

Coastal Response Research Center Fall 2010 Update to SAG

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UNH Co-Director
October 21, 2010



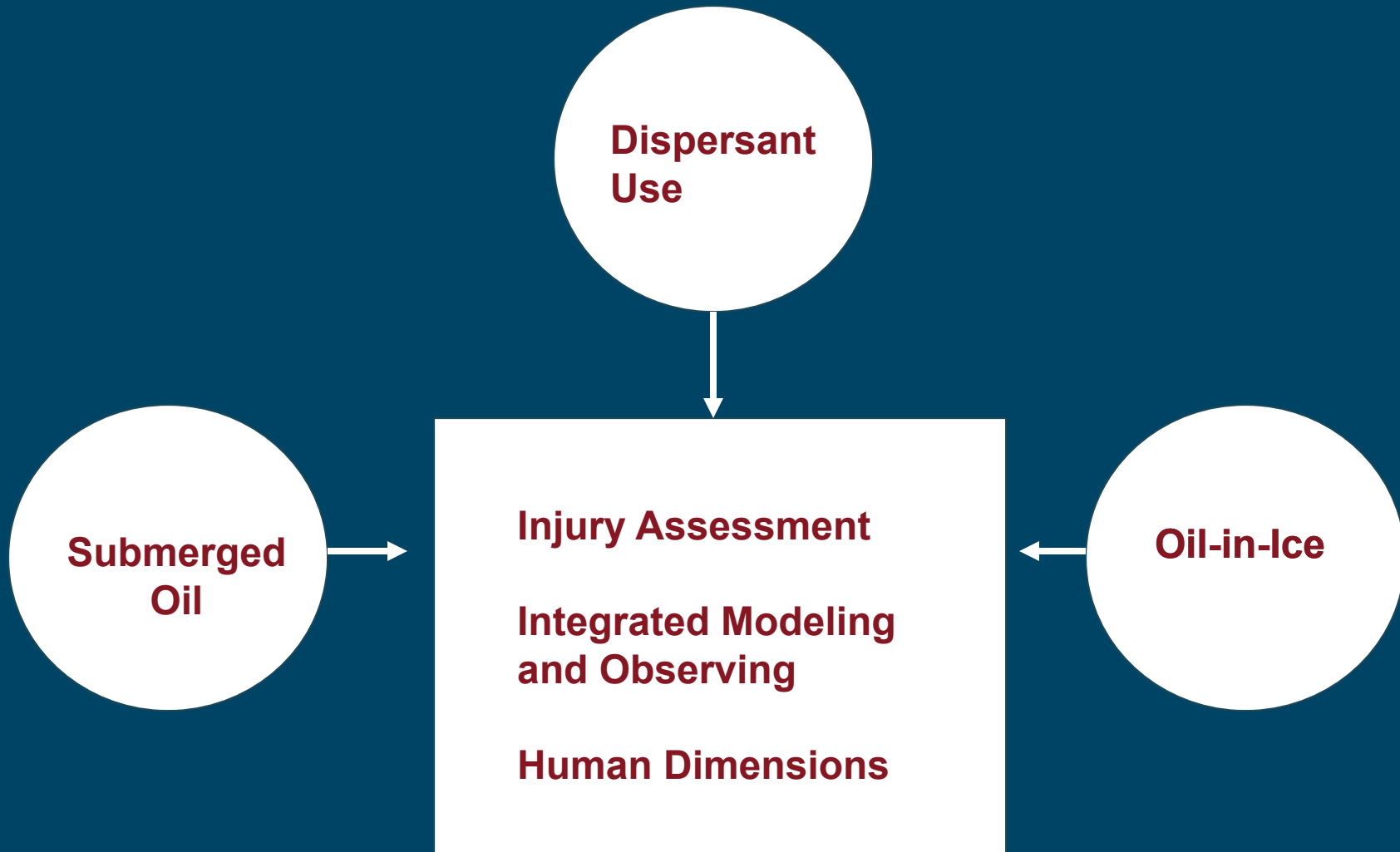
Coastal Response Research Center

Coastal Response Research Center (CRRC)

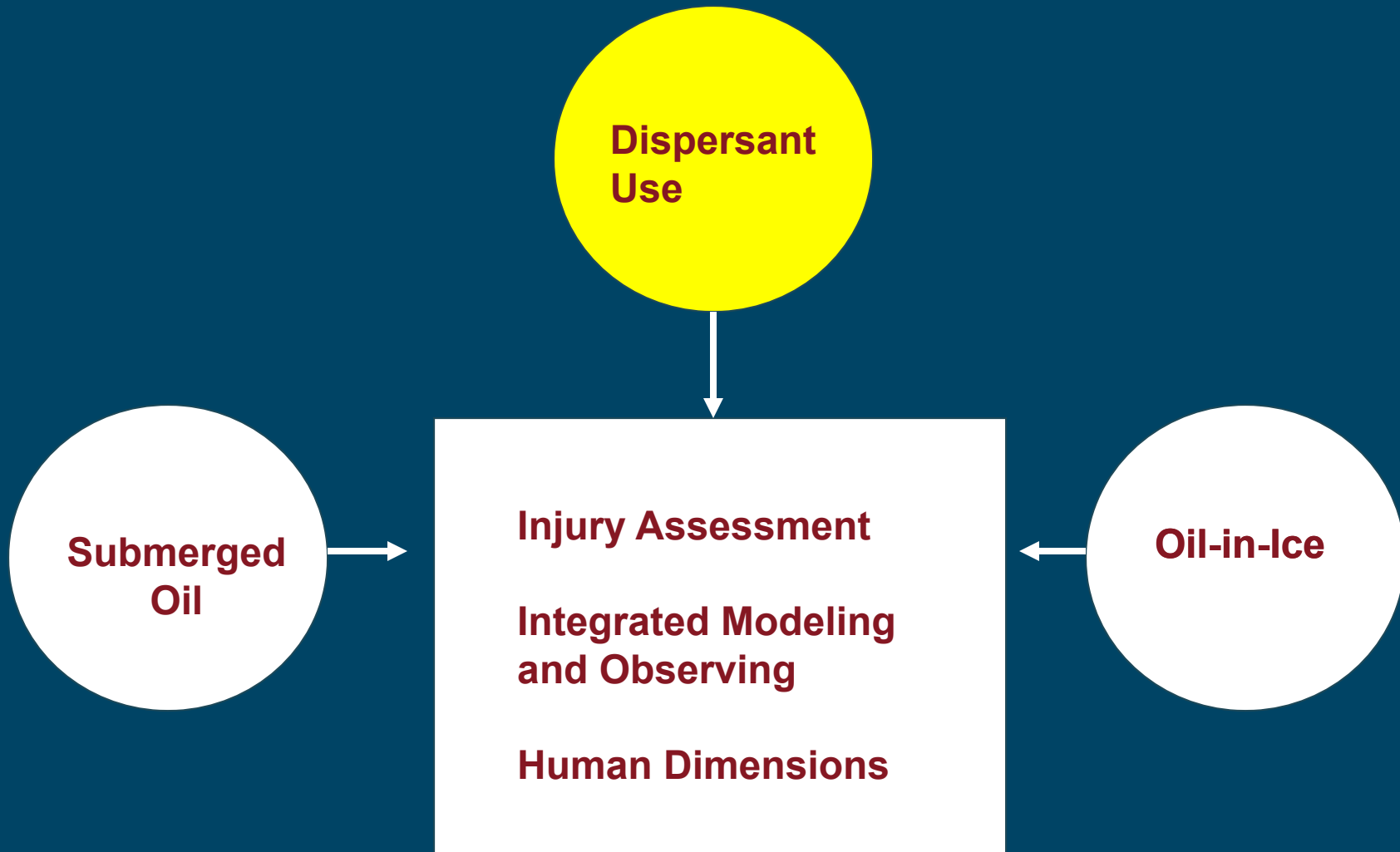
- Partnership Between NOAA and the University of New Hampshire Since 2004
- CRRC Mission:
 - Conduct and oversee basic and applied research and outreach on spill response and restoration
 - Transform research results into practice
 - Serve as a hub for spill R&D and technical transfer for spill community (U.S. and international)
 - Educate/train students to pursue careers in spill response and restoration



CRRC Focus Topics



CRRC Focus Topics



Dispersants

- Dispersants Working Group Met Tuesday
 - Coordinates research efforts to avoid duplication and cover major issues
 - Gov't, Industry and NGOs
 - Listing of Research Projects on CRRC Website
 - Coordination of Efforts Going Forward Essential



Dispersants

- CRRC Roles During DWH Centered on Dispersants
 - Convened Workshop on dispersant use in late May at request of RRT 6
 - 50 scientists and practitioners representing diverse opinions and perspectives
 - Consensus that dispersants had to be part of response because:
 - Conditions prevented use of mechanical recovery
 - Essential to protect nearshore waters and marshes
 - Lesser of two evils



Dispersants

- Requested by NIC to Host Dispersants Data Webinar in July 2010
- Goal to Have Field Data Available at that Time Presented to Determine “Picture” on Dispersant Use
 - Water Column Data
 - Air Measurements
 - Seafood



CRRC Funded Research Project

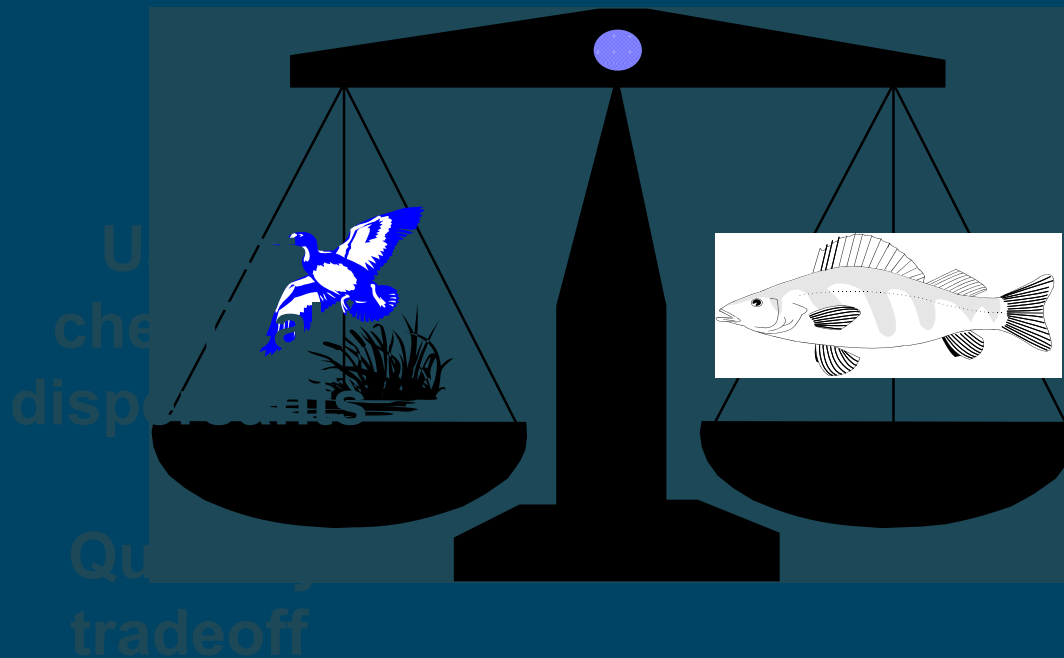
Guidance for Dispersant Decision Making: Potential for Impacts on Aquatic Biota

Deborah French-McCay
Applied Science Associates



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- Biologically/Ecologically-Driven Spill
Response: **Trade-off decisions in response**
based on expected level of resource injury

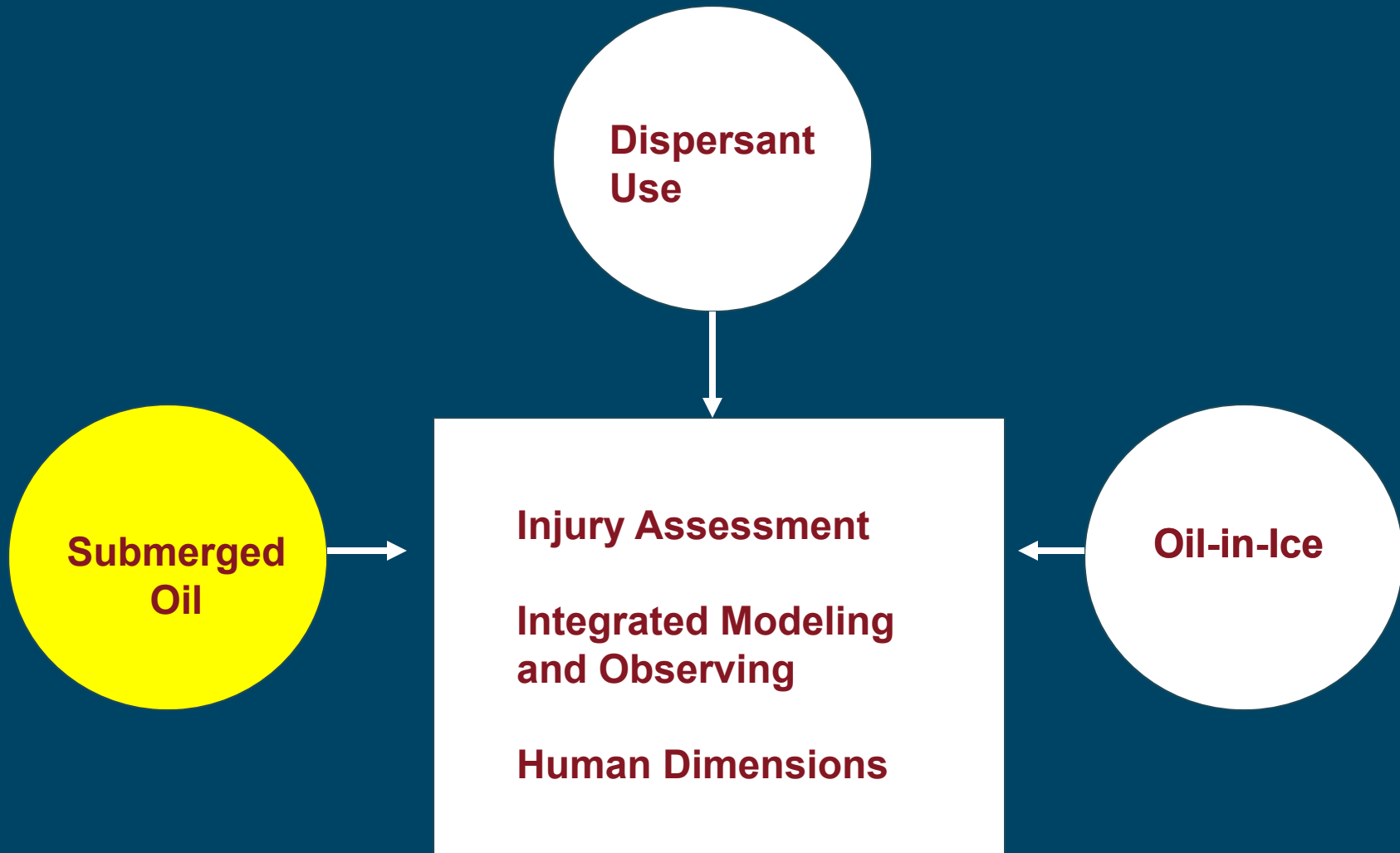


Investigative Approach

- Use oil fate and biological exposure model to quantify impacts (areas and water volumes impacted)
- Quantitative guidance for response decision-makers
 - Report
 - Field-guide (handbook)
 - Spreadsheet-calculator for looking up and interpolating results
- Oil Spill Impact Guide (OSIG)
 - Water volume adversely affected by dispersed oil and dissolved hydrocarbons
 - Surface area impacted by floating oil



CRRC Focus Topics

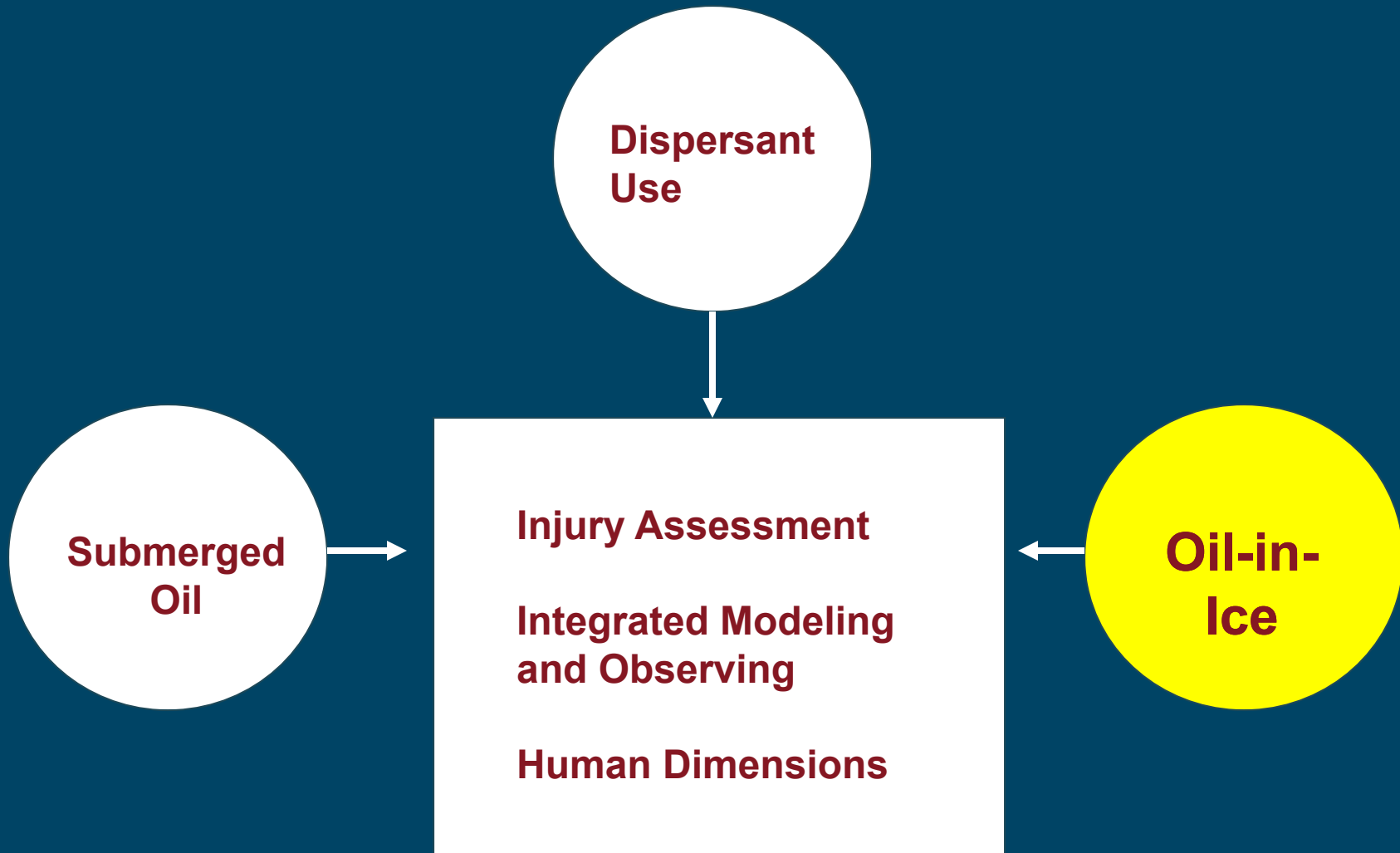


Submerged Oil

- Submerged Oil Working Group Met Tuesday
- Engelhardt CRRC Funded Research Project Completed
 - Statistically based model to predict where submerged oil is moving
 - Prediction is based on data collected
 - Detection of no, low, medium, and heavy oiling
 - Limited to “flat” bathymetry
 - Worked with Chris Barker NOAA ORR and DBL 152 data
- Available on CRRC Website



CRRC Focus Topics



Oil-in-Ice Focus

- Oil-in-Ice Project
 - Part of JIP with SINTEF
- CRRC Workshops:
 - April 2010
 - Arctic NRDA
 - USCG Arctic Drill and Exercise Needs



Oil-in-Ice: Behavior, Biodegradation and Potential Exposure Research

Participation in Joint Industry Project (JIP):

- CRRC, OSRI, UAF, URI, SINTEF
- Oil Encapsulated in Ice Project
= \$500K



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Oil-in-Ice: Behavior, Biodegradation and Potential Exposure

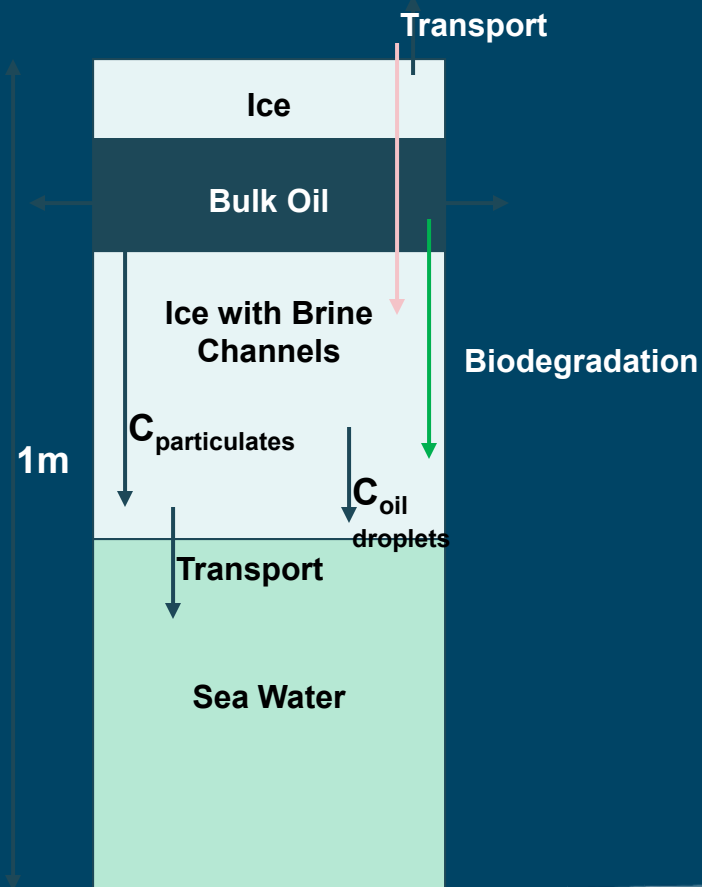
- What is behavior of oil in ice?
- What are transport & degradation processes and rates that control fate of oil frozen in ice?
- What are exposures and effects for ice-related organisms?
- How will response options affect exposure?
- First Year Ice Scenario



Transport/Exposure Mechanisms

Bulk oil encapsulated in ice from below → measure dissolved constituents (e.g., PAHs)

Density of brine transport downward → will transport dissolved (bioavailable) components of oil downward



Results to Date

- Available on CRRC Website
- Bacteria and Protists Able to Live in Ice Brines
- Biodegradation of PAHs Occurring in Ice Brines
- Oil Transported Downward in Ice
 - Rates being determined
- Key Is Rates of Biodegradation vs. Transport



Natural Resource Damage Assessment in Arctic Waters: The Dialogue Begins

April 20-22, 2010
Anchorage, Alaska



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Impetus for Workshop

- Emphasis Has Been on Response to Oil Spills in Arctic
- Substantial Amount of Oil Will Likely Remain in Environment After Arctic Spill Response
 - In spite of technological/equipment advances in response
- Natural Resource Damage Assessment (NRDA) Will Be Initiated as a Result of Spill
- Little Known about Biological Impacts/Baseline



Impetus for Workshop

- NRDA Requires Much Better/ More Complete Knowledge of Arctic Marine Ecosystem Than We Have
- Must Be Quick Injury Assessment and Rapid Implementation of Restoration in Arctic
 - Little Room for Delay Because Arctic Is “Ecosystem on the Edge”
- Baseline Is Rapidly Shifting in Arctic
 - What is baseline?



Goal of Workshop

- Initiate the Dialogue on Arctic NRDA
 - Among NRDA practitioners
- Identify Data Gaps in Understanding of Resources/Ecology at Risk from Spills
 - Temporal and Spatial
- Develop Rapport Among Stakeholders
 - CRRC's role in **bringing everyone to the table**
 - Better to initiate dialogue **before** spills occur



Workshop Logistics

- CRRC Partnered with NOAA ORR and OSRI on Workshop
- Organizing Committee (OC) = Technical and Scientific Personnel Representing Diverse Stakeholders
- Format = Plenary Sessions and Breakout Groups
- Diverse Group of Scientists, Practitioners, Federal, State, Industry, Academic and NGOs



Workshop Outcomes

- CRRC Report on Workshop Including Recommendations on R&D and Way Forward
- Determined Existing Baseline Data Available and Data Needs
- Working Group = Arctic Assessment
 - Continues dialogue
 - Coordinates efforts
- First in Series of Workshops



Arctic ERMA

- NOAA ORR Focusing on Arctic ERMA
- CRRC and OSRI Partnering with ORR to Host Workshop to Determine ERMA Data Needs and Focus
- Workshops with Stakeholders in Winter 2010/Spring 2011



Other CRRC Activities



Coastal Response Research Center

Modeling Working Group

- Goal: Common Algorithms for Next Generation of Oil Spill Models
 - Integrated, 3D, Biological Effects Endpoints
- Main Committee: ORR, SINTEF, ASA, Industry, Universities
- Subgroups (Expanded Membership):
 - Physical Transport, Fate and Behavior, Spill Response, Biological Effects
- Synthesis of Knowledge → Algorithms
- Draft Reports Pending Summarizing State of the Art
 - Precursor to producing algorithms



Modeling Working Group

- Met Yesterday at Clean Gulf
- Will Host Meeting in Winter 2010
- Need to Incorporate Deepwater Modeling Issues



ERMA Innovations

- CRRC's Role Is R&D, Not Running ERMA
- Center Is Working on Innovations for Real-Time Data Analysis and Visualization
- More to Come----Stay Tuned



Oil Budget Tool

- CRRC Helping Produce Final Oil Budget Tool Report
- Working with Bill Lehr (ORR) Lead and Large Project Team
- Peer Review of Report and Approach
- Due Out in End of October

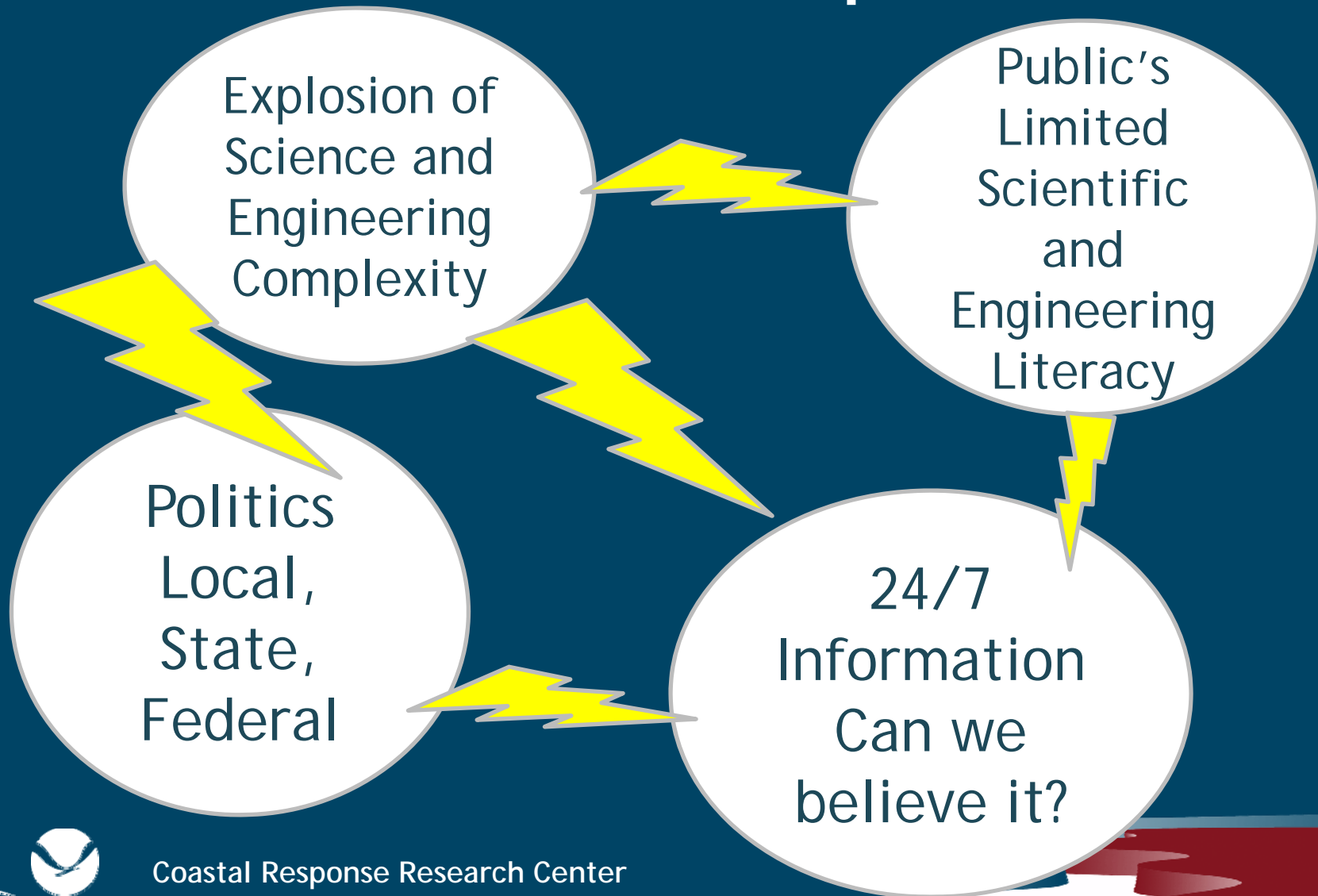


CRRC Going Forward

- Coordination of R&D Is Key in Wake of DWH
- What Are Key Integrated Needs
 - Deepwater
 - Arctic
 - Other
- Limited Resources Require Coordination
- All Stakeholders
- Creditability Issues



The Goat Rope



Go On-Line to See Research Project
Reports, Workshop Reports, and
Papers!

Coastal Response Research Center
Website

www.crrc.unh.edu

