

NOAA ORR and Coastal Response Research Center

Joint Meeting

January 9, 2006



Coastal Response Research Center

Thanks

- Glad to be back in Seattle
- Thanks for attending
- Thanks to Amy Merten for logistics
- Looking forward to our discussions



Coastal Response Research Center Introduction



Center Creation

- ORR/UNH oil spill partnership started in 2002
 - Competitive grants program with CICEET
 - 2002 Congressional appropriation = \$0.5M
 - 2003 Congressional appropriation = \$0.75M
 - NOAA provided RFP topics and peer review
- Coastal Response Research Center formed in 2004
 - MOA UNH/NOAA dictates co-directors, Advisory Board, Science Advisory Panel
- 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)



Specific Center Missions

- Conduct and oversee basic and applied research and outreach on spill response and restoration
- Transform research results into standards of practice
- Encourage strategic partnerships to achieve mission
- Conduct outreach to improve preparedness and response
- Create a learning center to promote awareness of capabilities and realistic expectations about risks and benefits



Center Oversight Boards

- Center Advisory Board
- Science Advisory Panel
- NOAA ORR Interface



Center Advisory Board Duties

- Review and evaluate Center's general policies, research themes, and priorities
- Evaluate Center's programs, activities and budget
- Help establish partnerships with public and private sectors
- Conduct long-term planning to coordinate Center activities



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)
- Ex Officio: Co-Directors CRRC, CICEET, JHC



Science Advisory Panel Duties

- Advice/recommendations on quality and usefulness of the funded projects
- Representatives from research community and users groups:
 - Academia
 - Governmental agencies (state/federal)
 - Private sector



Science Advisory Panel Membership

- NOAA: Mark Fonseca
- Other Federal Agencies: Roger Helm (FWS), Ken Hinga (USDA)
- State Agencies: Yvonne Addassi (CA OSPR)
- Academia: Tom Leschine (UWA)
- Industry: Jim Clark (ExxonMobil)



NOAA Interface

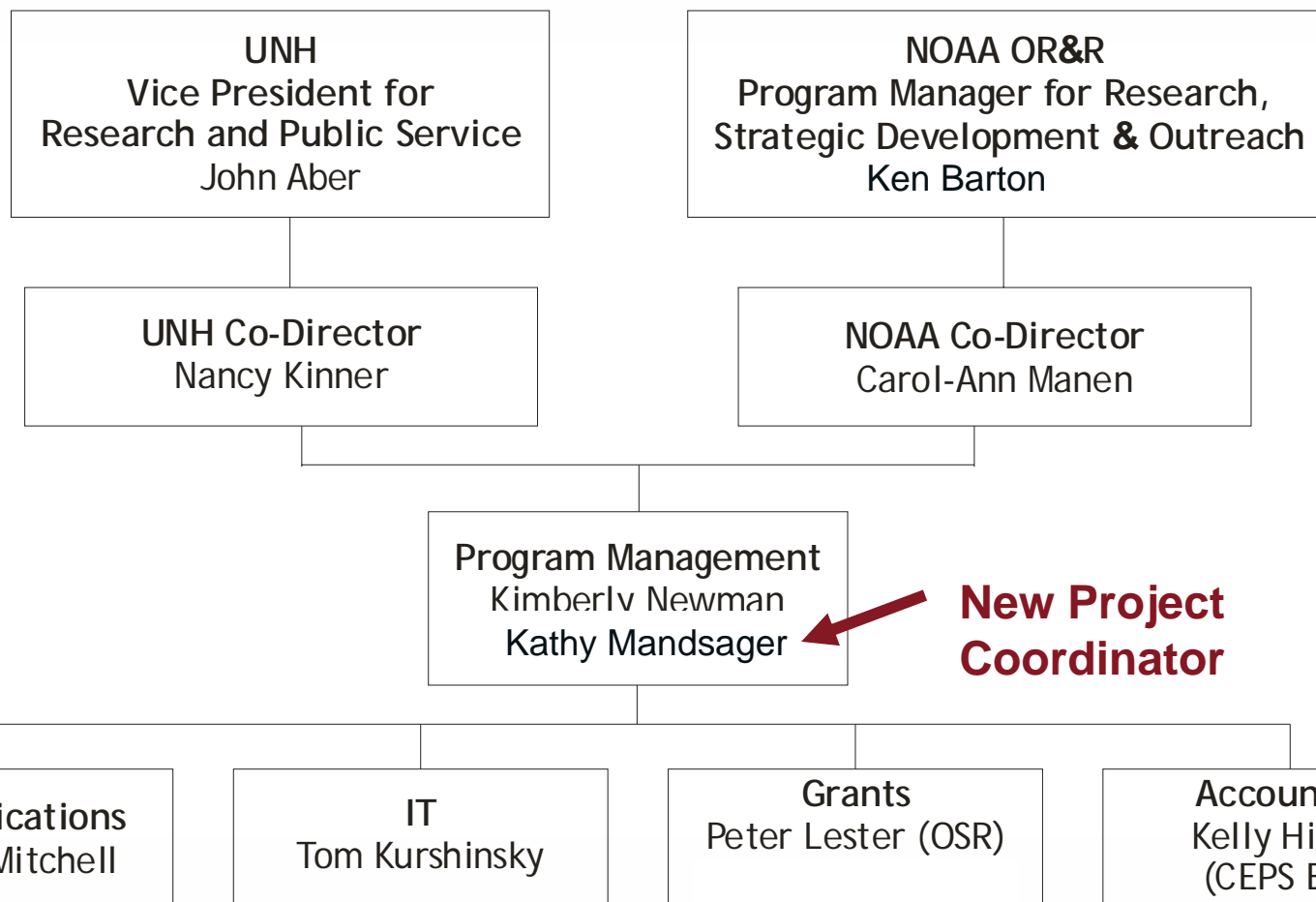
- Biweekly conference calls with Ellen Clark, Bob Pavia, Bill Conner, Amy Merten, Lisa DiPinto
- Regular meetings with David Kennedy
 - Center will report directly to him after March 2006
- Trips to NOAA facilities
- Meetings with SSCs at RRT meetings
- NOAA practitioners workshops
- NOAA input on RFPs and proposal reviews



Center Staffing



Center Staffing



**New Project
Coordinator**



NOAA Co-Director

- Carol-Ann Manen retiring at end of March 2006
- ORR (Kennedy) and UNH have discussed
- NOAA in process of filling up-coming vacancy



David Kaiser

- NOAA NOS Office of Ocean and Coastal Resource Management
 - Senior policy analyst and federal consistency coordinator
- UNH '82 B.S. Political Science; URI '88 M.A. Marine Affairs; George Washington '94 J.D.
- Permanent move to UNH
- Center is “sponsoring” him
- NOAA’s Coastal Zone Management Federal Consistency Liaison
- Interest in teaching policy courses



Center Research Faculty Hire

- UNH Co-Director is full salary position
 - Kinner is tenure track professor
 - Two course teaching release time and 1 month summer salary = ~\$40,000
 - ~ \$54,000 remaining
- Concept : Hire full time research assistant professor
 - Area = some aspect of human dimensions of oil spills
 - Interface with David Kaiser and ORR
 - New expertise for Center
 - UNH interface with UNH Resource Economics Dept and Carsey Institute on Policy Research
 - Faculty affiliation = UNH Environmental Engineering Program



Center Budget



Center Appropriation

- Center funded by annual Congressional appropriation
 - Senator Gregg (NH)
 - Not in NOAA's base budget
- Recently \$2M annually appropriated
- Assessments prior to award
- UNH Award in FY'04 = \$1,978,945
- NOAA agreed not to take any assessment, only Congressional assessment taken



FY 2005 Budget (Current Center Year)

- \$2M Congressional Appropriation
- Congressional assessment ~1%
- NOAA assessment = \$284,633 (14%)
 - Federal travel related to Center
 - NOAA Co-Director's salary and travel
- Actual UNH Award = \$1,694,312



Center Budget Categories

- Administration
- External Research
- Internal Research
- Outreach



FY'05 Budget

	Expected	Actual
Administration	\$504,841	\$438,657
External Research	\$1,154,300	\$1,000,927
Internal Research	\$204,400	\$177,603
Outreach	\$86,460	\$75,125
Total Available	\$1,950,001	\$1,694,312



FY'06 Appropriation (Center Year Oct '06 to Sept '07)

- \$2M for standard operations
- \$1M for dispersants/submerged oil initiative
 - Selected because of Senator's interests and discussions with NOAA
- Senator Gregg no longer chairs subcommittee overseeing NOAA appropriation
 - Still on subcommittee
 - Chairs Senate Budget Committee



FY '06 Appropriation

- Congressional assessment = \$11,400
- NOAA assessment = \$476,800
 - Management fee
 - NOAA Co-Director's salary and travel
 - Center-related federal travel
 - Coverage of NOAA staff salaries for Center-related work
 - W. Blanchard (UNH undergrad summer intern)
- Actual UNH award = \$2,511,800



Center Budget '06-'07

- Use of funds designated in UNH request for Center appropriation
- Extra funding into external grants with dispersant emphasis and workshops
- Planned workshops
 - Submerged/Heavy Oil Research Needs
 - Research Needs for Integrating Ocean Observing Systems and Oil Spill Response/Recovery
 - Use of current OOS and development of new technology
 - Summer institute - Topic to be determined
- Otherwise budget will be similar to current year



UNH Center FY '07 Appropriation Request

- \$2M for standard operation
- \$1M for research initiatives on:
 - Submerged/heavy oils
 - Based on workshop recommendations
 - Likely detection/tracking
 - Coordinated with UNH/NOAA Joint Hydrographic Center
 - Coastal/Ocean observing system technologies for oil spill response
 - Based on workshop recommendations
 - Coordinated with UNH/NOAA Center for Coastal and Ocean Observing



Ongoing Research Projects



Current Project Status FY '02 - Present



Coastal Response Research Center

Priority Areas: FY'02 and '03

- Improving the understanding of oil spill fate in coastal environments
- Measuring the environmental fate of oil spills
- Resolving uncertainties about the long-term fate and effects of dispersing oil
- Understanding “How clean is clean enough”



Projects: FY'02

COMPLETED

- Use of Natural Oil Seeps for Evaluation of NEAT SWEEP Dispersant Application Technology and Intercalibration of NOAA SMART Monitoring Protocols with Measurements of Dissolved-Phase and Dispersed Oil Droplet Concentrations in the Water Column, James R. Payne (\$60K)
- A Module for NOAA's GNOME Model To Provide Capability To Simulate Deepwater Oil and Gas Spills, Poojitha D. Yapa (\$40K)
- Development of Oil Spill Response Cost-Effectiveness Analytical Tool, Dagmar Schmidt-Etkin (\$57K)
- Fate and Effects of Emulsions Produced after Oil Spills in Estuaries, Richard F. Lee (\$169K)



Payne: Seeps

- Dispersant field trial using the Coal Oil Point seeps
- Partnered with CA OSPR, CA FG, US FWS, NOAA, USCG, Spiltec
- Permits identified as a priority
 - Built a strong partnership in CA
 - Worked through the permitting process
- Tailgate experiment indicated seep oil too degraded to disperse



Yapa: GNOME and CDOG

- GNOME: General NOAA Oil Modeling Environment
- CDOG: Clarkson Deepwater Oil and Gas Blowout model
- Use algorithms developed from Deepspill, industry, MMS, international field experiment to extend NOAA modeling capacity from surface trajectory to 3-D
- Working partnership with NOAA HAZMAT modelers
- Used in Thunderhorse exercise
 - Resulted in follow-on proposal
 - Peer reviewed publication with NOAA scientists



Lee: Emulsions

- Need for information on persistence and effects of emulsions
- Mesocosm experiments
- Qualitative data as input to Ecological Risk Assessments



Projects: FY'03

•COMPLETED

- Improvements to the Work on Integration of NOAA's GNOME Model with CDOG Model, Poojitha D.Yapa (\$66K)
- Utility of Meiobenthos for Risk Assessment of Low-Level Crude Oil WSFs: Rapid Copepod-based Approaches for Evaluating Reproductive and Population level Toxicity, G. Thomas Chandler(\$120K)

•On-Going

- Acute and Chronic Effects of Crude Oil and Dispersed Oil on Chinook Salmon Smolts, Ronald, S. Tjeerdema (\$150K)
- Dispersants as Oil Spill Countermeasure for Remediation and Restoration in Sensitive Coastal Habitats, Q. Lin, (\$188K)
- Impacts of Low Level Residual Oil on Toxicity Assessment and Improving the Predictive Modeling of Environmental Fate of Oil Spills, D.Di Toro/ J. McGrath, (\$97K)



Completed Projects FY'03



Yapa: GNOME and CDOG

- Improved integration and error checking
- Working partnership with NOAA HAZMAT/modelers
- Peer reviewed publication in preparation



Chandler: Lifecycle Assay

- Copepods cultured through 2 life-cycles
- Endpoints monitored included mortality, fertility, fecundity, hatching success, and sex ratio
- Population effects modeled
- Outcomes
 - ASTM Standard
 - Peer reviewed publications (2)
 - SETAC poster



Ongoing FY'03 Projects

- Salmon smolts (Tjeerdema)
 - Effects of dispersed and non-dispersed oil
 - 3-year project
 - Matching funds from CA OSPR and UCD Oiled Wildlife Care Network
 - Endpoints monitored include mortality, metabolic stress and long-term growth



Ongoing FY'03 Projects

- Dispersants/marshes (Lin)
 - Mesocosm study using native plugs
 - Innovative tidal cycle dosing
- Toxicity low levels residual oil (McGrath)
 - Literature/modeling study
 - Extension of TLM/narcosis work



Priority Areas: FY '04

- Recovery of natural resources
- Injury to natural resources
- Communication/Gaming
- Communication/Performance metrics
- Preparing for Spills of Opportunity
- Other (November Workshop topics)



Projects: FY'04

- Establishing Performance Metrics for Oil Spill Response, Recovery and Restoration, Seth Tuler (\$205K)
- Acute and Chronic Effects of Oil, Dispersant and Dispersed Oil to Sensitive Symbiotic Cnidarian Species, Including Coral, Carys Mitchelmore (\$200K)
- Survival Time Models Quantitatively Predict Lethal Effects of Pulsed and Different Duration Exposures to Water-Accommodated Fractions of Spilt Oil, Michael Newman (\$200K)
- Integrating Physiological and Demographic Parameters in NRDA, Florence Tseng (\$96K)
- Studies Using Aquatic Turtles to Assess the Potential Long-Term Effects of Oiling of Nests During Early Embryonic Development, Christopher Rowe (\$205K)



Summary:Projects

- FY'02
 - 4 projects
 - Total \$326K
 - 1 dispersants, 1 forecast modeling
- FY'03
 - 5 projects
 - \$621K
 - 2 effects of dispersants, 1 forecast modeling, 2 chronic effects
- FY'04
 - 5 projects
 - \$1,053K
 - 2 effects of dispersed/no dispersed oil, 2 environmentally realistic exposures, 1 communication/performance metrics



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 FY '05

Datasets for Verification of and Integrating Regional Observing Systems with Fate and Transport Models

- Field Verification of Oil Spill Fate and Transport Modeling and Linking CODAR Observation System Data with SIMAP Predictions. PI: J. Payne (Payne Environmental Consultants, 18 months, \$196,041)



Projects FY '05

Injury to Natural Resources

- Relationship Between Acute and Population Level Effects of Exposure to Dispersed Oil and the Influence of Exposure Conditions Using Multiple Life History Stages of an Estuarine Copepod, *Eurytemora affinis*, as a Model Planktonic Organism. PI: D. Aurand (Ecosystem Management and Associates), 20 months, \$232,062



Projects FY '05

Valuing Restoration

- Combined two “Valuing Restoration” projects at suggestion of peer and panel reviewers
- Monetary Values and Restoration Equivalents for Lost Recreational Services on the Gulf of Texas Due to Oil Spills and Other Environmental Disruptions. G. Parsons (U. Delaware), 24 months, \$139,366
- Convergent Validity Test of the Parameter Updating Method. C. Poulos (Research Triangle Institute), 18 months, \$42,119



Projects FY '05 Dispersants

- Effects of Dispersants on Oil-SPM Aggregation and Fate in U.S. Coastal Waters. PI: A. Khelifa (Environment Canada), 12 months, \$126,378
- Wave Tank Studies on Dispersant Effectiveness as a Function of Energy Dissipation Rate and Particle Size Distribution. PI: K. Lee (Canada DFO), 24 months, \$199,999



Cold Climate RFP

Partnership of Coastal Response
Research Center, CICEET,
MMS and OSRI



2005 Cold Climate RFP

- Completed in March 2005
- 11 preproposals
- 6 invited proposals
- Only 1 project funded
 - By CICEET
 - Yapa: Oil in Ice model to interface with GNOME
- Quality not as good as Center's Annual RFP
 - Total available is \$0.5M
 - Less attractive to PIs
 - \$1M available in 2006
 - International expertise issue
 - Distribution not as broad
 - Oil spill intelligence reporter
 - Oil / Ice community ties (CRREL, MMS, Sintef)



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
- Final Panel Review: Feb.13, 2006



Outreach/Partnerships



Coastal Response Research Center

Building Partnerships/Outreach

- Participating in conferences
 - IOSC (Booth and paper)
- Hosting Workshops
 - November 2003 research needs (invited only)
 - March 2005 funded projects (open to all)
 - Dispersants research needs (invited only)
- Making Presentations
 - RRT meetings
 - API Spills Advisory Group meetings
- Other Activities
 - Visits to OHMSETT and CRREL
 - Participation in "Oil in Ice" planning
 - Information to "Oil Spill Intelligence Reporter"



Outreach Workshops

- March 2005 - Emerging Research Workshop
 - Center PIs presented results
 - Talks and posters
 - Posted on website
 - Free and open to all
- Will be held bi-annually in spring
 - Next one in Spring 2007
 - Only Science Advisory Panel meets with PIs and Co-Directors in March 2006 to review projects



Dispersants Initiative

- Center and NOAA convened meeting of NRC, USEPA, MMS, USCG, TXGLO, OSRI, LA OSRD, CAOSPR, API, and Industry reps
 - July 2005 in Silver Spring
 - Amy Merten represented NOAA ORR
- General willingness by all parties to participate in formulation of integrated research plan (Dispersants Working Group)
- Workshop on research needs for making decisions regarding dispersing oil



Dispersants Workshop

- UNH on Sept 20-21, followed by Dispersants Working Group planning meeting on Sept 22
- ~35 invitees from regulatory agencies, academia, private sector
- Jacqui Michel = facilitator
- J. Michel and A. Merten writing summary of research needs identified at workshop
 - Will be available on website



Dispersants Workshop

- Discussion topics:
 - Dispersants effectiveness: Parameters that affect overall effectiveness
 - Chemical
 - Operational and hydrodynamic
 - Modeling integration
 - Effects of dispersants
 - Fate of oil and dispersed oil in the water column and other habitats
 - Realistic exposure regimes
 - Toxicity testing



Dispersants Working Group

- Center coordinates this group
 - Share information on dispersants research opportunities and WG organizations on Center website
 - Agreement by members to coordinate on RFPs and reports
 - Keep monies separate and maintain autonomy
 - Possible conference session in 2006/2007
 - Members = NOAA, USCG, MMS, EPA, TXGLO, LAOSRDP, CAOSPR, API, ExxonMobil, BP, AKDEC, PWSRCAC, CIRCAC, OSRI



2006 Outreach

- Social, economic and political aspects of oil spills research needs workshop
 - Social and economic issues, risk management/communication, public/environmental policy
- Identified as research needs in 2003 and 2004 workshops
- Center has had RFPs/projects on communication/performance metrics and valuing restoration
- Anticipated date: June 2006



2006 Outreach

Social, Economic and Political Aspects Workshop

- Organizing committee to work with Co-Directors
 - 3 members from NOAA
 - Mary Beth Bauer (NCCOS), Gary Ott (HAZMAT), Steve Thur (DAC)
 - Yvonne Addassi: CAOSPR, Science Advisory Panel, Dispersants Working Group
 - Two others from list of researchers suggested by NSF and NRC
 - Duane Gill (Miss. State) and Carol Silva (TAMU)
 - Leaders in research on socio-economic aspects of environmental issues; risk management and communication; and environmental policy



2006 Outreach Summer “Institute”

- Topic to be determined
- Gordon Conference model where topic is explored in talks and discussions
- Possible topic from Dispersants Workshop
 - Interface between oil spill models and toxicology



Future Outreach Initiatives

- Participation in Experimental Oil Spill in Pack Ice
 - Planned for International Polar Year (2007/2008)
 - Possible sites: Canada, Norway



Future Outreach Initiatives

- Submerged/Heavy Oil Research Needs Workshop
- Coastal/Ocean Observing Systems and Oil Spill Response/Recovery Research Needs Workshop



Coastal Response Research Center

www.crrc.unh.edu



RFP Process and Schedule



Annual RFP Mechanics

- Internet distribution, preproposal and proposal submittal, and reviews
- Issue RFP in May
 - RFP process now started in beginning of year
 - Will work on this later today
- Projects funded start following January/February
- ~\$1 to 1.2M funding available annually
 - More in 2006 due to increase in Congressional appropriation



Preproposals

- Submit preproposal first
 - Academia, private sector, NGOs, Fed/State
 - Early July
- Reviewed by Center Co-directors for compliance with RFP guidelines
- Screened by panel of 5-7 experienced scientists and practitioners for relevance to RFP, innovation and usefulness
- Invited for full proposal, if meet these criteria
 - US/International, no profit allowed, federally-negotiated overhead



Proposals

- Notification on invitation to write full proposal in late July
 - PIs receive Panel's input from Co-Directors
 - Usually 12-14 requested
- Submit proposal in Sept. (15 pages)
- External peer review
- PI rebuttals of external peer reviews
- Panel peer review and funding recommendations
- Funding notification in November



External Peer Review

- 4 external peer reviews per proposal
 - Experts in field, practitioners/potential users
 - One may be from PIs suggested list, 3 others selected by Co-Directors
- 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%



Panel Review

- Panel members
 - 6-8 with knowledge/expertise spanning topics
 - Experienced, practical scientists familiar with the impacts of oil on natural resources
 - Provided the preproposal reviews, full proposal, external peer reviews and PI rebuttals in advance
- Panel meeting at UNH
 - Rank proposals for funding based on innovation, quality of science and usefulness
- Funding recommendations to UNH VP Research
 - Co-Directors prepare slate based on Panel recommendations
 - VP makes final decision



Mechanics of Panels

- Each panelist is the lead reviewer on each preproposal/proposal
- Two other panelists serve as secondary reviewers on each preproposal/proposal
- Entire panel can comment on each preproposal/proposal
 - Except if conflict of Interest, then must recuse oneself from that discussion
 - Panelists selected to minimize this
 - Hard to do completely in small field such as oil spills
- Entire panel votes on each preproposal/proposal
- Lead reviewer writes draft of panel review of preproposal/proposal
 - Incorporates input from secondary reviewers and panel



Lessons Learned Thusfar

- Scheduling of RFP
 - Start earlier for May release
 - Get broader ORR and oil spill community input (e.g., RRTs)
- Peer review
 - Reviewers - need lots of them
 - Raise confidentiality and conflict of interest awareness



Lessons Learned Thusfar

- PIs
 - Little experience with:
 - Feedback for program directors and Science Advisory Panel
 - Must revise proposed scope of work based on Panel comments before funding
 - QA plans required before research can start



Center Peer Reviewers

- Asked to serve as only one type of review per year
 - Preproposal panel, external peer reviewer or proposal panel
- Reviewers not divulged
- Conflict of Interest forms must be completed and signed
- Confidentiality forms must be signed



Center Peer Reviewers Rules of Engagement (NSF)

- Critical and impartial evaluation on merits of research
- If contacted by PIs prior to request for review, tell Co-Director
- Do not discuss preproposal/proposals with PIs
- Do not reveal reviewer status or other details of preproposal/proposals or process
- No pay for reviews, but panel travel covered
- Destroy all related documents and do not discuss them without Center permission



Conflict of Interest

- Affiliations with applicant's institution
- Relationship with someone named on proposed project
 - Family, business, collegial
- Interest in financial outcome of proposed project





2006 Annual RFP Topics



2004 Annual RFP Topics

- Recovery of natural resources
- Injury to natural resources
- Communication/Gaming
- Communication/Performance metrics
- Preparing for Spills of Opportunity
- Other (November 2003 Workshop topics)



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



2006 Annual RFP Topics

- Working draft formulated by Co-Directors
 - Based on previous topics, results of workshops, and Congressional appropriation requests
- Discussion and modifications by ORR
 - Today's input starts this process
 - Draft RFP completed by Center Co-Directors
- Input from Science Advisory Panel
- Input/Approval from Center Advisory Board
- Final version of RFP released in early May



RFP Topics Guidelines

- Focused on research needs
- Balance between too general and too prescribed
- Want to encourage new approaches to topics
 - Innovations from other fields
- Role of primers to get non-oil spill researchers aware of issues



Draft 2006 Annual RFP Topics

2005 RFP

- Data sets to verify fate and transport models
- Integrating regional observing systems with circulation and transport forecasts

2006 RFP

- Verification, validation updating existing circulation and transport models



Draft 2006 RFP Topics

2005 RFP

- Recovery of natural resources
- Injury to natural resources
- Valuing restoration
- Efficacy and effects of dispersants

2006 RFP

- Recovery of natural resources
- Injury to natural resources
- Valuing restoration
- Efficacy and effects of dispersants
- Development of information on weathering, fate and effects of heavy oils



Draft 2006 RFP Topics

- Other suggestions of topics????
- Accompanying RFP paragraphs











Thanks for Your Input and Time!

Looking Forward to Our
Next Joint Meeting

