Overview of the Coastal Response Research Center

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EPA Region 1
Center Creation

• Funding for oil spill research decreasing
  • Government
  • Private sector
• Many research needs exist regarding spill response, recovery and restoration
Center Creation

• NOAA’s Office of Response and Restoration (ORR) wanted to partner with research-oriented university to create center to address research needs
• NOAA and University of NH (UNH) have a history of research partnerships
• UNH has strong marine environmental research interest
• UNH has experience with running competitive research grant programs
Center Creation

• ORR/UNH oil spill partnership started in 2002
• Coastal Response Research Center formed in 2004
• Co-Directors:
  • UNH - Nancy Kinner
  • NOAA - Carol-Ann Manen
Overall Center Mission

• Develop new approaches to spill response and restoration through research/synthesis of information
• Serve as a resource for ORR and NOAA
• Serve as a hub for spill research, development, and technical transfer
  • Oil spill community (e.g., RRTs)
Center Oversight

• Advisory Board
  • Review and evaluate Center’s general policies, research themes, and priorities

• Science Advisory Panel
  • Advice/recommendations on quality and usefulness of the funded projects
Advisory Board Membership

• NOAA: David Kennedy, Jim Murray (Sea Grant)
• USCG: Capt. Steve Hanewich
• USEPA: Reg. 1 Administrator Robert Varney
• API: Robin Rorick
• State Agencies: Robin Jamail (Tx GLO)
• UNH: John Aber (VP Research), Jon Pennock (Marine Prog. Director)
Center Program

- Research grant programs
  - Request for Proposals (RFPs)
- Workshops
- Communications/outreach
- Conference participation
External Grants Program
1. Annual Center RFP
Annual Request For Proposals

• Identification of priority research needs
  • November 2003 Workshop
    • Spill response community including industry and academia
    • Report on Center website
  • May 2004 NOAA Practitioners’ Meeting
    • e.g., HAZMAT, DAC, Sea Grant, NCCOS
• RFP topics = Workshop/Meeting outcomes
Annual RFP Mechanics

- Internet distribution, preproposal and proposal submittal, and reviews
- Issue RFP in May
- Projects funded start following January
- $1.0 to 1.2M funding available annually
Peer Review

• Several peer reviews per proposal
  • 4 experts do individual reviews
  • 2 panel reviews

• Reviewed for:
  • Technical approach and innovativeness 30%
  • Scientific and management relevance 30%
  • Transferability 15%
  • Budget appropriateness 10%
  • Qualifications of project investigators (PI) 10%
  • Support and capabilities 5%
Sample of Current Grants
Response

- A Module for NOAA’s GNOME Model To Provide Capability To Simulate Deepwater Oil and Gas Spills
  - P. Yapa, Clarkson University, COMPLETE
  - CDOG (Clarkson University Deepwater Oil and Gas) model
    - Jet/plume and rise
  - Linked to NOAA GNOME surface trajectory model
Injury and Recovery

• Use of Meiobenthos for Risk Assessment of Low Level Crude Oil WSFs: Rapid Copepod-Based Approaches for Evaluating Long Term Endocrine and Reproductive Toxicity
  • G.T. Chandler, Univ. South Carolina, COMPLETED
    • Using novel assay that determines threshold toxicity of water soluble fraction (WSF) of crude for meiobenthic copepods
    • Culturing copepods through two generations (full life cycle) with range of possible WSF post-remediation concentrations
Injury and Recovery

• Acute and Chronic Effects of Crude and Dispersed Oil on Chinook Salmon Smolts
  • R. Tjeerdema, UC Davis
    • Assessing acute and long-term impacts of water accommodated fraction (WAF) and chemically-enhanced (dispersant) WAF (CEWAF) of Prudhoe Bay crude on salmon smolts
  • Jointly funded with CA OSPR
Injury and Recovery

• Dispersants as Oil Spill Countermeasure for Remediation & Restoration in Sensitive Coastal Habitats
  • Q. Lin, Louisiana State
    • Determining effect/fate of oil and dispersed oil in different marsh sediments as function of season
    • Determining effect of dispersants on oil sorption/fate in marsh sediments
Injury and Recovery

• Effects of oil exposure on terns breeding in Buzzards Bay
  • F. Tseng, Tufts Univ
  • Using 35 year demographic and physiological dataset, compares suite of blood-based parameters with reproductive success
Injury and Recovery

- Long-term effects of oiling of diamondback terrapin and snapping turtle nests
  - C. Rowe, Univ. of MD
    - Eggs, hatchlings and juvenile turtles exposed to oil in artificial nests monitored for viability, metabolic and growth rates and developmental and behavior abnormalities
Communication

- Establishing performance metrics for oil spill response, recovery and restoration
  - S. Tuler, SERI
    - Including public in review and examination of metrics used in describing progress of spill response and restoration
    - e.g., Using actual spills as case studies
2005 Annual RFP Topics

• Data sets to verify fate and transport models
• Integrating regional observing systems with circulation and transport forecasts
• Recovery of natural resources
• Injury to natural resources
• Valuing restoration
• Effects and efficacy of dispersants
Projects’ Summary

- 14 projects funded
  - 3 complete
  - 3 finishing in 2005
  - 3 finishing in 2006
  - 5 finishing in 2007
- 3 on response
- 9 on injury and recovery
- 1 on communication
2. Cold Climate RFP
Cold Climate RFP

- Partnership between:
  - Oil Spill Recovery Institute (Cordova, AK)
  - Cooperative Institute for Coastal and Estuarine Environmental Technology
  - Coastal Response Research Center
  - Mineral Management Service
Cold Climate RFP Process

- Cold Climate RFP released in June 2005
- $1M available
- Funding for Summer 2006 field season
- International projects allowed
  - e.g., Norway, Canada, Russia, Japan
- Funding announced in February 2006
2006 Cold Climate RFP Topics

- Detection, containment and clean-up of oil spills
- Exposure and injury assessment tools
- Data development: Processes and rates affecting oil
- Human use valuation of ecosystems
- Habitat recovery and restoration technologies
Information Transfer and Outreach
Outreach

• Center Website
• www.crrc.unh.edu
• RFP process run online
• Information on research projects
  • Proposals
  • Progress reports
  • Final reports
  • Presentations
  • Articles
Outreach

• Upcoming events/workshops/meetings of interest on spill response, recovery and restoration and related topics
• Center contact information
Outreach

• Every March - Emerging Research Workshop
  • Center PIs presented results
  • Free and open to all
  • Attendees: NOAA, USCG, MMS, EPA, API, State, Industry

• Upcoming Workshops
  • Socioeconomic and human valuation issues in oil spill response research needs
  • Oil spill modeling: national coordination of efforts
Dispersants Initiative

- NRC report on dispersants efficacy and effects discussed need for integrated research plan
  - Need for collection and dissemination of peer-reviewed information
    - Scientifically-robust and environmentally-meaningful context
  - Center’s mandate from NOAA to address national issues related to spills
    - Act as a hub for oil spill research
Dispersants Initiative

• Center and NOAA convened meeting of NRC, USEPA, MMS, USCG, TXGLO, OSRI, LA OSRD, CA OSPR, API and Industry reps
  • July 2005

• General willingness by all parties to participate in formulation of integrated research plan (Dispersants Working Group)

• Workshop on R&D needs for making decisions regarding dispersing oil
Dispersants Workshop

- UNH on Sept 20-21 to determine research needs
  - Dispersant effectiveness
  - Dispersant effects
- ~35 invitees from regulatory agencies, academia, private sector
- Working Group planning meeting on Sept 22
  - Coordinate RFPs