

# Overview of the Coastal Response Research Center

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EPA Region 1



Coastal Response Research Center

# 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](http://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



# Coastal Response Research Center

[www.crrc.unh.edu](http://www.crrc.unh.edu)

