

Rathdrum Prairie CAMP Advisory Committee
 May 28, 2013
 Meeting Notes

Committee Members in Attendance:
 Alan Miller
 Mike Galante
 Ron Wilson
 Laura Laumatia
 Bruce Cyr
 Dale Peck
 Michael Nehr
 Allen Isaacson
 Frank Torresy (representing Hal Keever)

IDWR Staff:
 Keith Franklin
 Gio Del Papa
 Morgan Case
 Helen Harrington

Following introductions, Dr. John Tracy made a presentation titled *“Creating the relationship between good science and informed actions”*. A copy of the slideshow is attached.

The advisory committee then participated in a prioritization of the RP CAMP Objectives and Action Items. The results are as follows:

#1 Objective: Protect the Aquifer	Action Item Priority 1	Support and encourage the APD to work with PHD, IDEQ and others to address overlapping jurisdictions with the goal of improving efficiency
	Action Item Priority 2	Assess all CAMP activities to ensure projects implemented through CAMP protect aquifer water quality
#2 Objective: Meet Future Demand for Water	Action Item Priority 1	Establish municipal water rights to ensure that they are available for future needs
	Action Item Priority 2	Enact water conservation measures that promote water efficiency and reduced use
	Action Item Priority 3	Identify local water use improvement strategies and develop partnerships to implement them
	Action Item Priority 4	Update the RP Aquifer Water Demand Projections Study
	Action Item Priority 5	Carefully consider hydrologic and social impacts of exportation of water from the basin (0)
#3 Objective: Prevent and Resolve Water Conflicts	Action Item Priority 1	Encourage mechanisms that resolve local issues before they become conflicts
	Action Item Priority 2	Develop a framework for regional discussion and cooperation for SVRPA water issues
	Action Item Priority 3	Redefine the IDWR GWMA boundaries so they are consistent with the bi-state USGS hydrologic boundaries
	Action item Priority 4	IDWR should develop criteria for artificial recharge projects in Idaho (0)

During and following the prioritization exercise, committee members discussed their perspectives concerning their prioritization. **Protect the Aquifer** was viewed as being broader than water quality and the action items didn't adequately capture the larger objective of aquifer protection. Although **Meet Future Demand for Water** was prioritized as #2, this objective was recognized as being largely a non-issue since studies show sufficient water supply, but the action items accurately represent actions which need to be accomplished to protect Idaho's water demand. The AC recognized that there is a great deal of overlap among the action items and that accomplishing some action items would meet aspects of other action items. As the discussion progressed, the Present and Resolve Water Conflicts had risen to the highest priority.

One specific recommendation made by the AC was to include IDEQ in the bi-state coordination meetings held between WDOE and IDWR.

During the prioritization exercise, information about the Research/Projects and Coordination Update agenda items was provided. There are currently two proposals pending recommendations and two conceptual projects awaiting proposal submission. The AC requested that Helen Harrington review the prioritization work and prepare a Research & Projects Assessment Protocol which would lead to consistent criteria for recommendations. Additionally, the AC requested that Helen evaluate the prioritization and identify projects and research which fit with the priorities.

During discussion about the potential budgeting of funds, it was requested that a budget item be developed which would fund a RP CAMP updated in five years. The AC suggested that the effective facilitation during the initial plan development should be used again, as well as of the use of topic experts presenting to the AC. The budget should also include updating the future demands study.

Upcoming Events were discussed. IDWR is considering revising the RP Ground Water Management Plan. Helen will be assisting staff with background about how the plan was developed and reasons for including the components which were recommended by the RP GWMA Advisory Committee.

The AC requested that the next AC meeting be scheduled within two months to in order to keep momentum toward recommending projects and research to the Board.

Prepared by Helen Harrington

Creating the relationship between good science and informed actions

John C. Tracy, Director
Idaho Water Resources Research Institute
University of Idaho

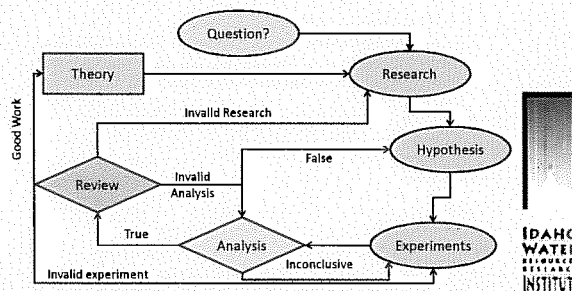
RP CAMP Advisory Committee Meeting
Coeur d'Alene, ID
May 28th, 2013

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What is Science?

The Classic Scientific Method for Experiments



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Outline

- > What is Scientific Research?
- > Approaches to integrating Research Community into Environmental Management
- > Will Research really help solve the problem?
- > Potential path forward for the RP CAMP Implementation Process

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What is Science?

The scientific approach is comprised of *logic based* investigations that *consistently increase our knowledge* on the behavior of a process or system.

The key elements of this approach are:

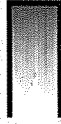

- > Logical approaches
- > Consistent results
- > Increase in knowledge

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What is Science?

- What does Scientific Inquiry produce?
Data => Information => Knowledge
- How is this product used?
Input to decision making processes
- What other types of knowledge are used in decision making?
belief and expert knowledge






What is Science?

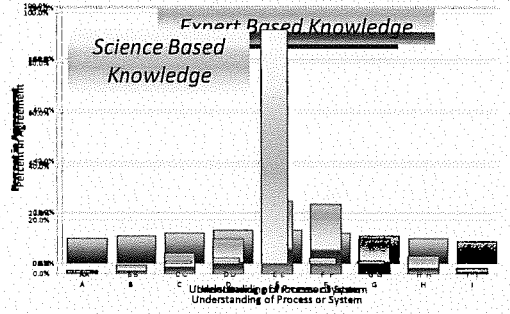
Logical Reasoning:

Given a:

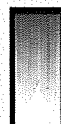

- *premise* (precondition);
- *rule* (behavior of process or system);
- *outcome* will always occur (conclusion).

What is Science?



Category	Science Based Knowledge (%)	Expert Based Knowledge (%)
A	~10%	~10%
B	~10%	~10%
C	~100%	~10%
D	~10%	~10%
E	~10%	~100%
F	~10%	~10%
G	~10%	~10%
H	~10%	~10%
I	~10%	~10%



What is Science?

Types of Logical Reasoning:

Deduction, Induction and Abduction

Example Case:
Impact of groundwater pumpage on stream flow.

- *Premise* – Groundwater pumpage occurs.
- *Rule* – Stream is hydraulically connected to the aquifer.
- *Outcome* – Future streamflow decreases in response to groundwater pumpage.

What is Science?

Deductive Reasoning:

Predicting the *outcome* from the premise and the rule. (Engineering perspective)

Example Case:

When groundwater is pumped from the aquifer that is hydraulically connected to the stream, *future stream flows are lower.*



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What is Science?

Abductive Reasoning:

Arriving at a plausible *premise* given a rule and the outcome. (Policy Perspective)

Example Case:

The stream flow decreased, therefore *pumpage may be occurring* in the aquifer hydraulically connected to the stream.



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What is Science?

Inductive Reasoning:

Predicting the *rule* from the premise and the outcome. (Scientific perspective)

Example Case:

Every time we pump water from the aquifer, future stream flows are lower, therefore the *aquifer must be hydraulically connected to the stream.*



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Integrating Research with Management

How can science interact with management and policy?

- Science In service of policy and management
- Science informing policy and management
- Science directing policy and management



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Integrating Research with Management

Research as a service provider

- Research groups are engaged on an as needed basis to address discrete issues
- Typically specific research groups are engaged to increase knowledge on a specific process or aid in implementing a predetermined management plan
- Each agency determines its own "program" of research, with minimal input from research community
- Knowledge created by research groups is typically narrow in scope



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Integrating Research with Management

Research Informing Management


- Research groups have evolved into a Research Community
- Research activities address behavior of the environmental system and the effectiveness of management actions
- Research community is actively involved in development of "program" of research with the environmental management entities
- Knowledge created by research community is typically integrative, with information useful to broader audience




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Integrating Research with Management

Research as a service provider




- Knowledge creation controlled by management
- Small overhead
- Environmental factional conflicts can be created
- Research addresses symptoms, not causes




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Integrating Research with Management

Research Informing Management



- Shared knowledge creation
- Moderate overhead
- Conflicts become smaller
- Barriers to new ideas can be created



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Integrating Research with Management

Research directing management

- Research community and Environmental management community are in partnership
- Program of research is integrated into environmental management program (joint responsibility)
- Research community serves in official advisory capacity to Environmental management community
- Knowledge created by Research community is formally integrated into management actions through creation of adaptive management structure.



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Will Research Help?

What are the potential conflicts that can exist between the Environmental Management and Research communities?


- Management and Research communities operate on significantly different business cycles
- Goals for Research and Environmental Management communities are significantly different
- Incentive structures for Research and Environmental Management Communities can be at odds




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Integrating Research with Management

Research Directing Management



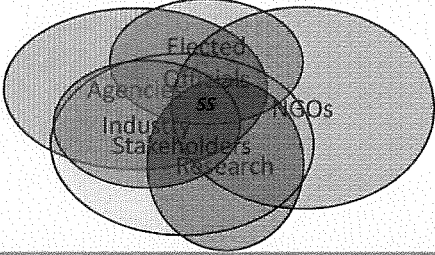

- Knowledge creation becomes part of the plan
- Large overhead
- One voice
- Circular logic can evolve



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Will Research Help?

Integrating the Research Community into the Environmental Management community will ultimately restrict the short term decision space





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Will Research Help?

What is limiting the ability to meet environmental goals?

- Lack of consensus?
- Lack of resources?
- Lack of institutional willingness?
- Lack of professional and technical workforce?
- Not knowing what to do?




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Will Research Help?

Tools Available to aid Environmental Management

- Collaboration
 - Defining problems
 - Determining priorities
 - Funding monitoring and research
 - Responding to new information - changing management
- Applied research (monitoring, synthesis, modeling)
- Basic research (improved process understanding)
- Information Transfer (DSS, staff training, stakeholder education, public education)




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Will Research Help?

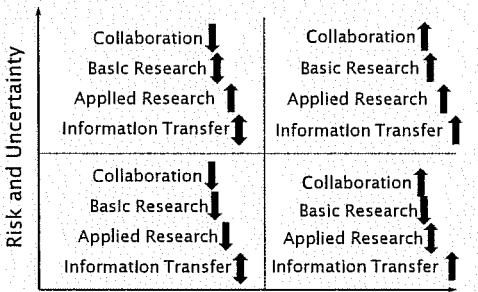
Following Manley et al. (2006), Environmental Management Problems are classified in 3 dimensions:

- Complexity
 - Institutional - number and diversity of institutions with shared responsibilities and concerns
 - Technical - complexity of the interaction of this issue with other issues
- Uncertainty
 - How well do we understand dynamics of the physical and social systems?
 - How well can we predict its response to management activities?
- Risk
 - How vulnerable is the resource in its current state?
 - What are the consequences of no action or an erroneous action?



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Will Research Help?



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Potential Path forward for the RP CAMP

What is preventing RP CAMP Objectives from being met?

- Lack of Resources?
- Knowledge Gaps?
- Lack of Consensus?



Potential Path forward for the RP CAMP

For Knowledge Gaps that exist:

- Identify a series of hypotheses on the behavior of the RP Prairie hydrologic system
- Identify experiment(s) that can eliminate competing hypotheses
- Estimate the degree to which experiments narrow understanding to a single hypothesis
- Estimate the resource and time cost associated with each experiment



Potential Path forward for the RP CAMP Implementation Process

Initiate a Research Planning Activity

- Understand how implementation activities can be improved through increased understanding of the behavior of the RP Aquifer System
- Identify how research activities can increase our understanding of the RP Aquifer System, and both the time and resource cost of these activities
- Prioritize and schedule research activities in an Adaptive Management framework



Potential Path forward for the RP CAMP

Prioritize Research Activities and Integrate into a Adaptive Management Framework

- Create a weighting system for potential research activities that accounts for knowledge gain, resource cost and timeliness
- Weighting system can either be quantitative, or can be based on stakeholder values
- Create a schedule or research activities, with clearly identified decision points and rules for changing research directions

