Oil Spills Science Gaps and Priorities

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OSR 201: Oil Spill Preparedness and Response for Scientists and Responders
GOMOSES

Nancy E. Kinner
Professor, Civil & Environmental Engineering
Coastal Response Research Center (CRRC)
Center for Spills and Environmental Hazards (CSE)

CRRC

- Partnership between NOAA’s Office of Response and Restoration and the University of New Hampshire
  - Emergency Response Division (ERD)
  - Assessment and Restoration Division (ARD)
  - Marine Debris
- Since 2004
- Co-Directors:
  - UNH - Nancy Kinner
  - NOAA - Ben Shorr
Center for Spills and Environmental Hazards (CSE)

- Parallel center for non-NOAA funding
- Also established in 2004

Coastal Response Research Center

Center for Spills and Environmental Hazards (All Other $)

- Conduct and Oversee Basic and Applied Research and Outreach on Spill Response and Restoration
- Transform Research Results into Practice
- Serve as Hub for Oil Spill R&D
- Facilitate Interaction Among Oil Spill Community (all stakeholders)
- Educate/Train Students Who Are Equipped to Pursue Careers in Spill Response and Restoration
CRRC & NOAA ORR

2003 - 2009:
• Host workshops on R&D gaps in oil spill response & restoration
• Fund research on topics of interest to NOAA ORR
  • R&D needs workshops on dispersants, submerged oil, human dimensions, etc.
  • Develop ERMA - common operating picture

CRRC & NOAA ORR

2010 to present:
2010:
• Alaska Natural Resource Damage Assessment discussions
• Focus on dispersant use during DWH
2011:
• Focus on dispersant uses in DWH
• Fund research on dispersant science for ORR
CRRC & NOAA ORR (cont’d)

2012 - present:
• Workshops on R&D needs
• Subsequent discussion during talk

2014 to present:
• State-of-the-science of dispersants and dispersed oil in Arctic waters

CRRC/CSE Website

The Coastal Response Research Center (CRRC) was established in a partnership between the National Oceanic Atmospheric Administration (NOAA) through the Office of Response and Restoration (OR&R) and the University of New Hampshire (UNH) in 2004. The Center for Spills and Environmental Hazards (CSE) is a University center that expands the scope of interaction and cooperation with the private sector, other government agencies and universities.

The Center wishes to Congratulate these recent graduate students on successfully defending their thesis.

News Features Workshop Reports
3/19/2018
Coastal Response Research Center
Key R&D Gaps from CRRC Perspective

Oil Observing Tools

- How to interpret images collected by satellites
  - Human observers during overflight vs. remote sensors?
  - Difference between sensors (e.g., visual, multispectral, radar)?
  - Satellites vs. manned/unmanned aircraft?
  - Data interpretation?
Key R&D Gaps from CRRC/CSE Perspective

- Understand strength / weaknesses of each sensor
- Develop new/smaller deployment packages for most effective sensors
- Need synoptic sampling to quantify performance of individual sensors for qualitative thickness of surface oil
  - BSEE / NOAA field and OHMSETT experiments ongoing

Key R&D Gaps from CRRC/CSE Perspective

- Develop better methods to ID false positives
- Include data delivery in drills & exercises
- Continue recurring discussions between responders, damage assessors and data managers and developers to generate appropriate products
- Continue joint agency and industry demonstrations of oil observing tools
SCAT
Shoreline Cleanup Assessment Technique Workshop

SCAT Uses

• 1989 Exxon Valdez responders used this technique to assess oiling of shoreline during spills
• Where is oil? (habitats, extent, type)
• Assists in where to concentrate efforts and effectiveness of response
• Crossroads with electronic data collection, data coordination, data sharing, interoperability
SCAT R&D Needs

- NOAA has drafted Data Standards for SCAT
- QA / QC and Data Flow need explicit list of products & delivery timetable, scalable to different oil spills; products may change through time

SCAT R&D Needs

- CRRC / NOAA ORR working groups to address R&D needs on SCAT
  - Data Standard
  - Data Sharing Agreements
  - Drills and Exercises
State-of-the-Science of Dispersants & Dispersed Oil in Arctic Waters

State-of-the-Science of DDO

• Five teams of experts representing stakeholders
• Topics
  • Efficacy & Effectiveness
  • Physical Transport & Chemical Behavior
  • Degradation & Fate
  • Ecotoxicity & Sublethal Impacts
  • Public Health & Food Safety
State-of-the-Science of DDO

- Knowns and uncertainties
  - Up to December 31, 2015
- First 3 are complete and on-line
- Ecotoxicity: sign-off on final document
- Public Health: Initial draft out soon for public input

State-of-the-Science of DDO

- Report Out
- Tonight:
  - Feb 5
  - 6:30 - 7:30 PM
  - Hyatt Celestin H
Data Management

• Environmental Disasters (EDDM)
• DWH Long-Term (DWH LTDM)
EDDM

- Working Groups on:
  - Field Protocols & Training
    - Natural Libraries of Medicine Hurricane Environmental Sampling Tools
  - Common Data Model
    - Crosswalk existing Common Data Models (e.g., EPA Scribe & NOAA DIVER)
  - Gold Standard
    - Data dictionaries, criteria for: baseline data, QA / QC, security
    - Consistent vocabularies
    - Interoperability
DWH Long-Term Data

(100,000 environmental samples, 15M publically available records)

Objectives
• Collaboration among GOM partners for data management & integration for planning, restoration, implementation & monitoring
• Best practices for public distribution & public access to data
• Lots of data models (e.g., GOMA Portal, NOAA NCEI, DIVER, GRIIDC, GCOOS, LA CIMS)
DWH Long-Term Data

Working Groups
• Data Management Standards
• Interoperability
• Discovery / Searchability

Thursday 7:30 AM in Celestin B

GOM Regional Preparedness

• Flower Garden Banks NMS Spill Response
• Natural Disaster Causing Technological Disasters
  • Stafford Disaster Relief & Emergency Assistance Act & Oil Pollution Act
  • How do the two diverse groups interact?
• Public concerns during spill response
  • What will people want to know?
    • Public Health (e.g., beaches, seafood safety)
    • Tourism
    • Wildlife
Academic Engagement

- Interaction between Science & Response Communities
- Academic or Science Coordination in spill response and preparedness

Wednesday 4:30 PM in Imperial 11

Thank you for listening

Questions?

nancy.kinner@unh.edu

http://crrc.unh.edu/