

*Ocean Studies Board:
Monitoring and Research Needs in the
Wake of the Deepwater Horizon (DWH)
Oil Spill*

July 20, 2010

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Coastal Response Research Center

TOPICS

- Introduction to CRRC
- Oil Spill R & D Funding Pre-DWH
- R & D Needs Pre-DWH
- R & D Needs Post-DWH
- R & D Funding Post-DWH



CRRC OVERVIEW



Coastal Response Research Center

CRRC CREATION

- NOAA's Office of Response and Restoration (ORR)/UNH Spill Partnership began in 2002
- Co-Directors:
 - UNH - Nancy Kinner
 - NOAA - Amy Merten



OVERALL MISSION

- Develop new approaches to response and restoration through research/synthesis of information
- Serve as a resource/hub for NOAA, NOS (National Ocean Service) and other agencies
- Transform research results into practice
- Educate students who will pursue careers in response and restoration



OIL SPILL R&D FUNDING PRE-DWH



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FUNDING SOURCES - OPA 90

- **Oil Pollution Act (OPA) in 1990**
 - **Oil Spill Liability Trust Fund (OSLTF)**
 - Per barrel tax on imported oil
 - **Annual R&D Budgets for USCG, MMS, EPA**
Alaska's Oil Spill Recovery Institute (OSRI)
 - **No \$ for NOAA**
 - **Competitive Grants Program For States and Universities Authorized**
 - **Never fully appropriated**



INTERAGENCY COORDINATING COMMITTEE ON OIL POLLUTION RESEARCH (ICCOPR)

- Created By OPA 90
- Federal Agency Members
 - USCG (Chair)
- Purpose: To Coordinate Federal Research Efforts on Oil Spill R&D
- Activity Level Has Varied



FUNDING SOURCES - STATES

- **Strong R&D Programs in Louisiana, California and Texas**
- **Recent Budget Problems Have Constrained LA and CA R&D Programs**



OTHER FUNDING SOURCES

- **Industry**
 - Individual companies, API, Joint Industry Programs, MSRC
- **NGO's**
- **Regional Citizens Advisory Councils (RCAC's)**
 - Prince William Sound and Cook Inlet (AK)
 - OPA 90 mandate
- **Other Countries**
 - Canada (Environment Canada, Dept. of Fisheries & Oceans)
 - Norway (SINTEF)
 - France (CEDRE)



LACK OF COORDINATION AMONG R&D FUNDING ENTITIES

- Center Advisory Board Adds “Hub” Mission to CRRC
- Willingness of Stakeholders to Participate
- Requirement for Rigorous Peer Reviews
- Translate Results into Practice



CRRC AS HUB FOR OIL SPILL COMMUNITY

- **CRRC Hosts**
 - November 2003 - 5 Year R&D Plan Workshop
 - Major Federal, State, Industry, NGO, International Players
 - **Topics:**
 - Fate & Transport
 - Habitat Effects
 - Organism Effects
 - Quantitative Metrics
 - Restoration Methods
 - Socioeconomic Concerns



WORKSHOP / WORKING GROUP MODEL

- Major Topics for R&D Identified by:
 - Incidents - submerged oil (Athos I spill)
 - Sociopolitical situations
 - Arctic
 - 5 year R&D updates
 - Stakeholders
- Workshops with 35-60 Invitees
 - Across spectrum of stakeholders
 - Identify specific R&D questions/projects
- Working Groups: Funding Entities
 - Coordinate who funds what projects
 - Update R&D plan as projects answer questions and new issues identified



R&D NEEDS PRE-DWH



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CRRC WORKSHOP TOPICS

- **21 Workshops on Hot Topics to Identify Research Priorities and Partners (Examples Below)**
 - Dispersed Oil: Efficacy and Effects
 - Submerged Oil: State of the Practice
 - Human Dimensions of Spills
 - Integrated Spill Modeling
 - PAH Toxicity
 - Environmental Response Data Standards
 - Opening the Arctic Seas: Envisioning Disasters & Framing Solutions
 - NRDA in Arctic Waters: The Dialogue Begins
 - Dispersant Use in Deepwater Horizon Spill
 - Liquid Asphalt Spills



PRE-DWH R&D NEEDS ISSUE

- Lack of \$ for R&D Needs Identified as Critical
 - Examples:
 - NAS Dispersant Study (2005)
 - Dispersant R&D Plan (Sept 2005)
 - ~\$40M Project Needed
 - \$10M Funded by Dispersants Working Group Partners



R&D NEEDS POST - DWH



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R&D NEEDS POST - DWH

- What R&D Needs - Associated with Deepwater Oil Spill Blowout - Were NOT Identified Pre-DWH?



R&D NEEDS POST - DWH

- Fate & Behavior of Oil Released in Deepwater
- Subsurface Dispersant Use
 - Pressure
 - Temperature
 - Natural dispersion
 - Effectiveness and Effects
- In-Situ Monitoring
 - Especially at depth
 - Autonomous vehicles
 - IOOS applications
 - Application of New Methods (e.g., Holography)
- 3D Spill Modeling



R&D NEEDS POST - DWH

- Updated Environmental Sensitivity Index (ESIs)
- Baseline/Deepwater Ecosystem Understanding
- Similar Needs for Arctic



R&D NEEDS POST - DWH

- Deepwater Well Containment Technology
- Mechanical Equipment & In-Situ Burning Improvements
 - High wind/waves



R&D NEEDS POST - DWH

- **Biodegradation in Deepwater**
 - Impacts on nutrients and oxygen balances
 - Aerobic vs. anaerobic rates



R&D NEEDS POST - DWH

- Oil Toxicity on Key Species
 - Chronic toxicity especially
 - Key life stages
 - Realistic exposures (time, concentration)
- Use of Ecological Risk Assessments
- Dispersant Issues



R&D NEEDS POST - DWH

- **Human Dimensions**
 - Subsistence
 - Risk communication
 - Valuing natural resources
 - Social impacts
 - Coordination in response and restoration
 - Subsistence
 - Environmental ethics
- **Identifying Satisfactory Metrics For Success**



R&D NEEDS POST - DWH

- Natural Resource Data Assessment (NRDA)
- Restoration Methods



R&D FUNDING POST - DWH

- Lots of Congressional Legislation
- Authorization ≠ Appropriation
 - Long-term, consistent base of R&D funding
 - For all major federal agencies involved in spills
- Coordination Among All Stakeholders is Key
 - Federal, state, industrial, international, NGO's



R&D FUNDING POST - DWH

- R&D Needs Driven
 - Coordination among marine scientists and oil spill practitioners and scientists
- Peer Review is Essential at All Stages
- Technology ----> Practice
 - Liaisons, technology transfer teams



Coastal Response Research Center Website

www.crrc.unh.edu

