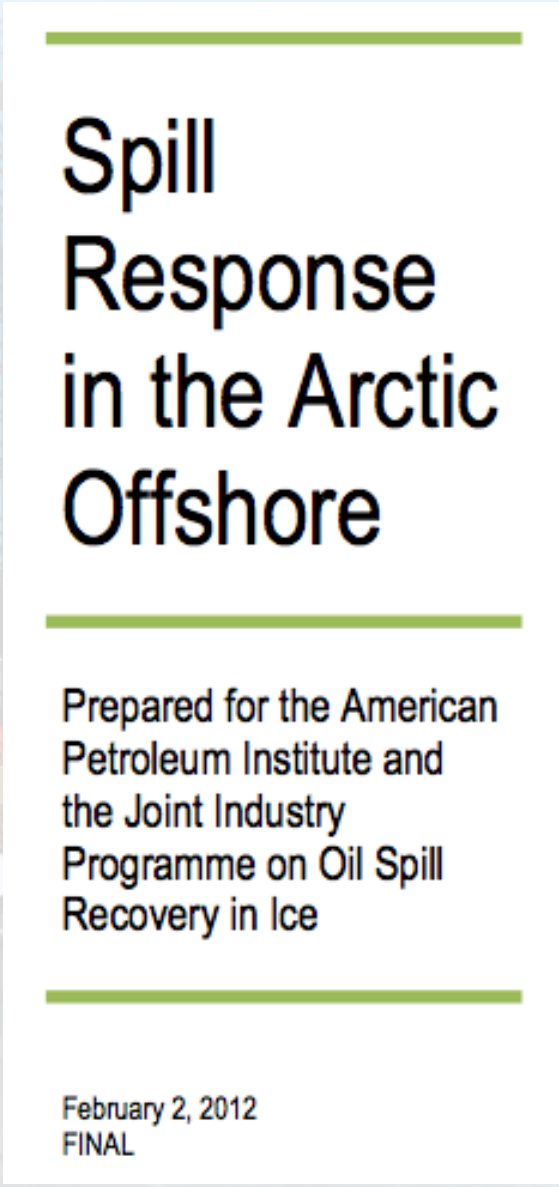
Herders in Broken Ice

Other non-US-Federal Research Activities



- API/JIP
- SINTEF/JIP
- AK Oil Spill Recovery Inst.
- Alaska Clean Seas
- Nat'l Academy Study
- Environment Canada
- Fermo Statement

US ARC Summary of available research 2010 & 2012



ARCTIC UPDATE

THE US ARCTIC RESEARCH COMMISSION DAILY EMAIL NEWSLETTER

Arctic Daily Update

www.arctic.gov

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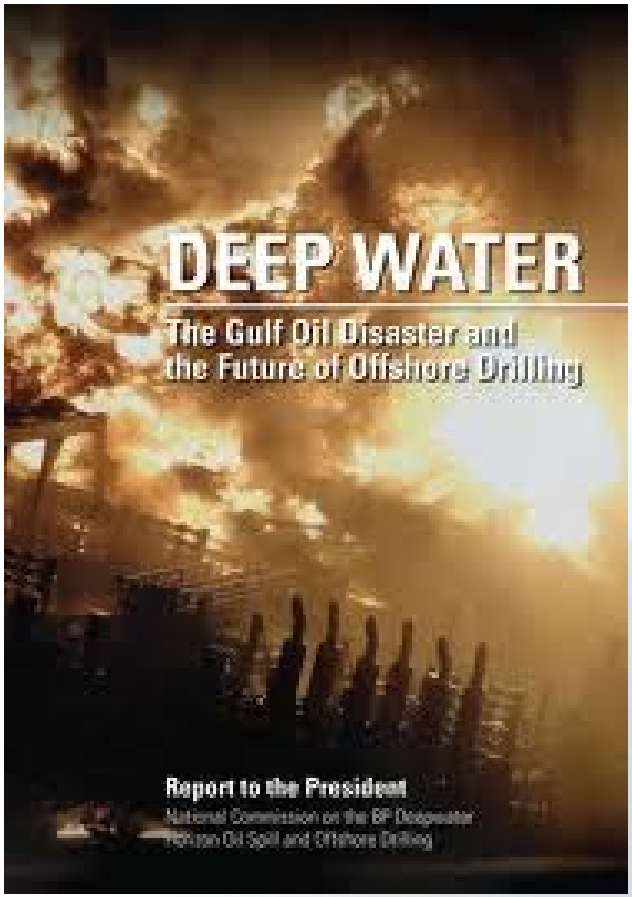
Reports and Website



Implementing the Recommendations of the National Oil Spill Commission:

www.oilspillcommission.gov

Oil Spill Commission Action
www.oscaction.org