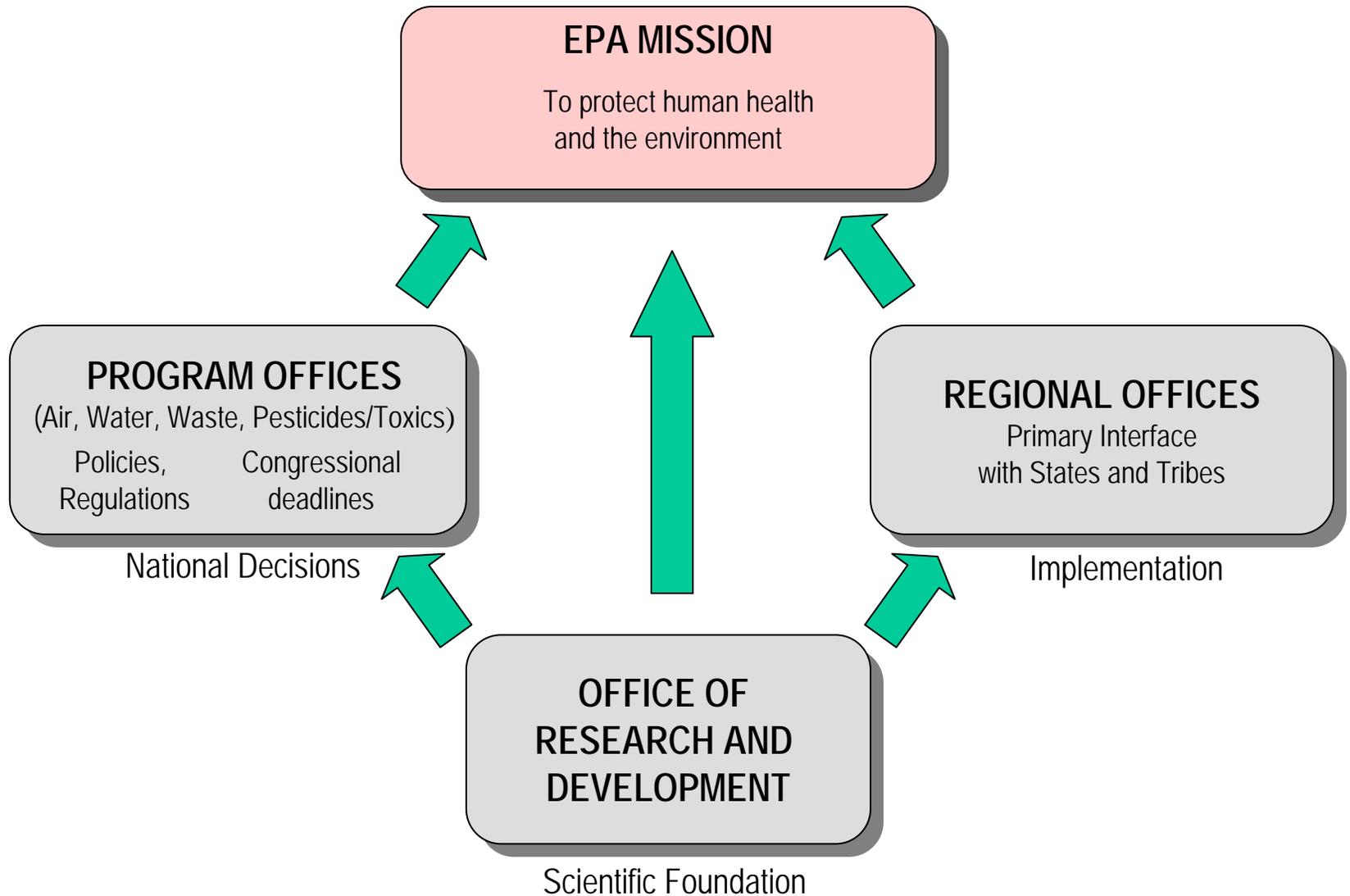


# *ORD/Regional Partnership*

*Briefing for  
SAB*

*March 2, 2006*

# Support for EPA's Mission



# *ORD's Regional Science Program*

## ■ Goal

- Build networks and partnerships of ORD and Regional Office scientists and decision makers to...
  - Plan, implement, and transfer ORD research results on high-priority, longer-term science issues
  - Provide timely technical support on high-priority, shorter-term science issues

to strengthen the use of science in Regional decision making  
(Regions, States, and Tribes)



# *ORD's Regional Activities*

- Regional Science Liaisons (RSLs)
- Hazardous Substances Technical Liaisons (HSTLs)
- After the Storm: Katrina Recovery
- ORD Lead Region Scientist
- **Regional Applied Research Effort (RARE)**
- Regional Methods Program (RM)
- Regional Research Partnership Program (R2P2)
- **Regional Science Topic Workshops**
- Regional Product Expos
- Tribal Science Council
- Science Summits
- **Science in Regional Decision Making (45-Day Report)**
- **National Regional Science Council Top 14 Science Needs**
- **Science to Outcomes Initiative**



# *RARE and RM Programs*

- Funding
  - RARE = \$200K/Year/Region
  - RM Program = \$600K/Year
- Outcomes
  - Near-Term Research Results for Regions
  - Linkages between Regions and ORD Labs/Centers
- 28 RARE/10 RM projects awarded in FY2005
- FY2006 Regional RARE competitions underway
- FY2006 RM projects selected by RS&T Directors in December 2005
  - 8 ongoing projects; 3 new projects



# *Research Highlights*

- Region 1: RARE--contaminated sediment inventory for New England; targeting assessment/remediation actions
- Region 2: RARE—sediment contaminant 3-D mapping of NY/NJ Harbor estuary; targeting remediation efforts
- Region 3: RM—sub-threshold PCB congener analysis; assessing risk below ambient water quality criteria
- Region 6: RARE--commercial sensing (Hawk camera); detecting previously unidentified sources of ozone precursor air emissions (barge hatches, storage tank pressure relief valves, etc.)



# *Regional Science Workshops*

- Mercury, 10/98
- Asthma, 6/99
- Sediment, 10/99
- Science Info Fair, 10/99
- FIELDS, 1/00
- Nonindigenous Species, 5/00
- MTBE/Ground Water, 6/00
- Pesticides, 10/00
- Endocrine Disruptors, 5/01
- Emerging Pathogens, 9/01
- Aquatic Wildlife Criteria, 12/01
- Critical Ecosystems, 6/02
- Air Toxics Exposure, 6/02
- Ecological Risk at Contaminated Sediment Sites, 6/02
- Cumulative Risk, 11/02
- PCB Congeners RA/RM, 12/02
- Vapor Intrusion, 2/03
- Emerging Pollutants, 8/03
- Inhalation Risk Assessment, 9/03
- Ecological Indicators, 5/04
- Science of Environmental Justice, 5/04
- Animal Feeding Operations, 12/04
- Pharmaceuticals, 8/05
- Human Subjects, 9/05
- Remote Sensing/Landscape Characterization, 11/05
- 
- Upcoming Workshops
  - Future of Risk Assessment
  - Ephemeral and Isolated Waters



# *Science in Regional Decision Making (45-Day Report)*

- In May 2003, Regions initiated 45-day review of...
  - How the Regions use science in their decision making
  - Obstacles to the incorporation of sound science in Regional decisions
  - Recommendations for addressing these obstacles
- Workgroup issued report in July 2004
  - 44 recommendations considered; 38 recommended for action
- Status of the 38 recommendations assessed in July 2005
  - 5 recommendations completed
  - 24 have actions ongoing
    - 3 included in FY2006 budget requests or raised as budget concerns
  - 5 are on hold
  - 2 are proposed to be dropped for tracking purposes
  - 2 have no further action planned



# *National Regional Science Council*

## *“Top” Science Needs*

- The NRSC, working with the Regional Science Councils, identified 14 cross-regional, cross-programmatic science needs.
- OSP facilitated contact between the Regional lead and appropriate ORD National Program Director.
- Workgroups have been/are being convened to follow-up on the topics. Many workgroups are being merged with existing, related EPA efforts.



# TOP REGIONAL SHORT TERM SCIENCE NEEDS

**NRSC-14: Status Report (12/15/2005)**

Estimate Mercury Fish Tissue Concentrations and Predict Impacts of Mercury Deposition on Watersheds

Development or Refinement of Methods to Determine Speciation of Arsenic, Chromium, and Mercury in Soils, Sediments, Water and Biota

Real Time Pathogen Indicators and Microbial Source Tracking

Development of Procedures for Calculating Non-carcinogenic Risks for Currently Non-regulated Compounds

Marine and Freshwater Contaminated Sediments

Compile and Analyze Existing Vapor Intrusion Data and Evaluation Methods

Modeling and Monitoring the Fate of Mercury Emissions Across Ecosystems

Innovative Treatment Technologies for NAPLs, Chlorinated Solvents, Chlorinated Pesticides, Dioxin, Wood Treated Wastes and Metals

TMDL Research Needs

Pharmaceuticals and Personal Care Products

Full-scale Development of Ballast Water Treatment on Ships

Viable Alternatives to Chlorinated Solvents

Mine Waste Management Techniques Using Automated Treatment Systems and Remote Telemetry Monitoring Technologies

Air Monitoring and Assessment of Impacts from Pesticide Drift



# *Science to Outcomes Initiative*

- ORD/Region 3 collaborative effort
- Objectives
  - Identify examples of how ORD research/science has led to Regional outcomes
    - Short-term: Changes in abilities, knowledge, attitudes or skills followed by changes in client behavior and action (e.g., use of research in decision making)
    - Intermediate: Measurable changes in environmental contaminants, stressors, or exposures
    - Long-Term: Measurable long-term improvements in ecosystem protection and/or human health
  - Expand Region/ORD collaboration to foster opportunities for additional successful applications of ORD science



*Sustainability Through Science: Moving  
from Assessment  
to Outcome-Based Collaborative Action*

ORD and Regions  
Partnerships  
for Continuing Success



*Region 3: The Mid-Atlantic Region*

# *THE OPPORTUNITY*

- There's an opportunity for the Regions to help ORD demonstrate that research is resulting in environmental benefits (e.g. PART)
- There's an opportunity to more effectively deliver ORD science & expertise to the Regions for use in program decisions

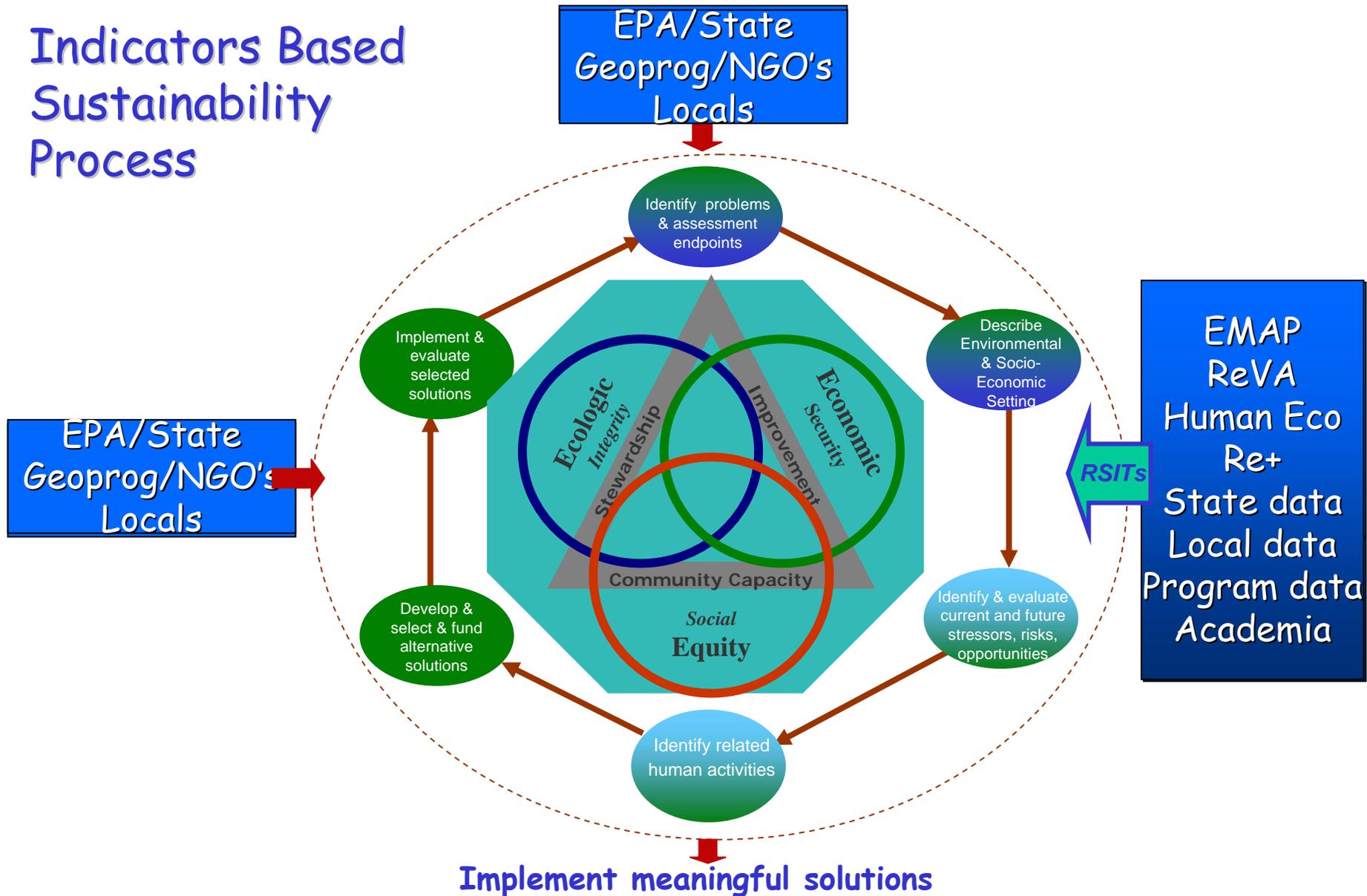


# *Desired Outcomes from Today*

- Reinforce the vision to enhance ORD/Regional collaboration to more effectively link research to environmental outcomes
- Demonstrate that documentation of existing science to outcomes is feasible



# Indicators Based Sustainability Process



# Key Messages

- ORD and Regions working together can ensure that ORD science leads to successful environmental outcomes.

science → assessment → action → environmental outcomes

## Fundamentally we need:

- Committed Scientists that want to make a difference
- Managers that want to make decisions with more information
- Facilitators to join the two and make the partnership work



# ORD Science Results in Restoration of Georges Creek, MD

## Region III: MAIA/EMAP Streams Example

-  ORD developed a stream benthic IBI, fish IBI and monitoring design
-  ORD produced a suite of peer-reviewed articles and technical reports
-  MAIA and ORD developed the Highlands Streams Report
-  MAIA worked with Maryland to adapt these into a state program – MD Biological Stream Survey (MBSS)
-  MD uses MBSS to develop 305b report, 303d list, and TMDLs for impaired streams
-  MD developed the Unified Watershed Assessment (UWA) based on the MAIA approach 58 watersheds were identified that require restoration
-  MD is making funding decisions based upon the UWA. They established Watershed Restoration Action Strategies (WRASs) for the 58 watersheds and allocated funds from many sources to get the watersheds restored (EPA 319 funds, NOAA Coastal Zone Management funds, EPA Watershed grant initiative funds, and other smaller funding sources)
-  George's Creek (large watershed) - restoration activities completed in sub-watersheds include: AMD reduction, Rosgen stream restoration, riparian buffer plantings, cattle exclusions, and watering troughs
-  (hypothetical) WQ and biology in George's Creek improved by 20% and George's Creek meets all designated uses (note: restoration just completed and lag time after restoration is completed ranges from 2 years to 10 years before results can be observed)



# *ORD Landscape Science Results in Protection of 90,000 Acres of Ecologically Sensitive Lands in Maryland*

## **Region III: MAIA/EMAP Landscapes Example**



ORD developed a landscape ecology approach, models, and landscape indicators



ORD produced a suite of peer-reviewed articles and technical reports



MAIA and ORD developed the Landscape Atlas



MAIA worked with Maryland to adapt these into a state program – Maryland Green Infrastructure Program



MD uses the Green Infrastructure Program to prioritize parcels for acquisition for conservation purposes through several programs: GreenPrint, Program Open Space, Rural Legacy Program and MD Agricultural Lands Preservation Foundation



In FY2001 MD allocated \$145M over 5 years to acquire green infrastructure land and easements



Dec 2003 Governor Ehrlich signs a Land Conservation Policy which is based upon Green Infrastructure and other MAIA-based programs



GreenPrint alone has acquired and protected 90,000 acres of highly vulnerable, ecologically significant lands



# *ORD Science Results in Lower DDT Levels in Lake Michigan Herring Gull Eggs*

## *Region V Lake Michigan Mass Balance Model*

-  ORD developed a mass balance model for major contaminants in Lake Michigan (PCBs, Dioxin, Legacy Pesticides (DDT, etc), Current Pesticides (atrazine) and Mercury)
-  ORD produced a suite of peer-reviewed articles and technical reports
-  Region V with support from ORD established a Lakewide Management Plan
-  Region V incorporated the model results into the Binational Toxics Strategy
-  Region V initiated efforts to replace older wood burning stoves with more efficient ones with much lower PAHs releases
-  Region V initiated work with the iron and steel industry to reduce mercury emissions from switches and scrap
-  In collaboration with the pesticide industry, Region V is examining the effect of current pesticides that degrade slowly in water and may build up over time
-  Monitoring results have demonstrated decrease levels of DDT in the atmosphere and in herring gull eggs in the Great Lakes watershed.



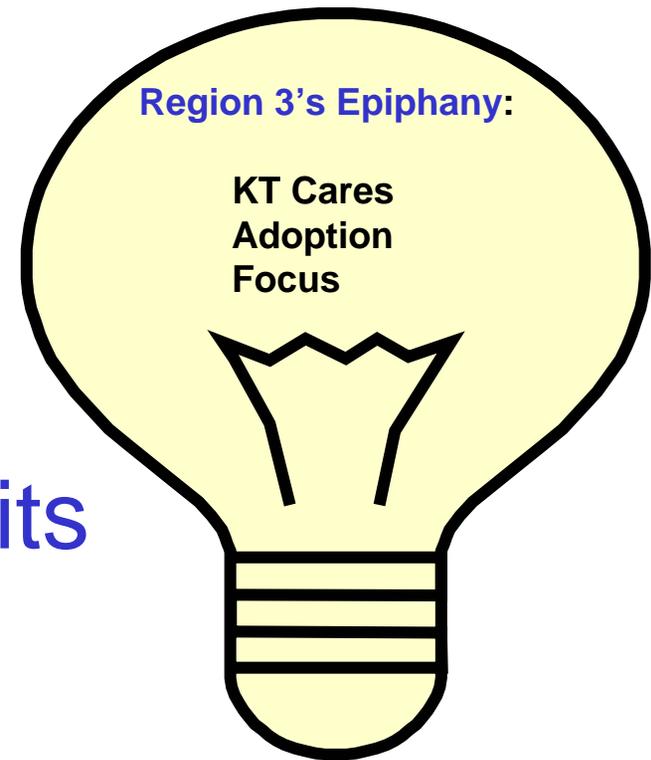
## *R3 Experience: Our Keys to Effectively Linking ORD Research to Regional Environmental Outcomes*

- Regional Senior management are committed
- The Region strategically invests FTE and budget
- A Regional Division Director is designated as lead
- A Branch level organization exists and works to institutionalize the tech-transfer process within the Region, as well with states/tribes, local governments, NGO's, industry and other stakeholders
- ORD is an active partner with the Region



# The Teichman Experience

- 9 Months
- Shared Vision
- Real Passion
- Action...Regional Visits
- Commitment
- Data R1,3,9.....
- Even Better Future



# Final Thoughts:

- Continue 45 day implementation
- Continue 14 Regional needs
- Improve and institutionalize Regional participation in the planning process
- Flexibility to address short term and higher resolution needs
- Access to scientists
- Regional/ORD partners (RS&T)
- Data and info improvement..beyond ORD..... monitoring, LU/LC
- Outcomes
- Keep Kevin

