

## Working Together to Get Things Done

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**Held on Tuesday, May 7, 2013 & Wednesday, May 8, 2013**

**Time: 8:30 a.m. to 4:00 p.m.**

**Location: RIDEM, 235 Promenade St., Providence, RI**

### **Materials:**

Attendee List

PowerPoint Presentation

Participant Workbook

Collaborative Learning Guide

**Description:** This two-day training is designed to build capacity to work collaboratively with people who have different priorities, viewpoints, and knowledge to achieve mutual goals. It will provide opportunities for you to apply what you are learning to issues that are applicable to your work. Come prepared to work in teams and generate ideas; you'll emerge with skills and ideas that will help you in your professional life.

The training is based on Collaborative Learning, a rigorous methodology for sharing knowledge and expertise, building effective partnerships, designing and implementing research, and getting things done in complex systems like natural resource management. While this training is designed for people whose work requires them to facilitate or manage collaborative projects, all participants are welcome. As part of this training you will be able to...

- Understand the principles of Collaborative Learning;
- Practice the basic steps of Collaborative Learning;
- Articulate the benefits of applying Collaborative Learning to familiar situations;
- Identify opportunities for, and barriers to, the use of Collaborative Learning in your work;
- Identify your role in a Collaborative Learning process;
- Work in small groups to evaluate an issue of interest and adapt Collaborative Learning to improve that situation.

**Audiences:** Anyone who values the use of science to improve resource management. Whether you generate scientific information or apply it to make decisions, this training will help you work more effectively with others to reach shared goals. You will get maximum benefit from this course if you attend with a team of three to five people interested in addressing a common issue or problem.

### ***About the Trainer***

Dr. Christine Feurt uses Collaborative Learning daily in her work with coastal managers, municipal officials, fellow scientists, and outreach professionals. As the Coastal Training Program Coordinator at the Wells NERR, she applies Collaborative Learning to protect sources of drinking water, implement Low Impact Development, and develop indicators of ecosystem health in southern Maine's watersheds. Her research and experience using Collaborative Learning has been synthesized in the "Collaborative Learning Guide for Ecosystem-Based Management." It also informs the classes she teaches at the University of New England. Chris has worked as a coastal ecologist, educator, and natural resource manager in national parks, refuges, universities and coastal communities around North America for 30 years. She received her PhD in Environmental Studies from Antioch University New England in 2007.

## “Working Together to Get Things Done” Training Attendees

Last Name	First Name	Organization	Position	Email	Project/Issue
Berry	Walter	US EPA Atlantic Ecology Division	Research Biologist	<a href="mailto:berry.walter@epa.gov">berry.walter@epa.gov</a>	Sediment
Chaffee	Caitlin	RI Coastal Resources Mgmt. Council	Coastal Policy	<a href="mailto:cchaffee@crmc.ri.gov">cchaffee@crmc.ri.gov</a>	COCA SLAMM
Crean	Teresa	URI Coastal Services Ctr./RI Sea Grant	Extension Specialist	<a href="mailto:tcrean@crc.uri.edu">tcrean@crc.uri.edu</a>	COCA SLAMM
Davis	Jeff	RI Statewide Planning Program	Principal Planner	<a href="mailto:jeff.davis@doa.ri.gov">jeff.davis@doa.ri.gov</a>	Sustainable RI
Deacutis	Chris	Narragansett Bay Estuary Program	Chief Scientist	<a href="mailto:deacutis@nbep.org">deacutis@nbep.org</a>	Sediment
Gold	Julia	RI Dept. of Health	Climate Change Program Manager; Healthy Homes & Environment Team	<a href="mailto:Julia.Gold@health.ri.gov">Julia.Gold@health.ri.gov</a>	Sustainable RI
Golet	Dan	RI Coastal Resources Mgmt. Council	Marine Infrastructure Coordinator	<a href="mailto:dgolet@crmc.ri.gov">dgolet@crmc.ri.gov</a>	Sediment
Gonsalves	Paul	RI Statewide Planning Program	Senior Planner	<a href="mailto:paul.gonsalves@doa.ri.gov">paul.gonsalves@doa.ri.gov</a>	Sustainable RI
Kulpa	Paul	RI Dept. of Env. Mgmt.	Senior Scientist, Office of Waste Management	<a href="mailto:paul.kulpa@dem.ri.gov">paul.kulpa@dem.ri.gov</a>	Sediment
Lehrer	Alicia	Woonasquatucket River Watershed Council	Executive Director	<a href="mailto:alehrer@wrwc.org">alehrer@wrwc.org</a>	Sediment
Pollock	Nicole	RI Dept. of Env. Mgmt.	Legislative Liaison	<a href="mailto:nicole.pollock@dem.ri.gov">nicole.pollock@dem.ri.gov</a>	Green Economy Workgroup
Pollock	Leo	South Side Community Land Trust	Director of Programs	<a href="mailto:leo@southsideclt.org">leo@southsideclt.org</a>	RI Food Policy Council
Richardson	Alisa	RI Dept. of Env. Mgmt.	Principal Engineer, Office of Water Resources	<a href="mailto:alisa.richardson@dem.ri.gov">alisa.richardson@dem.ri.gov</a>	Sediment
Rocheleau	David	Crossroads RI	Executive Chef	<a href="mailto:drocheleau@crossroadsri.org">drocheleau@crossroadsri.org</a>	RI Food Policy Council
Rubin	Clara	URI Coastal Services Ctr./RI Sea Grant	PhD student	<a href="mailto:crubinrcr@gmail.com">crubinrcr@gmail.com</a>	COCA SLAMM

Rubinoff	Pam	URI Coastal Services Ctr./RI Sea Grant	Coastal Mgmt. Extension Specialist	<a href="mailto:rubi@crc.uri.edu">rubi@crc.uri.edu</a>	COCA SLAMM
Vanderslice	Bob	RI Dept. of Health	Healthy Homes & Environment Team Lead	<a href="mailto:Robert.Vanderslice@health.ri.gov">Robert.Vanderslice@health.ri.gov</a>	Sustainable RI
Walsh	Terry	RI Dept. of Env. Mgmt.	Office of Water Resources	<a href="mailto:terry.walsh@dem.ri.gov">terry.walsh@dem.ri.gov</a>	Sediment
Weaver	John	The FoodCrafters, LLC	Owner	<a href="mailto:john@jwsfoodcrafters.com">john@jwsfoodcrafters.com</a>	RI Food Policy Council
Witt	Chris	RI Statewide Planning Program	Principal Planner	<a href="mailto:chris.witt@doa.ri.gov">chris.witt@doa.ri.gov</a>	Sustainable RI

# Working Together to Get Things Done



Sponsored by the Narragansett Bay and  
Wells National Estuarine Research Reserves &  
The NERRS Science Collaborative

May 7 & 8, 2013  
Providence, Rhode Island

Christine Feurt Ph D  
Coastal Training Program Coordinator, Wells NERR  
Director, Center for Sustainable Communities, University of New England



*national estuarine research reserve system*





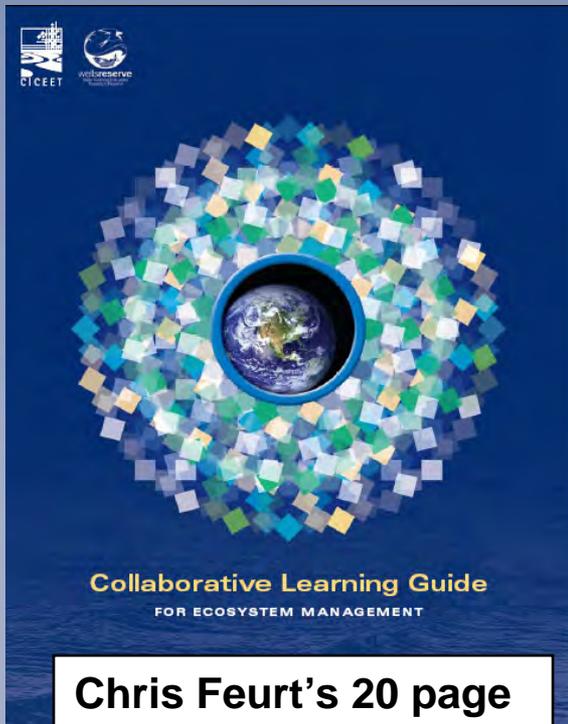
**We're All in the Same Boat**

# WHICH WAY SHOULD I GO?



# Collaborative Learning

“A framework and set of techniques intended for multiparty decision situations... A means of designing and implementing a series of events to promote:



**Chris Feurt's 20 page practitioners guide**

[www.wellsreserve.org](http://www.wellsreserve.org)

**Click on Training**

Creative thought,

Constructive debate and the

Effective implementation of  
that the stakeholders

Theoretical Grounding:

Systems Thinking

Conflict Resolution

Adult Learning

*Working Through Environmental Conflict*

*The Collaborative Learning Approach*

By Steven E. Daniels and Gregg B. Walker (2001)



# Collaborative Learning

Robust scientific methodology

Practical for environmental managers

Flexible and adaptable techniques for...

*Working Together To Get Things  
Done*



# Why are you here?

My name is:

I am working with:

To:

In order to:

Page 1 of Workbook

Focus on the area of work

connected to your participation in this training



# Why are you here?

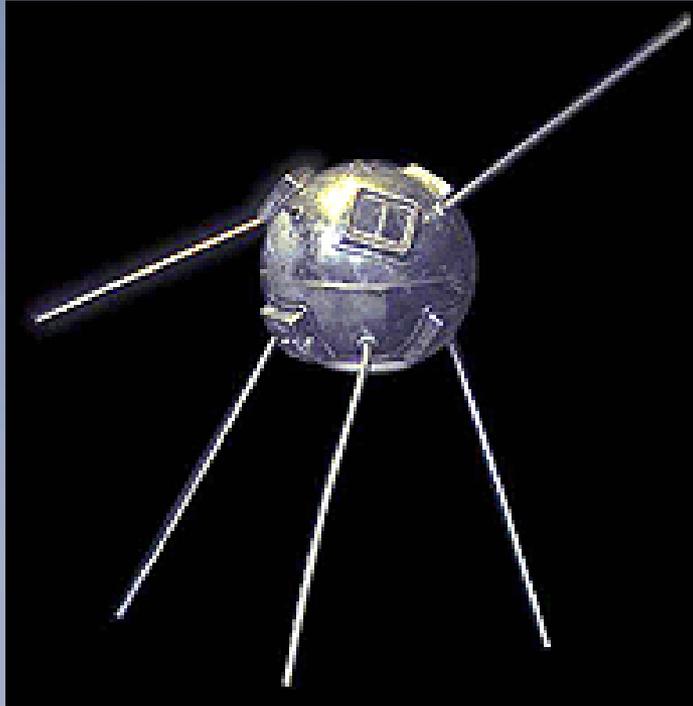
1. My name is Chris Feurt
2. I am working with stakeholders in the Salmon Falls Watershed Collaborative
3. To implement the Group's Action Plan
4. in order to sustain high quality drinking water for communities in the watershed.



# What is Collaboration?



# It's Not Rocket Science... or is it?





Are the 5 reasons for  
collaboration on  
Apollo 13 the same as  
your reasons for collaboration?

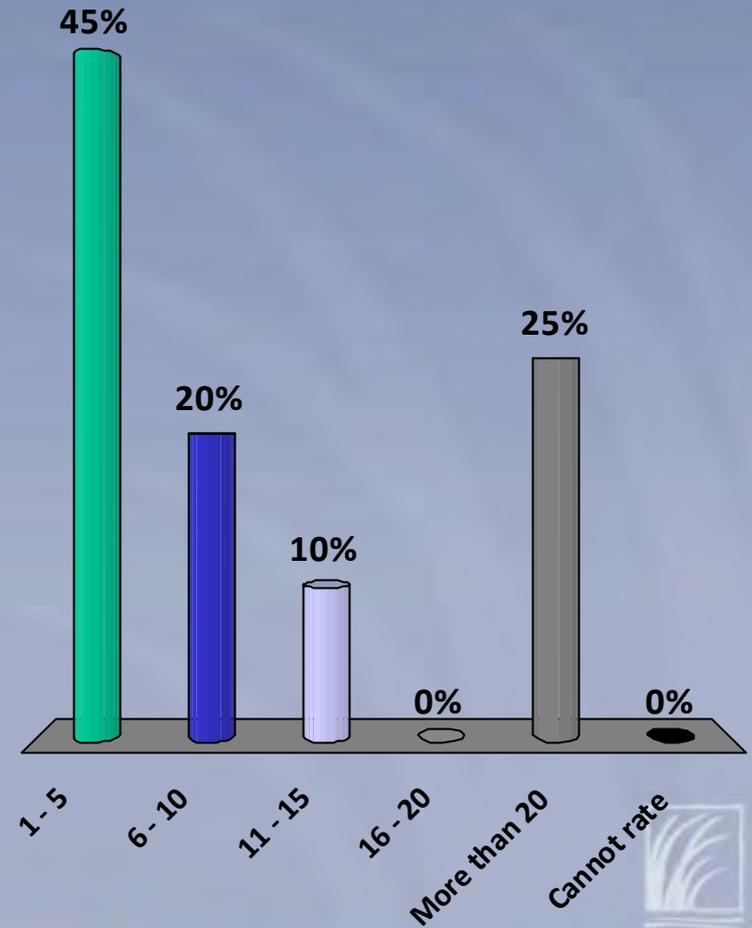


# Let's Find Out Using Keypad Polling: A Tool to Support Collaborative Learning



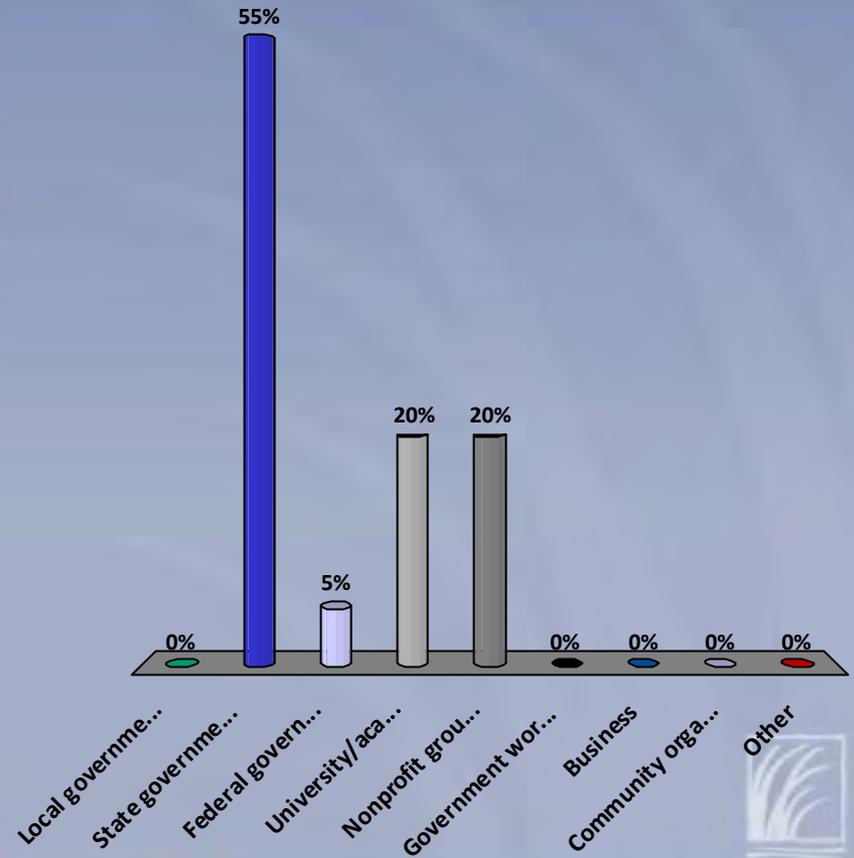
# How many years have you been engaged in your current work in Rhode Island?

1. 1 - 5
2. 6 - 10
3. 11 - 15
4. 16 - 20
5. More than 20
6. Cannot rate



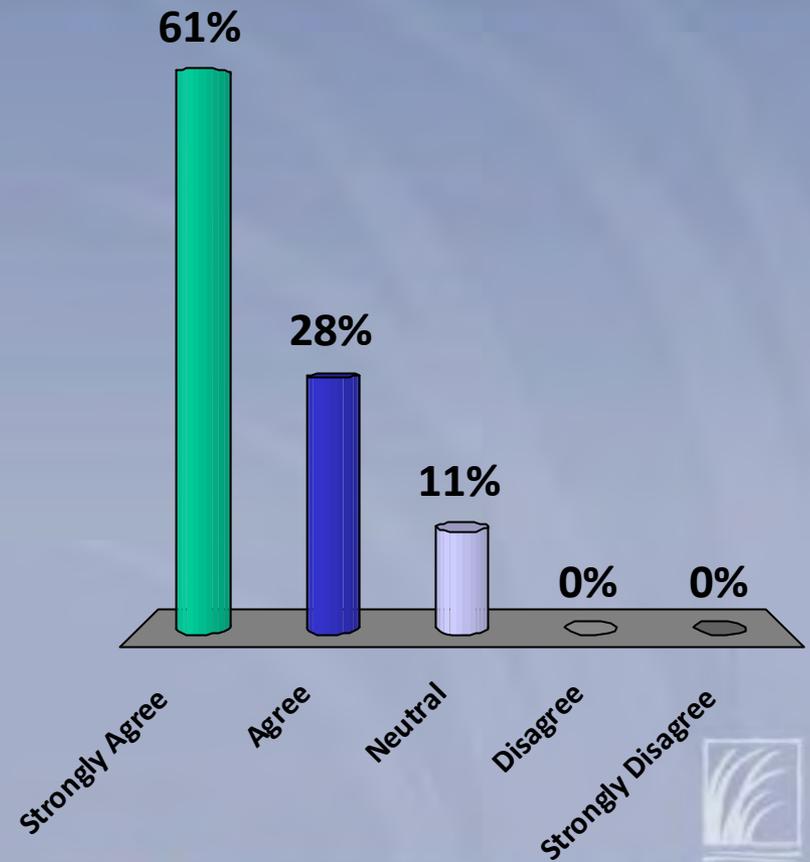
# How would you best characterize your affiliation?

1. Local government
2. State government
3. Federal government
4. University/academia
5. Nonprofit group
6. Government workgroup
7. Business
8. Community organization
9. Other



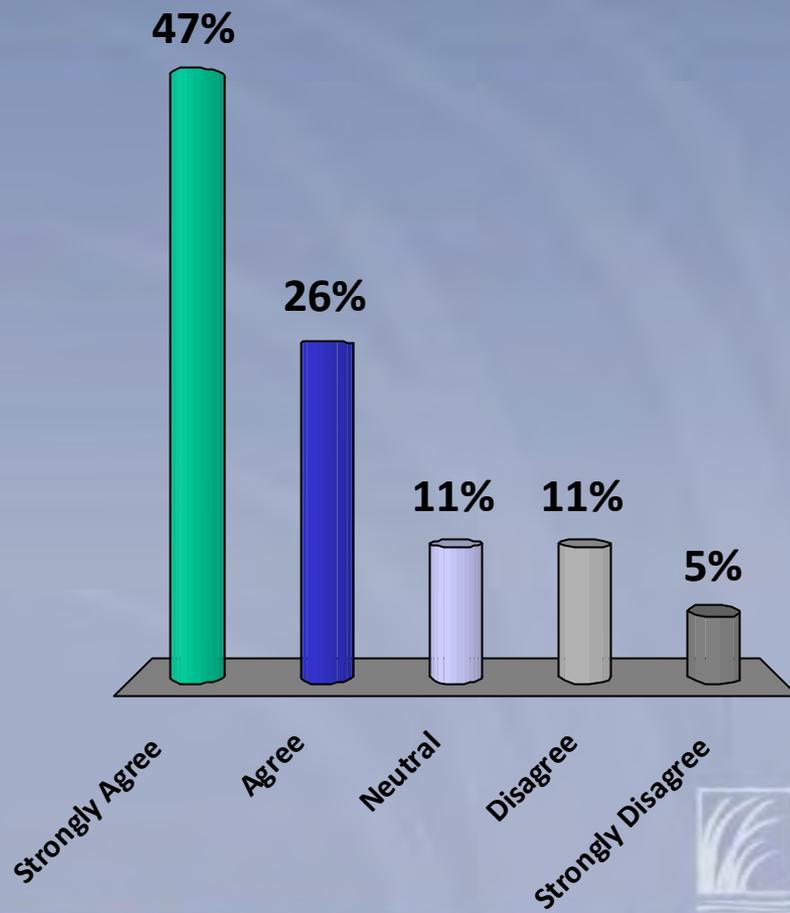
The situation I am working on is complex and people have different perspectives on how to improve it

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



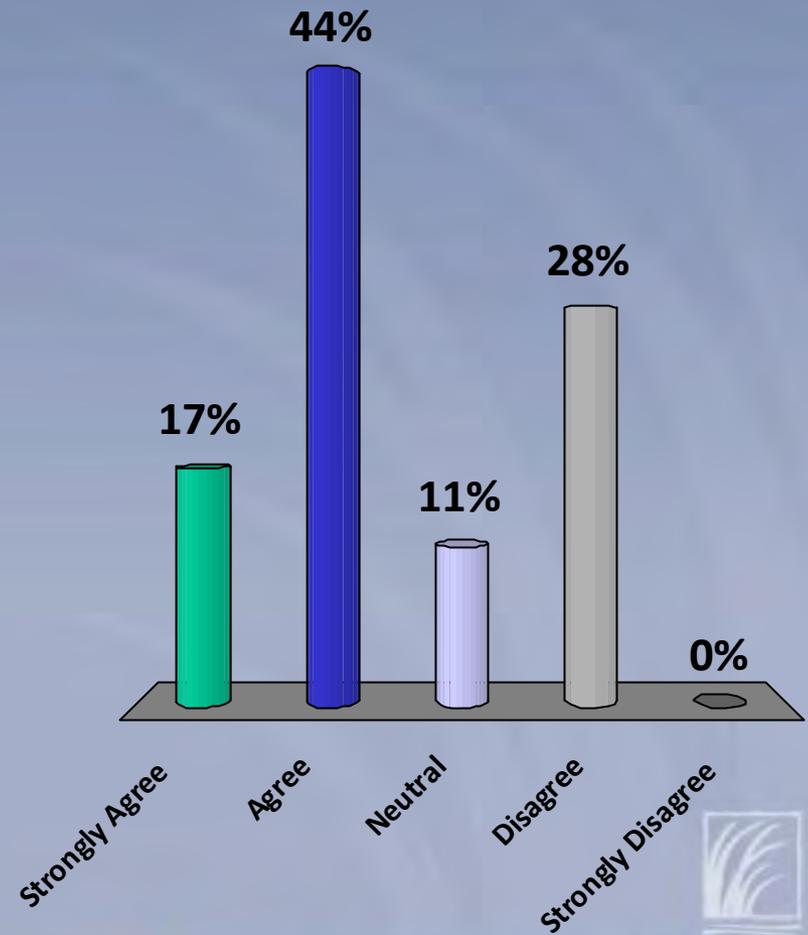
# My situation has been studied and there are multiple indicators of what is happening

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



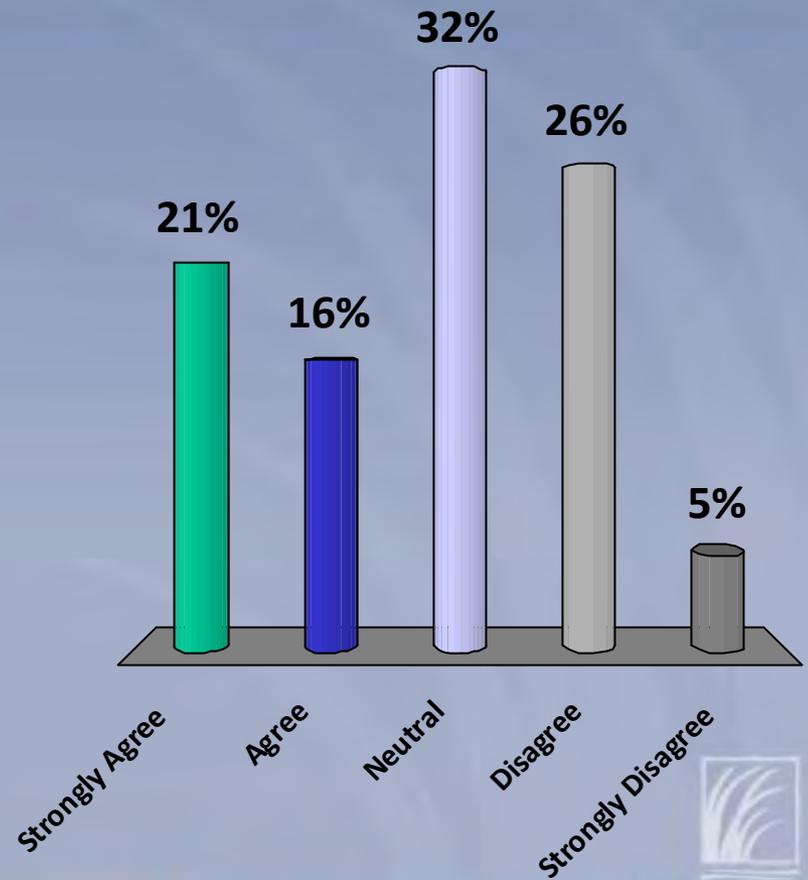
# People have a shared sense of urgency that something has to be done to Improve the situation

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



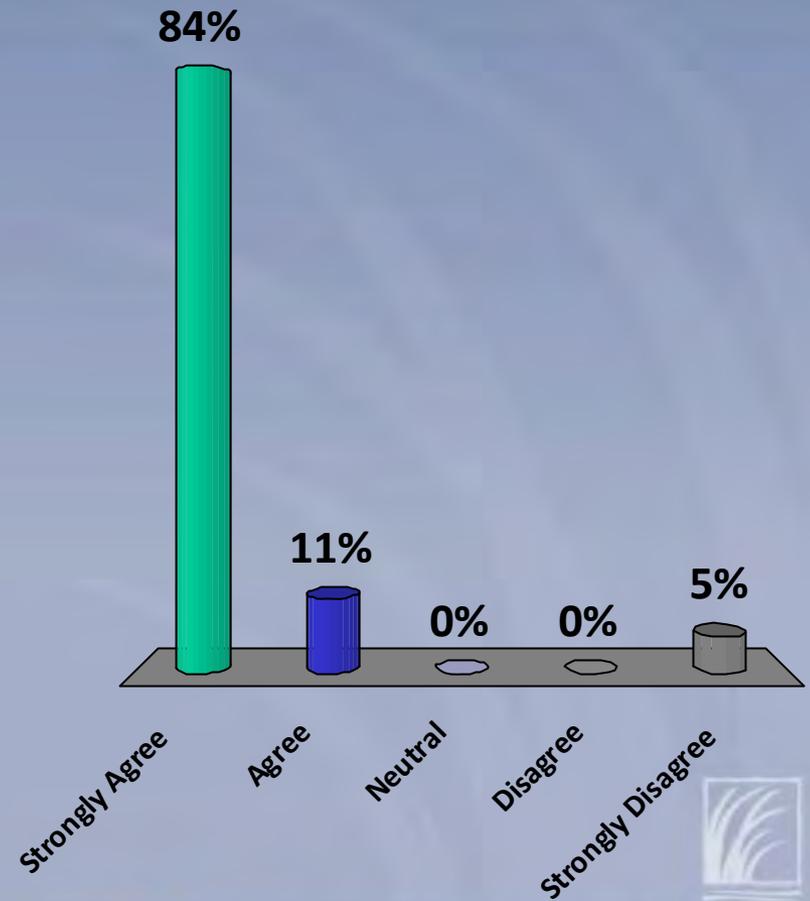
# I have orders from “upstairs” (my supervisors) to improve the situation

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



# Improving my situation requires that people with difference kinds of expertise work together

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



# What I hope to learn



# Building your knowledge and skills for Collaborative Learning to accomplish your bottom line

## Day 1 - The Assessment and Design Phases

(Select an aspect of your situation for the training)

Who should be involved: Role Assessment Activity

Building Shared Understanding :Situation Map Activity

## Day 2 - The Implementation and Evaluation Phases

Moving from Individual Reflection to Group Brainstorm of Ideas for Improvement

Develop Action Strategies with a Path to Outcomes

(Identify how you will move forward using what you have learned)



# Design: The Social Contract of Collaborative Learning (pg 20)

1. Based on a Solid Assessment
2. Safe
3. Respect expertise in the room
4. Learn by doing with self reflection
5. Iterative process
6. Mindful of adult learning principles



**Your participation in this training will enable you to:**

Understand how to adapt the principles and practices of Collaborative Learning to improve a situation you are working on.



**Your participation in this training will enable you to:**

Identify benefits and challenges to  
adapting Collaborative Learning  
to your work.



**Your participation in this training will enable you to:**

**Identify your roles and responsibilities in a Collaborative Learning process.**



**Your participation in this training will enable you to:**

**Practice the 4 Phases of Collaborative Learning  
using techniques and skills for building  
stakeholder teams to accomplish  
work you care about.**



**Your participation in this training will enable you to:**

Understand and practice using the skills and mind set required to be an effective participant in a Collaborative Learning process.



# Recognizing the Importance of Mindset

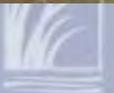
Mental models are a simplified representation of the world used by people to:

*interpret observations*

*infer from what is known to unknown*

*guide behavior*

*solve problems*



# Awareness of Mental & Cultural Models Can *Rock Your World*

Cultural models are shared perceptions and attitudes about how the world works. They are implicit, taken for granted and operate below the level of consciousness.

## Resources:

Page 16 in Collaborative Learning Participant Workbook

Collaborative Learning Guide hard copy of case study

Cultural Models Primer web link

Ecology and Society Feature in Progress on Mental Models



**SCIENCE:**

**MORE THAN A WILD ASS GUESS**

[WWW.SETAC.ORG](http://WWW.SETAC.ORG)

# Cultural Models of “Scientific Research”

## **Curiosity Driven Research - Scientific Method**

- Based upon accepted theory
- Principles guide practices
- Linear - deductive
- Hypothesis generation
- Hypothesis testing/experiments
- Contribute to body of knowledge through peer review process

## **Action Research - Collaborative Learning**

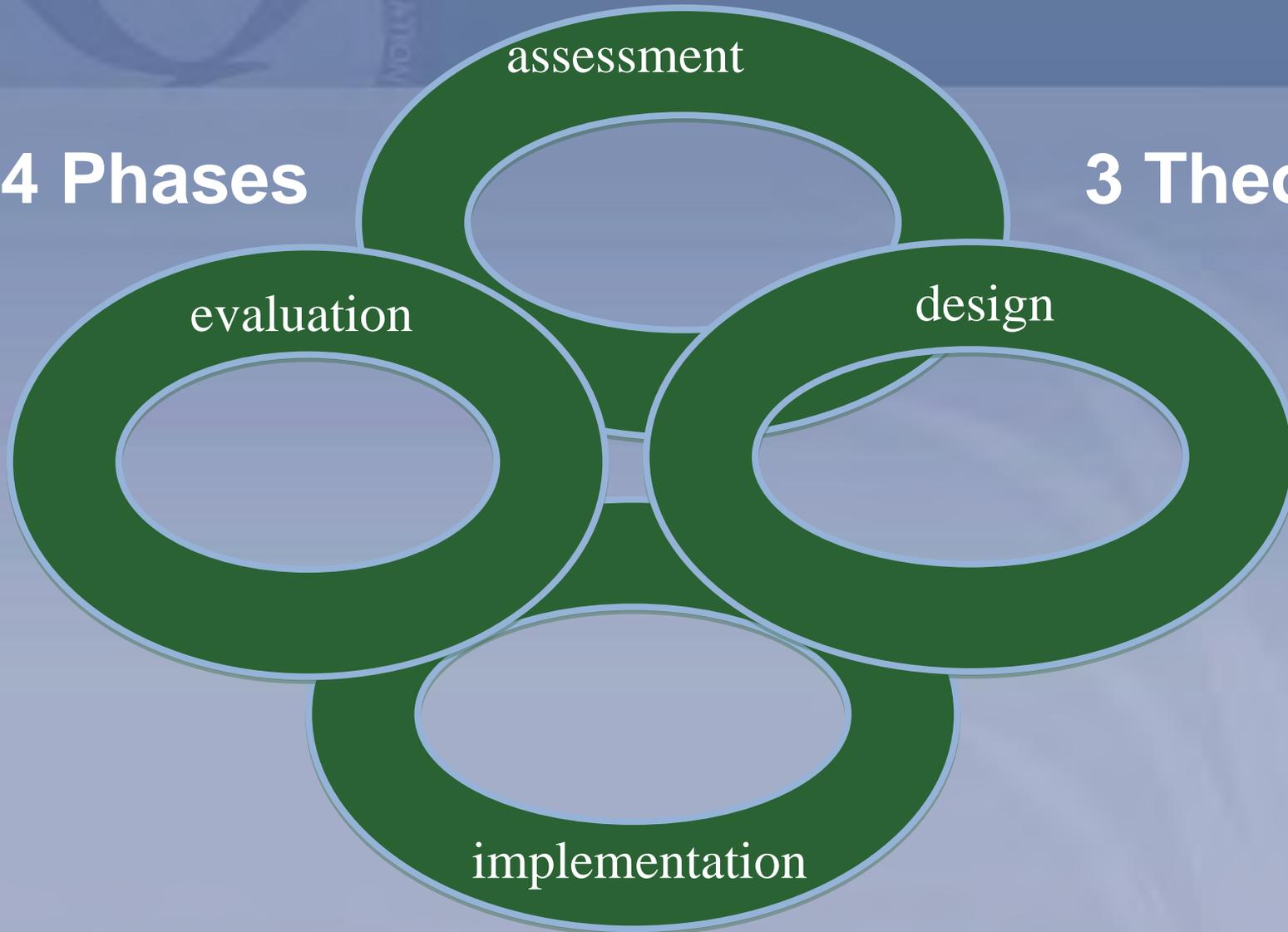
- Based upon accepted theory
- Principles guide practices
- Systems based/holistic
- Set of adaptable practices
- Group generated ideas to improve a situation of mutual concern
- Adaptively manage and evaluate progress on a situation



# Building your mental model of Collaborative Learning

**4 Phases**

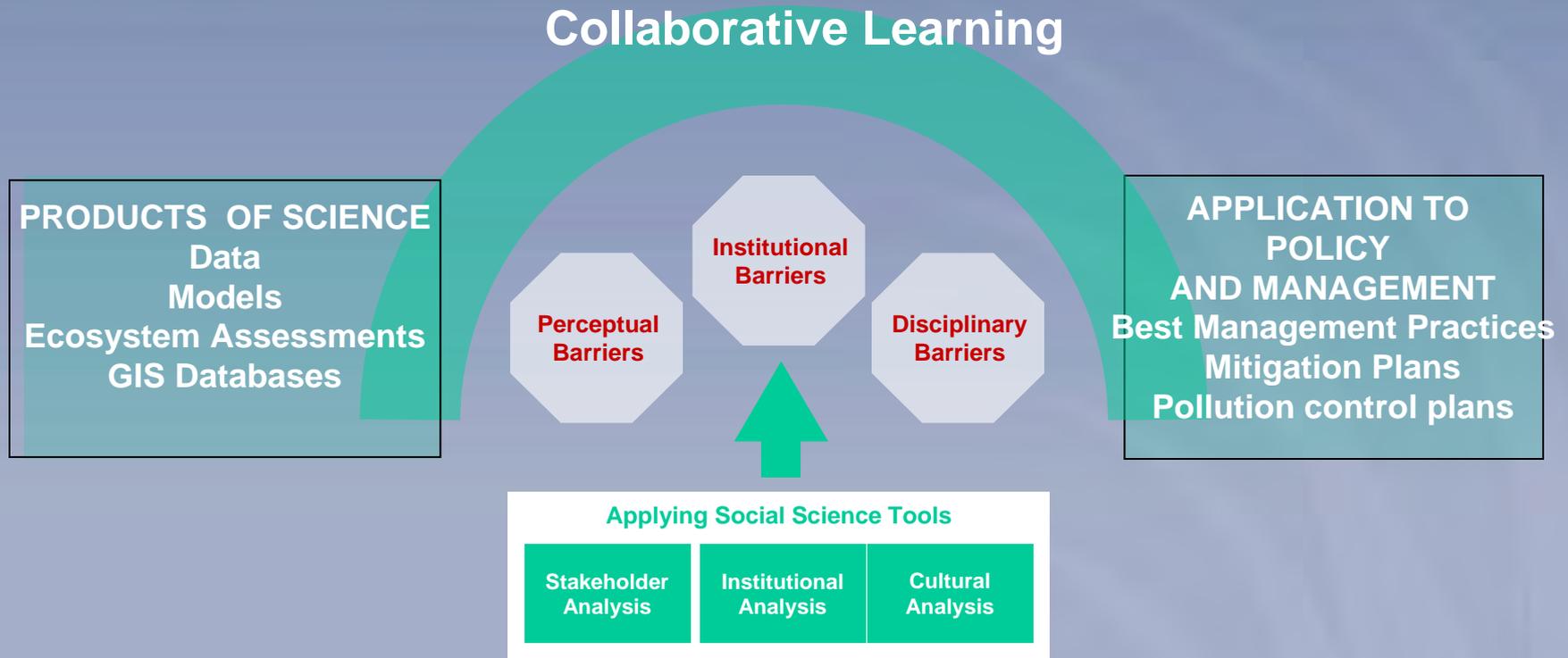
**3 Theories**



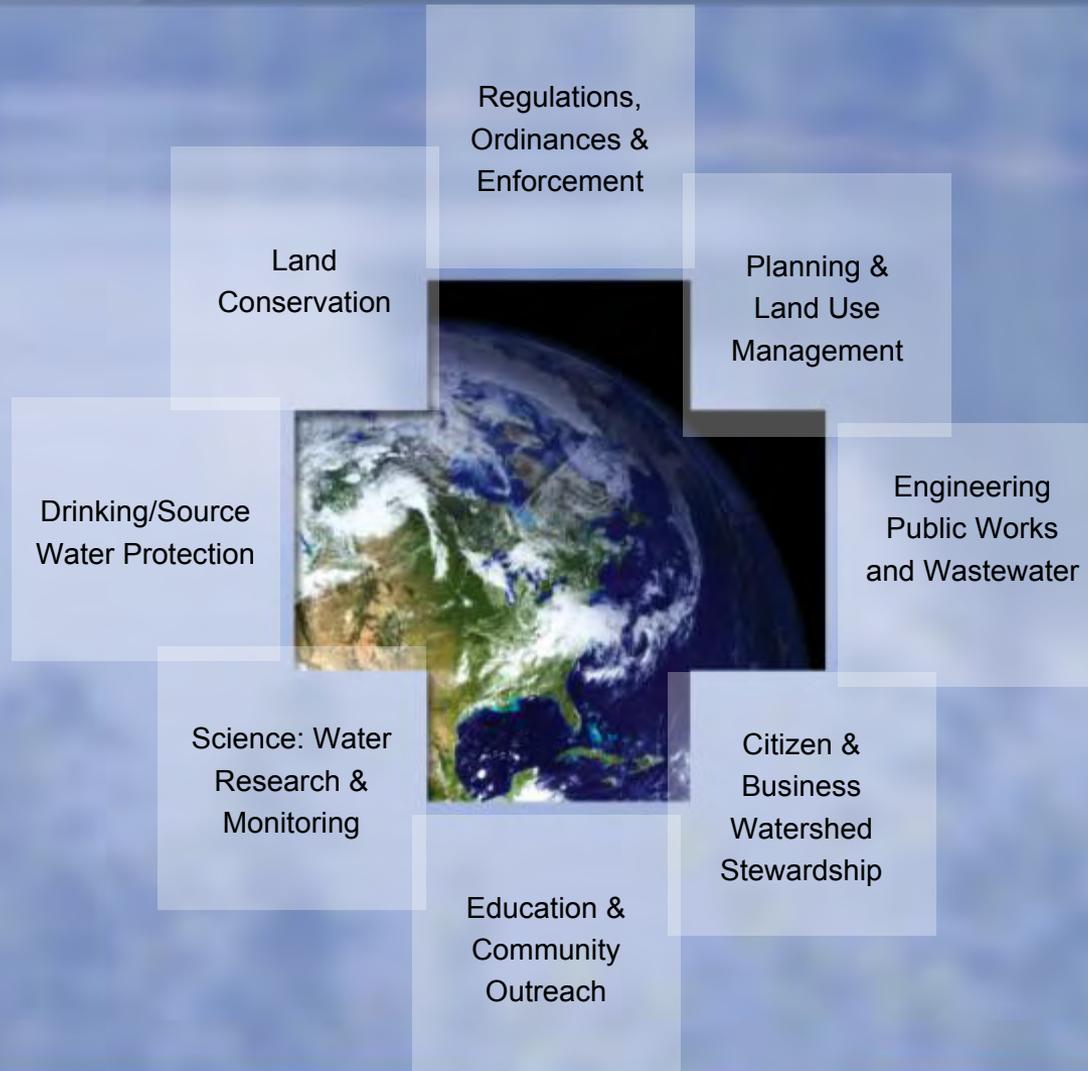
# Three Metaphors for the Systems We Work In



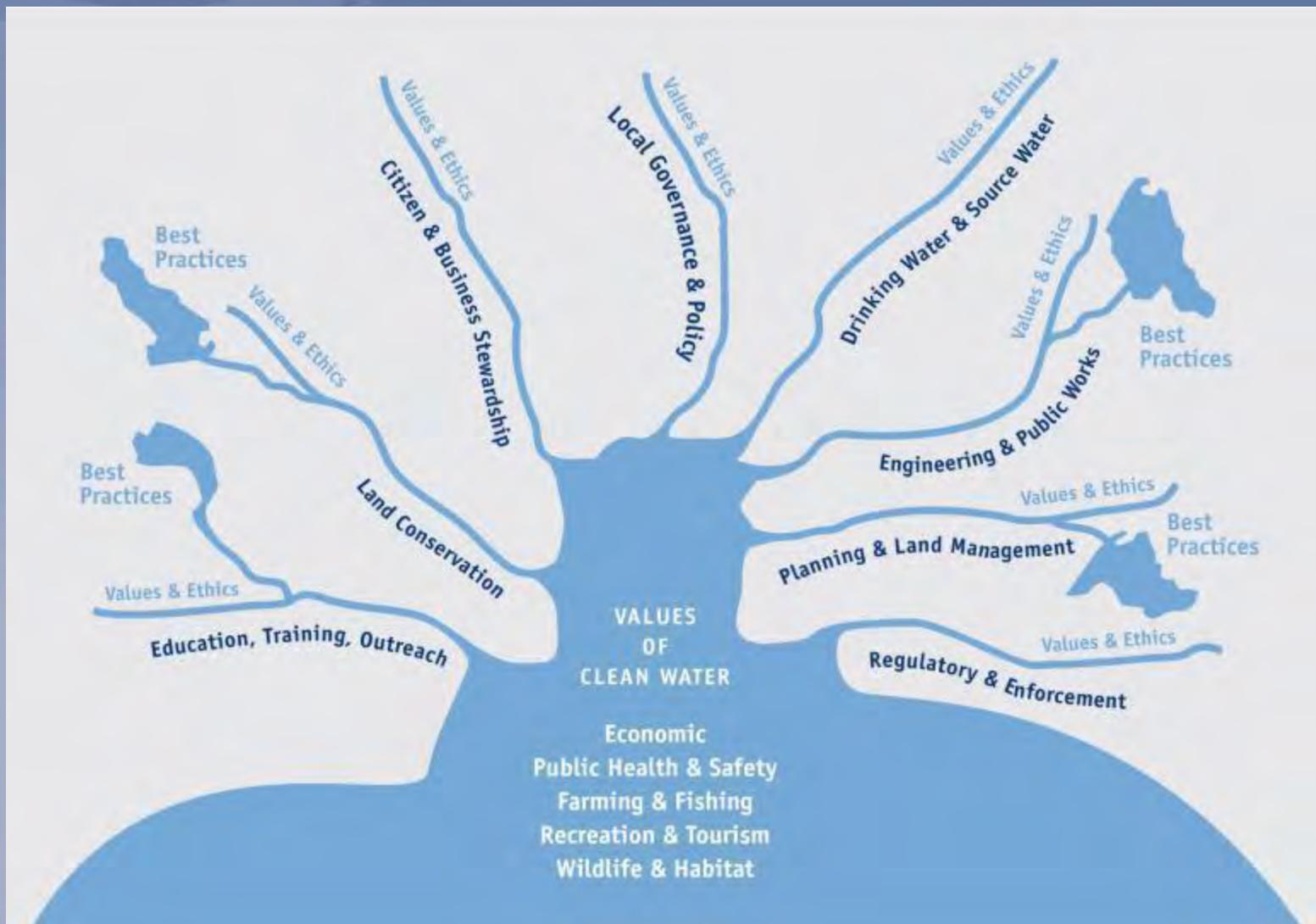
# Collaborative Learning provides a Bridge connecting the “Products” of Science and the “Work” of Policy & Management



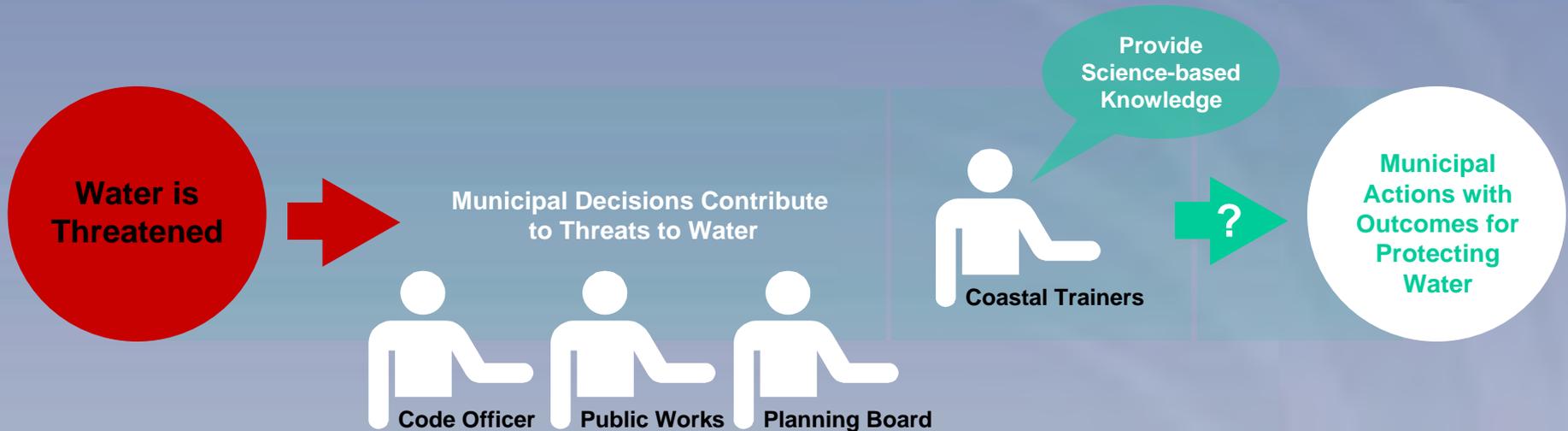
# Collaborative Learning Engages The Kaleidoscope of Expertise to Improve a Situation



# Collaborative Learning focuses on the Social Landscape That influences the Biophysical Landscape

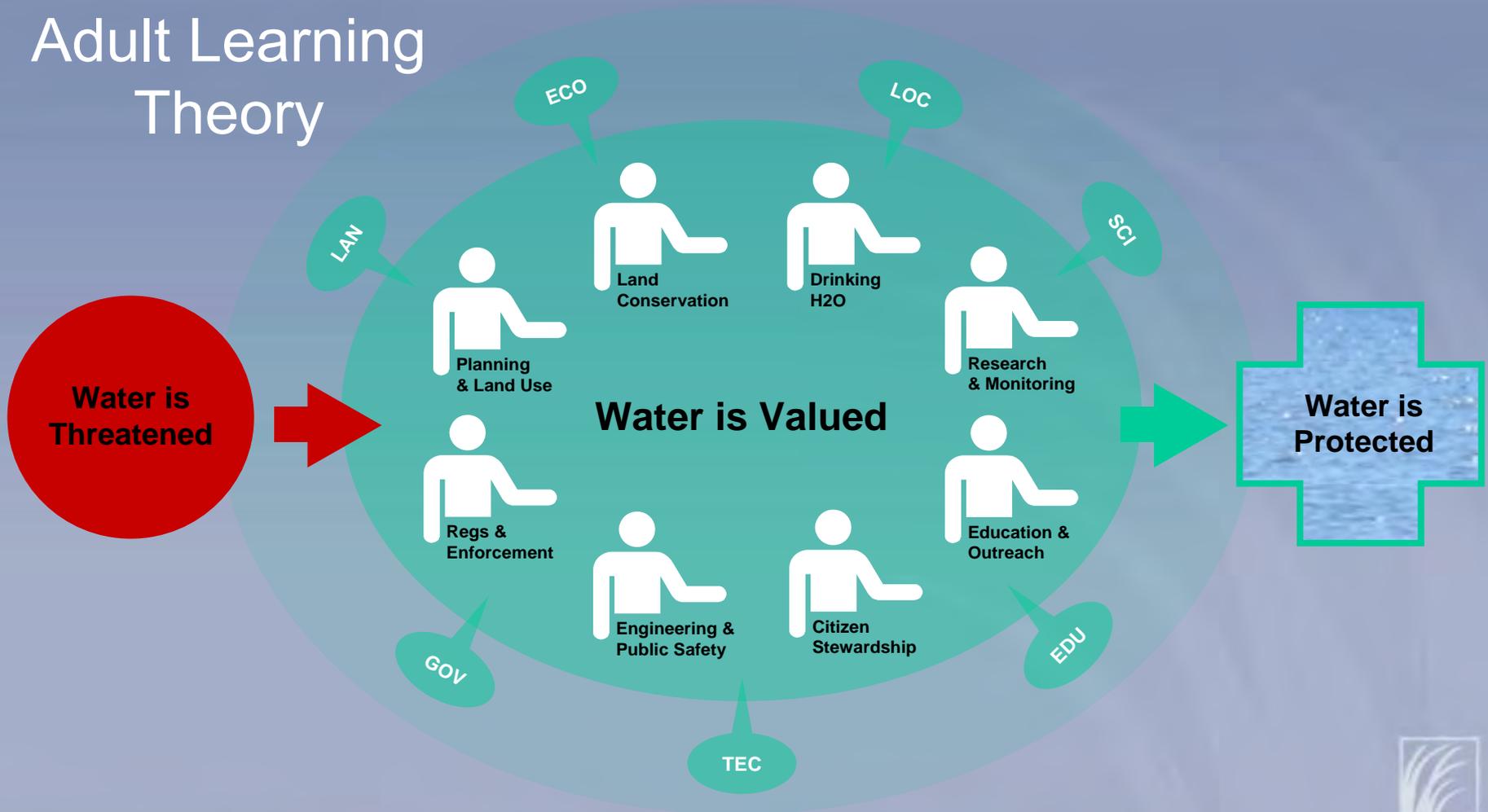


# Understanding the system transforms the traditional “*Delivery of Science*” Mental Model of Education & Outreach



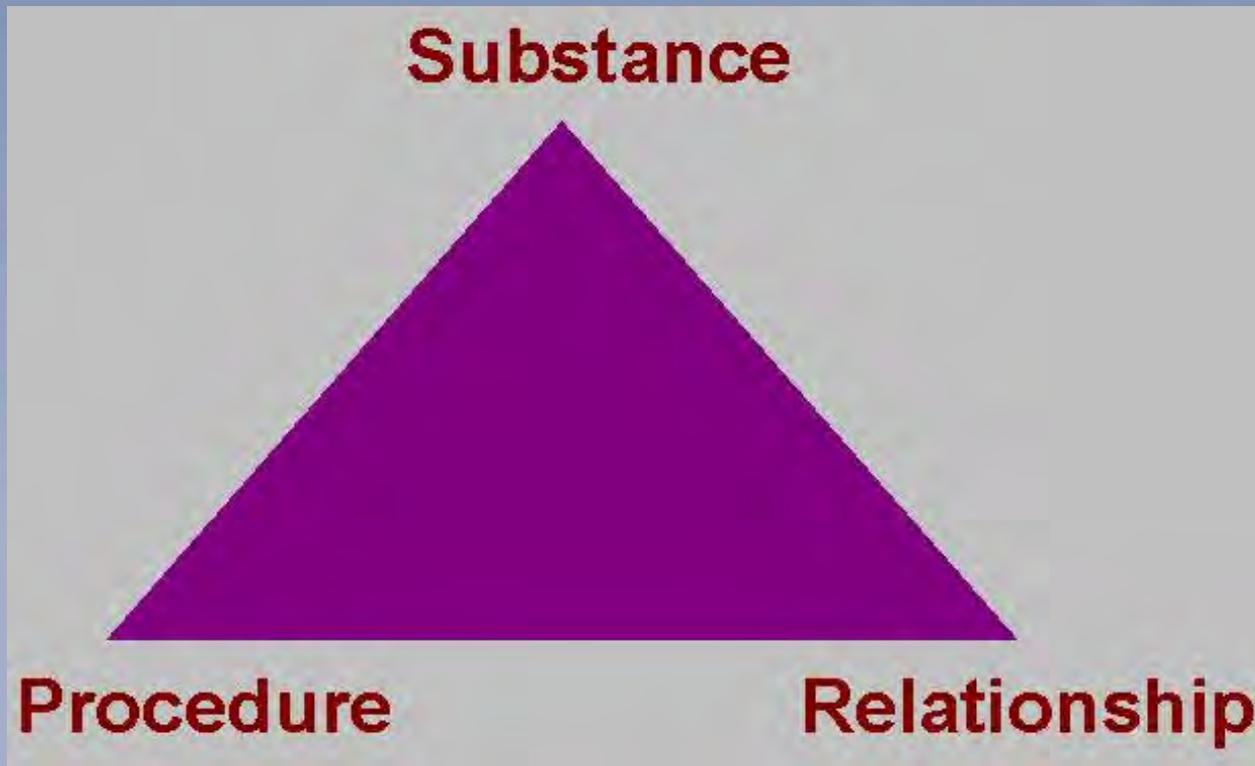
# Collaborative Learning designs events to engage the Kaleidoscope of Expertise as a Resource not a Receptacle

## Adult Learning Theory



The Progress Triangle orients Collaborative Learning to manage conflict and improve a situation within 3 domains

## Conflict Theory



# *Collaborative Learning is at the core of work to restore and sustain ecosystem services*

*Working Together to Get Things Done...*

To protect and restore the *things people care about*



The Millennium Ecosystem Assessment



# A Story of Lessons Learned Developing “Headwaters - A Collaborative Conservation Plan” for Sanford, Maine USA



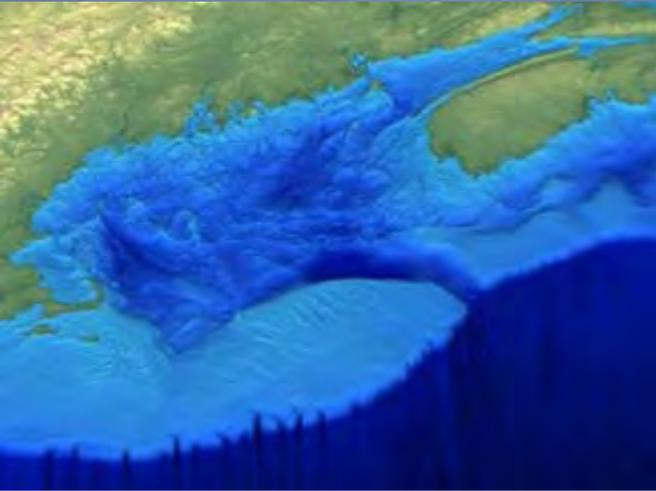
*Application of:  
Collaborative Learning for Community Based Ecosystem Management*

Demonstrate: How this approach was useful  
Describe: How the 4 phase process played out  
Identify: Some of the Roles played in the process

*Inspire!*



# From the *Headwaters to the Sea* Collaborative Learning Fosters Sustainable Land Use



# Community-based Ecosystem Management

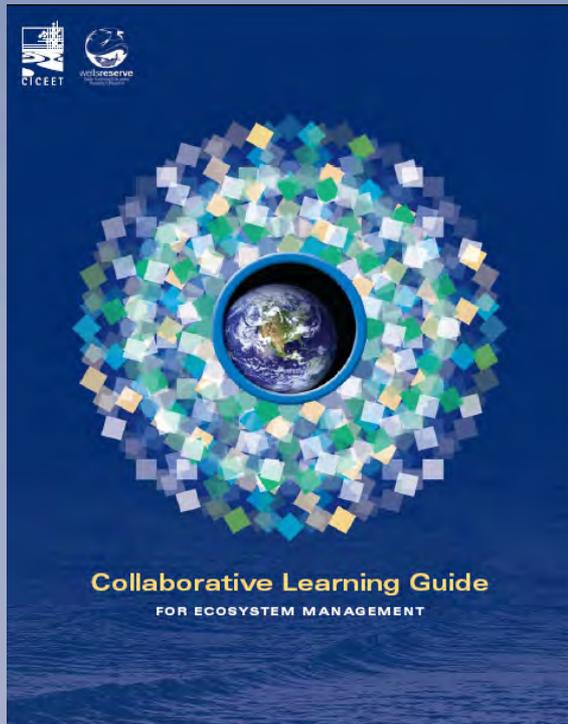
Theory, Principles and Practices for sustaining ecosystems and the communities dependent upon them (Meffe et al., 2002)

1. **Sustainability:** An approach to maintaining or restoring the composition, structure and function of natural and modified ecosystems to sustain the provision of benefits and services that people want and need.
2. **Place-based:** Make the places we live, work and play noticeably better today and in the future.
3. **Holistic:** Based upon a collaboratively developed vision of desired future outcomes that integrates ecological, economic, cultural and organizational perspectives



# Collaborative Learning to Achieve Goal #3

“A framework and set of techniques intended for multiparty decision situations... A means of designing and implementing a series of events to promote:



Creative thought,  
Constructive debate and the  
Effective implementation of proposals  
that the stakeholders generate.”

Theoretical Grounding: Systems Thinking,  
Conflict Resolution, Adult Learning

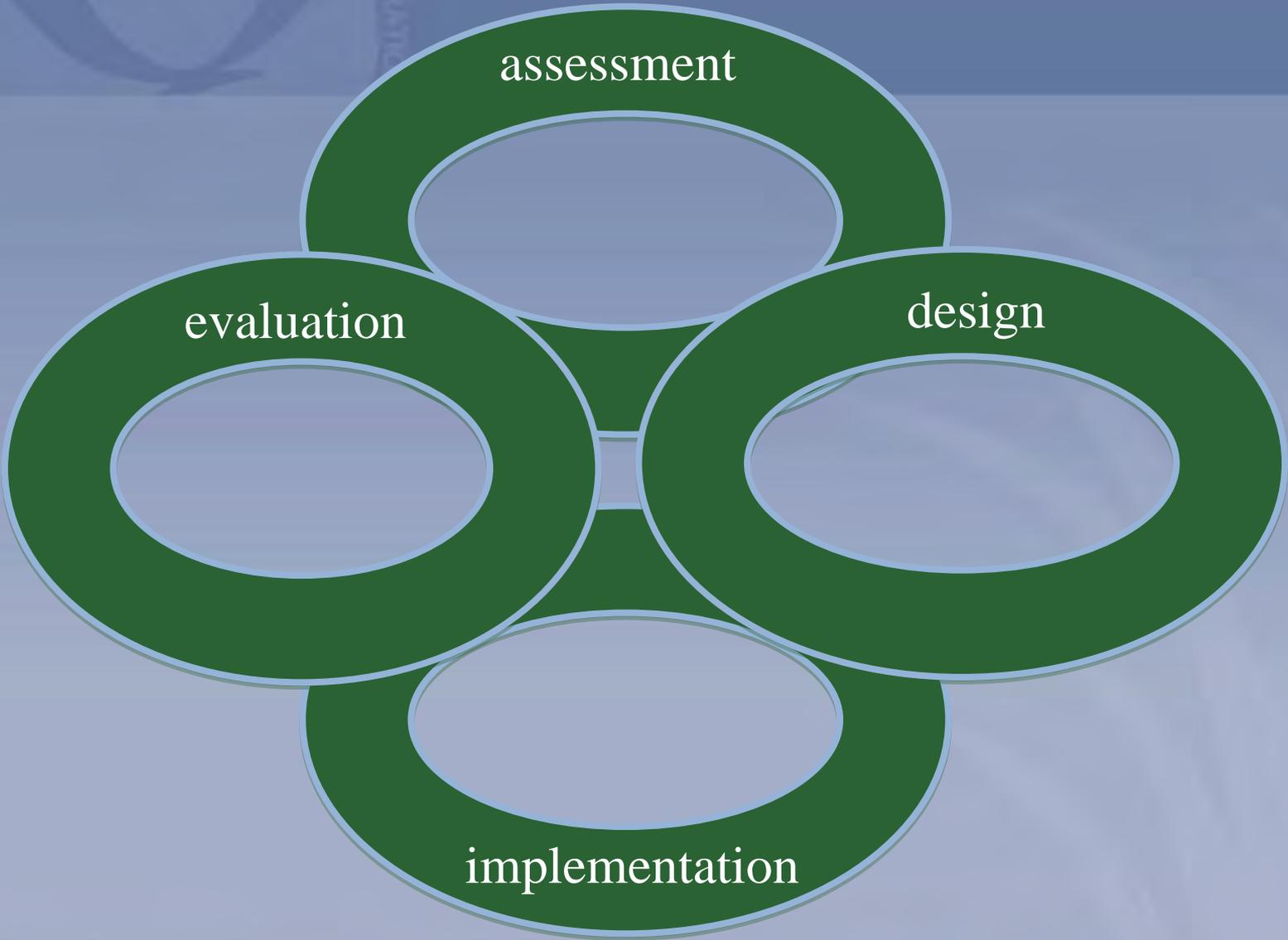
*Working Through Environmental Conflict*  
*The Collaborative Learning Approach*

By Steven E. Daniels and Gregg B. Walker (2001)



# Sanford's Significant Inland Headwaters Are important to national and local watershed protection goals on the coast



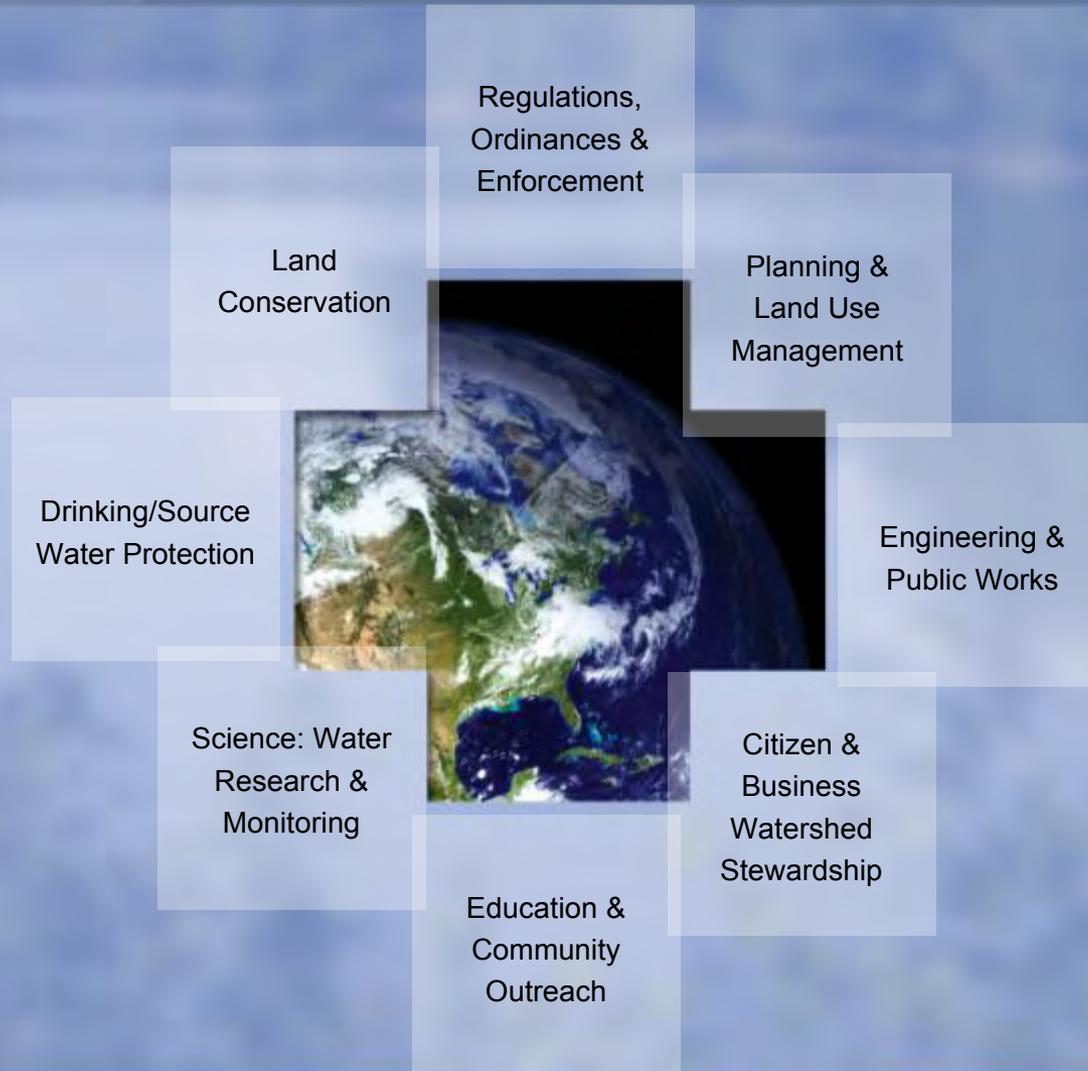


# Phase I: Collaborative Learning Assessment is about Listening

- Who will oversee the project?
- Who will provide stakeholder input?
- How can stakeholders be engaged in the planning process?
- What is the status of existing conservation efforts?



# Assessment Reveals the Kaleidoscope of Expertise *used in Collaborative Learning events to develop the Plan*





## Phase 2: Designing the Collaborative Learning Process

*Stakeholder Visioning*

*Field-based Workshops*

*Evaluation of Conservation Maps*

*Key Pad Poling*

*Value Voting*

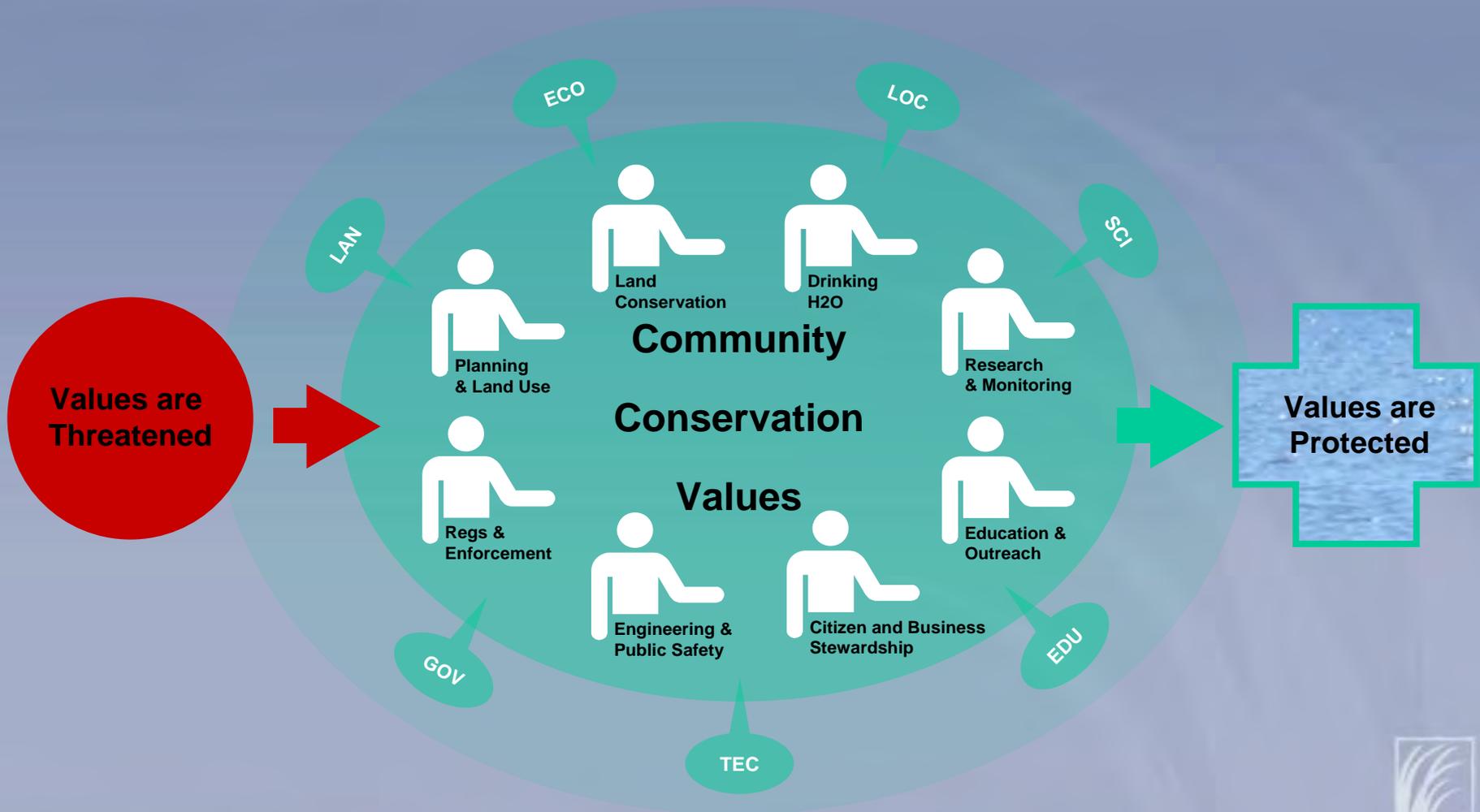
*Evaluation of Conservation Strategies*

*Planning Board Review and Approval*

*Community Outreach*



# Engaging Stakeholders & Partners as a Resource not a Receptacle



# Phase 3: Implement Stakeholder Visioning Activity to Characterize Conservation Values

1. Working in small groups stakeholders generate 50 year vision
2. Coding of stakeholder notes reveals five conservation values



**“Today’s farms will still be here.”** – *Maura Herlihy, Town Council Member*

**“... preserve Sanford's rural character.”** – *Jean Noon*

*Farmer/Three Rivers Land Trust*

**“Large blocks of woodland sustainably managed  
water quality, wildlife, ecological preserves, and timber.”** – *Lee Burnett*  
*Sanford Trails Committee and Grant Writer*

## Community Visioning to Characterize Conservation Values

**“My family farm is still a farm.”** – *Jerry Rivard, Blueberry Farmer*

**“To develop lands with people in mind so that quality of life is enhanced  
by the development, not spoiled”** -*Marcel Blouin, Sanford Parks and Rec.*

# Stakeholder Conservation Values

1. Water quality protection
2. Conserving productive land for agriculture
3. Conserving significant wildlife habitat and biodiversity
4. Protecting human health and safety through conservation of floodplains, water supply buffers and wetlands
5. Conserving cultural, scenic and recreational resources



# Integration of High Tech and High Touch is Vital

Use GIS Technology to Characterize and Map Conservation Priorities based upon best available scientific information

Use Collaborative Learning to evaluate and reflect upon the meaning and relevance of GIS data layers, conservation and management options



# Water quality protection is an important goal for the Sanford Conservation Plan.

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



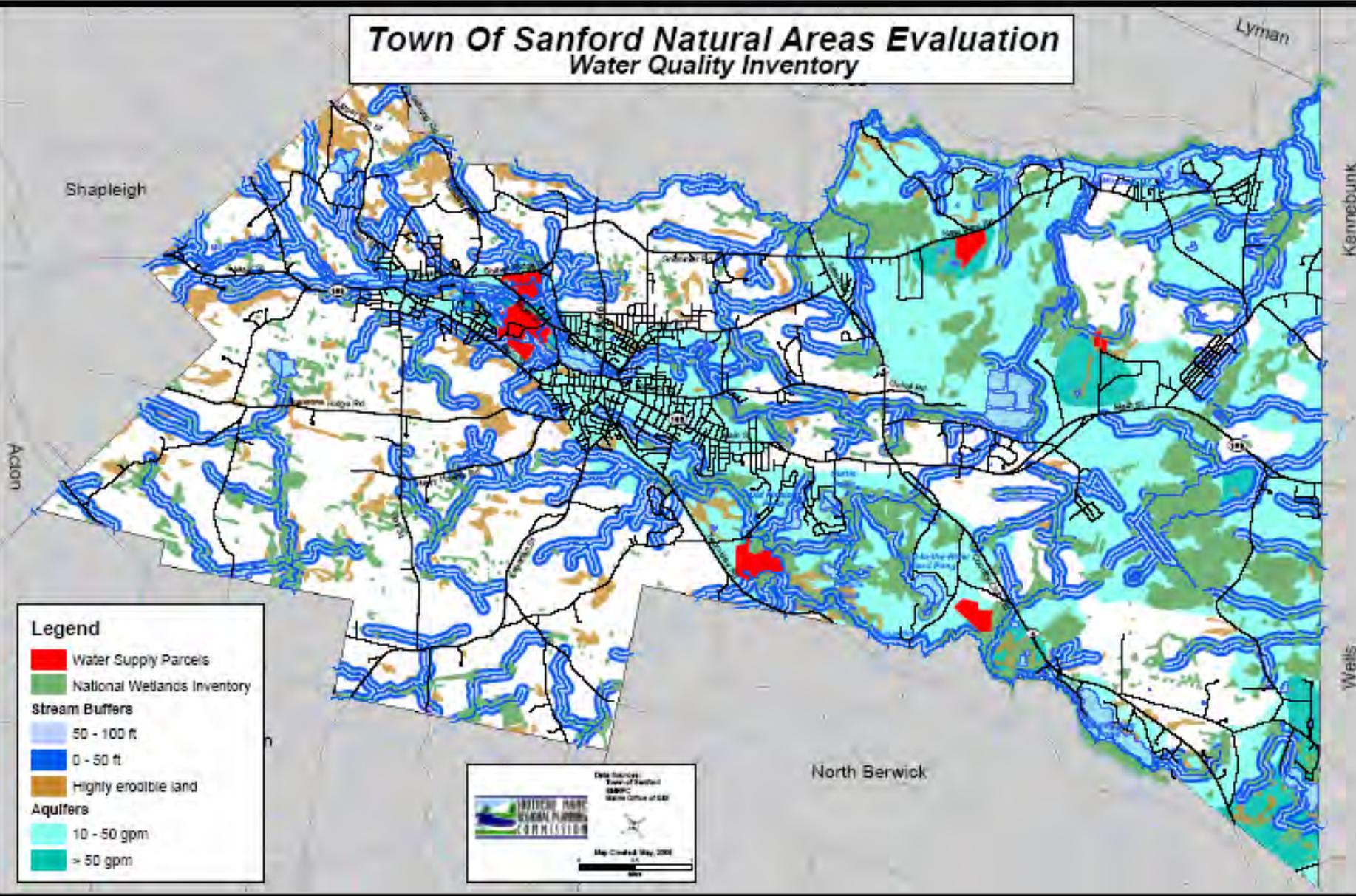
# Watershed ecosystem services were mapped and reviewed by participants

- Aquifer recharge areas - storage
- Riparian buffers - filtration
- Wetlands – storage, filtration, purification
- Public Water Supply Source
- Floodplain- hazard protection

GIS layers provided science-based input to align with stakeholder values



# Town Of Sanford Natural Areas Evaluation Water Quality Inventory



- Legend**
- Water Supply Parcels
  - National Wetlands Inventory
  - Stream Buffers
    - 50 - 100 ft
    - 0 - 50 ft
  - Highly erodible land
  - Aquifers
    - 10 - 50 gpm
    - > 50 gpm

Data Sources:  
Town of Sanford  
MEDEC  
Maine Office of GIS

Map Created May 2008

Scale: 1 inch = 1 mile

## Phase 4. Evaluation Phase punctuates a series of Collaborative Learning events

Create GIS maps of conservation priorities

Stakeholder review of maps with key pad polling and value voting

Stakeholders evaluate conservation strategies & ways to implement the plan

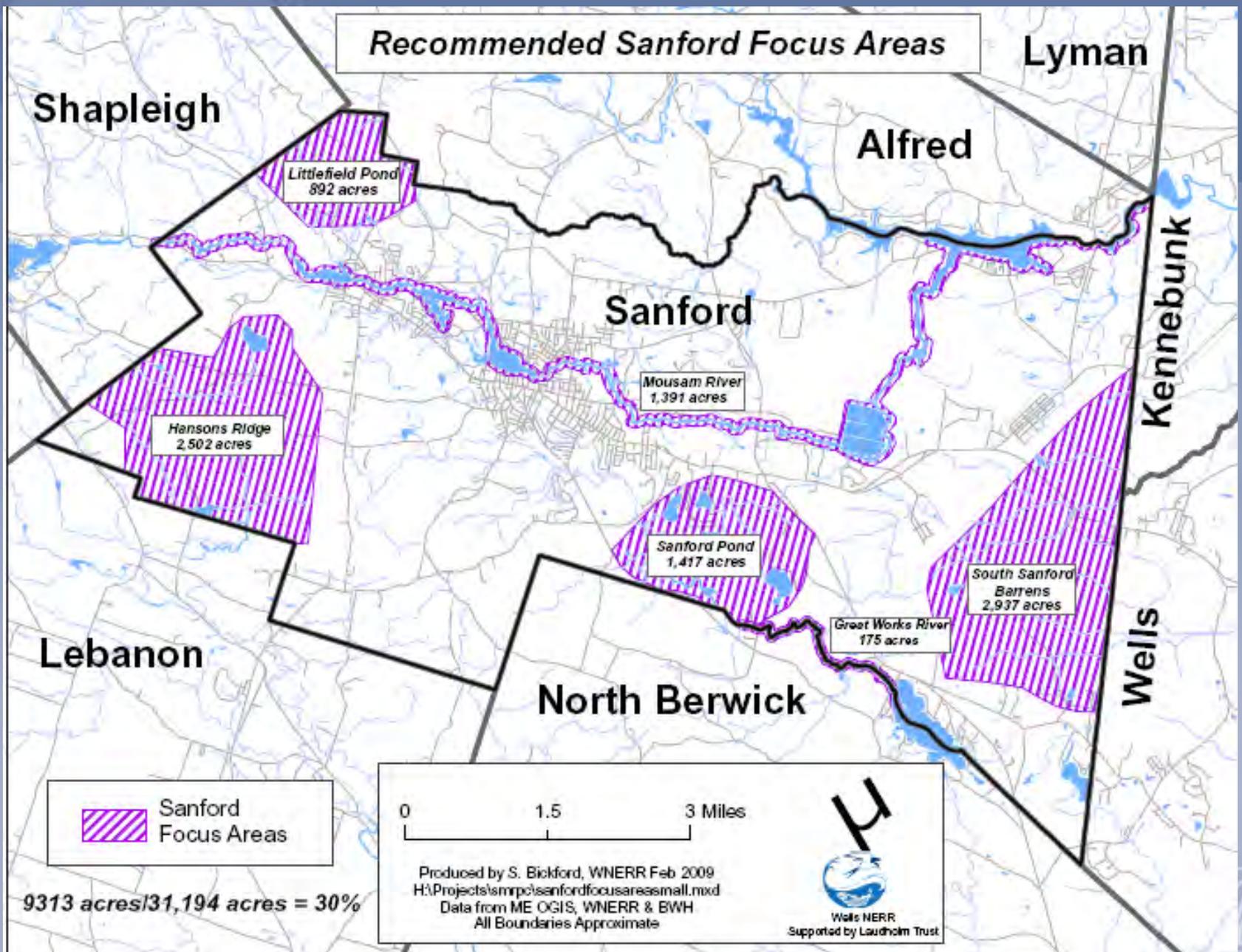
Careful review of the plan with the Sanford Planning Board



# Phase 4: Evaluate Stakeholder Input to Create the Conservation Plan



# Recommended Sanford Focus Areas



9313 acres / 31,194 acres = 30%

# Use the Green Infrastructure Concept as a Framework for the Conservation Plan

Green infrastructure is the network of natural lands, working landscapes and other natural areas that conserve the qualities and services of ecosystems that provide benefits to communities.

The Conservation Fund

<http://www.greeninfrastructure.net/content/definition-green-infrastructure>



# Adopt Existing Best Practices for Protecting Green Infrastructure

- The Eight Tools of Watershed Protection
- Beginning with Habitat Toolbox
- Saving Maine's Farmland – A Collaborative Action Plan



# Summary of Lessons Learned



Community Based Ecosystem Management – scientific framework

Collaborative Learning – scientific process

Engage the Kaleidoscope of Expertise at the science to management interface to accomplish conservation goals.

Collaborative Learning's 4 phase process integrates high tech and high touch.

Either **you** or someone you work with can become an architect of or participant in the Collaborative Learning process.





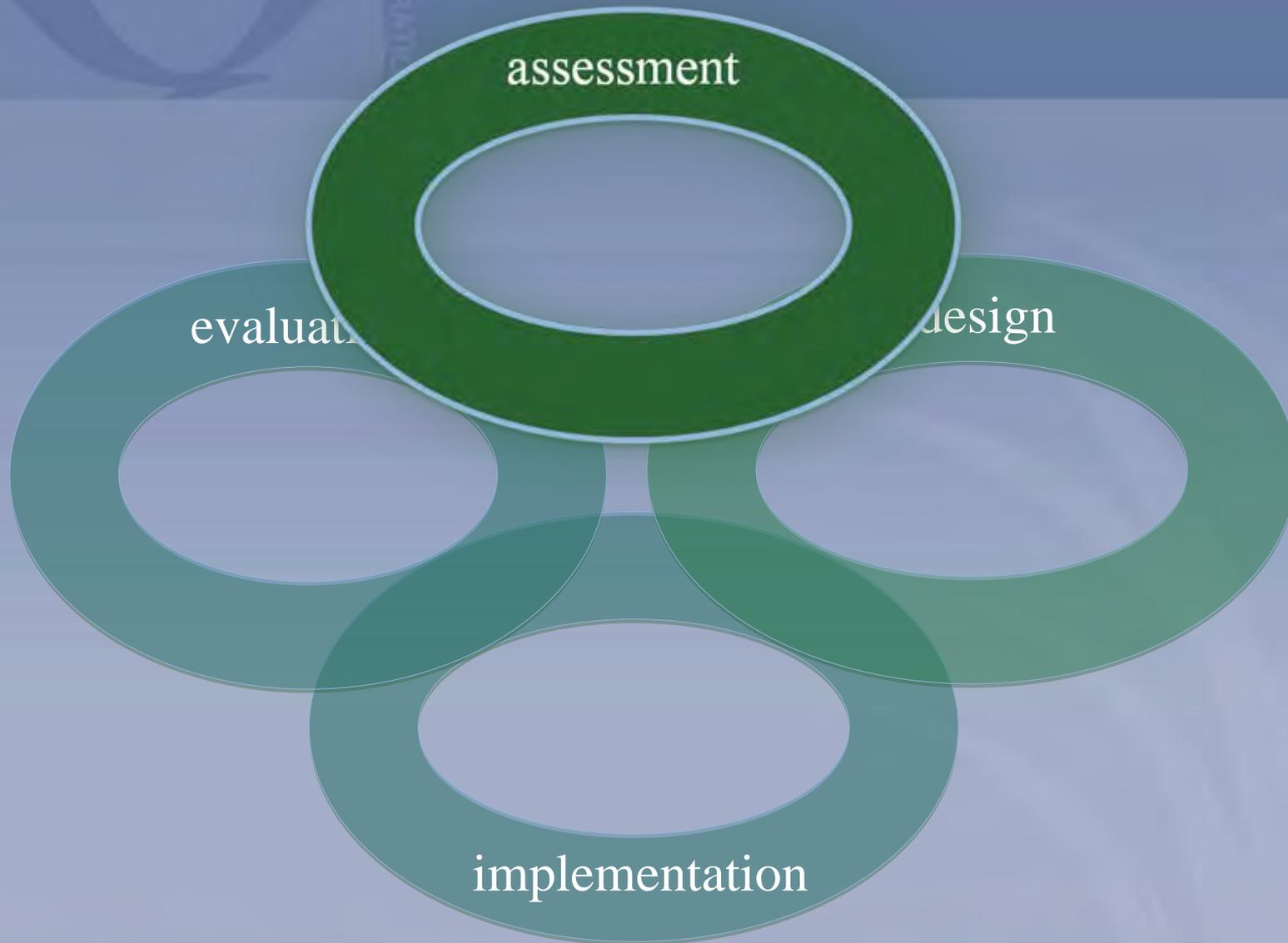
To review the plan *Google* “Sanford Conservation Plan”

# QUESTIONS ABOUT THE CASE STUDY?



# Assessment & Design for this Training

Pages 10 – 12 &  
30-34



# Situation Description & Role Assessment Activity:

(Pages 13 - 15)

1. The situation that I would like to improve is....
2. Who do you consider to be the essential decision makers in this situation?
3. What do you know about key decision maker's values (what they care about), concerns, and fears (aspects that might be barriers to improving the situation)?



# Roles in a Collaborative Process

Page 14 in Workbook

- **Participant:**
- **Advocate:**
- **Representative:**
- **Decision maker:**
- **Information provider:**
- **Initiator:**
- **Convener:**
- **Sponsor:**
- **Designer:**
- **Facilitator:**
- **Evaluator:**





I can see myself in the role  
of

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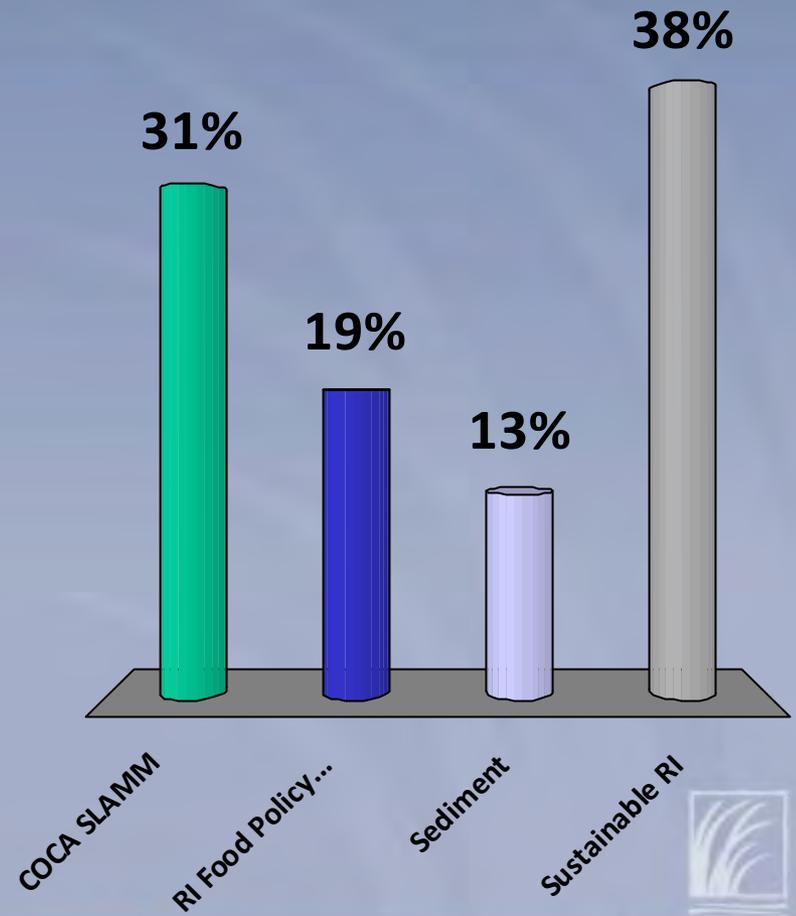
# The Five Situations

1. COCA SLAMM
2. RI Food Policy Council
3. Sediment
4. Sustainable Rhode Island



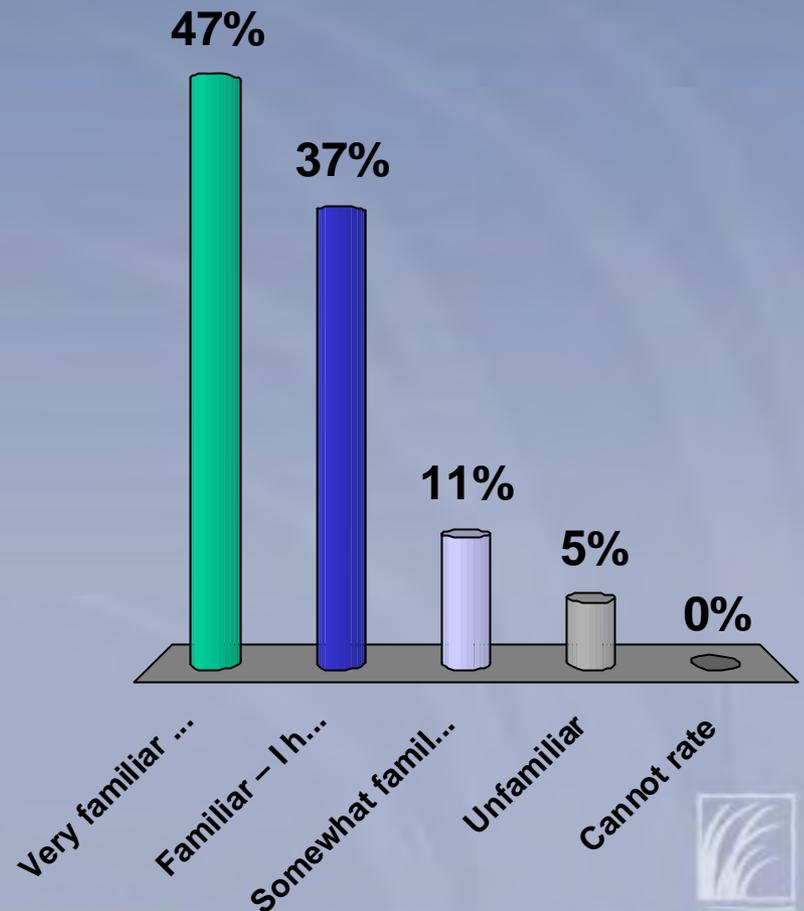
# Please indicate which group you are working with for the purpose of this training

1. COCA SLAMM
2. RI Food Policy Council
3. Sediment
4. Sustainable RI



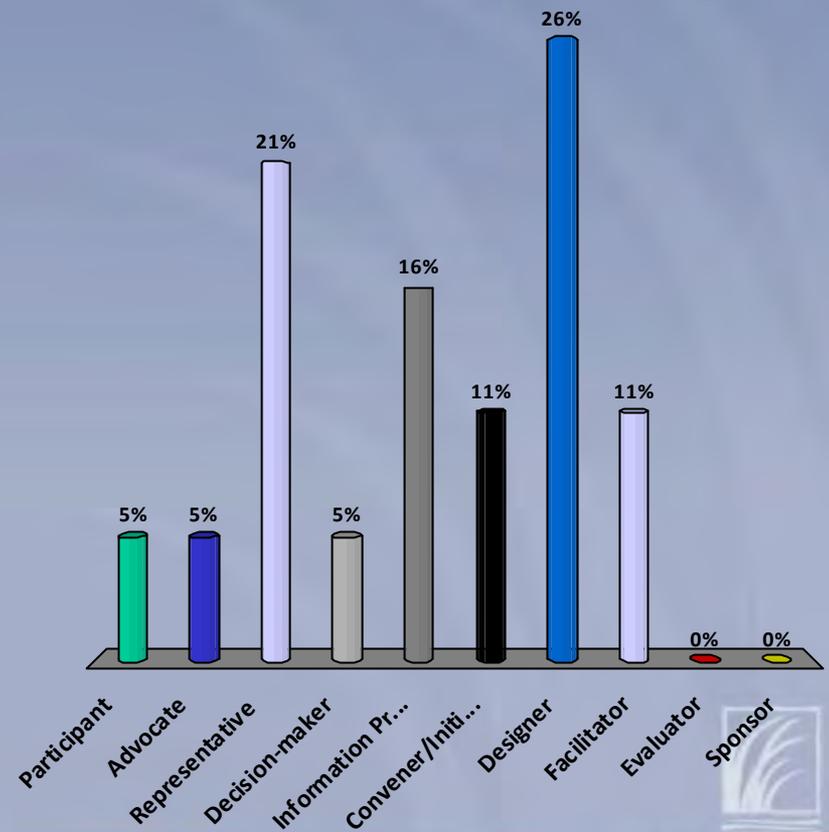
# Please rate your level of experience with collaborative approaches

1. Very familiar – I have led them
2. Familiar – I have been a key participant
3. Somewhat familiar - I have been an observer
4. Unfamiliar
5. Cannot rate



# I can see myself in the role of...

1. Participant
2. Advocate
3. Representative
4. Decision-maker
5. Information Provider
6. Convener/Initiator
7. Designer
8. Facilitator
9. Evaluator
10. Sponsor



# How to be an expert





# Three Skills for Collaborative Learning

1. Use Active Listening to Understand, Interpret and Evaluate What You Hear
2. Use Skillful Discussion to Make Real Progress in Your Collaborative Process
3. Use knowledge of Cultural and Mental Models to help you understand the situation you want to improve



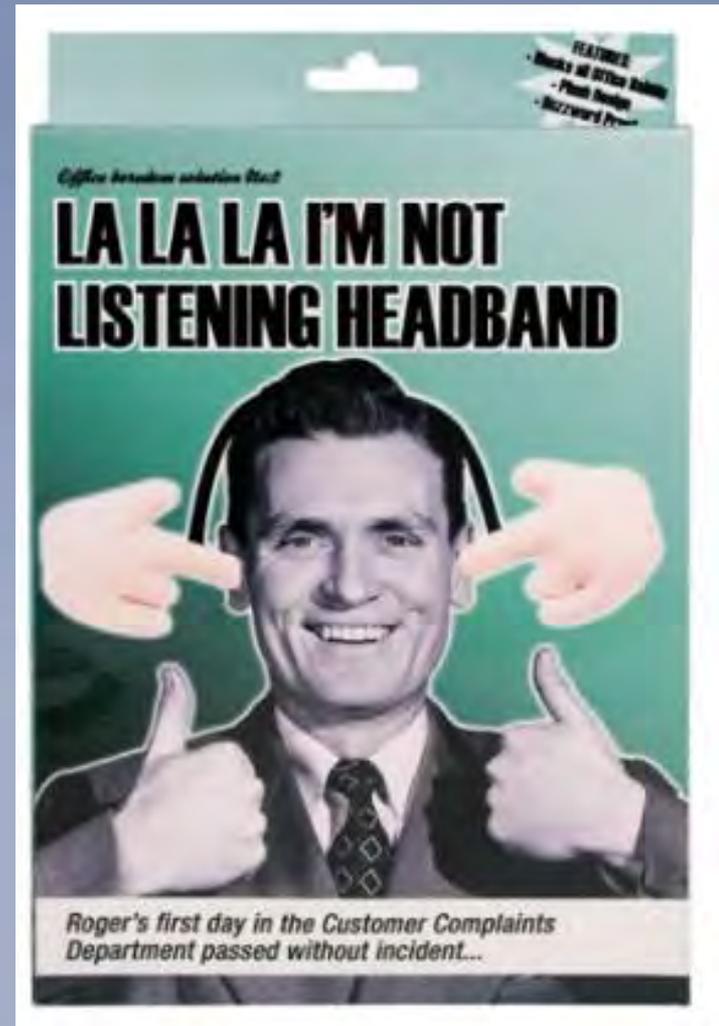
"Americans think the opposite of speaking is  
*waiting to speak*"



# Taking Assessment to the Next Level

How can you tell if someone is a good listener?

*Workbook Page 17 & 33*



# The 10 Golden Rules of Active Listening

1. Listen opening and actively with appropriate body language
2. Withhold judgment until the other person's view is understood
3. Ask questions for understanding before responding
4. Give everyone equal opportunity to speak
5. Focus on concerns and interests rather than positions



# The 10 Golden Rules of Active Listening

6. Examine future improvements rather than dwelling on the past
7. Emphasize the situation rather than the people
8. Value disagreement and constructive argument
9. Look for ways to achieve mutual gain
10. Regard one another's views as legitimate and deserving respect



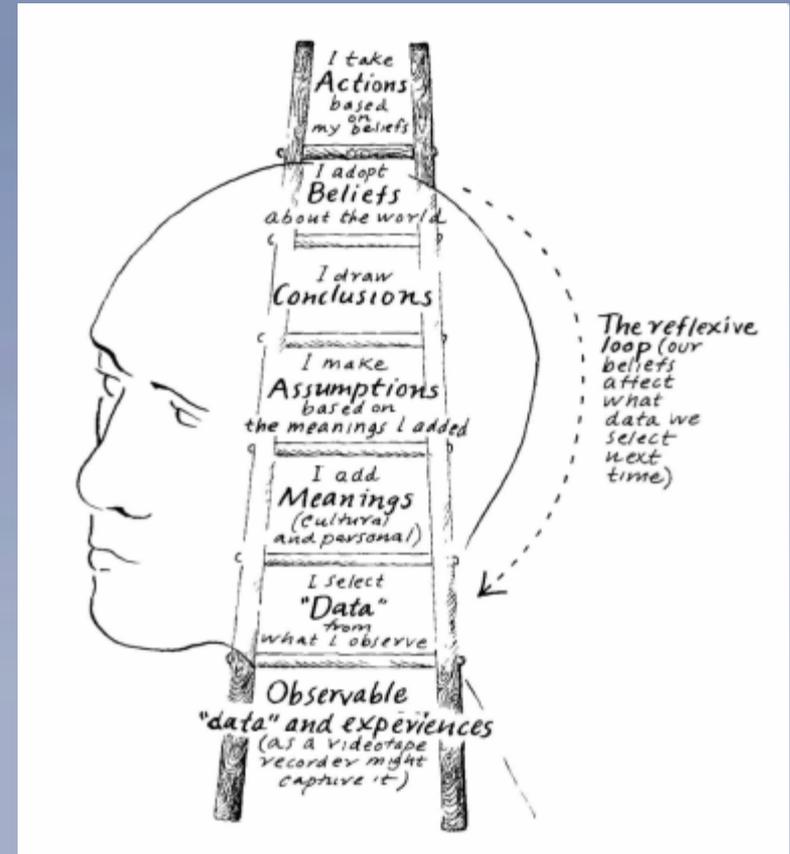
# Assessment for this training

## Page 10-12

“Interviewing is our only defense against mistaken expectations”

*Learning from Strangers, The Art and Method of Qualitative Analysis* (Weiss, R. 1994)

Full Assessment Resources on pages 30 - 34



The Fifth Discipline Field Book  
(Senge, et al., 1994)



# Taking Assessment to the Next Level

Use **Skillful Discussion** to Make Progress



# A Skillful Discussion Balances Inquiry with Advocacy



*Page 18 & 35 of Workbook*



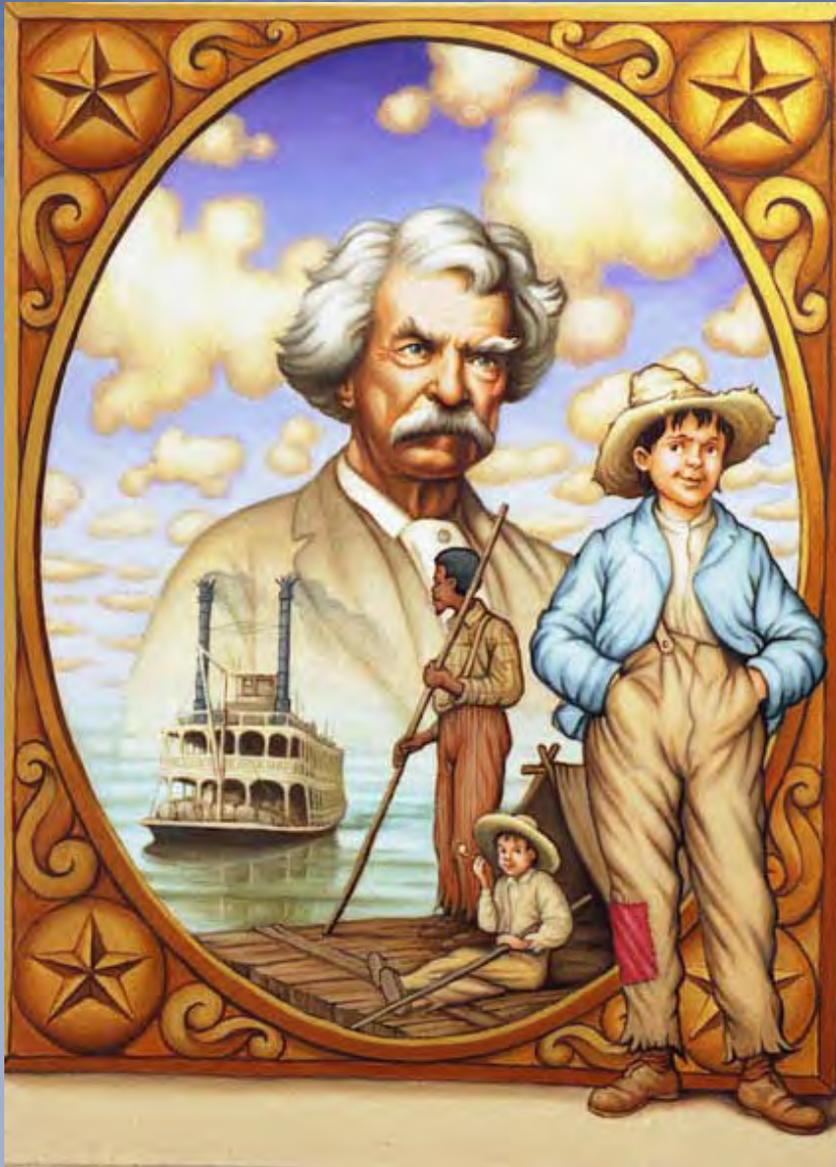
# Mental Models

*It ain't what you don't know that gets you into trouble.*

*It's what you know for sure that just ain't so.*

**Mark Twain**

*Workbook page 16 &  
Collaborative Learning Guide &  
Cultural Models Primer*



# Situation Mapping

Practicing Active Listening & Skillful Discussion being attentive to mental and cultural models

## **Purpose :**

to build shared understanding of the situation and the diversity of ways people see the issue, what they value and perceive as threats and barriers.

*Page 19*



# Building a Situation Map

## What are the important values you protect in your work?

Productive fishery resources

Healthy water quality

Wildlife habitat

Economic value

Property rights

Recreational opportunities

Management decisions made on best available science

Effective partnerships



# Building a Situation Map

**What are the greatest threats/barriers to the values you are protecting?**

Stormwater runoff

Economic pressures for development

Conflicts with management of shorelines

Invasive species

Conflicting priorities for action

Blame

Greed



# Building a Situation Map

## How does your work protect what you value from threats?

Participate in Collaborative Watershed Partnership

Monitor response to environmental change to facilitate adaptation planning

Build technology to track pollution source identification and control effectiveness

Document impacts of water pollution on ecosystem services to inform creation of policy and best practices

Foster adoption of science-based best practices









# Before I Forget

## Google:

- Basecamp
- Free Range Thinking
- Big Dog Little Dog Performance Learning
- Diffusion of Innovations
- The Fifth Discipline Field Book



# Building your knowledge and skills for Collaborative Learning to accomplish your bottom line

## Day 1 - The Assessment and Design Phases

(Select an aspect of your situation for the training)

Who should be involved: Role Assessment Activity

Building Shared Understanding : Situation Map Activity

## Day 2 - The Implementation and Evaluation Phases

Moving from Individual Reflection to Group Brainstorm of Ideas for Improvement

Develop Action Strategies with a Path to Outcomes

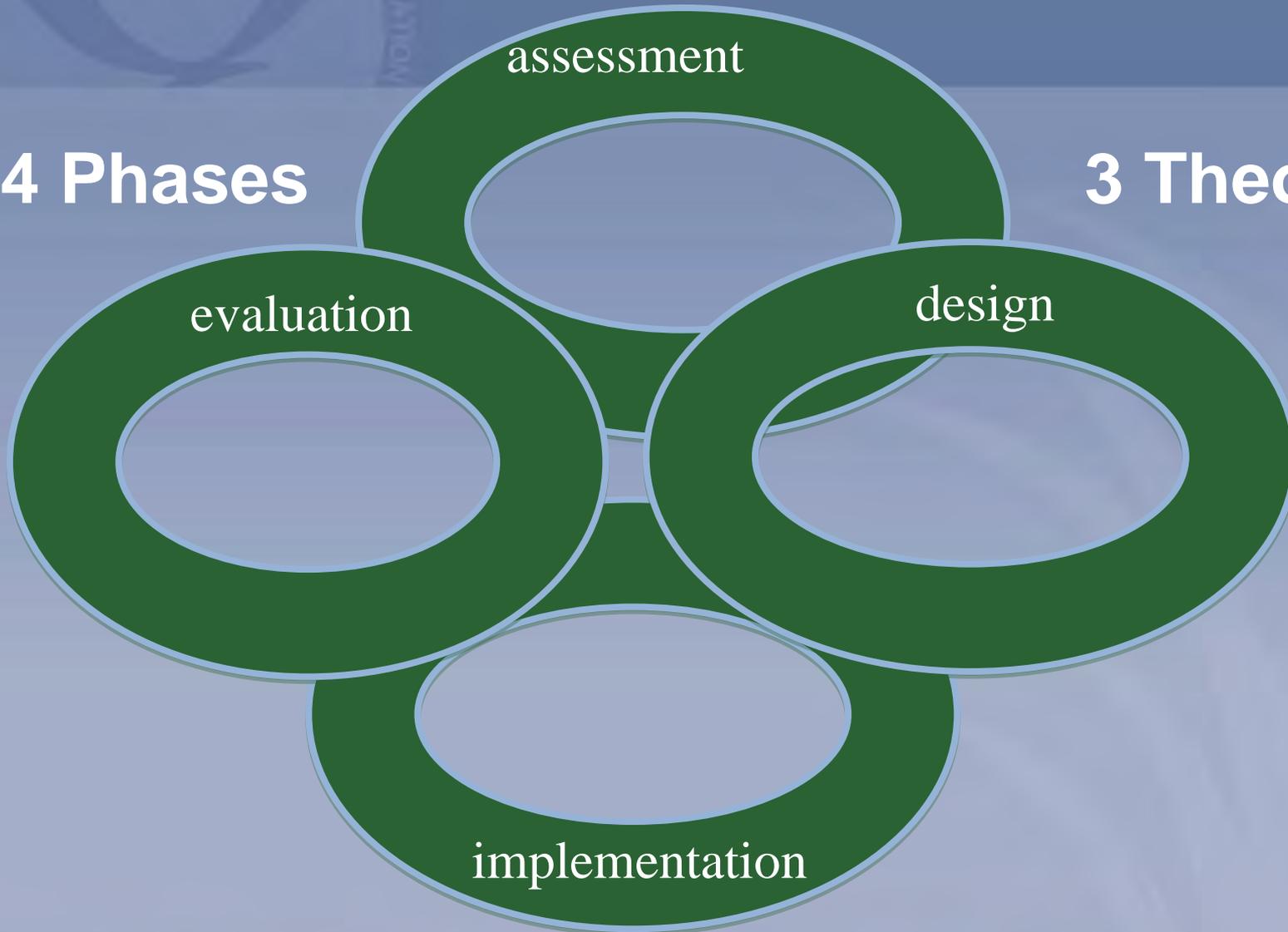
(Identify how you will move forward using what you have learned)



# Building your mental model of Collaborative Learning

**4 Phases**

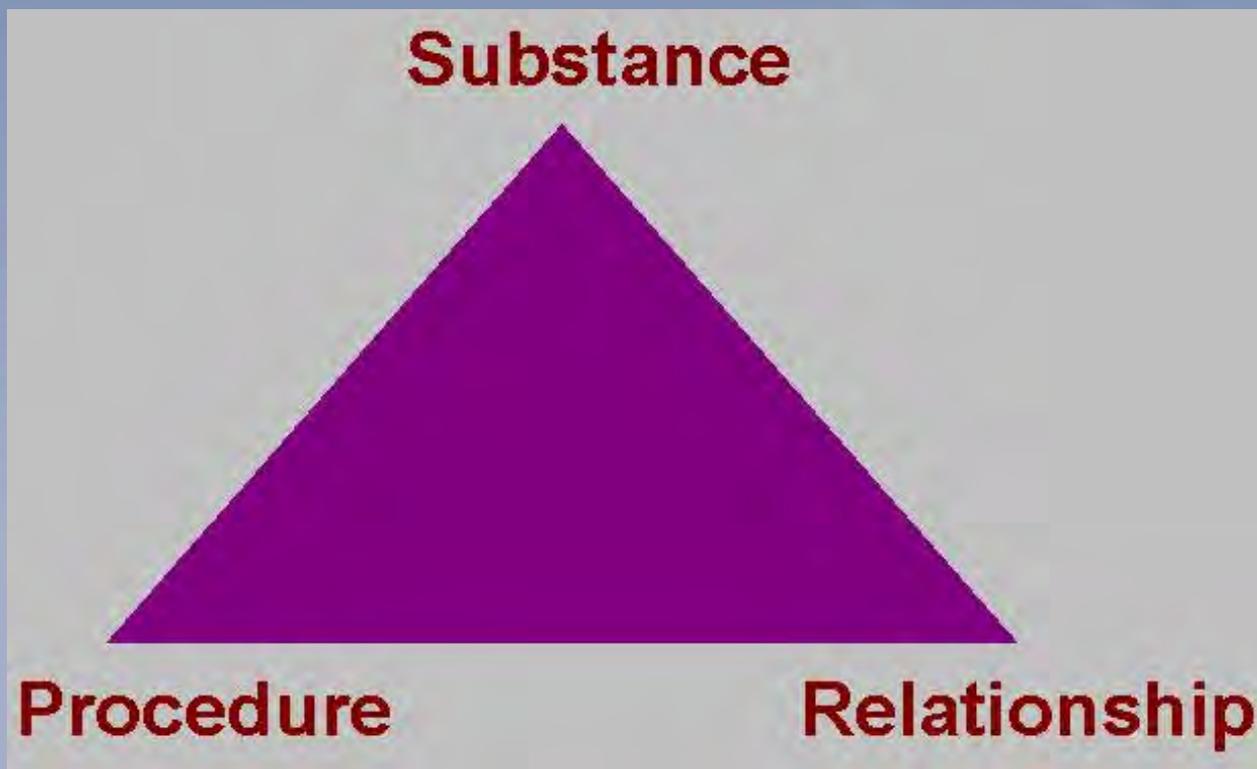
**3 Theories**



The Progress Triangle orients Collaborative Learning to manage conflict and improve a situation within 3 domains

“Conversations” for Assessment Workbook:11-12 & 30-32

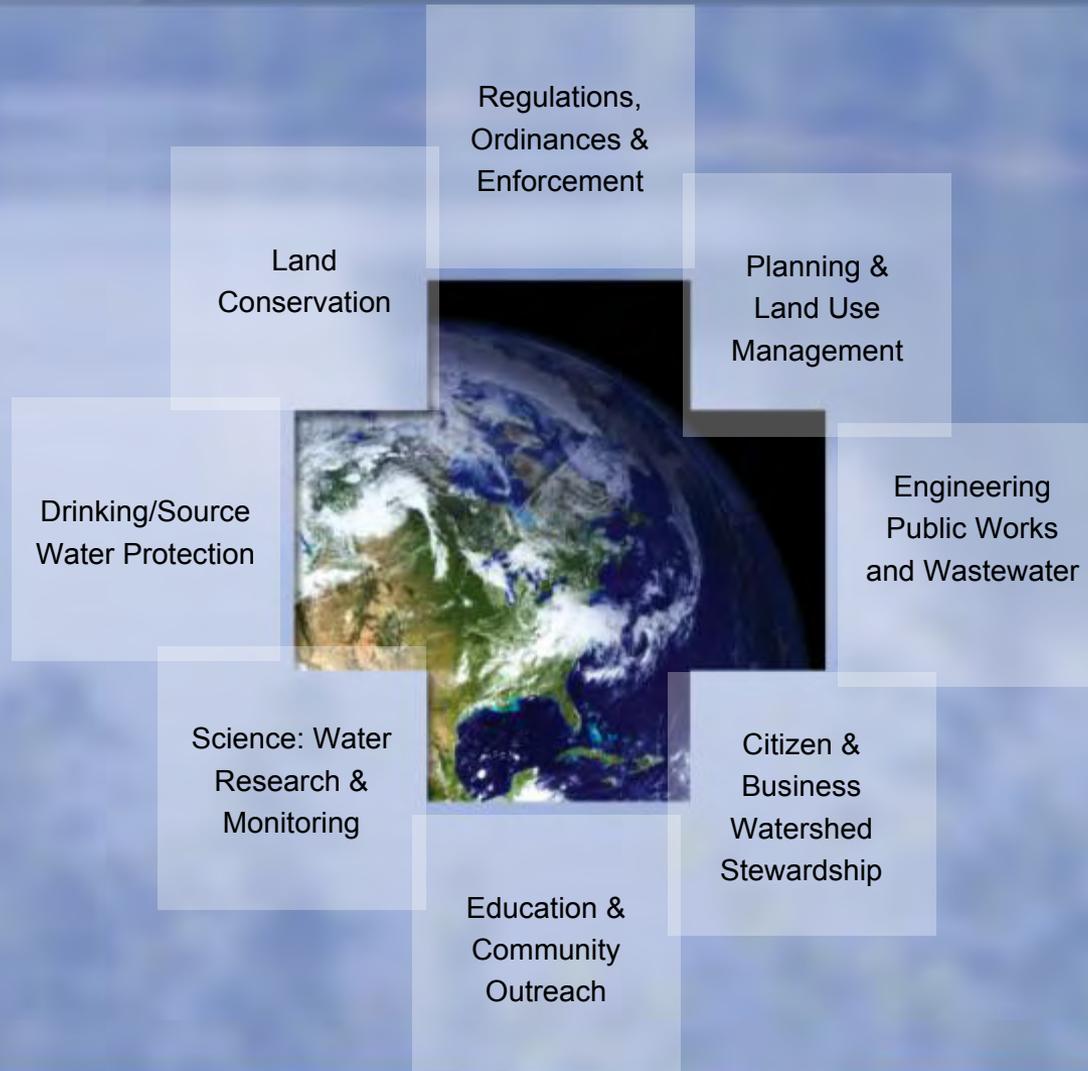
## Conflict Theory



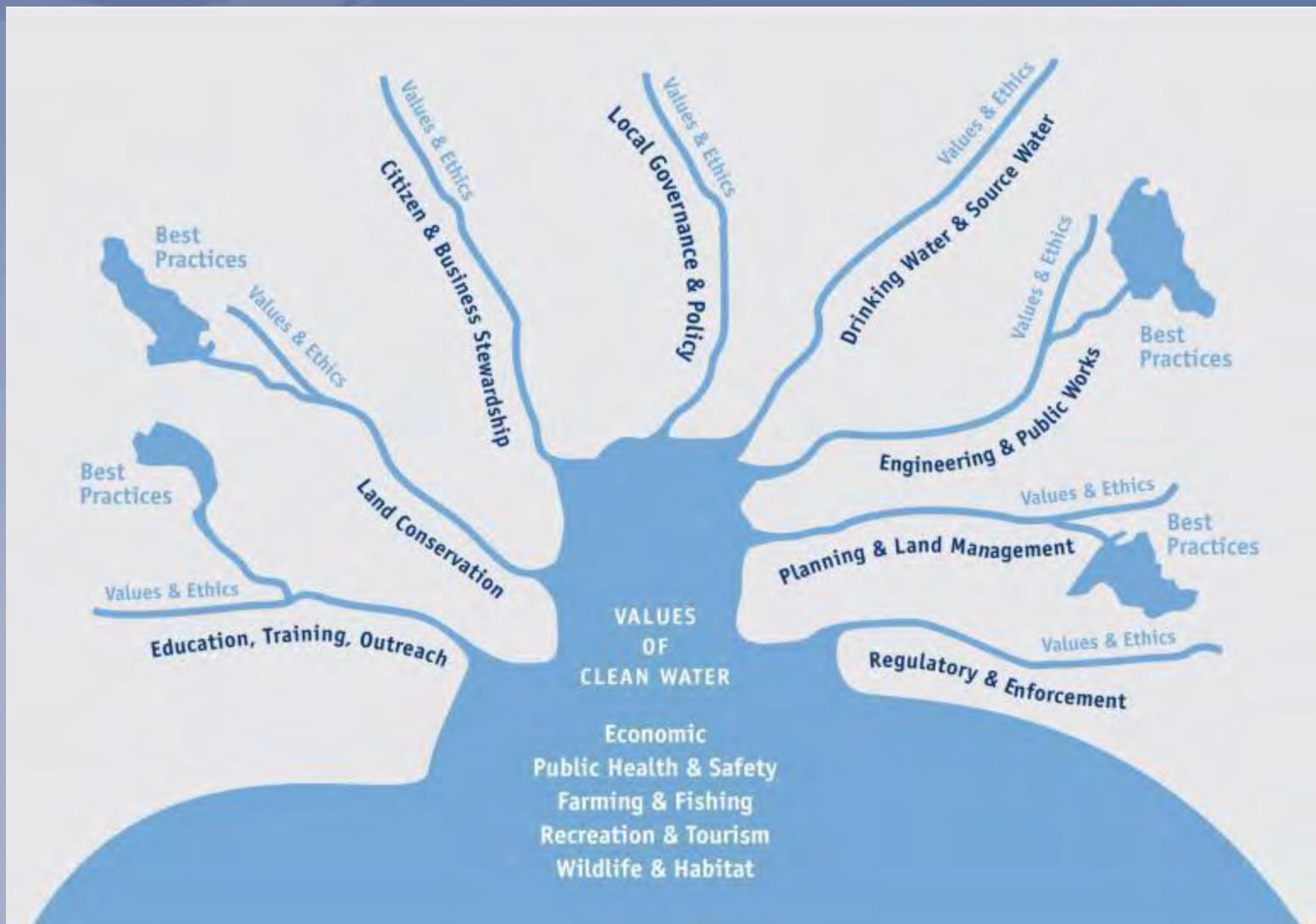
# Three Metaphors for the Systems We Work In



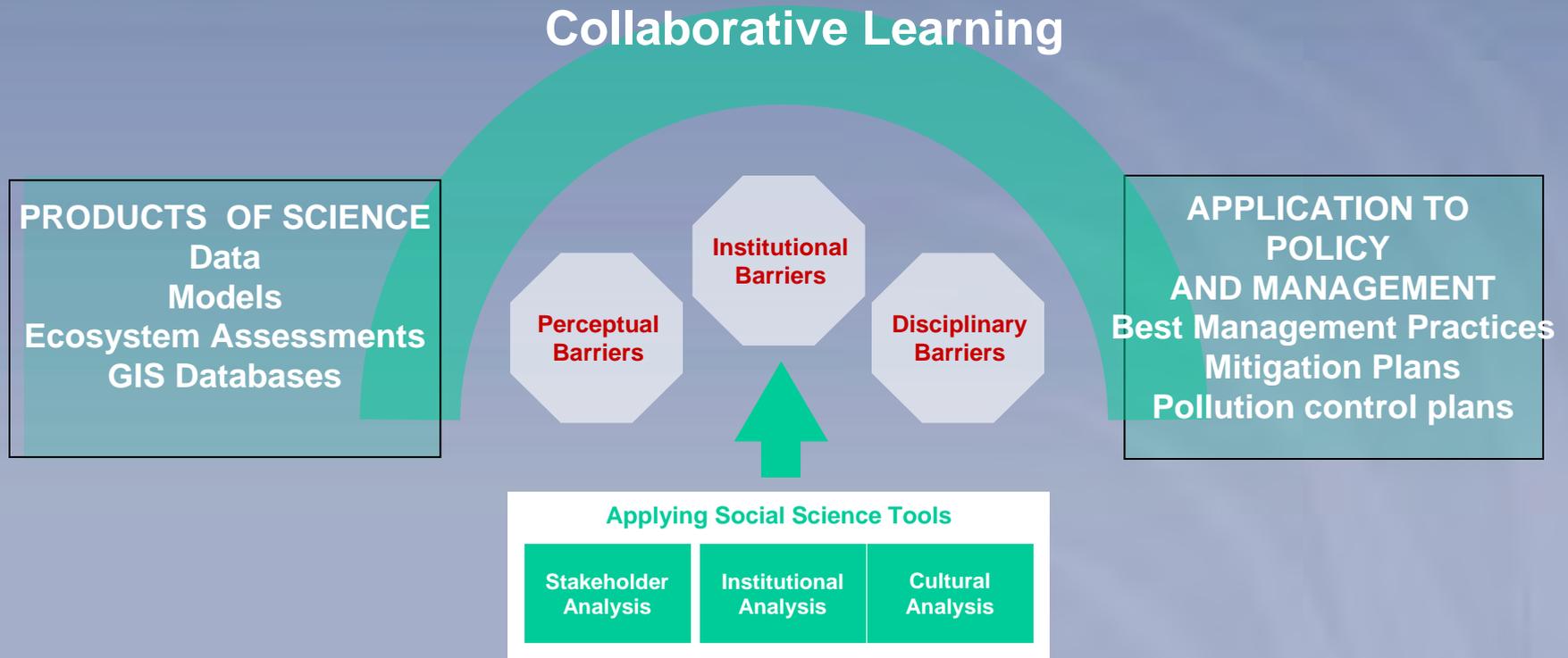
# Collaborative Learning Engages The Kaleidoscope of Expertise to Improve a Situation



# Collaborative Learning focuses on the Social Landscape That influences the Biophysical Landscape



# Collaborative Learning provides a Bridge connecting the “Products” of Science and the “Work” of Policy & Management



# Design: Social Contract (pg 20-21)

1. Based on a Solid Assessment
2. Safe
3. Respect expertise in the room
4. Learn by doing with self reflection
5. Iterative process
6. Mindful of adult learning principles



# Assessment Guides Design of Collaborative Learning Events



# Awareness of Mental & Cultural Models Can *Improve the Design of Collaborative Learning Events*

Cultural models are shared perceptions and attitudes about how the world works. They are implicit, taken for granted and operate below the level of consciousness.

## Resources:

Page 16 in Collaborative Learning Participant Workbook

Collaborative Learning Guide hard copy of case study

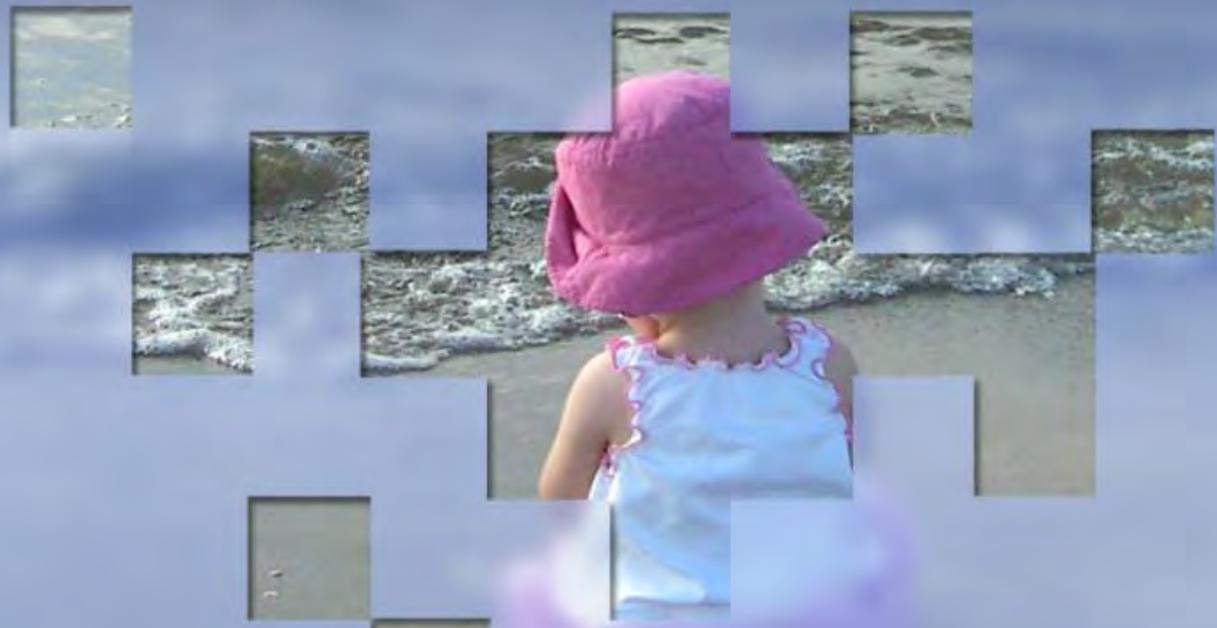
Cultural Models Primer web link

Ecology and Society Feature in Progress on Mental Models



# *Protecting Our Children's Water*

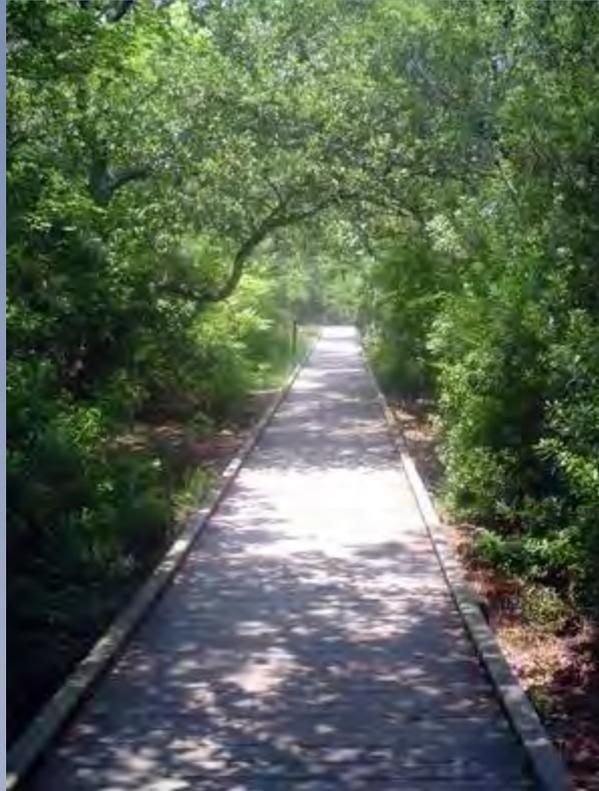
## Using Cultural Models and Collaborative Learning to Frame and Implement Ecosystem Management



Wetlands National Estuarine  
Research Reserve  
at Louisiana State University



Know the path connecting  
science to actions people will take



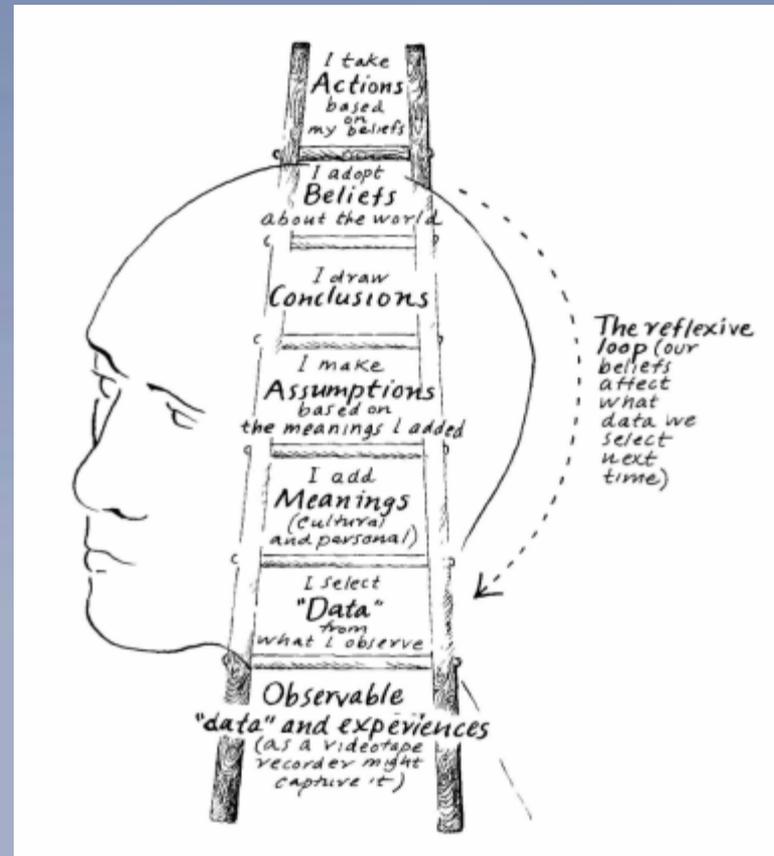
*“Just tell me what you want me to do...”*



Research Question	Linking Multiple Disciplines to CBEM	Strategic Tools Use: Theory & Practice
<p><b>Stakeholder Analysis</b>  <b>What are the cultural models of water, its management and pollution, used by stakeholders in municipal decision-making?</b></p>	<p>Cultural Anthropology</p> <p>Discourse Analysis</p>	<p>Ethnographic Interviews  Participant Observation  Cultural Models Theory</p> <p>Grounded Theory:  Constant Comparison Method</p>
<p><b>Institutional Analysis</b>  <b>How can knowledge of the cultural models used by stakeholders be used to improve community based ecosystem management? (CBEM)</b></p>	<p>Action Research</p> <p>Instructional Systems Design</p> <p>Environmental Communication</p>	<p>Logic Model  Strategic Program Planning  ADDIE Process</p> <p><b><u>Collaborative Learning</u></b>  Conflict Theory  Adult Learning Theory  Systems Theory  (+ Diffusion of Innovations)  (+ Community Based Social Marketing)</p>

# You can understand your mental models and recognize cultural models

Active Listening  
Personal Reflection  
Attention to language



# *What I learned from interviewing water managers in southern Maine*

- Why is water important?
- What are threats to water?
- What can be done to protect water?



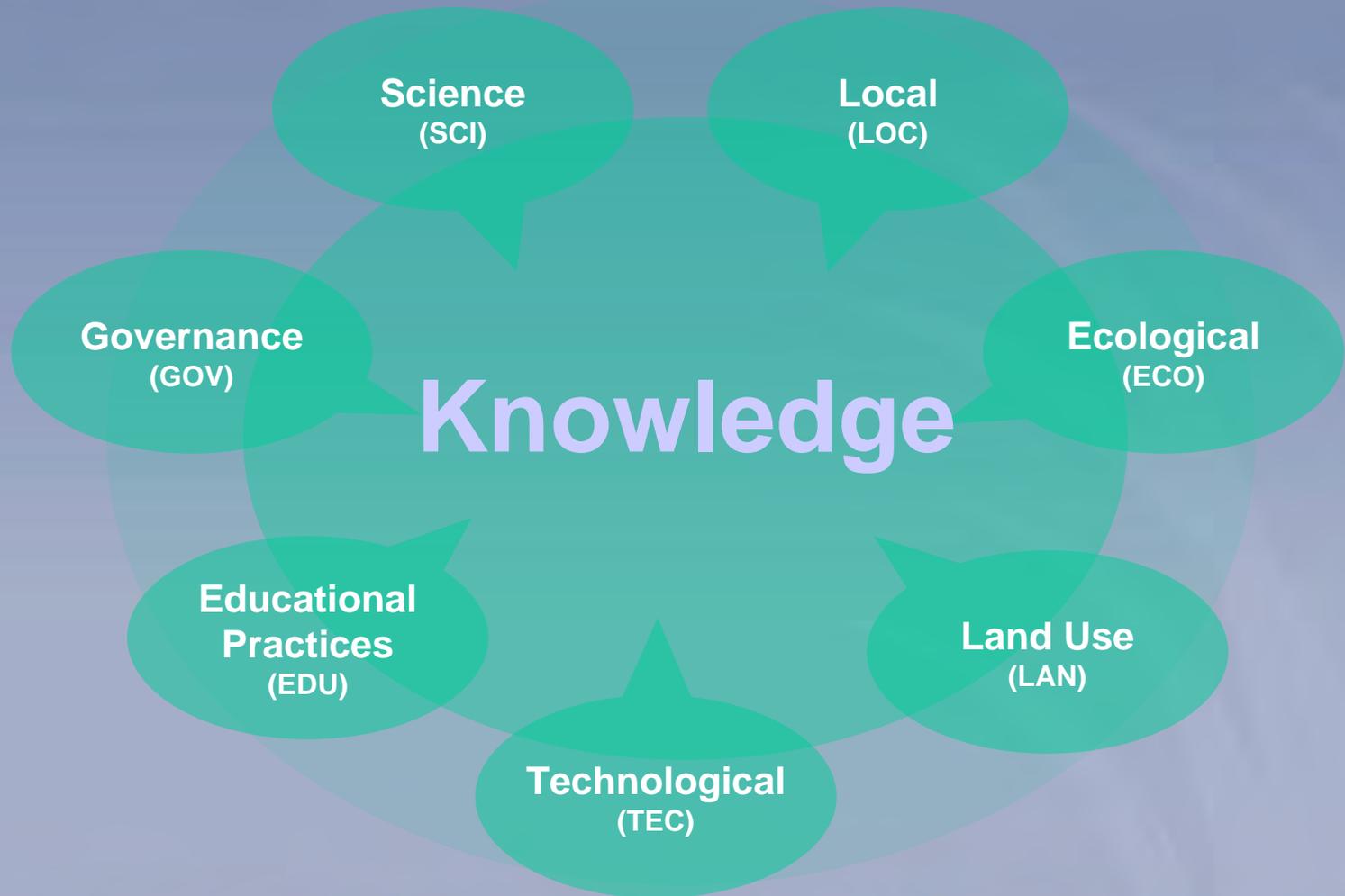
# How water is valued

Pages 6 & 7 in CL Guide

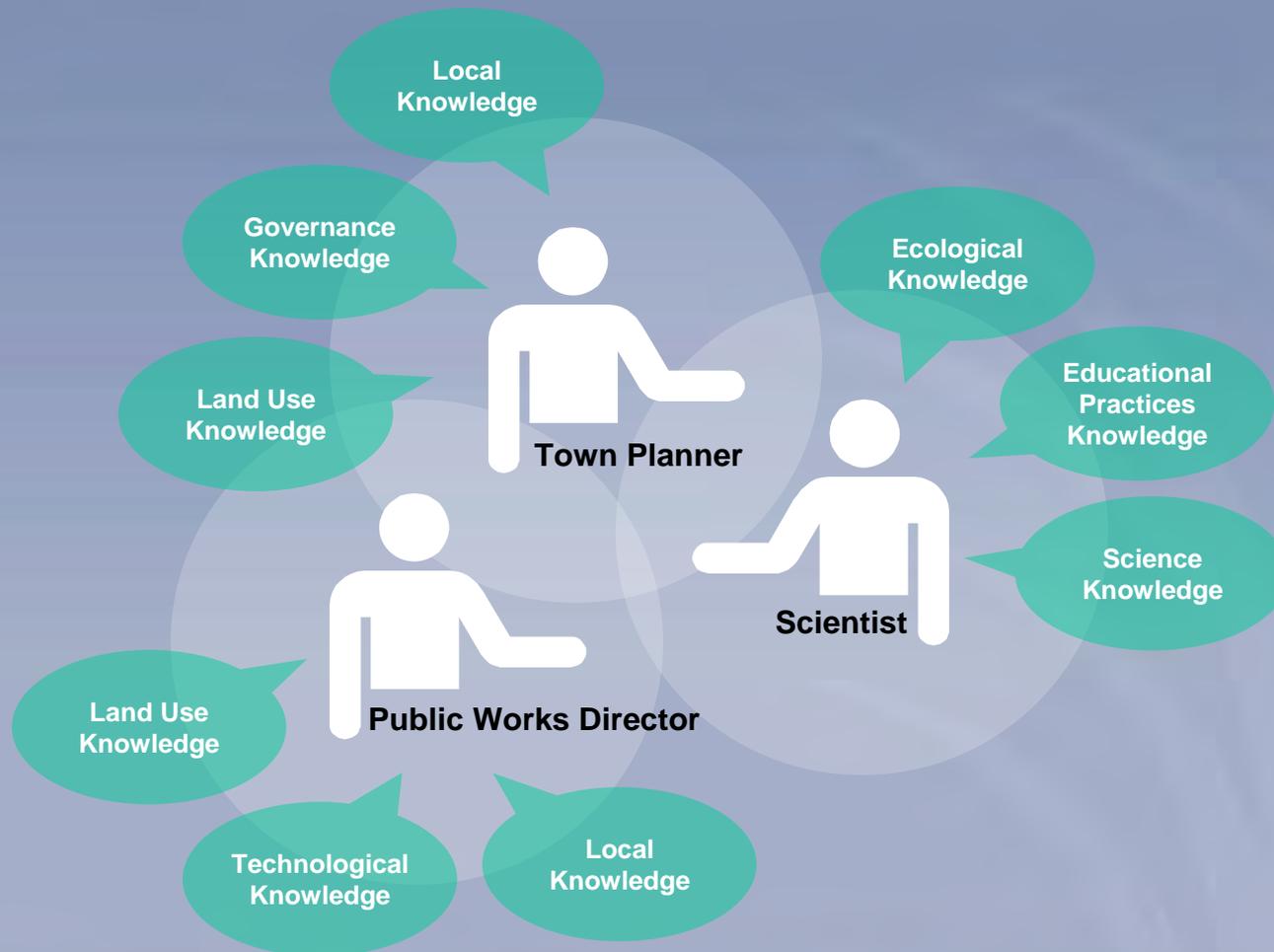


# 7 Ways of Knowing

*A Knowledge Resource for Collaborative Learning*



# Multiple Ways of Knowing are activated in dialogues



# Perceptions of Threats to Water's Value

## *A Diagnostic Cultural Model*



# *How can water be protected?*

*Compare your stakeholder system to the  
Southern Maine System of Water Decision-making*



# The Kaleidoscope of Expertise

*Multiple Lenses of Professional Practice*



# The Kaleidoscope of Expertise

*The Southern Maine System*

Regulations,  
Ordinances &  
Enforcement



# The Kaleidoscope of Expertise

## *The Southern Maine System*

Regulations,  
Ordinances &  
Enforcement

Planning &  
Land Use  
Management



# The Kaleidoscope of Expertise

## *The Southern Maine System*

Regulations,  
Ordinances &  
Enforcement

Planning &  
Land Use  
Management

Engineering &  
Public Works



# The Kaleidoscope of Expertise

## *The Southern Maine System*

Regulations,  
Ordinances &  
Enforcement

Planning &  
Land Use  
Management

Engineering &  
Public Works

Citizen &  
Business  
Watershed  
Stewardship



# The Kaleidoscope of Expertise

## *The Southern Maine System*

Regulations,  
Ordinances &  
Enforcement

Planning &  
Land Use  
Management



Engineering &  
Public Works

Citizen &  
Business  
Watershed  
Stewardship

Education &  
Community  
Outreach



# The Kaleidoscope of Expertise

## *The Southern Maine System*

Regulations,  
Ordinances &  
Enforcement

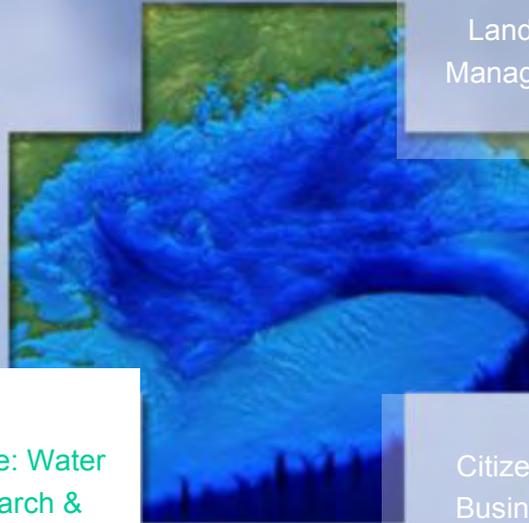
Planning &  
Land Use  
Management

Engineering &  
Public Works

Science: Water  
Research &  
Monitoring

Citizen &  
Business  
Watershed  
Stewardship

Education &  
Community  
Outreach



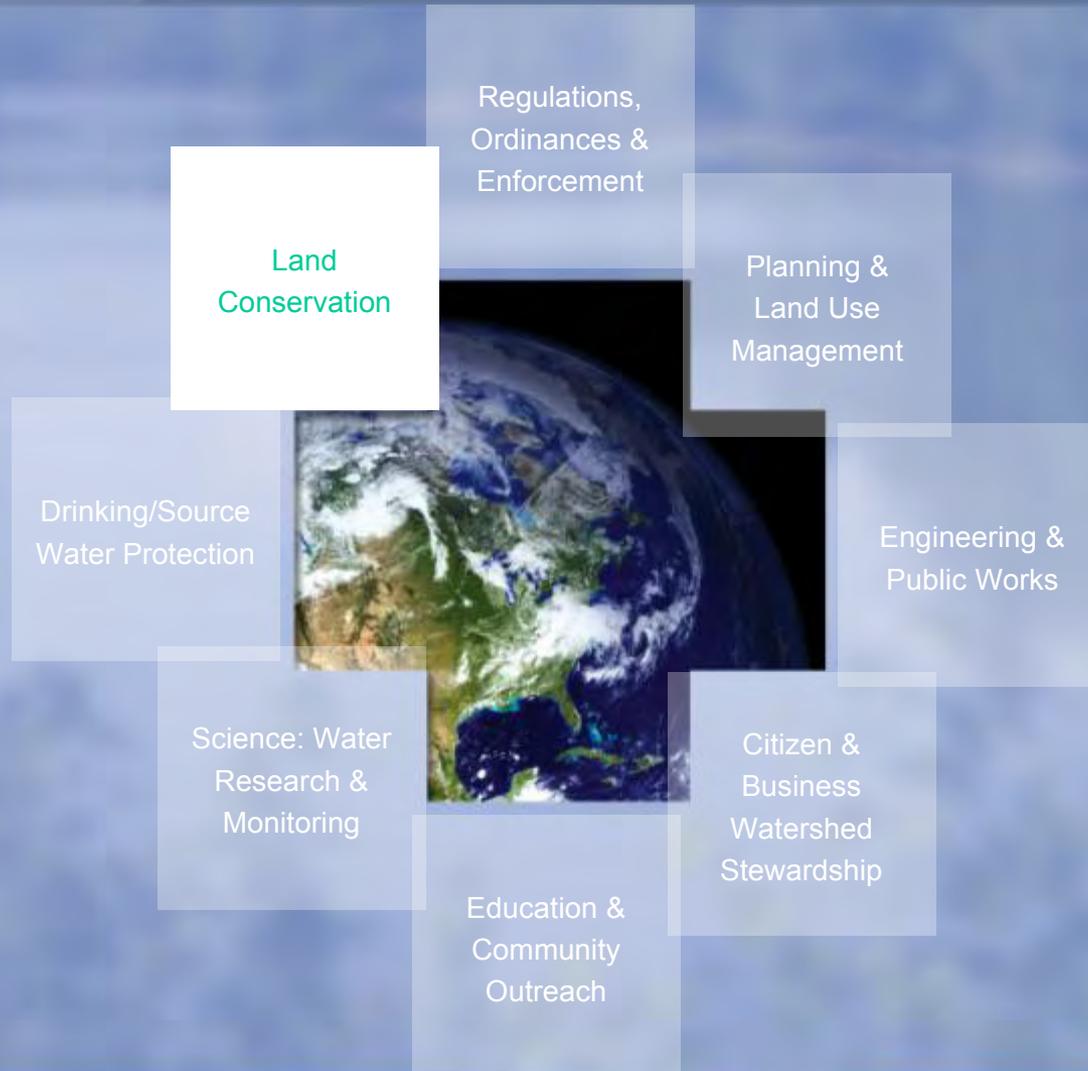
# The Kaleidoscope of Expertise

## *The Southern Maine System*



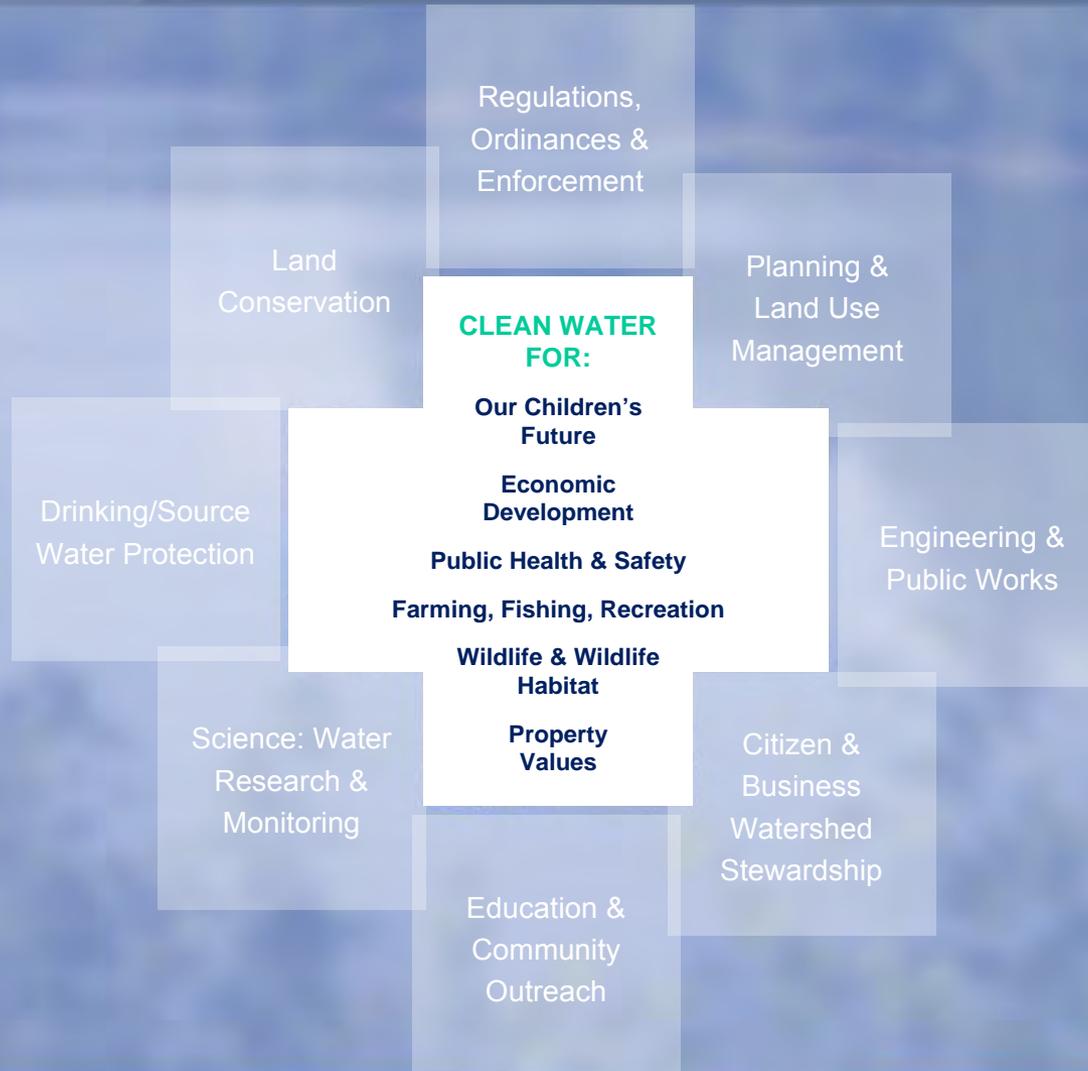
# The Kaleidoscope of Expertise

## *The Southern Maine System*

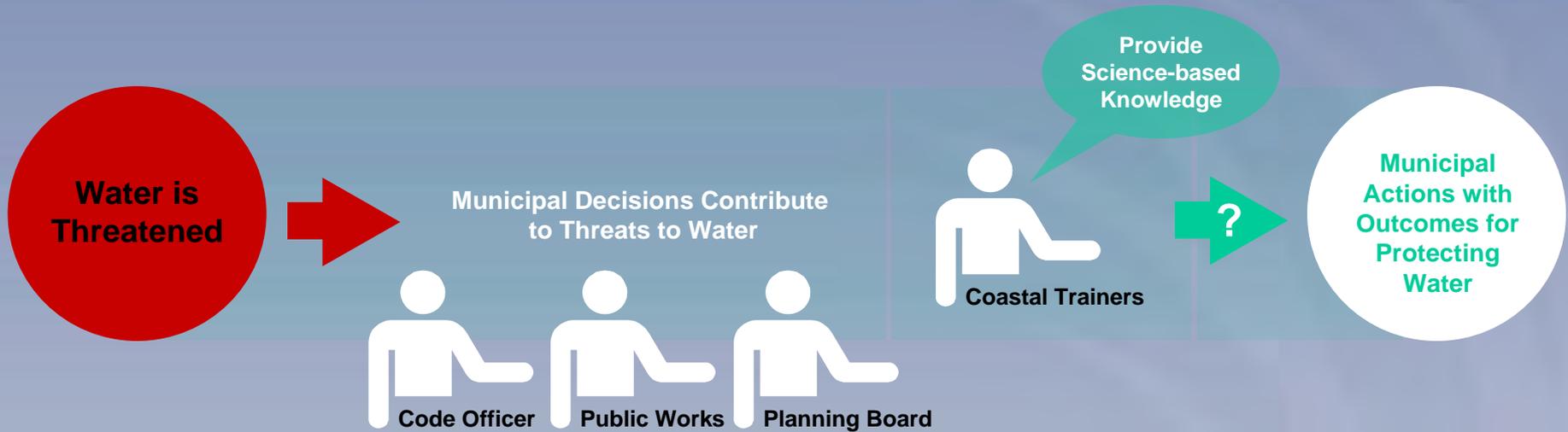


# The Kaleidoscope of Expertise

*Multiple lenses of professional practice with a core of shared values = Collaborative Potential*

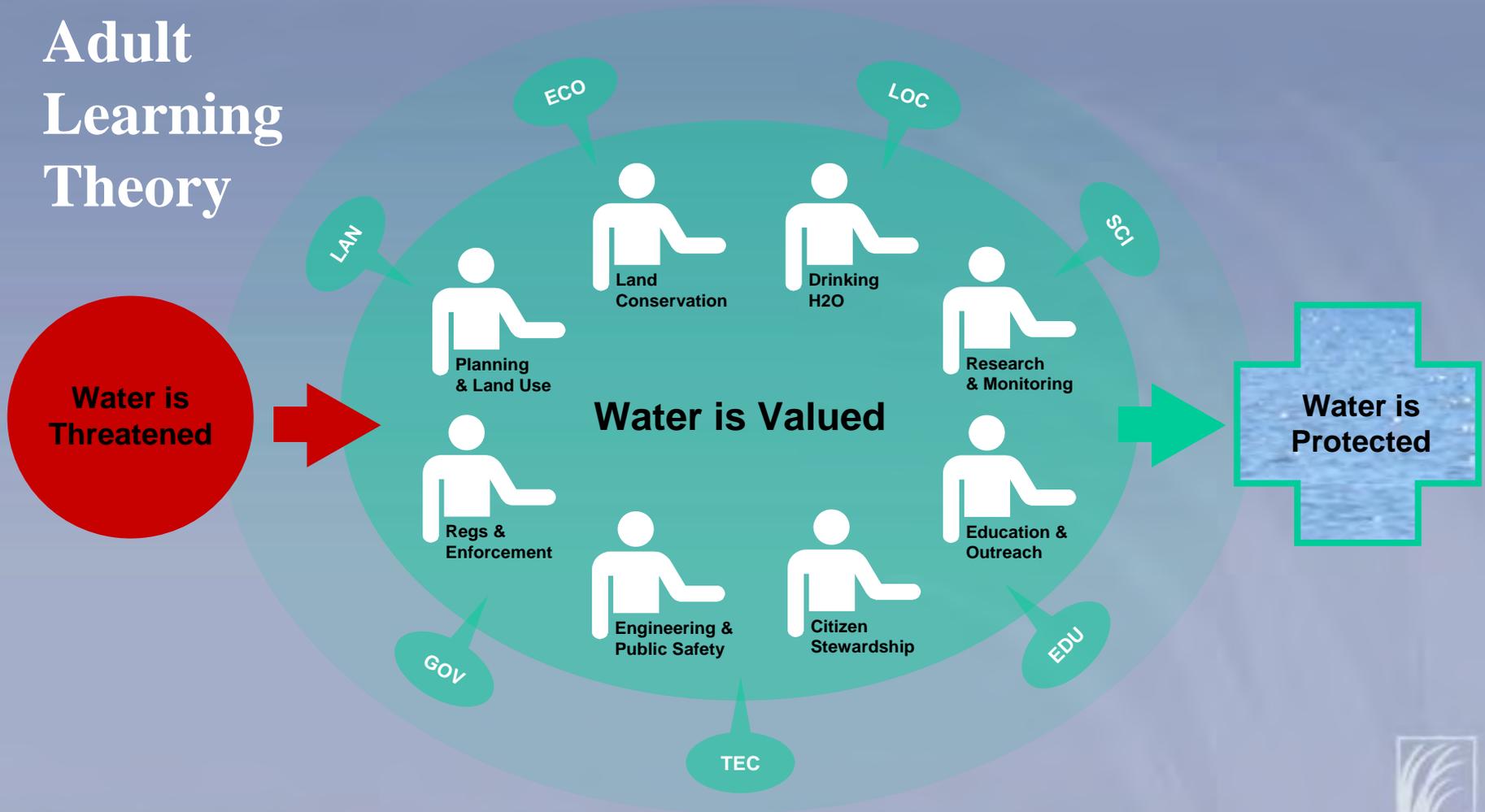


# Understanding the system transforms the Design from the “Delivery” Concept Model of Education & Outreach

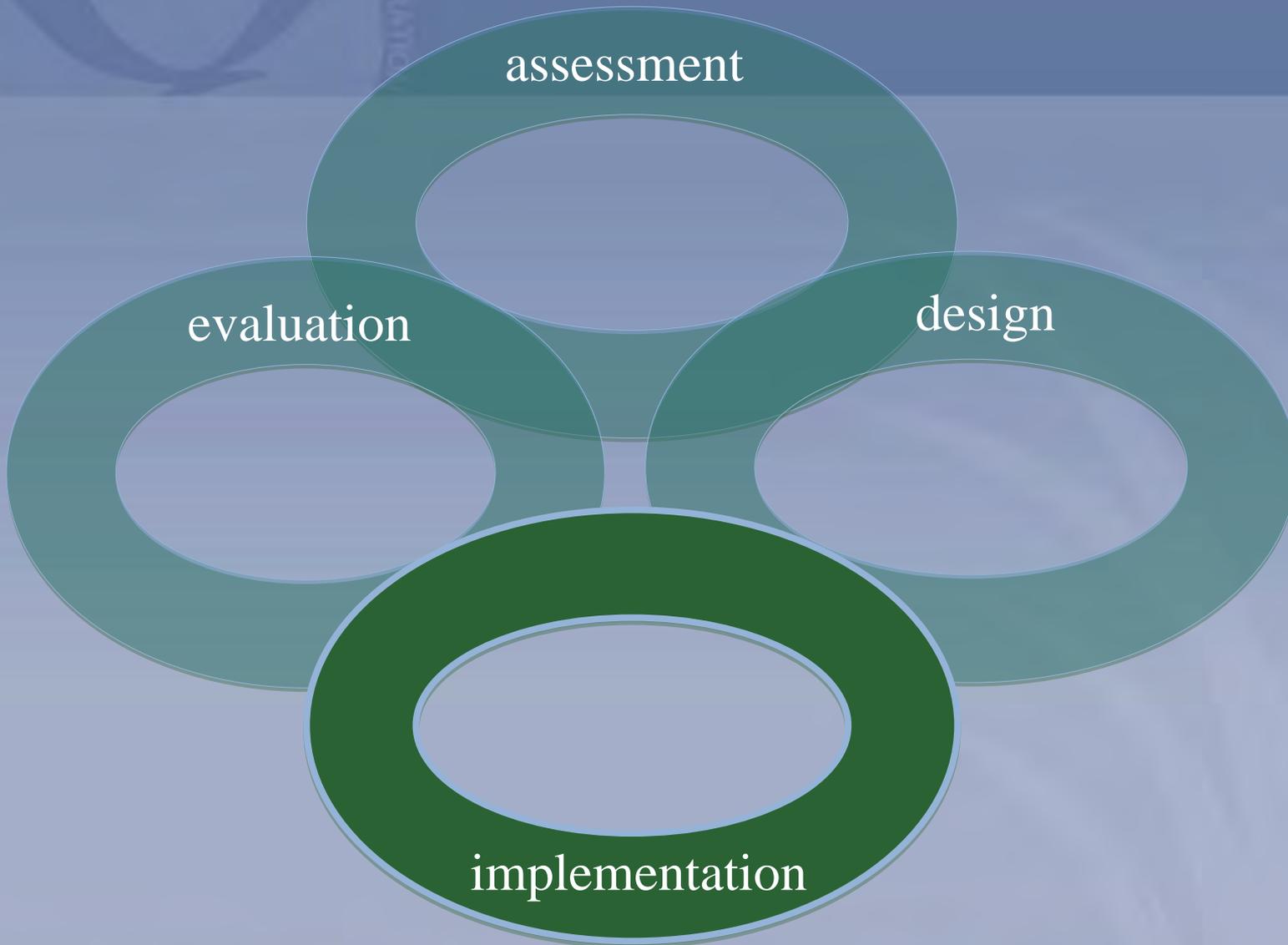


# Collaborative Learning designs events to engage the Kaleidoscope of Expertise as a Resource not a Receptacle

## Adult Learning Theory



# Phases of Collaborative Learning



# Implementing a Collaborative Learning Event

1. The “Way I See It...” *pg 22*
2. Listening for *most promising ideas* *pg 24*
3. *Most promising ideas* brainstorm *pg 24*
4. Ideas to Actions Worksheet *pg 24*
5. Path from Actions to Outcomes *pg 25*
6. Measures of Success *pg 26*

*Let's make Daniels and Walker proud!*



# 1. “The way I see it...”

- Personal written reflection based upon your expertise and understanding of the issue
- Separate sheet 37 (example on page 22-23)
- 15 minutes



## 2. Listening walk for “most promising idea”

- Partner and share your most promising idea uninterrupted for 10 minutes during a stroll around the facility
- Listener keeps time
- Total time 30 minutes
- Primes the cognitive pump for brainstorm to follow
- Make notes on worksheets after returning from walk



# Promising Ideas ... (pg 24)

Make the work that someone is already doing easier

Are achievable in the timeframe of the project

Are connected by a clear path to desired outcomes

May be the first step of a long-term strategy

Respect the realities of the culture within stakeholders work



# Promising Ideas . .

Provide missing information vital to the project

Identify key stakeholders not present in the room

Connect to important policy initiatives to accomplish outcomes

Identify concrete management practices that link to outcomes



### 3. “Most promising ideas” Brainstorm

- Use criteria for most promising ideas on page 24
- Flesh out your idea on pages 37 & 38 after your walk
- Facilitator will capture the most promising idea from team members and record each idea on the -

Ideas to Actions Flip Chart



# 4. Ideas to Action Worksheet

<b>Most promising idea</b>	<b>How will this idea improve the situation?</b>  <b>OUTCOME</b>	<b>What actions would make this idea a reality</b>	<b>Who needs to be involved to implement the idea?</b>	<b>What do we need to be aware of?</b>
<p>Identify sources of stormwater pollution through monitoring land-based runoff</p>	<p>Policies and management actions can be targeted to known sources and improvements in water quality can be compared against a baseline</p>	<ol style="list-style-type: none"> <li>1. Examine existing water quality data for hot spots</li> <li>2. Conduct field surveys for evidence of illicit discharges</li> <li>3. Record pollution sites in GIS database</li> </ol>	<ol style="list-style-type: none"> <li>1. Field Inspector</li> <li>2. Code enforcement</li> <li>3. Project team</li> </ol>	<p>Take action to find evidence for and quantify land based runoff. Important to examine our assumptions and identify the source of inputs. Identify reasons for inaction on known sources.</p>

# 5. Path from Action to Outcomes



# 6. Measures of Success Worksheet

Action Items	Measures of Success	Accountability	Comments
<p><i>1. Examine existing water quality data for pollution hot spots</i></p>	<p><i>Existing data is examined for geographic scope, sampling timeframe, database is created; hot spots are mapped</i></p>	<p><i>Field Inspector On-going task</i></p>	<p><i>Identify gaps in coverage of existing sampling regime. Share results within the sampling network.</i></p>
<p><i>2. Conduct field surveys for evidence of previously undetected illicit discharge</i></p>	<p><i>Hewlett's Creek watershed survey completed Fall 2012</i></p>	<p><i>City of Wilmington Stormwater Staff and Cape Fear River Alliance Volunteers By November 2012</i></p>	<p><i>Training will be needed and volunteers supervised</i></p>



# Sample Action Items

- Branch Brook Watershed (page 39)
- Salmon Falls Watershed Collaborative



# Implementation Phase

- 15 min The way I see it Finish by 10:45
- 30 min Listening Walk Finish by 11:15
- 1 hour 15 min Steps 4 – 6 take noon lunch break
- Finish Steps 4-6 by 1:30
- Report out at 1:30 on Step #6 One Action Item



# Promising Idea Template

Who will do What by When



# Implementing a Collaborative Learning Event

1. The “Way I See It...” *pg 22*
2. Listening for *most promising ideas* *pg 24*
3. *Most promising ideas* brainstorm *pg 24*
4. Ideas to Actions Worksheet *pg 24*
5. Path from Actions to Outcomes *pg 25*
6. Measures of Success *pg 26*



# “Working Together to Get Things Done”

## A Story about an Award Winning Watershed Partnership

The Salmon Falls Watershed Collaborative  
*2012 Winner of the United States Clean Water Alliance Water Prize*



# 5 Ingredients for Success

- 1. Visionary Leadership**
- 2. Funding to implement the vision**
- 3. Committed partners willing to seek synergy**
- 4. A rigorous methodology for learning and engagement**
- 5. Partnership support and communication**



# Salmon Falls Watershed Collaborative

Working beyond Borders  
to Protect Water in the Salmon Falls Watershed, Maine and New Hampshire



# Phase I: Collaborative Learning Assessment

## Improving the Relationship aspect of the situation

- Who will provide stakeholder input?
- How can stakeholders be engaged in the Collaborative ?
- What is the status of existing knowledge, planning, management and conservation efforts in the communities of the watershed ?



# Partners in the *Collaborative* Share the Mission

## A “Community of Practice”

- Piscataqua Region Estuaries Partnership
- Acton Wakefield Watersheds Alliance
- City of Rochester
- City of Somersworth
- EPA
- Granite State Rural Water Association
- Great Bay NERR
- Southeast Watershed Alliance
- Strafford Regional Planning Commission
- Town of Berwick
- Trust for Public Lands
- USDA
- Maine Center for Disease Control
- Maine DEP
- Maine Forest Service
- Maine NEMO Program
- Maine Rural Water Association
- Moose Mountains Regional Greenways
- NHDES
- South Berwick Water District
- US Forest Service
- Wells National Estuarine Research Reserve
- York County Soil and Water Conservation District



# Engage the Kaleidoscope of Expertise

*A Watershed Protection System (Feurt, 2008)*



# Phase 2: Designing Collaborative Learning events to make progress developing a Watershed Action Plan

1. Monthly Conference Calls
2. Basecamp to Manage Team Communication
3. Quarterly Face to Face Meetings
4. Field Based Trainings
5. Beyond Borders Workshop
6. Development of Action Plan
7. Professional and Community Outreach
8. Continue Professional Practice



Evaluation as each event occurs to guide the progress on developing the action plan







List of...  
List of...  
List of...  
List of...  
List of...

Ken  
L.M.  
Ken

Conservation



**Is Your Land Use Agenda in Sync with Storm Water Protection?**



...with storm water protection...

**Is Stormwater Headed in the Right Direction?**



...stormwater management...

**Watershed & Land Use Management**



...watershed management...

**Atta River Watershed Management Plan**



...Atta River Watershed...

**Integrated Land Use Environmental Plan**



...integrated land use...

**Water Quality**



...water quality monitoring...

**Watershed and Groundwater Protection Examples**

**Faugus Bay, City of Laconia**



**Illustration of Stormwater BMP Functions**

...stormwater BMP functions...

**Pennichuck Brook, Pennichuck Water Works**



**Illustration of Rainwater and Low Impact Development and Stormwater BMPs**

...rainwater and low impact development...

**Tri-Town Aquifer, Towns of Belmont, Northfield and Tilton**



**Local Separation Zoning Ordinances Adopted in 2014**

...local separation zoning ordinances...

Evaluate success at engaging the right people in the Workshop to provide input into action items



# The Workshop Generates Ideas for the Action Plan - those ideas must be evaluated

Working in small groups  
stakeholders focus on work  
related challenges

1. What are the values of water that you protect in your work?
2. What are the threats to water that you deal with in your work?
3. What are your current top priorities related to protecting water from threats?



Barbara Miller - killed w/ planning training  
Program for citizen action/esp/  
Comp act/does/...

Tom Willis - some Town of Somersworth  
Public water & utilities

Peter Day - Town of Somersworth  
planner

James ~~Smith~~ - Sierra Westinghouse  
Hazardous - top -  
Sustainable plan - company now involved in  
Trusts - EPA report 2  
with 2000/2001/2002/2003

Chris development -  
Conservation + H2O shed  
Buildout  
education  
C10  
Top of summit D

1. C10 - perhaps focus on opposition to fighting against pollution etc

2. Some development - water - build out water pit bill.

One consistent model to use for all the states  
- VP and track education  
- lot of common in  
- perhaps across the country  
- better there for information exchange

## Groups generated ideas in 5 Categories:

1. Information needs
2. Education and Outreach
3. Planning
4. Regulatory Approaches
5. Conservation Strategies



WORKING W/ MUNICIPAL  
OBSERVATION & DATA

2010, Use Support Status for Aquatic Life

Christina Jennings

# Evaluation of Ideas: Education & Outreach

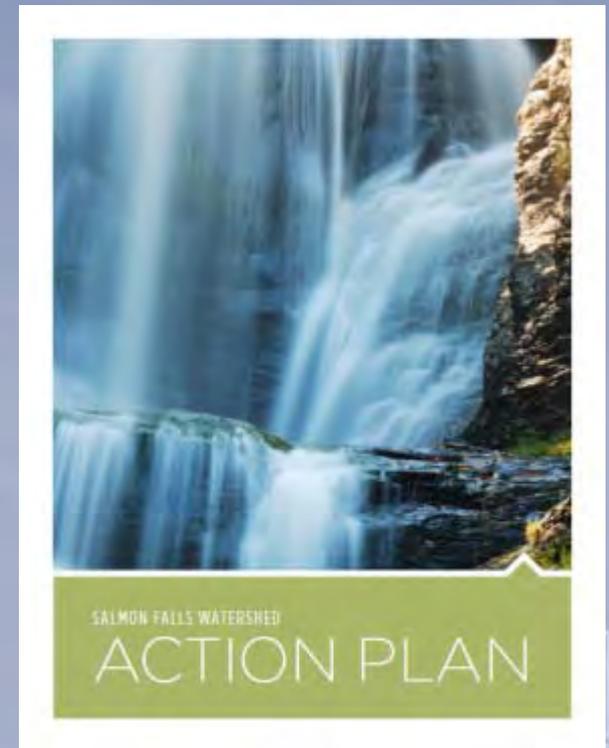
Please Choose your #1 priority (Substance & Process)

1. 'Library' of Electronic Maps
2. Multi Media Outreach Toolbox
3. Training for Municipal Officials
4. UNH Stormwater Center Tour
5. Road Sand/Salt Training for Municipal Staff
6. LID Demonstration Project
7. Engage Youth & Families
8. Advocacy for BMP/Legis.
9. School Based Programs

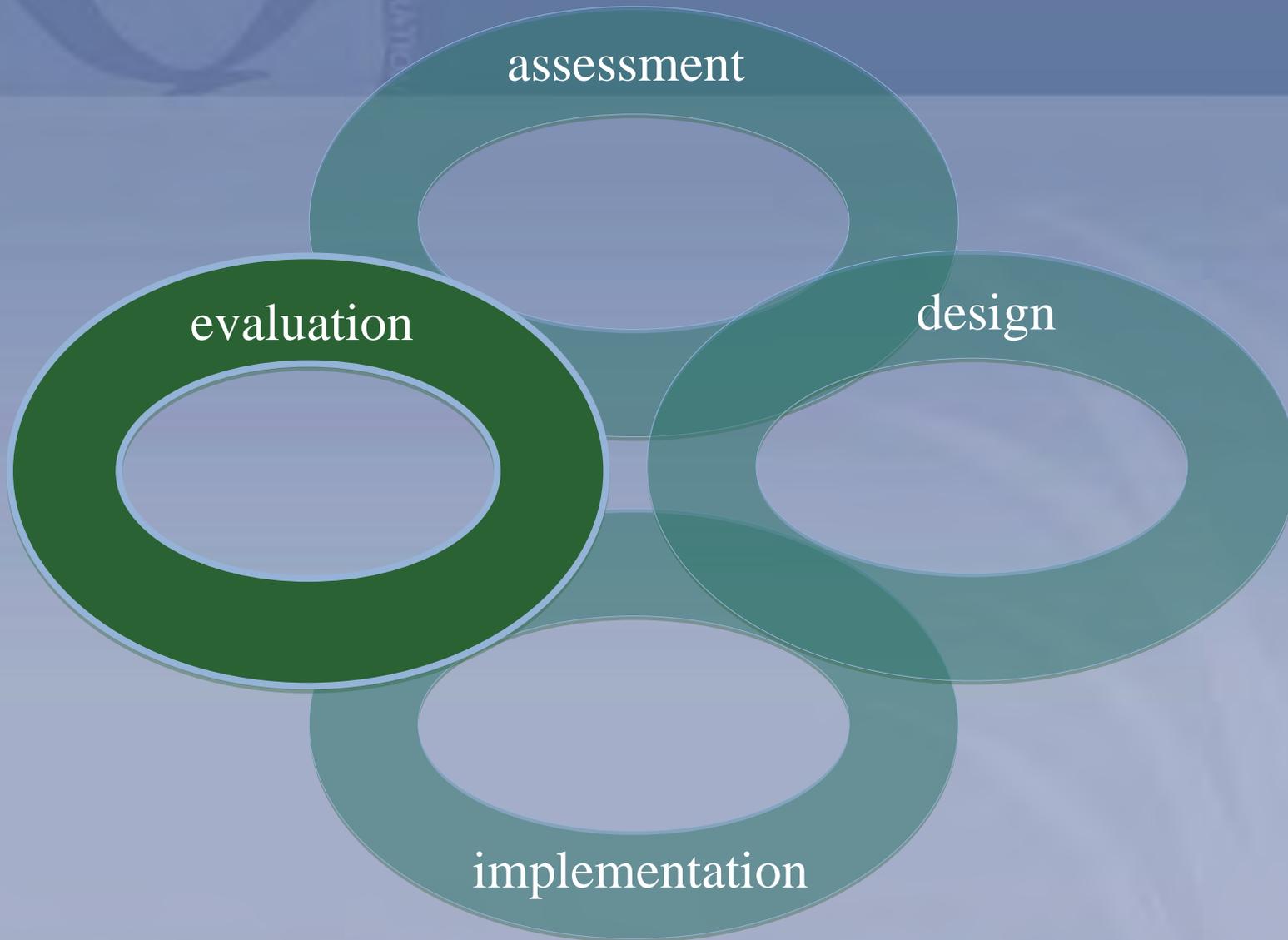


# Phase 4: Evaluate Stakeholder Input to Create the Action Plan

Following the Workshop the worksheets, flip charts and key pad poling results were evaluated to produce The Salmon Falls Watershed Collaborative Action Plan



# Phases of Collaborative Learning



# Examples of Evaluation Metrics (pg 27 & 28)

1. Changing perceptions of the situation
2. Factors contributing to the usefulness of the Collaborative Learning process
3. Judgments concerning the Collaborative Learning process
4. Effect of the workshop on participants views of stakeholders
5. Generation of collaboratively developed vision (plan, practices)



# Open Ended

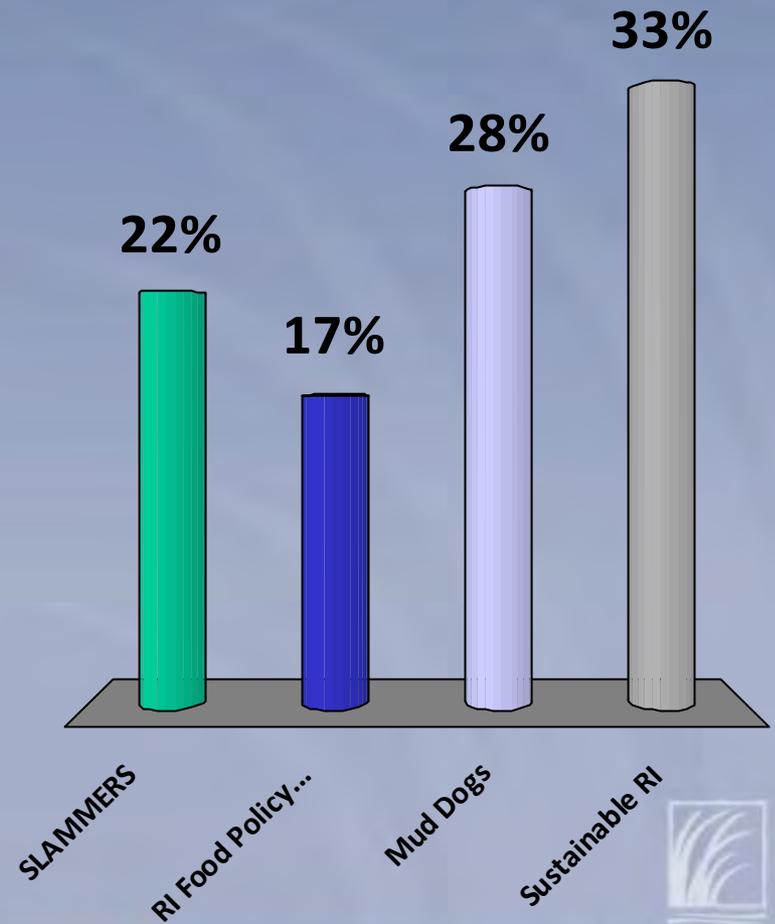
How has your understanding of the situation changed as a result of participation in this partnership?

Who else should we contact as we develop the Collaborative Research Grant proposal?



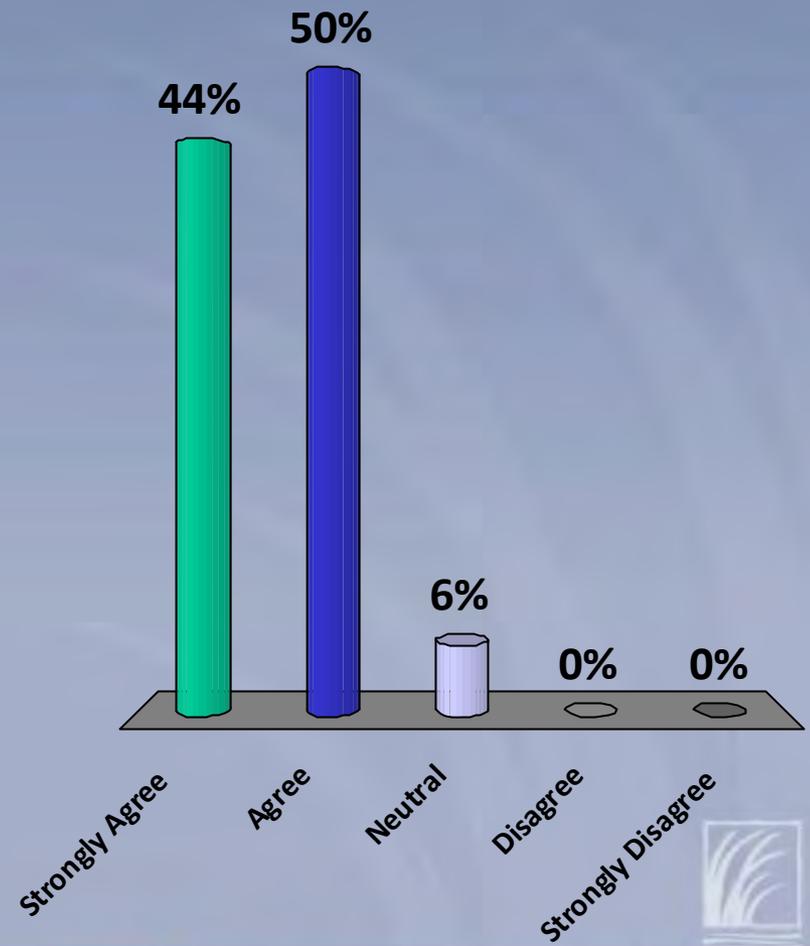
# Please indicate which group you are working with for the purpose of this training

1. SLAMMERS
2. RI Food Policy Council
3. Mud Dogs
4. Sustainable RI



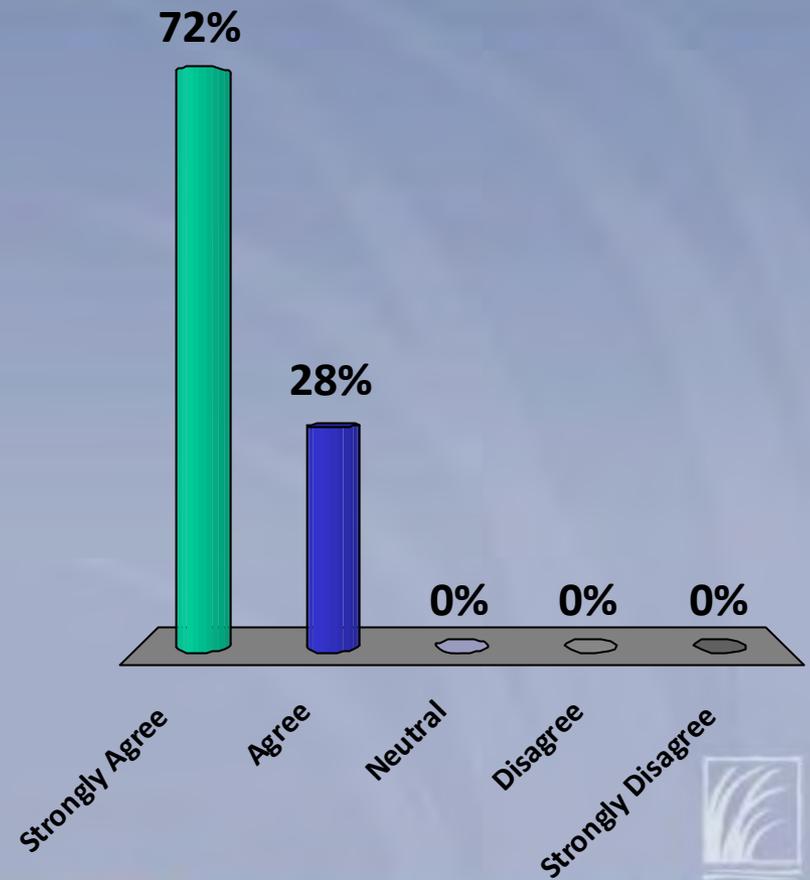
# My understanding of the situation has increased as a result of this workshop

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



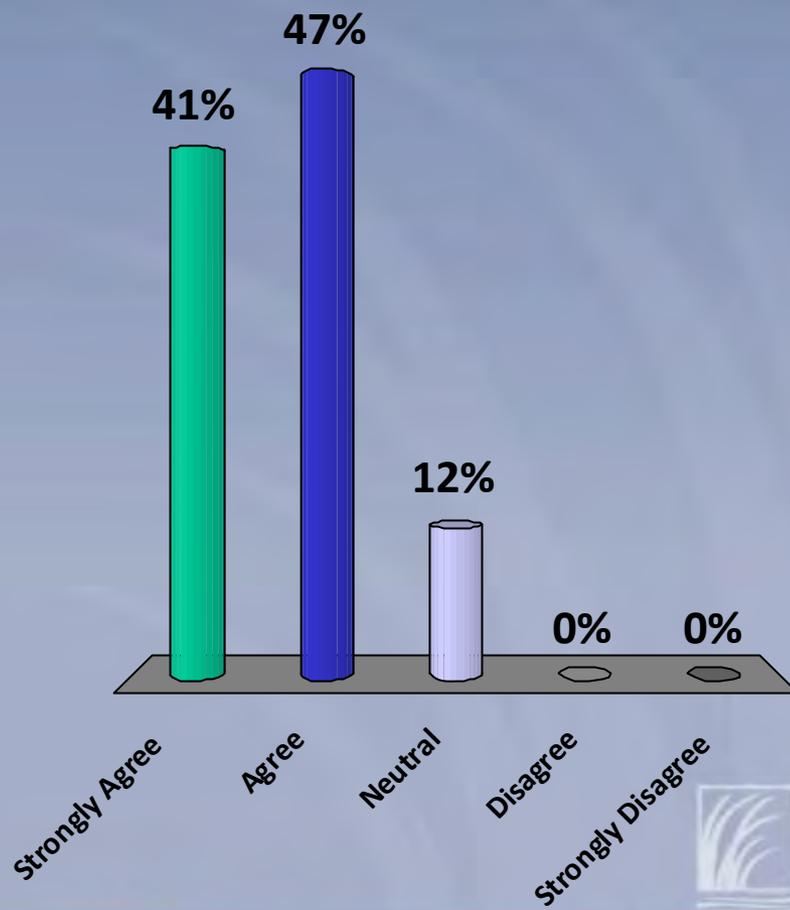
# Conducting interviews/conversations with key stakeholders contributes to designing a collaborative process.

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



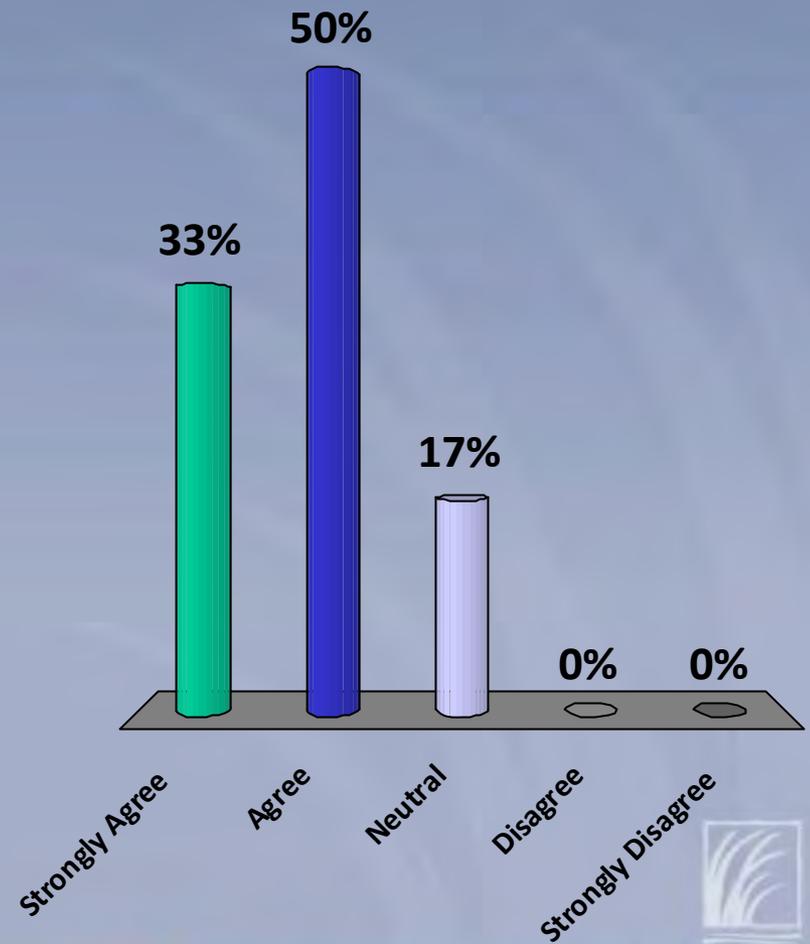
# I feel confident that I can use interviews to conduct an assessment

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



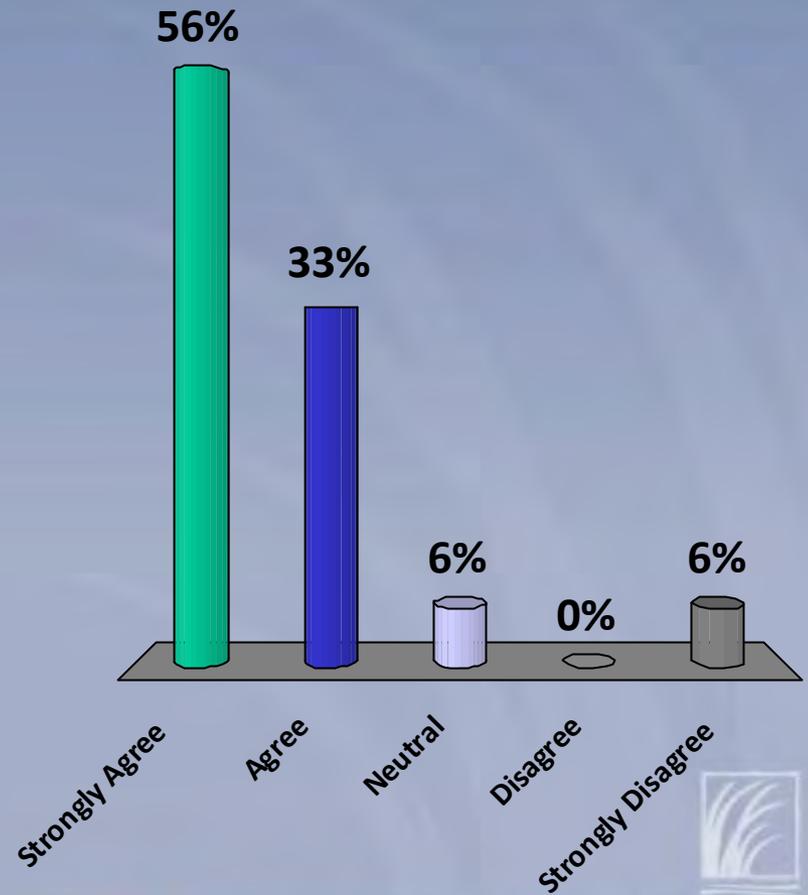
# The listening walk was effective for generating “most promising ideas”

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



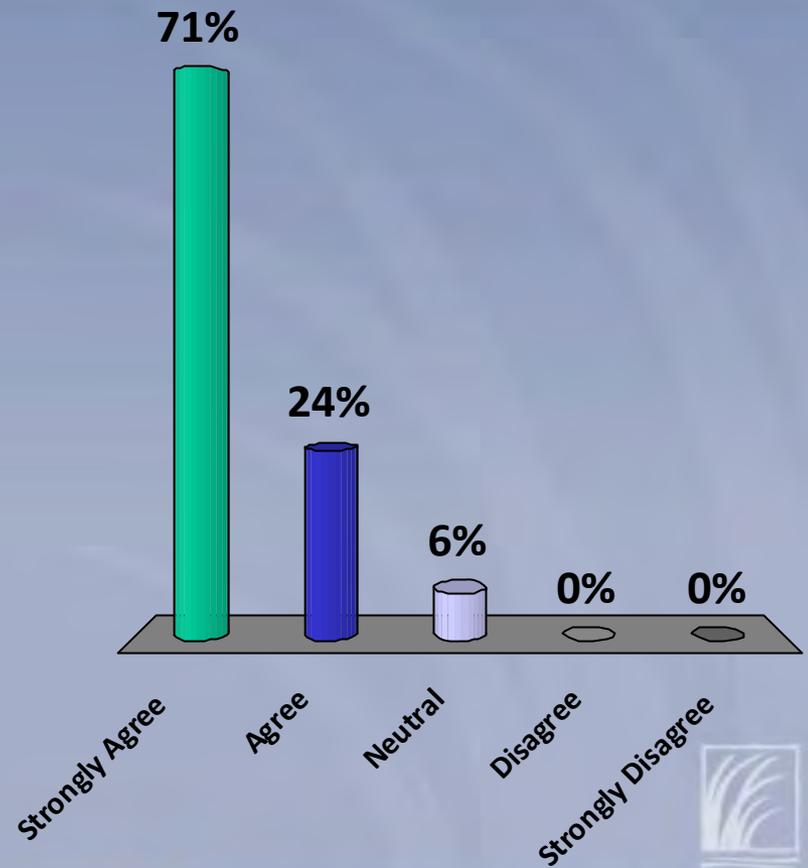
# Key pad polling is an effective way to engage participants

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



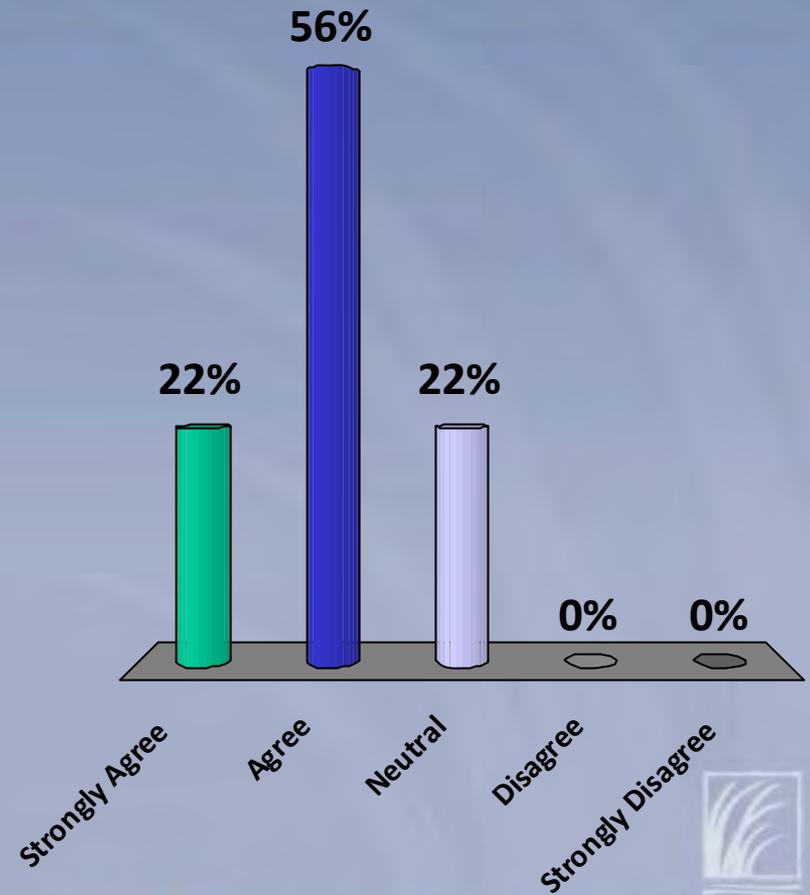
# A skilled facilitator is important for a successful CL process.

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



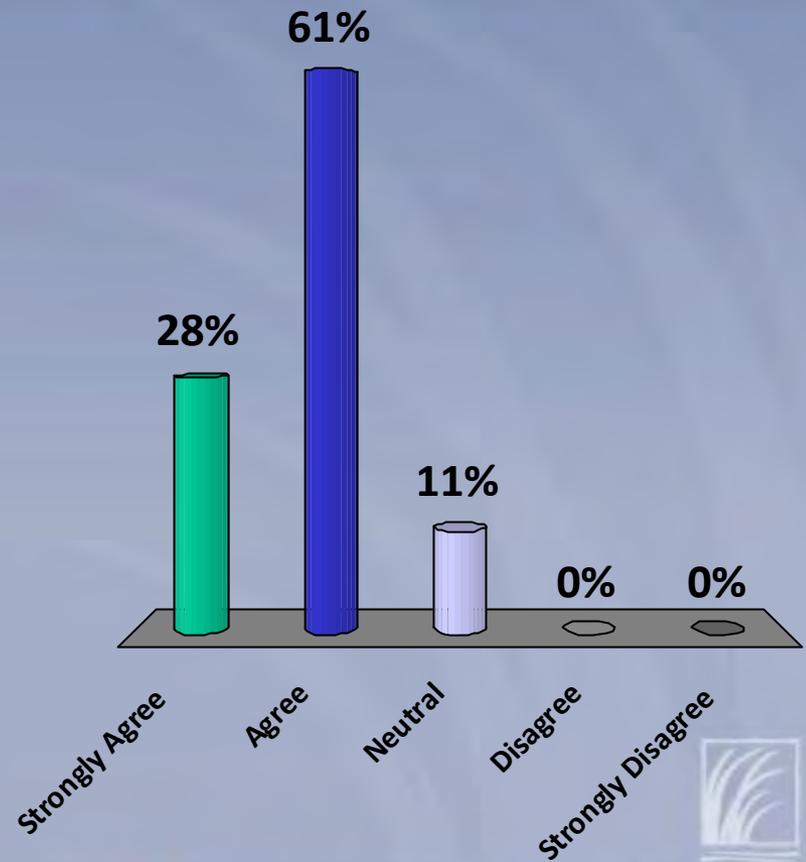
I am willing to try to design a Collaborative Learning event to improve a situation I am working on

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



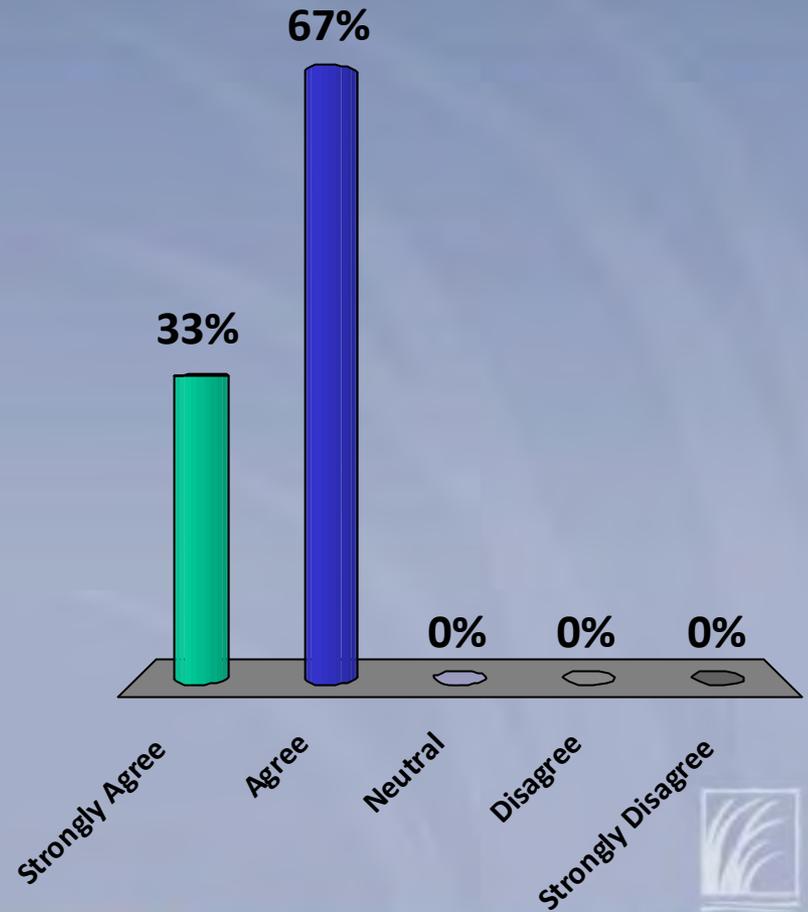
# The activities today helped our group understand the path from actions to outcomes

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



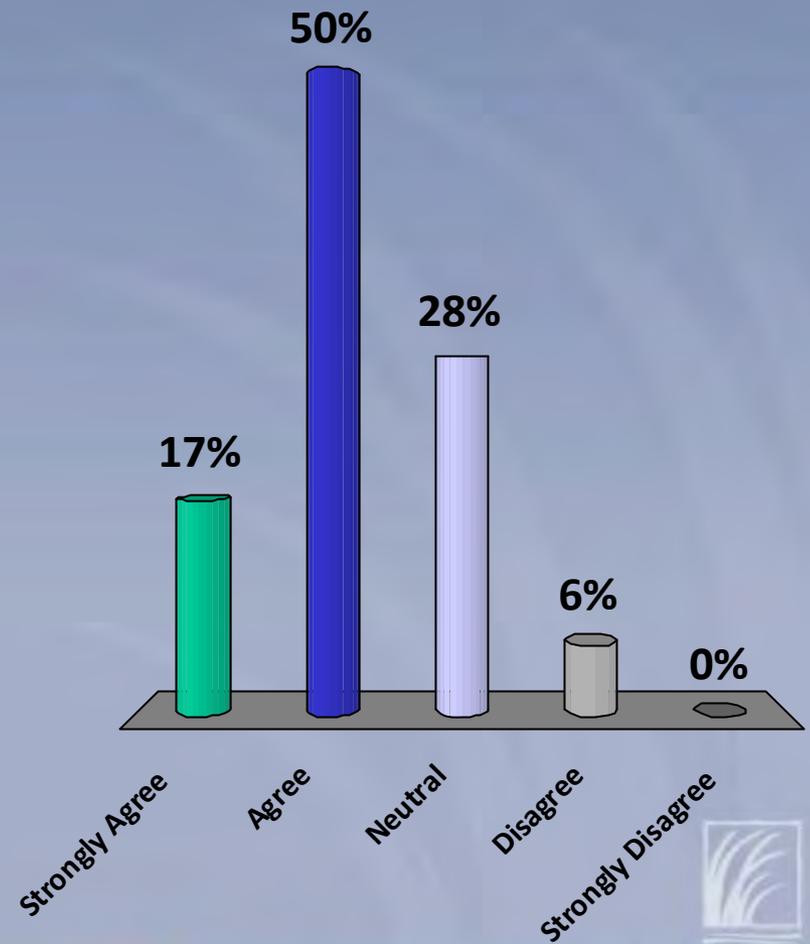
# My ideas were represented accurately in my team's situation map

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



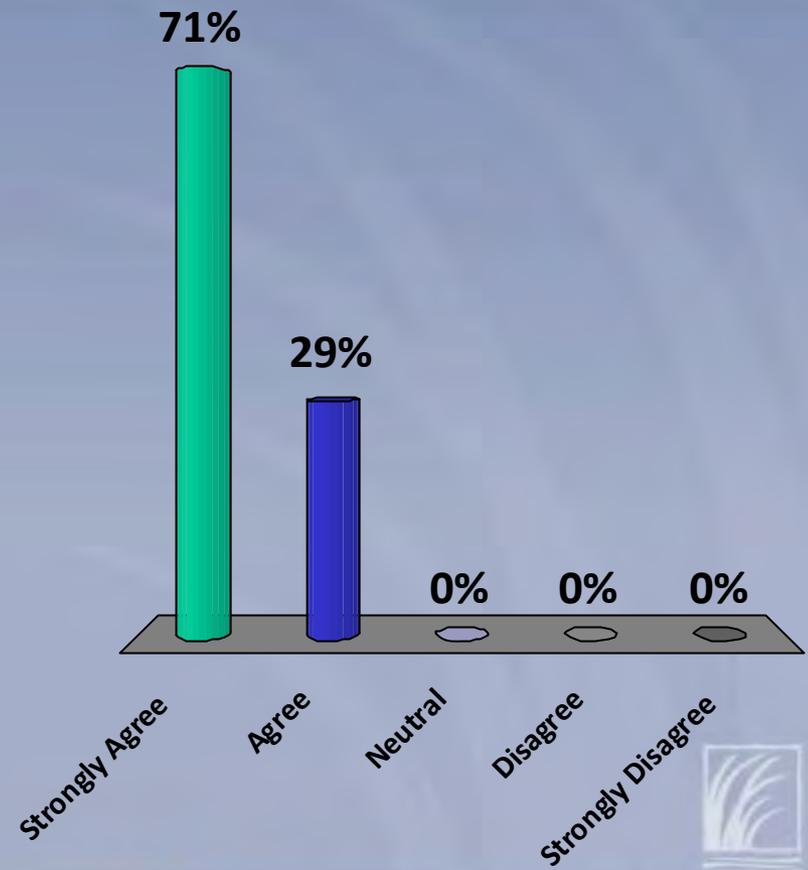
I can see myself adapting the situation mapping activity to help a group understand the situation we are working to improve

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



Our group has identified one action item that can be accomplished by 11/08/13

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree







Super Heroes



Rebel



Magical Chosen One

# Challenges of Change

What kind of a change agent are you?

Secret Agent



Time Lord/Intellectual



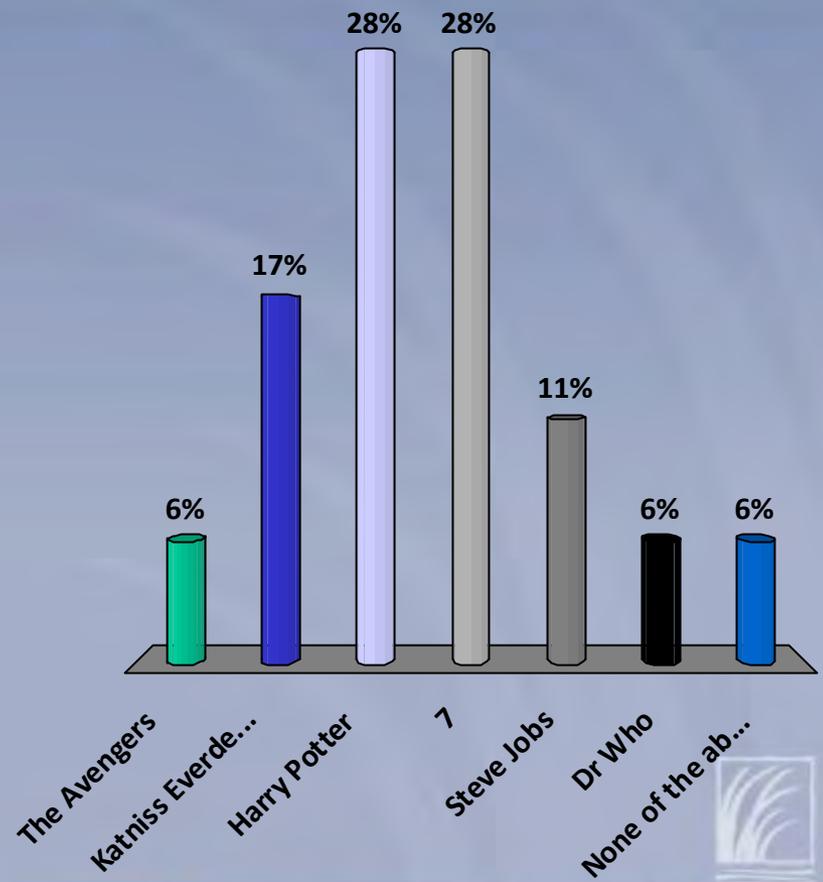
Innovator



ational estuarine research

# My approach to being a change agent is most like:

1. The Avengers
2. Katniss Everdeen
3. Harry Potter
4. 007
5. Steve Jobs
6. Dr Who
7. None of the above



# Elements of Diffusion

- The Innovation or Idea
- Communication pathways
- Time
- The social system within which the innovation or idea moves



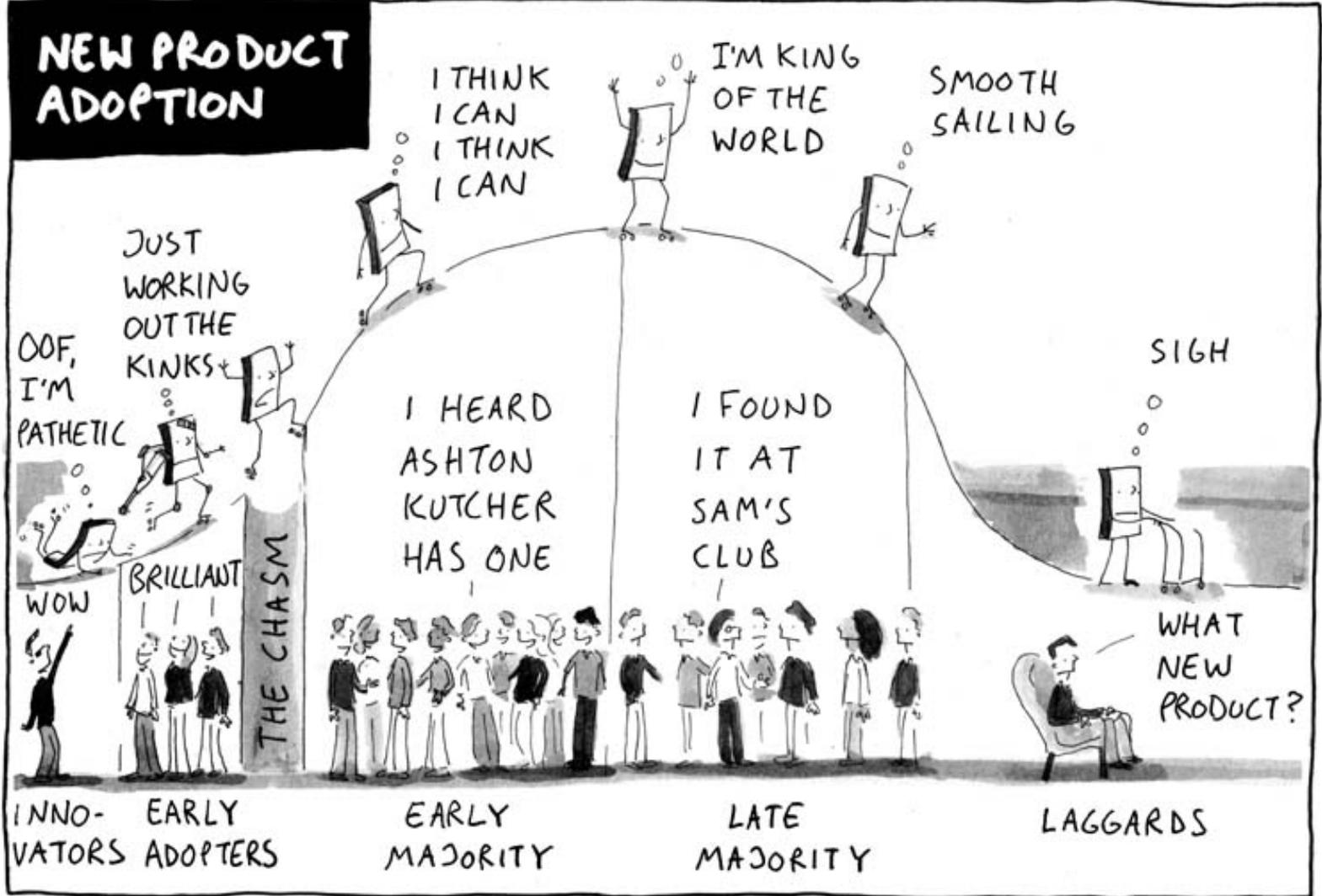
# The steps of diffusion

- Knowledge – Did you hear about...?
- Persuasion – Tell me more about ...
- Decision – I'd like to try...
- Implementation – Just do it!
- Confirmation –Keep doing it



# BRAND CAMP

by Tom Fishburne



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SKYDECKCARTOONS.COM



# The 5 most powerful qualities of an idea that spreads and is used



## **Relative Advantage**



# The 5 most powerful qualities of an idea that spreads and is used



**Compatibility**



# The 5 most powerful qualities of an idea that spreads and is used



**Simplicity**



# The 5 most powerful qualities of an idea that spreads and is used



**Triability**



# The 5 most powerful qualities of an idea that spreads and is used



## **Observability**



# Evaluating Progress on Your Situation

Imagine this change...

One of the ideas generated by your group today has been implemented as you envisioned it would be.

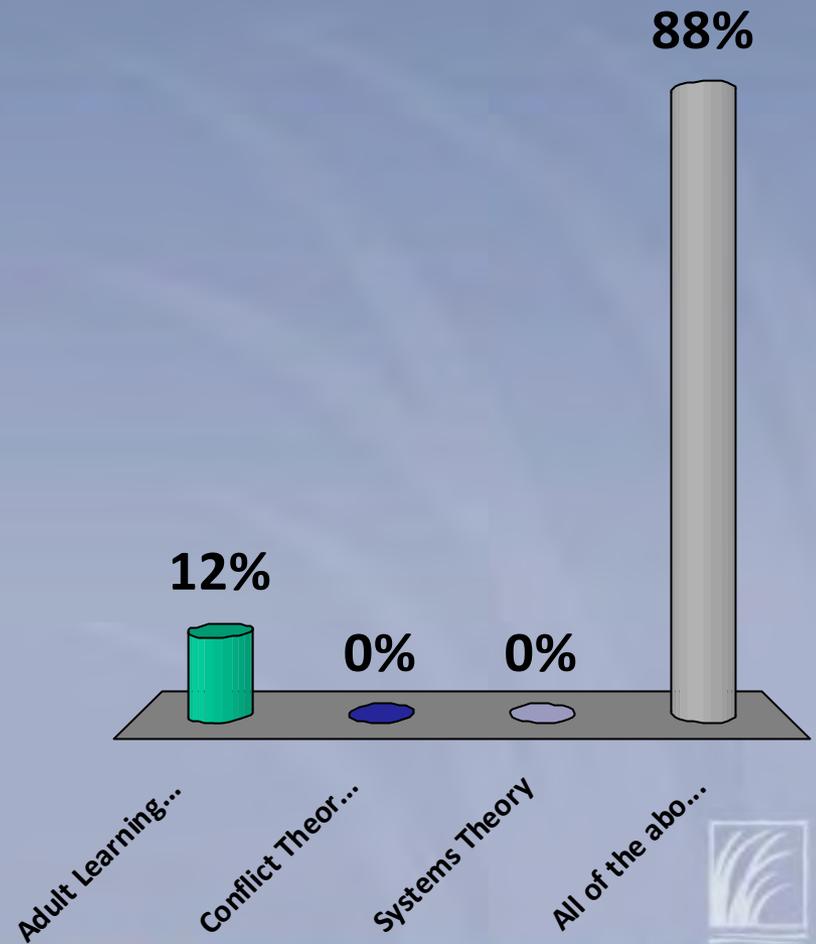


# Final Exam



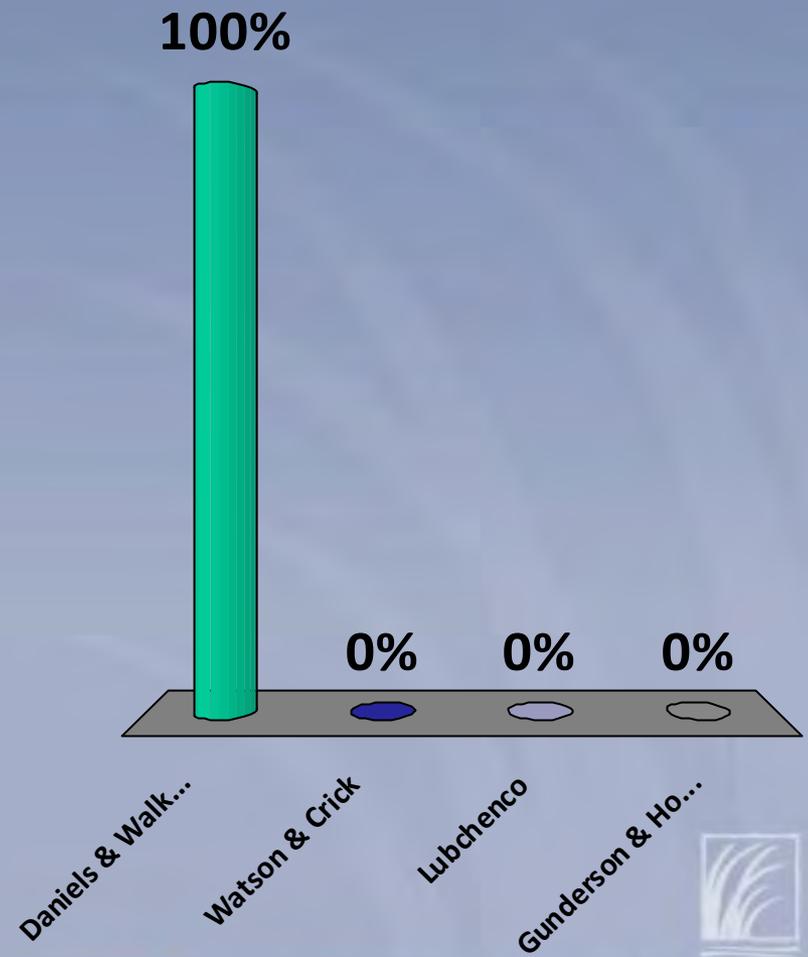
# Which one of these theories is used in Collaborative Learning?

1. Adult Learning Theory
2. Conflict Theory
3. Systems Theory
4. All of the above



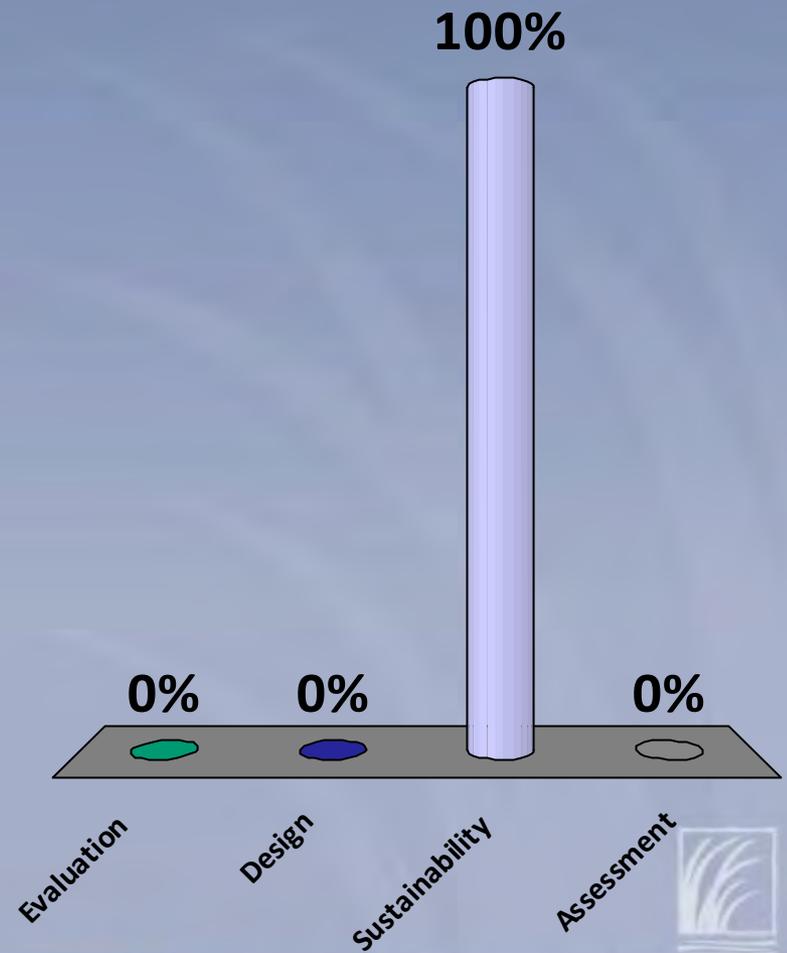
# Who developed Collaborative Learning?

1. Daniels & Walker
2. Watson & Crick
3. Lubchenco
4. Gunderson & Holling



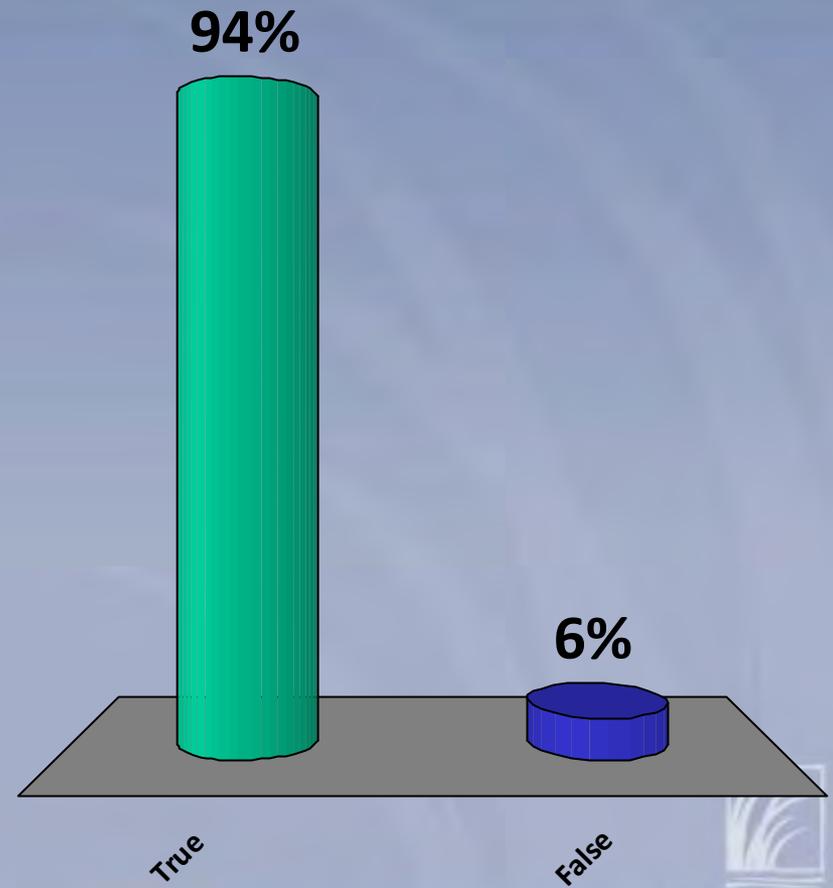
# Which one of these is NOT a phase of Collaborative Learning?

1. Evaluation
2. Design
3. Sustainability
4. Assessment



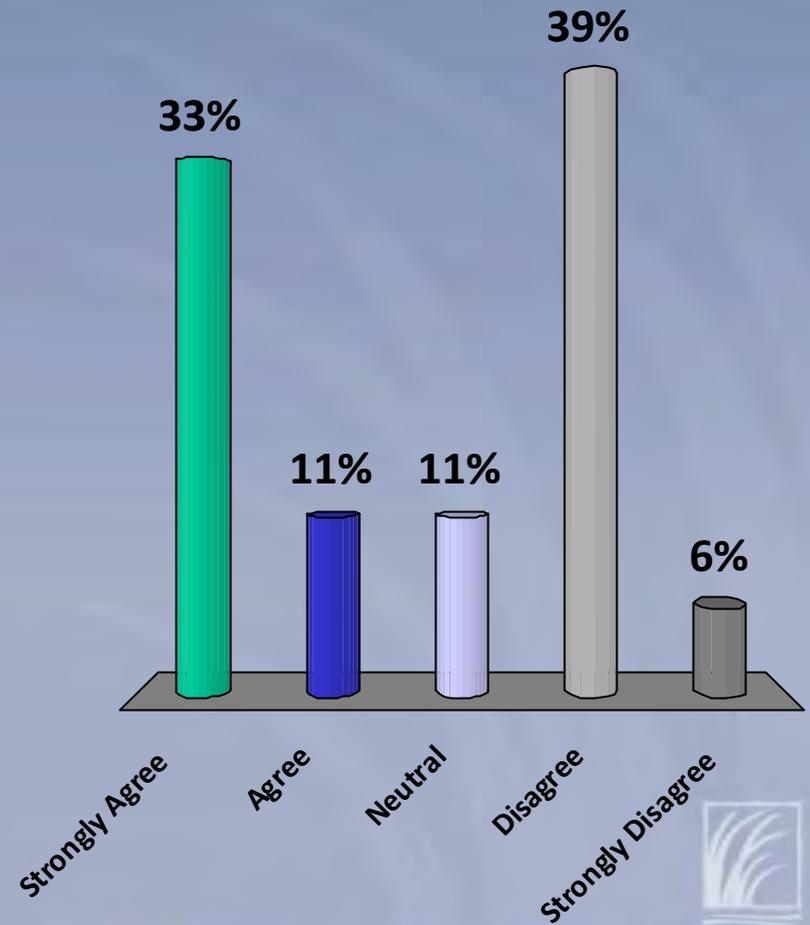
Cultural models can help communication within a group and hinder communication with people outside that group

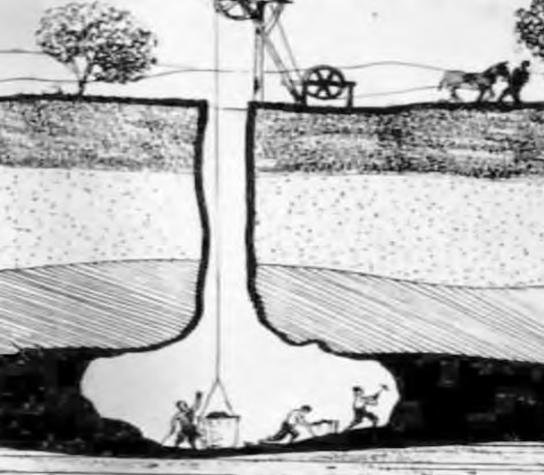
1. True
2. False



# Practicing active listening would surprise my spouse/partner.

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree





## A New Kind of Specialist

“In order to penetrate even farther into their subject, the host of specialists narrow their field and dig down deeper and deeper till they can’t see each other. But the treasures their toil brings to light they place on the ground above. A different kind of specialist should be sitting there, the one still missing. He should not go down any hole, but would stay on top and piece all of the different facts together.”

Thor Heyerdahl, 1960

Quoted in Daniels and Walker, 2001



*“Do not try to satisfy your vanity by teaching a great many things. Awaken people's curiosity. It is enough to open minds; do not overload them. Put there just a spark. If there is some good inflammable stuff, it will catch fire.”*

*Rachel Carson*





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- 106-128 Story #2 Cultural Models:  
*Protecting Our Children's Water*
- 129-141 Implementation
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*The Salmon Falls Watershed Collaborative*
- 158-170 Evaluation
- 171-189 Challenges of Change



# Working Together to Get Things Done: Collaborative Learning Training

## Participant Workbook

This training is sponsored by the Narragansett Bay National Estuarine Research Reserve Coastal Training Program, the Wells National Estuarine Research Reserve, the National Estuarine Research Reserve System Science Collaborative, the National Oceanic and Atmospheric Administration, and the University of New Hampshire.



## Activity: Why Are You Here?

Please write down who you are and why you are attending this training in Collaborative Learning by answering the questions below. Below is an example of the level of detail we are looking for. You will be asked to share what you write with the group.

**1. My name is**

---

**2. I am working with**

---

**3. ...to**

---

**4. ...in order to**

---

---

**1. My name is** Chris Feurt.

**2. I am working with** The Salmon Falls Watershed Collaborative

**3....to** Implement elements of the group's Action Plan

**4....in order to** sustain high quality sources of drinking water in the communities of the watershed.

## Day One Agenda: “Working Together to Get Things Done”

**8:30 am**      **Registration and coffee**

**9:00 am**      **Welcome and course overview**

This orientation includes a participatory activity to introduce you to the Collaborative Learning approach.

### **Collaborative Learning—What's in it for me?**

This introduction will help you understand how Collaborative Learning is used to build effective teams to accomplish resource management and scientific goals.

### **Collaborative Learning—How does it work in the real world?**

Become familiar with the four phases of Collaborative Learning through the lens of a relevant case study.

### **Phase I: Assessment—How will Collaborative Learning apply to my work?**

Begin to apply what you’re learning by developing a situation description and conducting a role assessment for a situation that you and your fellow participants wish to improve.

*The morning will include a 15-minute break...*

**12:00 pm**      **Lunch**

**1:00 pm**      **Three Skills for Collaborative Learning**

Learn how active listening, skillful discussion and appreciation of mental and cultural models are used to increase the impact of a Collaborative Learning process.

### **Phase I: Assessment (continued): Figuring Out the Who, What, and Why.**

Hone your skills in active listening and skillful discussion as you create a situation map to build understanding of the system you are working within.

### **Phase II: Designing a Collaborative Learning Process:**

Learn about the principles that must be incorporated into the design of a Collaborative Learning process and the diverse ways in which Collaborative Learning can adapt to the needs of a particular group and nature of an issue.

*The afternoon will include a 15-minute break...*

**4:00 pm**      **Adjourn**

## Day 2 Agenda: Using Collaborative Learning to “Get Things Done”

- 8:30 am**      **Coffee and light snacks**
- 9:00 am**      **Phase III: Implementing a Collaborative Learning plan to address your issue.**  
Practice moving from ideas to actions through focused problem solving activities oriented to producing measurable outcomes.  
*The morning will include a 15-minute break...*
- 12:00 pm**      **Lunch**
- 1:00 pm**      **Phase IV: Evaluating & managing progress to achieve shared goals.**  
Learn about and apply techniques to evaluate a Collaborative Learning process, including keypad polling and methods to categorize and prioritize group outputs.
- 1:45 pm**      **Putting it all Together - A Story of an Award Winning Watershed Partnership that used Collaborative Learning**
- 2:45 pm**      **The Challenges of Change**  
How you can design your projects to take advantage of the five most powerful qualities of ideas that capture attention and spread awareness.  
**Complete Course Evaluation**  
*The afternoon session will include a 15-minute break...*
- 4:00 pm**      **Adjourn**

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This workbook was created to support “Working Together to Get Things Done,” a two-day training designed to build participant capacity to work collaboratively with people who have different priorities, viewpoints, and knowledge to achieve mutual goals. The training and this workbook are based on Dr. Christine Feurt’s adaptation of the Collaborative Learning methodology described in *Working Through Environmental Conflict: The Collaborative Learning Approach* (Daniels and Walker 2002). The training is sponsored by the Wells National Estuarine Research Reserve (NERR) in southern Maine and the NERRS Science Collaborative, a partnership of the National Oceanic and Atmospheric Administration and the University of New Hampshire.

Suggested citation for this workbook:

Feurt, C. 2012. *Working Together to Get Things Done Training Participant Workbook*. NERRS Science Collaborative, NOAA/UNH Durham, NH.

# Training Goals, Learning Objectives, & Workbook

## Goals

“Working Together to Get Things Done” is a two-day training designed to build your capacity to work with people who have different priorities, perspectives and knowledge to achieve mutual natural resource management and community goals. The training will provide opportunities for you to apply what you are learning to improve issues that are immediately applicable to your work.

## Learning objectives

As a result of participation in this training you will:

1. Understand how the principles and practices of Collaborative Learning can contribute to your work;
2. Identify ways in which Collaborative Learning can be used to improve a situation you are working on;
3. Identify benefits and challenges to adapting Collaborative Learning to your work;
4. Identify your role(s) in a Collaborative Learning process;
5. Understand the skills and mind set required to be an effective participant in a Collaborative Learning process;
6. Practice skills for building stakeholder teams for problem solving, policy analysis, adaptive management, and the generation or integration of science into the decision making process;
7. Practice the techniques used in each of the four phases of Collaborative Learning in small groups to evaluate an issue of interest to the group and adapt the Collaborative Learning approach to improve that situation.

## Workbook

This workbook was created to support your training experience and to serve as a practical reference for applying Collaborative Learning techniques in the future. It provides a simplified overview of the Collaborative Learning process and techniques that will be presented and applied during the training. Copies of all of the worksheets you use in this training will be provided in the Tools and Resources section for you to adapt and use in your work.

# Collaborative Learning Overview

## Why use the Collaborative Learning approach?

Collaborative Learning is an adaptable process, combined with a set of techniques that enables stakeholders from diverse backgrounds to share knowledge, concerns, and ideas about a complex issue. The process enhances participant ability to shape and support a project designed to address a particular situation. It increases accountability, provides access to information that might not have been otherwise available, fosters more trusting relationships and community, and helps to identify steps that need to be taken to address commonly identified problems.

Ultimately, Collaborative Learning clarifies and broadens the range of choices stakeholders can consider to improve a situation, refines their understanding on how information can and will be used, and enhances the potential for measureable change.

## When is Collaborative Learning a good idea?

There are six fundamental motivations for the use of Collaborative Learning in a coastal resource management context. Collaborative Learning may be the right approach when....

1. Complex situations can (and need to) be understood from diverse perspectives;
2. Multiple indicators about the status of a situation are difficult to understand;
3. There is a shared sense of urgency to act;
4. There are directives from “upstairs” requiring action;
5. Multiple sources of expertise are needed to innovate and adapt to address the situation;
6. Participation in problem solving would contribute to successful implementation of solutions.

## What are the principles of Collaborative Learning?

Collaborative Learning has three fundamental principles:

1. The method follows an iterative process that respects the ways adults learn.
2. Competent communication among stakeholders is honest, sincere, understandable, and appropriate.
3. Stakeholders are actively involved in the co-creation of knowledge about the problem to be addressed, the development of an action strategy to make progress, and the selection of tasks that can be accomplished within their sphere of influence.

## What is the science behind Collaborative Learning?

The Collaborative Learning process draws from theories developed through research in the disciplines of adult learning, alternative dispute resolution, and soft systems methodology. It brings effective, practical, social science methods to people working to sustain natural resources and ecosystems services.

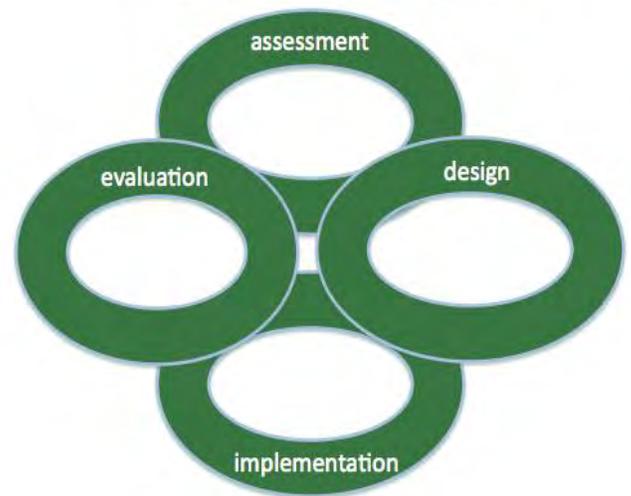
## How does Collaborative Learning work?

Collaborative Learning is an iterative process that includes four, overlapping phases: assessment, design, implementation, and evaluation.

Typically, a planning team or steering committee conducts the assessment and design phases to prepare for the implementation of a Collaborative Learning event that includes a larger group of stakeholders. The organizing team reconnects after the event to complete the evaluation and begins to plan the assessment phase for the next event.

We'll cover these phases in brief during the morning of the first day of the training. Then we'll dig into each phase as the training unfolds. We've provided the following overview of these phases for your reference during and after the training.

### Phases of Collaborative Learning



### Phase I: Assessment

This phase uses a “progress triangle” framework to bring the multiple systems engaged in a situation into sharp focus. A progress triangle uses three elements—processes, substance, and relationships—to analyze conflicts and evaluate the collaborative potential of a situation. During the assessment phase, you will...

1. Understand and clarify the nature of the situation you want to improve;
2. Identify potential stakeholders and listen to different perspectives;
3. Use the Progress Triangle concept and worksheets to organize knowledge about the system in which the project will occur. (See page 9.)

## **Phase II: Design Phase**

In the design phase, you use the results of assessment to plan events to bring the appropriate stakeholders together to make progress on shared objectives, using activities that respect the knowledge, expertise, and time of everyone involved. Careful design transforms stakeholder interaction from passive receiving of information from outside experts to real sharing of expertise among all members of the group. During the design phase, you will....

1. Complete a role assessment worksheet to better understand the collaborative role of different stakeholders in the process (see page 13);
2. Confirm the problem statement and purpose for the collaborative process that you will include in your invitation to participate;
3. Develop activities that will engage stakeholders in a way that brings diverse knowledge and skills to bear on shared objectives;
4. Develop facilitation and knowledge management skills within your team or secure competent, outside facilitators to assist in the implementation of your process.

## **Phase III: Implementation**

A Collaborative Learning event engages participants in a stepwise process of outcome-focused problem solving. There are 10 elements needed to implement such a process successfully. These are based on what social science teaches us about how adults learn, and how to apply learning to problem solving and action. You will have a chance to experience how these elements unfold during this training, which has been modeled on the Collaborative Learning approach. These elements are covered in the Implementation section on page 21.

## **Phase IV: Evaluation & Adaptive Management of the Collaborative Learning Process**

Evaluation is the iterative process of attending to, documenting, and reflecting on how your progress to improve a situation compares to the goals and objectives that have been set for each phase of a collaborative project. Effective evaluation accounts for....

1. Changing stakeholder perceptions on the situation being addressed;
2. Factors contributing to the usefulness of the Collaborative Learning process;
3. Judgments concerning the fairness and competence of a Collaborative Learning process;
4. The effect of a Collaborative Learning process on participants' views of stakeholders;
5. The generation of a collaboratively developed vision (plan, practices).

# Collaborative Learning Phase I: Assessing Your Situation for Collaborative Potential

## How do you determine if Collaborative Learning is appropriate for a situation that you want to improve?

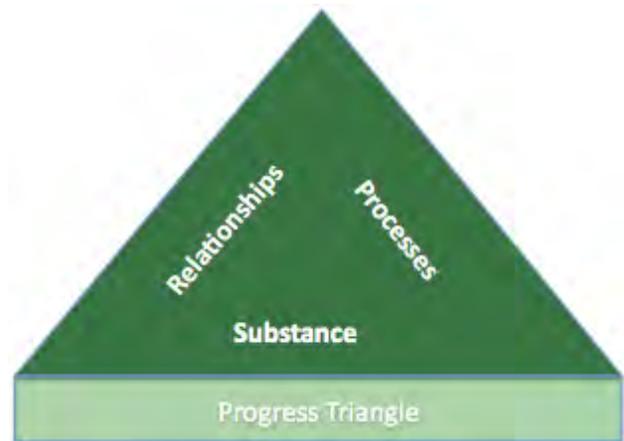
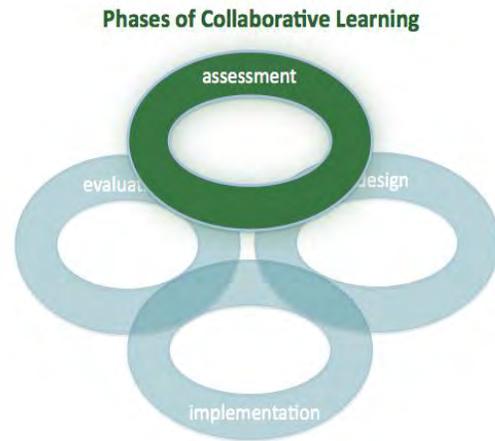
Every collaborative process starts with an assessment of the system(s) that encompasses the situation you would like to improve. Interviews, meetings, and review of policy documents are common methods you can use to conduct a thorough assessment.

Assessment is guided by questions that are derived from the “progress triangle” concept. The progress triangle is a three-element framework for analyzing conflicts and evaluating the collaborative potential of a situation. Using the progress triangle framework, you collect information that tells you about the *relationships* among people who care about a particular situation, the *processes* that have been identified as being effective and ineffective for working within that situation, and the *substance* (information) required to understand and improve the situation.

When sufficient information about each of these elements has been collected, a final analysis will help you determine whether a Collaborative Learning approach is appropriate for the situation at hand.

The organizers of this training used the progress triangle concept to conduct an assessment in preparation for this training. This assessment explored the relationships, processes, and substances of each issue that the groups in the room will explore today. Their process will be discussed during the training and is summarized, starting on the next page.

On page 30 of this workbook, you will find instructions for a step-wise process that you could adapt after this training to assess the collaborative potential of a situation of concern to you.



# Sample Assessment: How We Prepared for this Training

The assessment for this training began months ago. Your hosts shared their knowledge of the substance, relationships, and processes that drive the particular issues they hoped participants would want to address with the trainer. Together, they began to explore the collaborative potential of these issues through these conversations and then broadened this exploration with interviews with issue stakeholders who might attend the training. These interviews provided knowledge to modify the training agenda and prepare the trainer and facilitators so they could support a productive experience for all involved. The following outlines the process used for designing and conducting these critical interviews.

## Number of interviewees

Determine the number of interviews based on your knowledge of potential participants. If the group's perspectives are homogeneous and there is little conflict, three interviews per issue group should provide the information needed to prepare for the training. If you anticipate multiple, issues-based groups, try to interview one person from each issue group.

## Interview process

1. In the space provided on the interview form on the next page, [option 1] record the situation you think can be improved through a collaborative process or [option 2] provide an example of such a situation to prompt the interviewee to supply his/her own.
2. Assure interviewees that their responses are confidential. Explain that the purpose in collecting this information is to help the training team enhance materials and activities. It will not be attributed to them in the training, and their role as one of the people providing input will not be revealed.
3. Read the introductory paragraph on the interview form; allow time for questions from the interviewee.
4. Read each question slowly, exactly as written. Allow interviewees ample time to answer. Use the "prompt" for each question only if needed.
5. If you feel an interviewee did not fully answer a question, you can prompt them using specified prompts, or general phrases like, "Anything else?" "Tell me a little bit more about that" or "What exactly do you mean by \_\_\_\_\_?"
6. Do not share stories or express opinions related to the interviewee's subject matter.
7. Record responses as accurately as possible for each question; you may use separate forms for each interview. Combined answers from all interviews may be organized into a table to look for patterns across the interviews.
8. Compile and share your interview information with your trainer.

# Assessment Interview Form for “**Working Together to Get Things Done**”

**Interviewee name:**

**Date of Interview:**

**Location of Interview: (this may be by phone)**

**Issue of concern:**

**Organization or affiliation:**

**Professional role/title:**

**Contact Information:**

**Brief description of interest, involvement, skills, reputation, involvement, knowledge, strengths etc.:**

**Introduction script:** To prepare for the training I’d like to take advantage of your familiarity with the....*[insert your general description of situation that you believe this person is in a position to help improve.]* Your responses are confidential. The purpose of collecting this information is to help the training team enhance materials and activities. It will not be attributed to you in the training and your role as one of the people providing input will not be revealed. This should take ~20 minutes. Do you have any questions before we begin?

- 1. Describe the situation that needs to be improved, as you see it.** Prompt if needed: What are the issues that contribute to this situation? *Answers will provide insights into all aspects of the progress triangle: relationships, process, and substance.*
- 2. Who do you consider to be the essential decision makers in this situation?** Prompt if needed: What do you know about each decision maker’s values (what they care about), concerns, and fears (aspects that might be barriers to improving the situation)? *Answers provide insights on relationship aspect of progress triangle.*
- 3. Do you think decision-making about this situation can be shared?** Prompt if needed: Can you think of any jurisdictional, legal or organizational aspects of the situation that affect the degree to which collaborative decisions can be developed and implemented? *Answers provide insights on relationship and process aspects of progress triangle.*

**4. What past policies or actions have been used to deal with this situation?**

Prompt if needed: Are there effective actions or policies that could be used to facilitate action? Are there past failures that are important to understanding the situation?

*Answers will provide insights into all aspects of the progress triangle: relationships, process, and substance.*

**5. What information or data is needed to improve this situation?** Prompt: Are there key information needs or gaps that should be addressed as part of the process? Are there guidelines or standard operating procedures that determine acceptable solutions?

*Answers provide insights on substance aspects of progress triangle.*

**6. Is there something other than, or in addition to, information or data required to improve this situation?** *Answers will provide insights into all aspects of the progress triangle: relationships, process, and substance.*

**7. Is there anything else you would like to add that you think will be important as we prepare for this training?** *Answers will provide insights into all aspects of the progress triangle: relationships, process, and substance.*

(On page 30 of this workbook, you will find instructions for a step-wise process that you could adapt after this training to assess the collaborative potential of a situation of concern to you. This resource includes an expanded set of questions for assessing the substance, relationship, and process aspects of your situation.)

## Role Assessment Activity: Finding the Right Stakeholders for Your Process

This role assessment activity will help you (and your group) define the situation you will focus on for the training and identify the right people to participate in a Collaborative Learning process that you would like to design to improve that situation. It begins with individual reflection, followed by a facilitated small group discussion, and group completion of a role assessment table. If you are unsure which group to join, check in with your host.

### **Role Assessment Step 1: Individual Reflection**

The activity begins with your individual reflection on the three questions below. Your group will use the answers you provide to these questions to complete the role assessment table on the next two pages, so be prepared to share your thoughts!

**The situation that I would like to improve is....**

**Who do you consider to be the essential decision makers in this situation?**

**What do you know about each decision maker's values (what they care about), concerns, and fears (aspects that might be barriers to improving the situation)?**

## Role Assessment Step 2: Defining the Roles in a Collaborative Process

Your facilitator will guide your group in comparing and discussing individual descriptions of the situation and reflections on potential participants. Use the role descriptions below to think about each potential participant's role (or roles) in a collaborative process during this discussion. (After completing the table on the next page, return to this checklist to see if your group has included representatives for each category in the list of potential participants.)

- Participant:** Has an interest but no strong position. A participant wants to be involved but is not a primary voice for a particular point of view or outcome.
- Advocate:** Holds a strong position on one or more of the major issues, generally a primary stakeholder who is prepared to support a specific policy decision.
- Representative:** Participates for or advocates on behalf of a group or organization, may or may not have decision authority.
- Decision maker:** Has authority to make and implement a decision. Establishes decision parameters and decision space (how much of the decision authority can be shared).
- Information provider:** Provides data or information pertaining to issues in the situation, may be a technical expert or source of local knowledge.
- Initiator:** Identifies the need for a Collaborative Learning process, may then become the convener or sponsor.
- Convener:** Brings parties together and provides a venue, may also participate in process design. Internal organizational support for the Collaborative Learning process is critical.
- Sponsor:** Provides public support for the Collaborative Learning process or may provide resources. Internal organizational support for the Collaborative Learning process is critical.
- Designer:** Develops the Collaborative Learning event or series of events to accomplish group goals, may be a planning team or steering committee.
- Facilitator:** Guides the process in an impartial manner, may be internal member of a convening organization or an external consultant.
- Evaluator:** Analyzes input collected during the Collaborative Learning event, may be a planning team or steering committee member or an external consultant.



## Key Skills Used in Assessment and Throughout a Collaborative Learning Process

The social science disciplines that are the basis for Collaborative Learning provide methods and tools that can contribute to shared learning and conflict resolution. This training focuses on three powerful skills for effective collaboration and generation of high impact outcomes:

- Mental and cultural model awareness
- Active listening
- Skillful discussion

These will be included in the presentation on the afternoon of the first day, and there will be opportunities to apply them throughout the remainder of the training.

### **Using Cultural and Mental Models to Understand the Situation You Want to Improve**

*It ain't what you don't know that gets you into trouble.*

*It's what you know for sure that just ain't so. — Mark Twain*

A mental model is a simplified representation of an individual's thought process about how something works in the "real world." Mental models function like maps, templates, and field guides as we move through the world, allowing us to unconsciously recognize the familiar, categorize without thinking, and link novel experiences to what we already know.

Our mental models allow us to recognize a borzoi as a dog the first time we see one. When we order lunch, eat, and pay the check in a restaurant, we draw from script-like mental models that guide and constrain our behavior. We all use mental models to interpret and explain our experiences, make inferences and conclusions, and solve problems.

When mental models are shared within a culture or social group, they become cultural models. Cultural models also motivate us to act and guide our behavior. Members of a social group use these shared perceptions and attitudes about how the world works unconsciously, taking for granted that certain kinds of language and metaphors are shorthand for complex ideas that everyone understands. Our cultural models help us communicate with members of groups who share our way of thinking but they can hinder communication with people outside of those groups.

Mental and cultural models are cognitive concepts that organizers of a Collaborative Learning process can draw on to facilitate communication and to identify potential barriers to learning and cooperation in a group. Unexamined cultural models can include false assumptions about what people in a group know and care about. The activities and skills in this training will help you become more aware of the mental and cultural models used by diverse stakeholders in the situation you are trying to improve. You can also refer to the [Collaborative Learning Guide](#) for a case study of how cultural models of water improved the design of the *Protecting Our Children's Water* project in Southern Maine.

### Active Listening to Understand, Interpret, and Evaluate What You Hear

The ability to listen actively can improve relationships through reducing conflict, strengthening cooperation, and fostering understanding. Practicing the key elements of active listening listed below will enhance your participation in presentations and discussions for this training; it also has the potential to *amaze* colleagues and friends if you practice them beyond this training:

- Listen opening and actively.
- Withhold judgment until the other person's view is understood.
- Ask questions for understanding before responding.
- Give everyone equal opportunity to speak.
- Focus on concerns and interests rather than positions.
- Examine future improvements rather than dwelling on the past.
- Emphasize the situation rather than the people.
- Value disagreement and constructive argument.
- Look for ways to achieve mutual gain.
- Regard others' views as legitimate and deserving respect.

### Using Skillful Discussion to Make Real Progress in Your Collaborative Process

Skillful discussion is a technique you can use to enhance your understanding of the systems that surround your situation. The intent is to foster decision-making on actions that move the group forward. The ability to conduct a skillful discussion supports the generation of action strategies and the implementation of tasks to improve your situation. People leave a "skillful discussion" with priorities for action and a timetable for progress. Skillful discussion requires:

- An "even playing field" where all participants treat each other as colleagues;
- An atmosphere of openness and trust so group members feel secure enough to speak freely without fear of ridicule or ramifications;
- Group agreement to keep discussion content within the confines of the group process;
- A situation in which exchange of points of view and new perspectives takes precedence over "selling" new ideas;
- An agenda, time, (less than 2 hours is unacceptable) and context to allow for skillful discussion to happen;
- That every participant expects to talk about the same subject.

## How to Engage a Skillful Discussion

1. Be aware of your own intentions: What do you want from this conversation? Are you willing to be influenced, to change your mind?
2. Balance advocacy with genuine inquiry: Ask others - what led them to their views? What do they mean by their statements?
3. Build shared meaning in your group: When we (your group) use the term \_\_\_\_\_, what are we really saying?
4. Use self-awareness as a resource: What am I thinking? What am I feeling? What do I want at this moment?
5. Explore impasses by taking time to assess: What does our group agree on, and what do we disagree on?

Additional resources on active listening and skillful discussion are included in the Resources section of the workbook, starting on page 34.

## Managing conflict

Conflict is a part of any Collaborative Learning process. During assessment, you may discover sources of conflict that have the potential to derail your work. The conflict assessment questionnaire on page 33 can be used to focus a planning team's thinking about this conflict and to design a Collaborative Learning event to address the conflict or determine that the collaborative potential of the situation is too low for success.

## Situation Map Activity: Finding & Describing Common Ground

Creating a situation map facilitates discussion and enables a group to “get on the same page” in preparation for improving a situation. You can use this tool in all phases of Collaborative Learning. For example, a planning team could create a situation map in initial discussions to brainstorm the scope of a project or to develop a stakeholder list or to identify areas of conflict. Situation mapping is frequently used to launch a Collaborative Learning process, as it provides a record of early thinking that can be used to measure and chart progress.

### Guidelines for Generating a Situation Map in this Training

This small group activity is designed to engage each participant in deeper thinking about the systems that surround their issue of concern and to bring individual ideas to light for group reflection. The goal is to improve collective understanding of the system and generate ideas that can contribute to improving the situation. Participants will break into the same groups they joined for the role assessment activity. Guided by a facilitator, each group will create a situation map by following the steps outlined below. The facilitator will provide an overview of the subject and purpose for the map, and give each person a bold marker and large sticky notes in three colors (this will inspire big thinking!).

**Step 1: Individual consideration of the following questions:** *What are the important values that you protect through your work related to your group’s issue? What are the long-term outcomes you are striving for related to this issue?* Each person uses green stickies to identify three values or outcomes and places them in center of the poster paper. Then, the facilitator leads a discussion of whether these values can be combined into categories and what might be missing.

**Step 2: Individual consideration of the following question:** *What do you see as the greatest threats or biggest barrier to sustaining the values or achieving the outcomes you identified in Step 1?* Each person uses red stickies to identify three threats or barriers and places these around the outer most edge of the paper, surrounding the values. Then the facilitator leads a discussion of whether these ideas can be combined into categories and what might be missing.

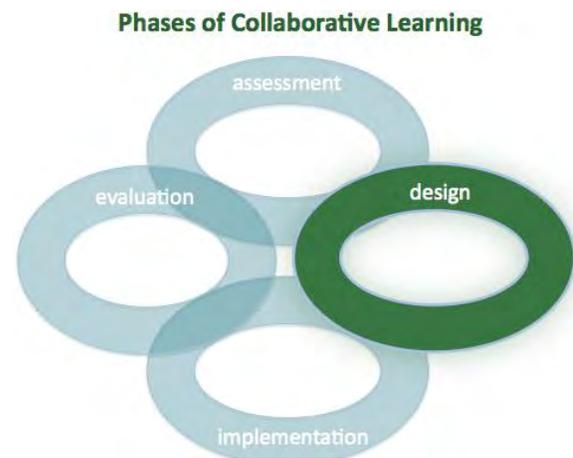
**Step 3: Individual consideration of the following question:** *What is one way that the work you do contributes to overcoming barriers or protecting values from threats?* Each person uses a big blue sticky to describe *one* way their work contributes to protecting values or producing outcomes.

**Step 4:** The facilitator will lead a skillful discussion about how members of the group see their work as part of a system affecting the situation they are working to improve.

**Step 5:** Small groups reconvene to the larger group to share important outcomes of the activity, review the first day, and discuss how the situation map will be used in day two.

## Collaborative Learning Phase II: Designing the Collaborative Learning Process

The objectives of the design phase of Collaborative Learning are to plan for an event that brings the right stakeholders together to identify and make progress on shared objectives through group generated ideas and actions. Careful design, based on knowledge gained during assessment, will transform interactions within a problem solving team from the passive receiving of information from outside experts to sharing of all participants' expertise.

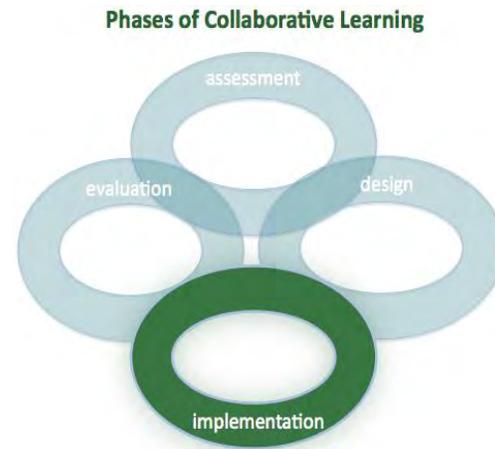


It's important to design activities that will respect and leverage the knowledge, expertise, and time constraints of all involved. Thoughtful design will help you manage conflict and uncertainty by orienting and focusing group energy, knowledge, and expertise on improving aspects of the situation that everyone cares about. You will find that enjoyable activities that provide opportunities for participants to go outside and visit the “natural resource” in question have surprising power to drive innovation and resolve conflict. For example, a boat trip on a river may be a great setting to discuss the value of buffer lands under consideration for zoning. Many effective collaborative processes are guided by a “social contract” between the conveners and all participants that includes the following promises:

- The event will be based on solid assessment of a situation relevant to all participants.
- The event will be “safe”—participants should feel safe to interact as they choose, safe to speak, and to challenge dominant ideas: *what happens in Vegas stays in Vegas*.
- There will be respect for knowledge in the room—conveners will engage the kaleidoscope of expertise and facilitate relationships based on authenticity and respect.
- Participants will be able to learn by doing, with self reflection.
- This will be an iterative process. *While Collaborative Learning can be “a one-shot deal,” it’s better for long term engagement of problem solving teams.*
- The process will be mindful of the ways adults learn and process information. *This includes the cognitive, affective, and psychomotor process that people use to interpret a situation, make decisions, and evaluate alternatives.*

## Collaborative Learning Phase III: Implementing the Collaborative Learning Process

Implementing a Collaborative Learning event requires 10 essential elements based upon what social science teaches us about how adults learn and apply learning to problem solving and action. Think of each of the ten elements as steps in a recipe or instructions for assembling a gadget. In these examples, steps are followed to achieve a clear outcome. Likewise, a Collaborative Learning event engages participants in a stepwise process of outcome-focused problem solving.



We've grouped the ten essential steps of Implementation into four categories that reflect the stages of a Collaborative Learning event:

### ***Setting the Stage for Action Directly Connected to Participants' Expertise***

1. Begin the event by providing orientation to its purpose, process, outcomes
2. Establish relevance to the work of participating stakeholders
3. Connect the event to participating stakeholder values

### ***Build Shared Understanding***

4. Build shared understanding by creating and synthesize situation maps that capture the diversity of perspectives and reveal shared goals

### ***Moving from Individual Reflection to Group Brainstorm Ideas for Improvement***

5. Generate your ideas for improving the situation (*"The way I see it" worksheet on page 36*)
6. Include a listening session for most promising ideas
7. Discuss and evaluate individual ideas in small group brainstorm. Identify *Most Promising Ideas* (see page 24) using criteria agreed upon by the group

### ***Develop Action Strategies with a Path to Outcomes***

8. Move from *Ideas to Action* – complete group Worksheet
9. Visualize the *Path from Action to Outcomes*
10. Develop *Measures of Success* and accountability to evaluate progress and guide adaptive management for long term projects – complete group Worksheet

(Day one of this training covered steps one through four; day two of the training focuses on activities described in steps five through ten.)

## Rolling Up Your Sleeves to Practice Implementation

This series of activities will lead you through the final six steps of implementing a Collaborative Learning event. By continuing to work with your small group, you will have the opportunity to use a series of focusing worksheets to generate ideas, facilitate discussion, and co-create knowledge about your situation and ways to improve it to reach desired outcomes.

Remember, the goal of this training is to build your capacity and empower you to use Collaborative Learning in your work with partners and stakeholders to achieve mutually identified outcomes. These implementation activities are scaled to demonstrate the basic architecture of a larger (day-long) Collaborative Learning event. After this training, we hope that you will work with a planning team to conduct your own assessment and design a Collaborative Learning event that adapts this basic architecture to your situation. Copies of all of these worksheets that can be adapted to fit your situation are available, starting on page 36. Your host will send you an electronic copy of this workbook.

### Implementation Step 1: “The way I see it…”

Each participant fills out the “The way I see it ” worksheet that is provided separate from this workbook. The questions are designed to stimulate your thinking about the relationship, process and substance aspects of your situation as they relate to your work.

Use your personal expertise and understanding of the issue, as influenced by day one of the training, to respond. We’ve included an example of the detail that would be appropriate in the sample worksheet below. A copy of the worksheet is available on page 36 of the Resources section.

#### Example: “The way I see it…” Worksheet

**Name:** Dr. Who **Phone:** 415: 827-3471 **Email:** overworked@witsend.org

Think about the current challenges of the situation concerning *Sustaining ecosystem services in the Saco Estuary*. Reflect on the group discussion as you created the situation map, listened to presentations or reviewed a proposed plan of action.

What part of the situation is important to you? *Making connections between scientific findings about biodiversity values of fringing marshes and land use policies that affect riparian buffers.*

What are your specific concerns and interests about these issues and why are these issues important to you? *Land use decision-making of property owners, planning boards, and code enforcement recognizes property rights without assessing tradeoffs related to the role of fringing marshes in pollution attenuation and habitat for birds and commercially and*

recreationally important species of fish. Granting variances allows increased impervious cover, nutrient runoff from lawns and precludes future marsh migration in the face of sea level change.

What can be done to improve this situation? (For this activity, choose one improvement as your focus.) An improvement may be an action, project, or management approach you think is desirable and feasible. Describe the improvement, being as specific as possible. Use scientific understanding about the correlation between adjacent land use and fringing marsh ecological integrity to create scenarios that make tradeoffs more explicit. For example, three scenarios could be graphically displayed to show 1) Undisturbed forested buffer results in fringing marsh that is habitat to 12 species of migratory songbirds and foraging by 8 species of fish. 2) Moderately disturbed buffer results in fringing marsh with evidence of nutrient runoff and partial invasion of Phragmites resulting in habitat for 4 species of birds and 5 species of fish. 3) Development of hardened shoreline extends to fringing marsh experiencing erosion from wave reflection. This scenario has 80% coverage by Phragmites resulting in habitat for 2 species of birds and foraging use by 2 species of fish. Use this information in a Collaborative Learning workshop engaging scientists and the land use decision-makers in an evaluation of current land use policies and practices.

Why is this improvement desirable? Science relevant to decision-making is used to develop tradeoff scenarios that can be used to examine current policies and desired outcomes through collaborative dialogue.

Is this a short-term or a long-term improvement? Collecting the relevant science and developing scenarios can take time. If stakeholders are engaged in the process there will be increased probability of long-term improvement.

How is this improvement feasible? For example, who might be responsible for implementation? How might your improvement be funded? Be as specific as possible. With grant funding UNE researchers can involve students in data collection and analysis. The Center for Sustainable Communities can work with researchers to engage community land-use decision makers in dialogues to connect the science to local policies and assess consequences of tradeoffs.

What obstacles currently stand in the way of making this improvement? How might those obstacles be overcome? Maintaining adequate funding to complete the ecological analysis correlating land use and fringing marsh ecological integrity and to engage stakeholders in dialogue to evaluate current policies in light of the science is an obstacle.

How does this improvement relate to other aspects of the situation? Climate change impacts on fringing marshes are connected to adjacent land use which is connected to the land use decision-making system.

What people or views must be considered when designing the improvement? The concerns of shoreland property owners must be acknowledged and respected. Engaging property owners from the outset in discussion is critical.

## Implementation Step 2: Listening for *Most Promising Ideas*

Building upon The Way I See it... reflection, each person shares their most promising idea in a listening session with a partner. Each speaker will have uninterrupted time to share their idea and explain the thinking behind that idea.

## Implementation Step 3: *Most Promising Ideas* Brainstorm

During a facilitated brainstorming session, your group will review the criteria for “most promising ideas” below, adapted for your situation. Your group will then discuss the individual ideas generated during the Most Promising Ideas listening activity to see if there are ideas that rise to the top or can be combined as the group moves forward to develop action strategies. The resulting group generated list of ideas becomes the basis for the “*Ideas to Actions Worksheet*” in step 4.

You’ll know an idea is promising when it...

- Makes the work that someone is already doing easier and more efficient
- Is achievable in the timeframe identified by a project
- Is connected by a clear path to desired outcomes
- May be achievable as the first step of a complex long-term strategy
- Respects the realities of the culture within which stakeholders work
- Provides missing information vital to the project
- Identifies key stakeholders not present in the room
- Reveals important policy connections that can be linked to outcomes
- Identifies concrete management practices that can be linked to outcomes

## Implementation Step 4: *Ideas to Actions* Worksheet

In this facilitated session you will use your group’s Most Promising Ideas and complete an *Ideas to Actions* worksheet. An example is provided on the next page. When resources are available, for a group to work with a skilled facilitator and a note taker, the results can be produced and available at by the end of the meeting. Depending upon your training resources, this worksheet can be completed on a flip chart or typed on a computer and displayed with a projector in real time. Flip chart results also can be prepared after the meeting and shared with the group. In any event, a record of a Collaborative Learning event should be prepared in draft for review by participants before being made final. Formal *White Papers* and *Proceedings* can be produced as outputs from a Collaborative Learning event.

## Example *Ideas to Actions* Worksheet

Most promising idea	How will this idea improve the situation?	What actions would make this idea a reality	Who needs to be involved to implement the idea?	What do we need to be aware of?
Identify sources of nutrients through monitoring land-based runoff	Policies and management actions can be targeted to known sources and improvements in water quality can be compared against a baseline	<ol style="list-style-type: none"> <li>1. Examine existing water quality data for nutrient hot spots</li> <li>2. Conduct field surveys for evidence of nutrient runoff such as algal blooms</li> <li>3. Contact local watershed group to request monitoring of hotspots this summer</li> <li>4. Apply for grant money to expand capacity of volunteer water quality network and account for increased lab costs</li> <li>5. Contact landowners for information on nutrient applications</li> </ol>	<ol style="list-style-type: none"> <li>1. Americorps summer intern</li> <li>2. Watershed volunteers</li> <li>3. Project team</li> <li>4. Co-op extension and Soil and Water Conservation District</li> </ol>	<p>Take action to find evidence for and quantify land based runoff. Important to examine our assumptions and identify the source of inputs.</p> <p>What about septic and atmospheric inputs?</p>

## Implementation Step 5: Visualize a Path from Action to Outcomes

Actions guided by a clear mental model of desired outcomes and the path connecting the two have a greater possibility of success than actions taken without a systematic assessment of the relationship, process and substance aspects of the situation. What is the likelihood, for example, that scientific findings will be used if the first time a scientist thinks about connecting them to management is at the end of a research project?

In this step, participants will take some time to think about their mental models of the path that connects actions identified by their group to improvements in the situation they have collectively described. Visualize action items successfully completed. Who will be affected? How will the situation be changed? For example, if you envision a decision support tool or a model to improve decision making, who is using what you have created and how are their actions improving the situation that you care about? Use these ideas to develop the Measures of Success Worksheet.

## Implementation Step 6: Measures of Success Worksheet

In this facilitated session, your small group will select one or two action items from the ideas to action worksheet and complete the *Measures of Success* worksheet.

### Example: *Measures of Success* Worksheet

**Improving the situation:** *to Sustain Ecosystem Services in the Saco Estuary*

**Idea to Action to Outcome:** *Identify sources of nutrients through monitoring of land-based runoff so that policies and management actions can be targeted to known sources and improvements in water quality can be compared against a baseline.*

Action Items	Measures of Success	Accountability	Comments
1. Examine existing water quality data for nutrient hot spots	Existing data is examined for geographic scope, sampling timeframe, database is created; hot spots are mapped	Americorps Intern under supervision of Stewardship Coordinator by October 2012	Identify gaps in coverage of existing sampling regime. Share results within the sampling network.
2. Conduct field surveys for evidence of nutrient runoff such as algal blooms	Thatcher Brook watershed survey completed Summer and Fall 2012	Saco River Corridor Commission and Saco River Salmon Club Volunteers, Coordination and support by Americorps Intern by October 2012	Training will be needed and volunteers supervised
3. Contact local watershed group to request monitoring of hotspots this summer	Volunteers agree to monitor top 10 priority hot spots	Same as above July 2012	Same as above Host cookout and boat trip at end of summer to celebrate volunteer accomplishments
4. Apply for grant money to expand capacity of volunteer water quality network and increased lab costs	319 Grant for NPS Pollution Reductions	Stewardship Coordinator NERR and Soil and Water Conservation District Next cycle March 2013	Look for community grants supporting local action and local business support. Consider partnering with schools for monitoring in the future
5. Contact landowners for information on nutrient applications in regions of hot spots	Presentations to each of the local farm co-ops in the region and to municipal officials with cable access broadcasting. Contact 80% of landowners by February 2013	Co-op extension and Soil and Water Conservation District working with local champions and land owners	Design questionnaire for landowners using landowner input. Link message about nutrient reduction to existing incentive programs that support landowners actions to improve the situation

## Collaborative Learning Phase IV: Evaluation of the Collaborative Learning Process

In Collaborative Learning, evaluation is not an end of pipe activity. It is an iterative process of attending to, documenting, and reflecting on how progress to improve a situation compares to the goals and objectives set for each phase of a collaborative project. During evaluation, there are a variety of opportunities for you and your group to make the course corrections necessary to reach shared goals in an efficient and productive way.



Evaluation engages everyone involved in a Collaborative Learning process. Individuals evaluate their own participation and their achievement of personal action items that contribute to the larger strategy generated by the group. Planning team members evaluate the design and implementation of a Collaborative Learning event and group progress toward shared goals.

With your planning team, you can develop an evaluation strategy that matches the needs and scope of your Collaborative Learning process. The list below contains examples of the aspects of a Collaborative Learning event that can be evaluated by the group and contribute to “Working Together to Get Things Done.”

- ❑ **Changing perceptions of the situation being addressed:** A natural consequence of Collaborative Learning is the evolution of understanding of a situation as multiple perspectives are discussed. Documenting these changes is an important role for evaluation. Records of meetings, grant reports, and action plans are examples of what you can use to document change. Posing open-ended questions in an interview or survey also can explicitly capture this; for example,

*How has your understanding of the situation changed as a result of your participation in this partnership?*

- ❑ **Factors contributing to the usefulness of the Collaborative Learning process:** The objectives of a Collaborative Learning process can be accomplished in a variety of ways. Evaluating the effectiveness of a specific design element to achieve objectives can be a part of a post event survey. An example of a Likert Scale survey question:

*The use of keypad polling to rank action items was a good way to evaluate our priorities.*  
Response choices: strongly agree-agree-disagree-strongly disagree-cannot rate.

- ❑ **Judgments concerning the Collaborative Learning process:** Collaborative processes are designed to provide equal opportunities for all voices to be heard and to generate ideas for improving a situation of shared importance to a group. Evaluating the process for perceived fairness can be important, especially when the results of a group's work together are incorporated into a plan of action that must be approved by a governing body. An example of this is the development of a town Conservation Plan.

Through a series of public meetings where Collaborative Learning was used to develop a plan, participants were asked at each meeting to evaluate the fairness of the process. Examples of questions posed using keypad polling and a corresponding Likert Scale for response included:

*I had a chance to voice my opinions about conservation priorities.  
My priorities for conservation in our town are included in the five conservation values.  
I feel that my opinions were respected and captured in the list of important agricultural lands.*

Response choices: strongly agree-agree-disagree-strongly disagree-cannot rate.

- ❑ **Effect of a Collaborative Learning process on participants' views of stakeholders:** The progress triangle emphasizes the role of relationships in making progress on a situation. Evaluation can ask if the right stakeholders have been included as well as documenting how stakeholders' views of each other and their contributions to improving the situation change.

*Who else should the researchers contact as we develop our decision support tools?*

*Interacting with town planners at the workshop contributed to the design of my research to document the effects of stormwater in tidal creeks.*

Response choices: strongly agree-agree-disagree-strongly disagree-cannot rate.

- ❑ **Generation of collaboratively developed vision (plan, practices):** Collaborative Learning can facilitate holistic management approaches like ecosystem-based management and watershed management that depends upon a collaboratively developed vision of desired future outcomes. Such visions, and the road map for achieving them, are frequently expressed in the form of action plans or best management practices. These final documents or protocols can be used as benchmarks to evaluate and track progress in the future. A sample action item for watershed management is included in the Resources section on page 39. The elements of this action item were generated by the Collaborative Learning process described in The Collaborative Learning Guide and are designed to be used to evaluate progress as the Watershed Council continued to work together to *Get Things Done*.

# Collaborative Learning Tools & Resources

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Progress triangle interview process	
Conflict Assessment worksheet	
Tips for active listening	
Skillful discussion	
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Example action item	
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## Tools & Resources for Assessment

This section is an assemblage of resources and tools that you can use to conduct assessments for future Collaborative Learning activities related to the issue you addressed in this training or other projects.

### **Working the progress triangle to assess the collaborative potential of a situation**

The questions in steps 2 through 4 below were derived from the progress triangle framework, referenced on page 9 of this workbook. As a reminder, the progress triangle is a three-element framework that describes the *relationships* among people who care about a particular situation, the *processes* that have been identified as being effective and ineffective for working in that situation, and the *substance* (information) required to understand and improve the situation.

Members of a planning team may answer the full set of questions. When designing your interview protocol for a larger set of stakeholders, you do not have to ask every question listed below; choose those that best fit your circumstances and time you have available to conduct interviews and analyze the data. Just make sure to ask about situation (step 1) and choose at least one question from each category of the triangle—relationship, process, and substance.

**Step 1: Describe the *situation* that needs to be improved as you see it.**

**Step 2: Select from the following questions designed to evaluate the *relationship* dimension of the situation that has been described.**

- a. Who are the primary parties directly involved? What are their skills and level of knowledge of the situation?
- b. Are these parties willing to collaborate? To what extent? Can those opposed to collaboration be persuaded to try?
- c. What is the history among the major parties?
- d. What is the degree of trust among the parties and how might it be improved?
- e. Who are the essential decision makers? What do you know about their values, concerns and fears?
- f. What are the power relationships, sources of conflict and incentives to collaborate?

**Step 3: Select from the following questions designed to evaluate the process dimension of the situation.**

- a. What methods other than collaboration might the parties use to pursue their goals? Are there traditional approaches to problem solving that support or conflict with a collaborative approach?
- b. Can decision-making about this situation be shared? Are there jurisdictional, legal or organizational duty aspects of the situation that affect the degree to which collaborative decisions can be developed and implemented?
- c. Are there sufficient resources of time, staff, expertise and money to conduct a Collaborative Learning process? Are there needs for design and facilitation by an impartial party?
- d. What are alternative methods that might be used that include key parties and require less resource use?

**Step 4: Select from the following questions designed to evaluate the *substance* dimension of the situation.**

- a. What are the issues important to this situation?
- b. Do the issues vary among the parties?
- c. Which of the issues are tangible?
- d. Which of these issues are primarily symbolic?
- e. Are there differences in how the major parties understand the situation, define the issues, and prioritize the issues?
- f. What are the parties' interests and concerns about the issue?
- g. What policies or actions have been tried in the past to deal with this situation?
- h. What are the key information needs (data) or information gaps that should be addressed as part of the process? Is the information accessible and understandable?

**Step 5: Evaluation—Will Collaborative Learning get the job done?** When the interviews are complete, use the data you have collected to consider the following questions about the stakeholders you will engage...

- ✓ Is there recognition of interdependency and acceptance and respect for diverse perspectives?
- ✓ Is there commitment to learn and understand from sources considered credible and reliable?
- ✓ Is there desire for situation improvement and recognition of the potential for mutual gains?
- ✓ Can decision-making be shared?
- ✓ Is there a shared sense of responsibility for outcomes?
- ✓ Is there evidence of flexibility about ways to share and analyze information and reach agreement?
- ✓ Are there sufficient resources to implement a collaborative process over the time required?

If the answers to these questions are “yes,” the collaborative potential of the situation will support a Collaborative Learning process.

### **Interview process**

An interview is an excellent tool for collecting in depth data about people’s perspectives and knowledge. Observing tested interview protocols will help you collect data that will be the most informative for your assessment. Your host and presenters used the process described on page 10 to conduct the assessment for this training. You can use these guidelines to assess your situation.

## Conflict Assessment Worksheet

Gregg Walker and Steven Daniels developed the principles and practices of Collaborative Learning to help natural resource managers understand and resolve sources of conflict in order to create group generated improvement for complex natural resource challenges.

Your assessment may reveal sources of conflict that require special attention during the design phase that leads up to a Collaborative Learning event. The following information can be used to guide a planning team discussion or be adapted for an interview with key stakeholders to deepen understanding of the root causes of conflict.

Conflict can arise from a variety of differences of opinion over key concepts, including...

- Facts—what is true, accurate, reality?
- Values—what should be the determinants of a decision? (Criteria, basis, priority)
- Interests—*Who* will get *what* in the distribution of scarce resources, both tangible and intangible?
- Jurisdiction—Who has authority, standing and legitimacy in the situation?
- Personalities—Disagreement over personal styles
- Places/venues—Problems with the choice of setting, place, room layout
- History—Disagreement over the history of the issue, the conflict, the conflict relationship as perceived by the parties in conflict
- Culture—Disagreements that stem from cultural orientations, worldviews and identities. This can include the underappreciated differences in the culture of scientists and managers.

When sources of conflict are identified in the assessment phase and the decision is made that there is still enough collaborative potential to proceed with a Collaborative Learning approach, the time spent assessing the nature of the conflict and incorporating that knowledge into the design of the process increases the chance that the Implementation phase of the process will produce the desired results.

Results of a conflict assessment can be used with the role assessment (page 13) to ensure that representatives from all sides of a conflict are included. Sources of conflict can be made explicit and acknowledged at the start of a Collaborative Learning process, followed by a situation mapping activity designed to elicit the shared values and goals that can support collaboration and orient a group toward actions to improve a situation.

## Tips for Active Listening During Interviews

To know how to listen to someone else, think about how you would want to be listened to. While the ideas are largely intuitive, it might take some practice to develop (or re-develop) the skills. Here's what good listeners know:

1. Face the speaker. Sit up straight or lean forward slightly to show your attentiveness through body language.
2. Maintain eye contact, to the degree that you all remain comfortable.
3. Minimize external distractions. Turn off the TV. Put down your cell phone. Ask the speaker and other listeners to do the same.
4. Respond appropriately to show that you understand. Murmur ("uh-huh") and nod. Raise your eyebrows. Say words such as "Really," "Interesting," as well as more direct prompts: "What did you do then?" and "What did she say?"
5. Focus on what the speaker is saying. Try not to think about what you are going to say next.
6. Minimize internal distractions. If your own thoughts keep horning in, simply let them go and continuously re-focus your attention on the speaker, much as you would during meditation.
7. Keep an open mind. Wait until the speaker is finished before deciding that you disagree. Try not to make assumptions about what the speaker is thinking.
8. Avoid letting the speaker know how you handled a similar situation. Unless they specifically ask for advice, assume they just need to talk it out.
9. Even if the speaker is launching a complaint against you, wait until they finish to defend yourself. The speaker will feel as though their point had been made. They won't feel the need to repeat it, and you'll know the whole argument before you respond. Research shows that, on average, we can hear four times faster than we can talk, so we have the ability to sort ideas as they come in...and be ready for more.
10. Engage yourself. Ask questions for clarification, but, once again, wait until the speaker has finished. That way, you won't interrupt their train of thought. After you ask questions, paraphrase their point to make sure you didn't misunderstand. Start with: "So you're saying..."

Source: <http://powertochange.com/students/people/listen/>

## Skillful Discussion: Balance Advocacy with Inquiry

You've chosen a situation important to you—how do you know you are effectively balancing feelings of advocacy with open-minded inquiry? Use self-reflection and this chart to assess.

<p><b>HIGH</b></p> <p>↑</p> <p><b>A D V O C A C Y</b></p> <p>↑</p> <p><b>LOW</b></p>	<p><b>TELLING</b></p> <p><u>Asserting</u>: Here's what I say and here's why I say it.</p> <p><u>Explaining</u>: Here's how the world works and why I can see it that way</p> <p><u>Dictating</u>: Here's what I say and never mind why. (dysfunctional)</p>	<p><b>GENERATING</b></p> <p><i><b>Skillful Discussion</b>: Balancing advocacy and inquiry, genuinely curious makes reasoning explicit, asks others about assumptions without being critical or accusing.</i></p> <p><u>Dialogue</u>: Suspending all assumptions, creating a container in which collective thinking can emerge.</p> <p><u>Politicking</u>: Giving the impression of balancing advocacy and inquiry, while; being close-minded (dysfunctional)</p>
	<p><b>OBSERVING</b></p> <p><u>Sensing</u>: watching the conversation flow without saying much but keenly aware of all that transpires</p> <p><u>Bystanding</u>: Making comments which pertain to the group process but not to the content</p> <p><u>Withdrawing</u>: Mentally checking out of the room and not paying attention (dysfunctional)</p>	<p><b>ASKING</b></p> <p><u>Interviewing</u>: Exploring others points of views and the reasons behind them.</p> <p><u>Clarifying</u>: what is the question we are trying to answer</p> <p><u>Interrogating</u>: why can't you see that your point of view is wrong (dysfunctional)</p>
<p><b>LOW</b> → <b>INQUIRY</b> → <b>HIGH</b></p>		

(Adapted from *The Fifth Discipline Fieldbook* by Senge et al., 1994)

## Tools & Resources for Implementation

This section has resources and tools that you can use to implement future Collaborative Learning events related to the issue you addressed in this training or other projects.

### “The way I see it...” Worksheet

Name: \_\_\_\_\_ Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Think about the current challenges of the situation concerning \_\_\_\_\_. Draw from your personal experience and professional expertise. Reflect on the group discussion when you created the situation map, listened to presentations or reviewed a proposed plan of action.

What part of the situation is important to you?

What are your specific concerns and interests about these issues and why are these issues important to you?

What can be done to improve this situation? (For this activity, choose one improvement as your focus.) An improvement may be an action, project, or management approach you think is desirable and feasible. Describe the improvement, being as specific as possible.

Why is this improvement desirable?

Is this a short-term or a long-term improvement?

How is this improvement feasible? For example, who might be responsible for implementation?

How might your improvement be funded? Be as specific as possible.

What obstacles currently stand in the way of making this improvement? How might those obstacles be overcome?

How does this improvement relate to other aspects of the situation?

What people or views must be considered when designing the improvement?

Ask yourself... “What am I forgetting?”

# Implementation Step 4: *Ideas to Actions* Worksheet

Facilitator will create a flip chart with these headings to capture group brainstorm. Notetaker can capture ideas during discussion in a typed spread sheet.

<b>Most promising idea</b>	<b>How will this idea improve the situation?</b>	<b>What actions would make this idea a reality</b>	<b>Who needs to be involved to implement the idea?</b>	<b>What do we need to be aware of?</b>

## Measures of Success Worksheet

Facilitator will create a flip chart with these headings to capture group brainstorm. Notetaker can capture ideas during discussion in a typed spread sheet.

**Situation to be improved:** \_\_\_\_\_

**Outcomes Visualized:** \_\_\_\_\_

Action Items	Measures of Success	Accountability	Comments

## Example: Action Item for Branch Brook Watershed Council

Document and evaluate ATV impacts on water quality in Branch Brook watershed. Work with landowners, loggers, and ATV users to reduce erosion and protect buffers on privately owned shore lands within the watershed (from Watershed Management Plan).

**Information to guide action:** Use the documented sources of pollution from the *Merriland River, Branch Brook and Little River Watershed Survey* and the *Watershed Management Plan* as a starting point. Tap into the local knowledge of Watershed Council participants.

**Who is responsible?** An ATV subgroup will work on this issue. Brad offered to provide GPS support for documenting sites. MDEP offered to assist in site surveys. Ben of KKW Water District is already working on the ATV issue and will be posting KKW land. See details under ACTION section below. Maine Warden Service conducts regular patrols and will address enforcement.

**When?** Begin field assessment in July 2012. Determine scope of work that can be accomplished by end of August. Break this task into a segment manageable during the summer.

### **ACTIONS**

- **Mapping, photo-documentation:** Brad is willing to map the ATV areas. MDEP is willing to go out with Brad to the sites. By September, Ben will have looked at some of the ATV sites, Brad can GPS some of these spots into GIS
- **Impact assessment:** Ben – doesn't have data on whether ATVs are the cause of increased turbidity or not, thinks they are, need to take water quality measurements
- **Posting:** Ben – is considering posting all 750 acres of KKW land for ATVs; should the entire Branch Brook watershed be posted?
- **Enforcement** – Wells NERR will contact Maine Warden Service about enforcement and the new law – Ken can convince a warden to enforce the law, it would be good to have a list of sites for him, with photos and GPS coordinates
- **Education/outreach:** during summer field assessment gather information about ATV users, access points, awareness of new law, key contacts in the ATV user community

### **Report on September 28th and to Town Council/Selectmen of each town**

PowerPoint presentation with GIS map of ATV impact assessed during the summer

Identification of Hot Spots, access points on map and in database

Challenges for enforcement identified with Maine Warden Service

Proposals for education and outreach based on knowledge gained in the field

Determine next steps during October Watershed Council Meeting

## Tools & Resources for Evaluation

### Audience Response Systems as a Tool or Collaborative Learning Evaluation (and Assessment)

- Collect demographic information
- Evaluate the Collaborative Learning process
- Gather feedback on participant values, attitudes, preferences
- Engage group members
- Pre and post evaluation for community education
- Select and prioritize strategic planning actions

Example: Turning Technologies: <http://www.turningtechnologies.com/>

TurningPoint audience response system integrates into Microsoft® PowerPoint® and allows audiences and students to participate in presentations or lectures by submitting responses to interactive questions using a ResponseCard™ keypad or other hand-held/computer devices.

### Internet Resources to Support Collaborative Learning

- Changing Minds  
[http://changingminds.org/explanations/theories/a\\_motivation.htm](http://changingminds.org/explanations/theories/a_motivation.htm)
- Headwaters A Collaborative Conservation Plan for Sanford Maine  
<http://tos.wwwbus.metrocast.net/ConservationPlan/Sanford%20Conservation%20Plan%202009.pdf>
- The Salmon Falls Watershed Collaborative Action Plan  
[http://www.prep.unh.edu/sfwc/docs/SWC-Salmon-ActionPlan\\_FINAL.pdf](http://www.prep.unh.edu/sfwc/docs/SWC-Salmon-ActionPlan_FINAL.pdf)
- Big Dog Little Dog Performance Learning  
<http://www.nwlink.com/~donclark/index.html>
- The Learning Theory into Practice Database  
<http://tip.psychology.org/backgd.html>
- Andy Goodman Good Ideas for Good Causes  
<http://www.agoodmanonline.com/about/index.html>
- Learning from Experience, a website of natural resource collaboration case studies  
<http://www.partnershipresourcecenter.org/>
- The Economics of Ecosystems and Biodiversity (TEEB) study  
<http://www.teebweb.org/>

- ❑ Crucial Conversations  
<http://www.vitalsmarts.com/>
- ❑ The Millennium Ecosystem Assessment  
<http://www.maweb.org/en/index.aspx>
- ❑ *Bridging the Science to Management Divide*  
<http://www.ecologyandsociety.org/vol11/iss1/art4/>
- ❑ Walker, G. B, S.L. Senecah, and S.E. Daniels 2006. From the forest to the river: Citizens' views of stakeholder engagement. *Human Ecology Review*, 13(2):193-202.  
[http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1010&context=sswa\\_facpubs](http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1010&context=sswa_facpubs)
- ❑ The Partnership for Coastal Watersheds Collaboration Compact  
<http://www.partnershipforcoastalwatersheds.org/wordpress/wp-content/uploads/2011/09/Compact-revise-6-23-11.pdf>

## References for this workbook

Materials in this workbook have been adapted from the following:

- *Working through Environmental Conflict a Collaborative Learning Approach* by Steven Daniels and Gregg Walker (2001)
- *The Fifth Discipline Field Book* by Peter Senge et al. (2004)
- Feurt, C. 2006. *Cultural Models - a Tool for Enhancing Communication and Collaboration in Coastal Resources Management*. Available from:  
[http://www.wellsreserve.org/writable/files/microsoft\\_word\\_-\\_cultural\\_models\\_primer.pdf](http://www.wellsreserve.org/writable/files/microsoft_word_-_cultural_models_primer.pdf)

The practitioner guide *Collaborative Learning for Ecosystem Management*, written by Christine Feurt, is designed as a companion to this workshop and is available for download at <http://swim.wellsreserve.org/ctp/Collaborative%20Learning%20Guide.pdf>

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# Collaborative Learning Guide

FOR ECOSYSTEM MANAGEMENT

# Practicing Ecosystem Management Where People Live, Work and Play

People who live, work and play along Maine's southern coast value the sandy beaches, rocky tide pools and salt marsh lined estuaries for the profound effect these have on our quality of life. The desire to protect these places is motivated by deeply held values about the importance of clean water, the need to protect habitat for wildlife and a commitment to saving special places. Our children and grandchildren can explore these natural landscapes that have shaped the lives of the community for generations. The people of southern Maine, like people everywhere, manifest their commitment to the places where they live and work through their jobs, membership on town boards and participation in community service groups and organizations such as land trusts and watershed associations. This is the social capital of ecosystem management. When this resource of knowledge and expertise is engaged in a collaborative manner, it becomes a powerful force for community sustainability.

Community-based ecosystem management is an approach to getting things done. It manifests as actions that collectively maintain or restore nature's ability to provide clean water, clean air and support for living systems. Sustaining the earth's natural capital requires integration within the system of social capital. Through collaboration, people can accomplish the first step toward sustainability – the development of a collective vision of desired future outcomes for the places where they live, work and play. The individual perspectives that shape these visions take many forms. They are present in town Comprehensive and Open Space plans, in mission statements for organizations and agencies, in public opinion surveys,

management plans and research reports. This booklet is a guide to using a collaborative approach to community-based ecosystem management. It is based on seven years of social science research and my experience with a project that created a shared vision for clean water that united a group of planners, managers, community leaders and scientists with a common vision - Protecting Our Children's Water.

From my perspective as a coastal ecologist and educator, this project profoundly changed the way I perceive, understand and approach the application of science to management and policy. After years of labeling myself an ecosystem manager, I finally became one by experiencing the process of integrating ecological, socioeconomic and institutional perspectives. This integration process has a name - Collaborative Learning. This guide describes a practical method for transforming the science to management paradigm from the traditional Delivery of Science-based Information model in figure 1 to Engaging the Kaleidoscope of Expertise model in figure 2. I believe that incorporating this method into our repertoire of strategies for implementing ecosystem management has the potential to improve environmental outcomes, especially where scientific uncertainty challenges us to tap the collective wisdom of everyone with a stake in a sustainable future.

*Christine Baumann Feurt*  
Christine Baumann Feurt, Ph.D.

## WHAT THIS GUIDE INCLUDES

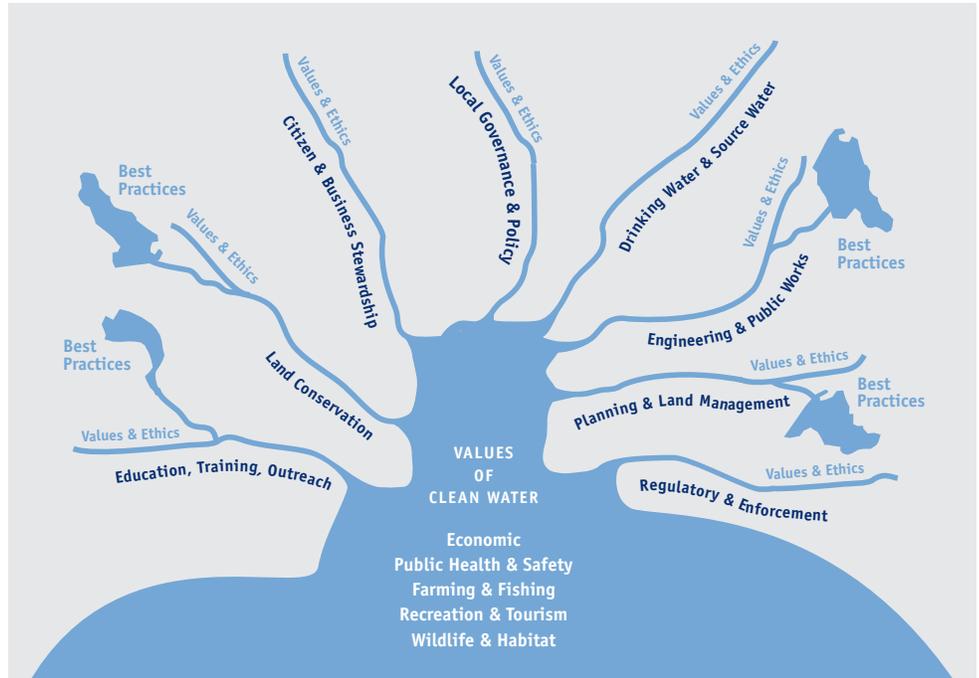
- 2 Introduction
- 3 The Social Landscape of Ecosystem Management
- 4 Collaborative Learning: An Expert Practice for Ecosystem Management
- 6 Protecting Our Children's Water & the Kaleidoscope of Expertise
- 8 Phase 1. Assessment: Understanding the Kaleidoscope of Expertise
- 10 Phase 2. Designing the Collaborative Learning Process
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- 16 The Landscape of Environmental Communication
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**Figure 1. Delivery of Science-based Information**  
The traditional model of providing science to decision-makers is limited with complex issues where scientific uncertainty is high.





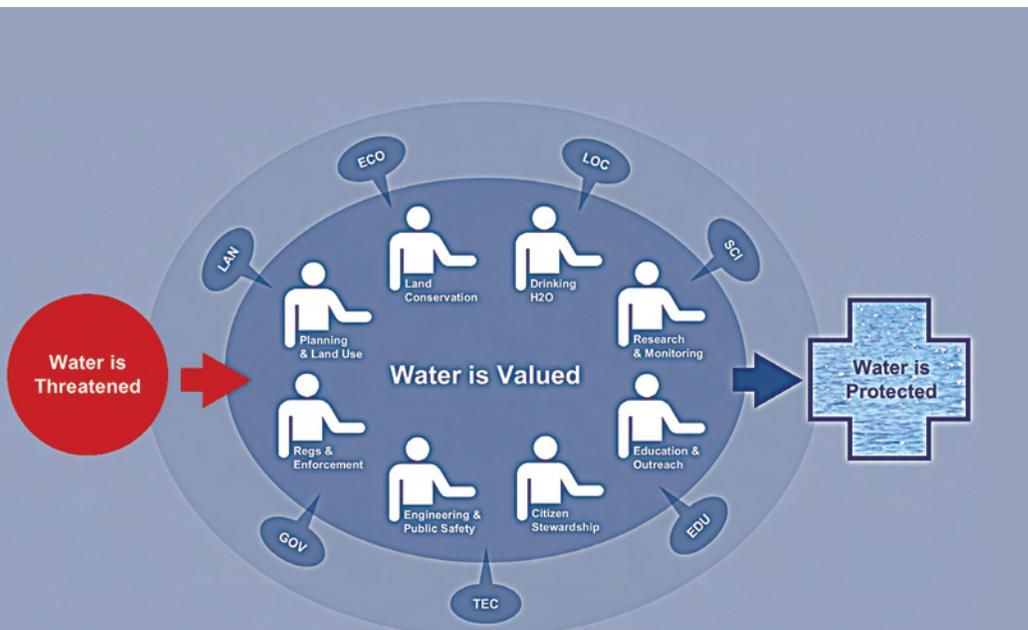
Figure 3. The Social System Influencing Water Quality and Quantity



# community-based

Figure 2. Engaging the Kaleidoscope of Expertise

Collaborative Learning taps collective knowledge and expertise as a resource for problem solving. Pages 6 & 7 explain the development of this model.



## Community-based Ecosystem Management Connects Social Capital and Natural Capital

Shared values about the importance of clean water motivate a social system of practitioners and advocates in southern Maine. Like the tributaries of a watershed, the elements of this social system affect the quality and quantity of water that collects and flows to estuaries at the land sea interface. The eight elements of this social system, shown in Figure 3, interact to protect the values associated with clean water. Work within each element of the system is guided by professionally established best practices and a set of values and ethics that define the culture of the group. Science plays a role in this social system by shaping best practices and providing feedback about the ability of actions taken by each group to achieve goals in alignment with group values and professional ethics. The professional expertise of people working within this social system is augmented by commitment to the communities they serve and attachment to the places where they work, play and raise their families.

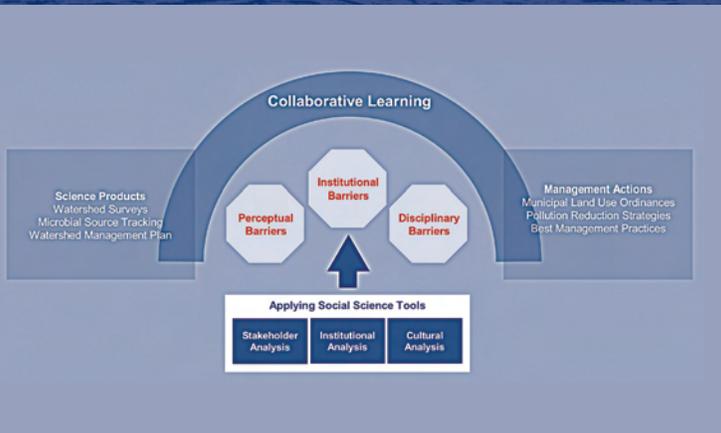
# Collaborative Learning: An Expert Practice for Ecosystem Management

## ECOSYSTEM MANAGEMENT IS...

“An approach to maintaining or restoring the composition, structure and function of natural and modified ecosystems for the goal of long term sustainability...based on a collaboratively developed vision of desired future conditions that integrates ecological, socioeconomic and institutional perspectives applied within a geographic framework defined primarily by natural ecological boundaries”  
(Meffe, et al., 2002)

## COLLABORATIVE LEARNING IS...

“A framework and set of techniques intended for multiparty decision situations... a means of designing and implementing a series of events to promote creative thought, constructive debate and the effective implementation of proposals that the stakeholders generate.”  
(Daniels and Walker, 2001)



**Figure 4. The Collaborative Learning Bridge**

Collaborative Learning, informed by social science research, can be used to bridge the gap between scientific research findings and the application of that research to inform policy and management. Improved understanding of the barriers separating scientific disciplines, organizational approaches and conflicting perceptions of the nature of environmental problems can be used to design an effective Collaborative Learning Bridge. Figure 4 is a model of the bridge for the Protecting Our Children’s Water project.

## A New Social Contract for Science

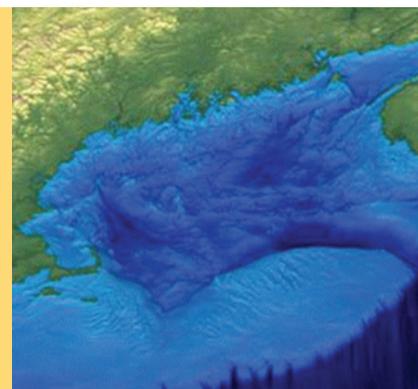
A decade ago in her call for a “new social contract for science,” marine biologist Jane Lubchenco recognized the need for innovation in the way that science serves the needs of society (Lubchenco, 1998).

A new breed of interdisciplinary professional is responding to that call with innovative tools for environmental communication, stakeholder engagement, public participation and collaborative problem solving. The National Estuarine Research Reserve System (NERRS) developed a national program in 2001 to improve the use of science in coastal decision-making and policy. The Coastal Training Program expanded the traditional role of the NERRS beyond research, education and stewardship to include training

and technical assistance to decision-makers served by each Reserve. The Wells National Estuarine Research Reserve, with funding from the Cooperative Institute for Coastal and Estuarine Environmental Technology, used innovative social science research to develop a Coastal Training Program based upon the principles of ecosystem management and the practice of Collaborative Learning. This guide presents key lessons learned from this approach as one model for achieving the new social contract for science.

communication

“The whole system of science, society, and nature is evolving in fundamental ways that cause us to rethink the way science is deployed to help people cope with a changing world. Scientists should be leading the dialogue on scientific priorities, new institutional arrangements, and improved mechanisms to disseminate and utilize knowledge more quickly.” (Lubchenco, 1998)



## The Purpose of this Guide

This guide presents Collaborative Learning as an expert practice for designing, implementing and evaluating the dialogues that support ecosystem management.

Facilitating collaboration among scientists, planners, regulators, policy makers and managers is a key ingredient of ecosystem management. These dialogues develop the shared vision and desired future outcomes that guide the practice of ecosystem management. Collaborative dialogues create bridges connecting diverse areas of expertise and knowledge. The resulting network of connections, the kaleidoscope of expertise, can be cultivated and maintained as a resource for ecosystem management.

The Protecting Our Children's Water project used the Collaborative Learning approach to understand the ways that people in southern Maine valued water, the different kinds of knowledge people applied in their jobs protecting water and the interconnected system for water management operating at the municipal level.

Understanding this kaleidoscope of expertise as a resource for problem solving, rather than a receptacle for science information, revealed the collaborative potential inherent in regional water management. Collaborative Learning was used to tackle one of the most common challenges of ecosystem management - translating the recommendations of a science-based plan into management actions that sustain ecosystem structure and function. Engaging the kaleidoscope of expertise in Collaborative Learning activities during the past seven years influenced the design of workshops, the development of research proposals and the nature of partnerships among governments, organizations and agencies responsible for water protection in southern Maine. Key lessons for ecosystem management are presented in this guide.

## What is Collaborative Learning?

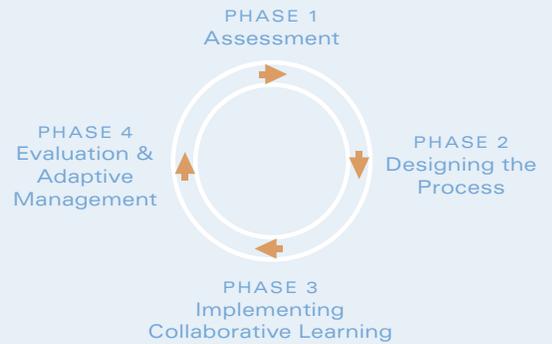
Collaborative Learning is an interdisciplinary approach adapted to facilitate ecosystem management. This guide uses the principles and practices of Collaborative Learning developed by Steven Daniels and Gregg Walker in their book *Working Through Environmental Conflict, the Collaborative Learning Approach*.

Collaborative Learning consists of techniques designed to facilitate shared understanding of complex environmental issues.

Collaborative Learning combines presentation of information with dialogue to allow participants to clarify the scope and definition of problems. Techniques of Collaborative Learning support the development of strategies that reconcile conflict in order to focus on the design and implementation of solutions to environmental problems.

Collaborative Learning brings key ideas from complex systems theory, conflict theory and adult

learning theory together into a set of practical principles and adaptable techniques. These techniques are designed to stimulate creative discussion despite conflict and controversy. The surprising goal of Collaborative Learning is not consensus but group-generated strategies for improving a situation. This guide explains the process of Collaborative Learning used in the Protecting Our Children's Water project with the goal of distilling key elements that can be adapted to other multi-stakeholder ecosystem management projects.



## SIX COLLABORATIVE LEARNING PRINCIPLES

1

### PROCESS

The process of Collaborative Learning follows the cycle of experiential adult learning: assessment, design of an action strategy, implement the strategy, evaluate results, design next action.

2

### RELATIONSHIPS

Stakeholders are considered equal partners. Differences in knowledge and worldview are respected and treated as resources for collective problem solving.

3

### COMMUNICATION

Competent communication among stakeholders is honest, sincere, understandable and appropriate. Respectful procedures exist for fostering dialogue that contributes to shared understanding of areas of agreement and disagreement. Consensus is not required in order to make progress on shared goals.

4

### INCLUSION

To the extent possible all groups with a stake in solving the problem should be represented in order to consider diverse aspects of the issue (scientific, political, economic, legal, etc.). Strive to identify and include people who will provide comprehensive perspectives on the problem being addressed and are in a position to take actions that will move toward the desired outcomes.

5

### PARTICIPATION

Stakeholders are actively involved in the co-creation of knowledge about the nature of the problem to be addressed, development of an action strategy to make progress and selection of tasks that can be accomplished within their sphere of influence. Stakeholders should be willing to commit to these working principles.

6

### ROLE OF THE FACILITATOR

Collaborative Learning facilitators are catalysts for innovation and change. Facilitators that support stakeholders as they analyze information and develop strategies that make sense in their work environment are succeeding.

(adapted from Daniels and Walker, 2001)

# Protecting Our Children's Water & the Kaleidoscope of Expertise

Table 1. Ways of Knowing about Water in Southern Maine

Knowledge Domains	What They Understand	People Who Use this Knowledge
<b>Ecological Knowledge (ECO)</b>	Understanding the structure and functions of a watershed, the hydrologic cycle, connections between groundwater and surface water, and the value of ecosystem services provided by a watershed.	ecologists, farmers, hydrologists
<b>Governance Knowledge (GOV)</b>	Understanding the interrelationships among policy, regulations, government hierarchy, planning documents, ordinances, and the structures and processes in place to execute them.	town planners, code enforcement officers, elected officials, regulators
<b>Land Use Knowledge (LAN)</b>	Understanding the ways land management and conservation and the design of infra-structure and development can influence water quality and quantity, and the ways that the economic value and ecological value of land can be balanced.	town planners, farmers, developers, public works directors, water district managers
<b>Educational Practices Knowledge (EDU)</b>	Understanding how knowledge is generated and transferred among the knowledge domains. Designing and evaluating the effectiveness of education and outreach strategies.	education and outreach specialists, trainers, science translators, town planners
<b>Science Knowledge (SCI)</b>	Understanding the factors influencing water quality and quantity for the purpose of documenting conditions, monitoring change, understanding cause and effect relationships and evaluating the effectiveness of management practices and policies.	natural and social scientists, water quality monitors, regulators
<b>Technology Knowledge (TEC)</b>	Understanding the use and application of engineering and computer technologies to protect water, mitigate impacts, implement best management practices and restore lost structure and function in the watershed.	engineers, public works directors, GIS specialists
<b>Local Knowledge (LOC)</b>	Understanding the connections between the people and places in the community, including familiarity with town history, values and conflicts.	town planner, public works director, elected officials, farmers, developers

(Adapted from Feurt, 2007)

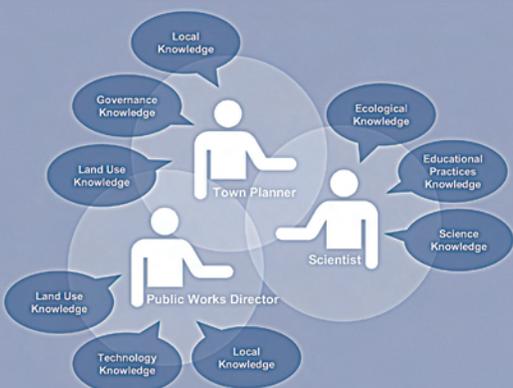


Figure 5. Combined Ways of Knowing

## Seeing the System in Ecosystem Management

Collaborative Learning begins with an assessment. The assessment is a way of revealing the social system in ecosystem management.

The assessment for the Protecting Our Children's Water project used social science research tools to understand the values, knowledge and actions of people involved in all aspects of water use, protection and management in southern Maine. This section

presents the key findings from that research as evidence of the potential for knowledge about the social system within which ecosystem management occurs to improve the design of education, management and research projects.

## The Value of Water

*Protecting Our Children's Water* is a way of framing ecosystem management to unite people involved in many different jobs and activities. The phrase captures two aspects of ecosystem management – protecting water for people who may not have the power and authority to act for themselves and protecting water for future generations.

The phrase *Protecting Our Children's Water* taps deeply held values about water as the source of life, and water as a shared resource that is finite and vulnerable. The values inherent in *Protecting Our Children's Water* represent two central themes in environmental protection, the core concepts of the commons and sustainability. People working in jobs as public works directors, code enforcement

officers, planners and selectmen share responsibility for actions to protect water for community residents today and in the future. People participating in the Protecting Our Children's Water project recognized six values of water shown in Figure 6 and described on page 7. Understanding shared values of water contributed to the development of the Collaborative Learning process.

professional practice

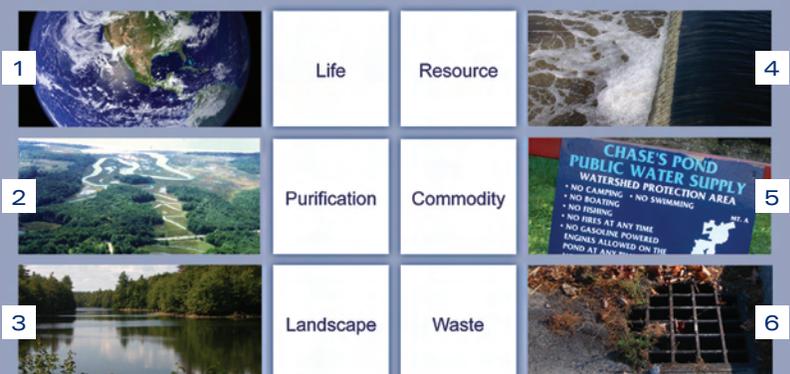


Figure 6. The Six Values of Water

## “Discovering” the Kaleidoscope of Expertise

Knowledge about how people in southern Maine value water came from a series of interviews with people involved in municipal water management. The initial idea behind the interviews was to identify gaps in the knowledge of municipal officials that could be addressed by providing science based information.

Figure 1. (pg. 2) shows the concept model at the start of the interviews. The interviews changed everything. Figure 2 (pg. 3) represents the transformation of the linear concept of information delivery to a systems understanding of the knowledge and expertise residing in the municipal system for protecting and managing water. The metaphor of the Kaleidoscope of Expertise came from the realization that each person views water and their role in managing water through an individual lens affected by their education, training, work experience and the requirements of their job. Taken together, the combined knowledge and expertise of the people responsible for water is a resource for learning and problem solving. Collaborative Learning is a way to tap this resource.

### Knowledge in the Kaleidoscope

Seven types of knowledge or ways of knowing about water emerged from analysis of the interviews of southern Maine water managers. The interviewees included people involved in scientific research and implementation of state regulatory programs, as well as municipal officials. During each open ended interview, people talked about their work, how they valued water, their ideas about threats to water, the causes and effects of those threats, and what could be done to protect water. The ways of knowing about water are described in Table 1 and coded into the Kaleidoscope of Expertise model in Figure 2. People use more than one type of knowledge in their work. Figure 3 illustrates a conversation at a Collaborative Learning workshop drawing from multiple ways of knowing.

### Jobs & Activities in the Kaleidoscope

During the interviews people described the parts of their work related to water. In most cases, protecting water was one of many job responsibilities. Eight distinct categories of work contribute to water protection shown in Figure 2. Each category is founded upon educational traditions, shaped by codes of professional practice and accountable to ethical standards. Ecosystem management requires a method for bridging and integrating distinct categories of practice to engage the diversity of knowledge and expertise in problem solving. Collaborative Learning is one method for doing this.

#### Recognizing the Work Categories Engaged in Ecosystem Management

- Regulatory and Enforcement
- Planning and Land Use
- Engineering and Public Safety
- Citizen & Business Watershed Stewardship
- Education and Outreach
- Research and Monitoring
- Drinking Water Provision
- Land Conservation

1

#### Water is the Basis for Life on Earth

Water is the basis of life on earth. Water is essential to humans, animals, plants and all living things. The biological, chemical and physical characteristics of water are the foundation of life processes from cells, to ecosystems, to global climate. Human health depends upon clean water. Despite its acknowledged value, water is taken for granted.

2

#### Nature Makes Water

Water and land in a natural state, linked as a watershed, function as a water collection, purification and storage system. Water and land are interconnected as part of a natural system. The hydrologic cycle, driven by the sun's energy and the pull of gravity, functions to produce, move, filter, store and clean water as a sustainable and renewable resource. Infiltration, filtering, buffering and other purification processes maintain the cycle. Plants, animals and microorganisms are part of the natural system. Humans benefit from the biofiltration services provided by this natural system.

3

#### Water is Landscape

People are drawn to aesthetic and intrinsic values of water in the landscape as a source of beauty, adventure, peace and serenity. Water landscapes are valued both as backdrops for residential and commercial properties and as sources of more intimate experiences of recreation like fishing, swimming, and boating. Just knowing that a favorite place in nature with clean water exists is a source of satisfaction even if the place is not visited.

4

#### Water is a Resource for Humans to Use

Clean water is good business. Clean, abundant water is economically important for residential, commercial, agricultural and industrial use. Property values, tourism, seafood harvesting and farming are dependent upon clean water. Water is a shared resource.

5

#### Water is a Commodity

Drinking water is a public and private commodity. Water is collected from the wild, processed to meet regulatory requirements and sold to meet residential, commercial and industrial needs. Water as a commodity may be sold for profit or as a public utility.

6

#### Water is Waste

Water used as a resource and contaminated as a result of that use becomes waste. Water also becomes waste when it is used as a deliberate or incidental receptacle for pollution. Contaminated water threatens public health and wildlife and loses value as a resource. Water that does not filter into the ground or stay within expected levels and pathways can create hazardous conditions.

(Adapted from Feurt, 2007)

PHASE 1 Assessment  
 PHASE 2 Designing the Process  
 PHASE 3 Implementing Collaborative Learning  
 PHASE 4 Evaluation & Adaptive Management

## Assessment: Understanding the Kaleidoscope of Expertise

Ecosystem management viewed as a way to maintain and improve the places where people live, work and play expands traditional thinking to include a larger pool of stakeholders and institutions. The concept of a Kaleidoscope of Expertise, developed during seven years of research and work in southern Maine watersheds, models this expanded idea of who is responsible for ecosystem management.

Developing an understanding of the unique Kaleidoscope of Expertise for your situation begins with a preliminary understanding of the situation based upon the ways that the planning team sees the problem, its causes and the people responsible for solving the problem. As you begin to listen to stakeholders, adopt an open attitude that actively seeks to enrich the preliminary model. The assessment phase is critical for understanding who the stakeholders are, what they know and value and how they might already be oriented in their work and committed to a solution. The assessment enables you to better understand the human system managing the natural system through the eyes of the people who live, work and play in the places where ecosystem management is taking place. The assessment prepares you to develop the blueprints for the design of the Collaborative Learning Bridge.

### TIMEFRAME & RESOURCES REQUIRED

Allow two weeks with a team of two people to conduct the assessment. Ideally, the assessors are also the facilitators of the Collaborative Learning process. The planning team driving the project should meet with the assessors at the beginning and end of this phase. All meetings and listening sessions are documented with minutes that are reviewed and approved by participants. This phase of the process is pivotal. If you cannot devote time and resources to the assessment of a Collaborative Learning process reconsider using this technique.

## 1 Understand and Clarify the Nature of the Problem

A Collaborative Learning project is usually driven by an identified need to solve a problem. Developing a clear understanding of the problem situation as perceived by the project initiators is the first step of the assessment. The results of the planning team assessment for Protecting Our Children's water appear below. The declarative statements below are very simplified from the extensive discussion of the problem. This step allows you to see the problem system through the eyes of the project initiators. The situation map in Figure 1 (information delivery) was developed from the project initiators assessment. This initial model for action evolved to the Kaleidoscope of Expertise in Figure 2 as a result stakeholder listening sessions.

### What is the problem?

Municipal officials are unconcerned and uninformed about the effects of land use decisions on nonpoint source pollution.

### Why do you think this?

Water quality data has documented pollution levels. Watershed surveys have identified sources of nonpoint source pollution. A watershed management plan has been completed. The recommendations of the plan are not being implemented.

### Who are the people who could become involved with the solution of this problem?

Science Educators, Town Managers, Elected Officials, Town Planners, Conservation Commissions, Code Enforcement Officers, Public Works Directors

### What do you think these people could do to solve the problem?

Science educators can conduct workshops for municipal officials explaining the pollution levels and sources of pollution and give copies of the watershed management plan to participants. Municipal officials will be motivated to use the watershed management plan to change practices and develop projects to prevent pollution.

## 2 Identify Potential Stakeholders and Listen to Different Perspectives on the Problem

Using the ideas and list of potential stakeholders generated by the project initiators, contact 5 or 6 of the stakeholders asking for one hour of their time. Describe the purpose of the project and why you think they can help. Develop a few simple open-ended questions.

### Do you think water pollution is a problem in town?

will expand your understanding of the system within which the problem is embedded. Allow time immediately after the listening session to review your notes and type them. The two assessors participating in listening sessions should compare notes and discuss what they have learned after each session. The assessor's reactions to and reflections on the listening sessions should be recorded as part of the data for the assessment. Resources for developing listening and note taking skills are included in the resources section of this guide.

### What do you think are the causes of this problem?

### What do you think could be done to solve this problem?

Allow the stakeholders to respond in their own words, and be attentive to the perspectives that unfold. Listening is an art. Effective listening and note taking are essential to the assessment phase. Your goal is to understand the diversity of ways people think about the problem you are trying to solve. The dialogue that you facilitate

The four elements of the assessment phase are interdependent. Begin with your understanding of the situation, expand that to include the planning team and complete the assessment with stakeholder listening sessions.

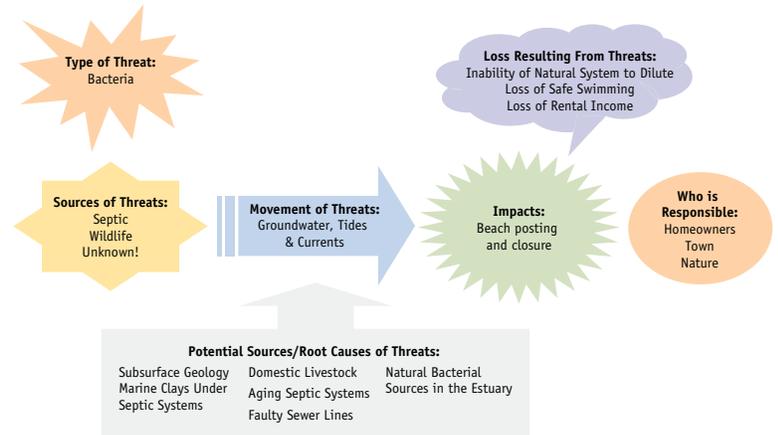
### 3 Create and Synthesize Situation Maps that Capture the Diversity of Perspectives

Creating a situation map allows the part of your brain that produces insights and ideas an opportunity to look at the problem in new ways. The situation maps evolve to include your ideas, the ideas of the project planning team and the ideas of the stakeholders who participated in the listening sessions.

It may be useful to begin with two types of situation maps during the assessment phase. One map can be used to collect ideas about the nature of the problem. Who is affected? What are the causes, and what are the impacts of the problem? The second map can capture ideas about the scope of the solution. Who is responsible for solving

the problem? What information is missing? What are the barriers to and incentives for a solution? The example situation map in Figure 7 synthesizes the ways people described the nature of threats associated with a specific pollution event. The ideas within the situation maps provide input to the final assessment matrix.

Figure 7. A Situation Map About Threats to Water at Goose Rocks Beach, Kennebunkport, Maine



### 4 Complete the Assessment Matrix to Organize Knowledge About the System Within Which the Collaborative Learning Project Will Occur

The Assessment Matrix is the final summary of the system prepared by the assessors and planning team at the conclusion of this phase. Making sense of qualitative data such as meeting minutes, flip charts and situation maps can be a daunting undertaking. This task benefits from the dialogue between the two assessors and the planning team. Each Collaborative Learning project will generate a unique assessment matrix.

#### Underlying the matrix are three key assumptions:

- Something of value is being lost or will be lost
- There are threats to what is valued
- Actions can be taken to protect what is valued

To create the matrix, review the minutes, notes and maps generated by the assessment. Use three different colored highlighters to code the data for the value, threat and protection themes described above. Start with simple lists and combine lists to form a matrix that captures the new understanding of the system. If you are more comfortable and inspired by the idea of a model or map of the final assessment, match the synthesis to a method that works best for your situation. The goal is to synthesize the

perceptions of the planning team and the stakeholder group to create a more holistic picture of the problem situation.

The assessment matrix holds the key to evaluating the collaborative potential inherent in the situation. Shared values and shared perception of threats can be starting points for the Collaborative Learning process. Disparities about values and threats may indicate sources of conflict or information needs. The assessment brings the potential for both collaboration and conflict to the surface to inform the design of the Collaborative Learning process.

The information gained about actions to protect what is valued provides a systems understanding of the roles and responsibilities of the people whose knowledge, ideas and expertise contribute to solving a problem – the Kaleidoscope of Expertise.

Table 2. Sample Assessment Matrix: The System for Protecting Water in Southern Maine

Roles in Place-based Water Protection System	Responsibilities in a Place-based Water Protection System	Institution, Agency or Group Responsibilities in a Place-based Water Protection System
<b>Provide Public Infrastructure and for Public Safety</b>	Infrastructure construction & maintenance Stormwater management Water Quality Protection	Municipal Wastewater Public Works Healthy Maine Beaches Program
<b>Provide Public Drinking Water</b>	Source water protection Water treatment Water delivery	Municipal Water District
<b>Provide Planning Design and Oversight for Land Use</b>	Comprehensive Planning Economic Development Planning	Municipal Planning Department Municipal Boards Regional Planning Commission
<b>Enforcing Regulations</b>	Local land use ordinances State regulations Federal regulation	Municipal Code Enforcement Officers Maine DEP
<b>Science: Water Research &amp; Monitoring</b>	Conduct Watershed Surveys Prepare Watershed Management Plans Water Quality Monitoring	Research Institutions Wells NERR Municipal Water District
<b>Land Conservation &amp; Management</b>	Conservation of land through purchase and easements Management of conserved lands linked to mission	Municipal Water District Rachel Carson Refuge Land Trusts
<b>Education</b>	Professional training Community Education K - 12 Education	Wells NERR Conservation Commissions Schools
<b>Citizen &amp; Business Watershed Stewardship and Advocacy</b>	Advocacy for watersheds, and resources dependent upon clean water Stewardship of private lands Compliance with regulations/ordinances Participation in municipal government	Watershed and Community Groups Homeowner Associations Service on Municipal Boards Volunteer monitoring/ Citizen Science

(Adapted from Feurt, 2007)

- PHASE 1 Assessment
- PHASE 2 Designing the Process
- PHASE 3 Implementing Collaborative Learning
- PHASE 4 Evaluation & Adaptive Management

## Designing the Collaborative Learning Process

The assessment phase develops the blueprints for the Collaborative Learning Bridge. The design phase uses those blueprints for the construction of a sound bridge. The objectives of the design phase are to get the members of the Kaleidoscope of Expertise together to make progress on shared objectives and to develop activities that respect the knowledge, expertise and time constraints of everyone involved.

### 1 Confirm the Problem Statement and Purpose of the Process in the Invitation to Participate

Taking action to sustain nature’s ability to supply clean water, healthy air quality and life support services is the overarching goal of ecosystem management. The task for Collaborative Learning is to convene groups of stakeholders who can take specific actions to make progress on this goal by improving the places where they live, work and play. The assessment phase was designed to identify the people with knowledge, expertise and the ability to act on an issue.

A clear statement of the problem and purpose for the process helps stakeholders determine if they want to participate. The problem and purpose should be clearly linked to the responsibilities and expertise of the stakeholders invited to attend. The outcome of a Collaborative Learning process is an action strategy

developed by people who have the power to implement the actions. A stakeholder evaluating a commitment to participate will decide if the proposed event is aligned with their responsibilities for the issue, and if the activity is oriented to taking action to move forward to solve a problem.



#### THE DESIGN PHASE CONSISTS OF THREE ELEMENTS

1. Confirm the problem statement and purpose of the process
2. Design to engage the Kaleidoscope of Expertise
3. Develop facilitation and knowledge management skills

confirm  
design  
develop

## 2

### Design to Engage the Kaleidoscope of Expertise

Develop your Collaborative Learning process using the strategies below to engage the Kaleidoscope of Expertise.

#### Tap the knowledge and expertise of participants to support systems thinking

Begin with a situation mapping activity to develop shared understanding of the issue and to reveal areas of agreement and disagreement. The information from the assessment phase will allow you to develop basic elements of a situation map you can use to start the dialogue. A variation on situation mapping, developed for the Protecting Our Children's Water project, is described in the next section. The goal, early in the process is to develop a holistic picture of the system within which the problem is embedded.

#### Engage participants in reflection about their work and provide them with ways to discuss ideas that improve their ability to work with the issue.

Develop an agenda that focuses on the needs of adult learners.

Direct, active, problem-solving environments involve people in learning by doing. People like to participate in learning environments that engage them in active reflection about their work and ways to do their jobs better. Scientific information about the impacts of work practices and policies on natural systems can spark discussions about the need to adapt best practices to achieve desired outcomes. Field trips to demonstration sites, such as the University of New Hampshire's Stormwater Research Center, expose participants to new technologies and foster dialogue with people who have tried new approaches. The Protecting Our Children's Water project developed a series of field activities designed to allow participants to share place-based experiences across a range of professional practices.

#### Document and track the work of Collaborative Learning.

Show the evolution of the learning that takes place as a result of group interaction. Use flip charts to capture dialogue and display key ideas and

themes to the group during the process. People need to see that ideas are captured and acknowledged, and they need a way to visualize the evolution of the dialogue as they move forward in their work. At the conclusion of a session review the work and summarize progress made. Group generated ideas, tasks and timelines fuel the process of ecosystem management. Synthesized minutes of the meeting should be prepared in draft, circulated to members for approval and finalized as a record of the process. Posting to an email list, forum or Blog facilitates access to the work of the group.

#### Connect the Collaborative Learning process to existing community goals.

People want to participate in activities that make a difference. Activities that sustain valuable natural assets of communities are important to elected officials, the public, community groups and businesses. A Collaborative Learning process with connections to goals identified as important to a community in comprehensive

plans, open space plans or economic development plans benefits from documenting and publicizing the work that is accomplished.

If appropriate, a Collaborative Learning process should be linked to local government. If the project involves grant funds awarded to the town or commitment of town resources through staff participation in the process, elected officials should have the opportunity to review and endorse the activity. Provide clear accounting of the financial requirements or contributions associated with the project along with a timeline for accomplishing the project. Return to elected officials at the conclusion of a project to report on accomplishments and benefits to the town. In places where municipal business is broadcast over cable television, reporting to elected officials increases the visibility of the project and recognizes the work of participants to sustain resources important to the entire community.

## 3

### Develop Facilitation and Knowledge Management Skills

There are two ways to bring Collaborative Learning skills to the practice of ecosystem management - develop and practice the skills yourself or include partners with these skills on your team. Interdisciplinary research teams are becoming standard practice in ecological research. Ecosystem management benefits from the same mindset. This guide is designed to help you make a realistic assessment of the time and expertise required to design and implement Collaborative Learning in support of ecosystem management.

Professional educators and outreach specialists working in ecosystem management are encouraged to experiment with the approach in situations where conflict is low and collaborative potential is high.

The Protecting Our Children's Water project was such a case. The author of this guide learned the lessons of Collaborative Learning with a dog-eared copy of Daniels and Walker in hand and the motivation of a dissertation committee at her back. The resources section at the end of this guide provides key resources to support skill building and knowledge required for Collaborative Learning.

Collaborative Learning is a complex process of knowledge co-creation. Existing knowledge and expertise serves as a foundation for problem solving. Participants develop listening skills and are more productive when they learn to recognize the multiple lenses through which an issue can be viewed. The Kaleidoscope of

Expertise becomes a rich source of creativity and innovation with expert and sensitive facilitation.

Researchers and Program Managers can include Collaborative Learning as a methodology to support project development, science translation and management plan implementation. A provocative rule of thumb to consider in these cases is the 50:50 rule. For ecosystem management projects, devote no more than 50% of the project effort and resources to scientifically describing the issue. Devote at least 50% of the project budget and work plan to a process like Collaborative Learning that focuses on the development and implementation of action strategies to achieve environmental outcomes associated with the issue. In the case of

translation of recommendations from a completed research project or implementation of a management plan it may be appropriate to consider the Collaborative Learning process as a fundable stand-alone project. The 50:50 rule is a hard rule to accept given the uncertain nature of science. There will always be a need for more data, better models and continued field and lab experiments. Collaborative Learning and ecosystem management use the best available scientific information and engage the social capital inherent in communities, agencies and organizations in work to sustain and protect the ecosystem services provided by natural systems.

## Implementation: Engaging the Kaleidoscope of Expertise

### Lessons from the Protecting Our Children's Water Project

The twenty watershed council delegates assembled for the first workshop of the Protecting Our Children's Water project had an impressive 332 years of combined experience working with natural resource, water and municipal management issues. The challenge for the Collaborative Learning process was to engage the people with this expertise in dialogue about ways to implement a watershed management plan for the region.

Because the assessment phase included interviews with stakeholders, a preliminary understanding of existing knowledge, values and beliefs about water, and responsibilities for protecting water was a resource for the workshop. The delegates in the room represented the Kaleidoscope of Expertise with responsibilities for protecting water. These people shared values about the importance of water and knowledge about threats and protection strategies. The challenge for Collaborative Learning was to activate and engage the values and knowledge of the group.

Implementing Collaborative Learning requires ten essential elements. These process elements are linked to content elements to transform interactions within the group from the passive receiving of information from outside experts to sharing of expertise within the group. Outside information still plays a role, but time must always be built into the agenda for group members to discuss the meaning of the information for actions relevant to their work. Experience is the best teacher and the beauty of Collaborative Learning is its adaptability to match the expertise, mission and culture of the group you are working with.

### "Why am I here and what do you want me to do?"

Elements 1, 2 address key principles of adult learning and should provide the answer to the question above within the first 20 minutes of the activity. An example from the opening session of the Protecting Our Children's Water Project appears below.

"Because you are responsible for some aspect of water management in your town we would like you to evaluate and prioritize a set of action items from the Little River Watershed Management Plan. The action items in the plan are proposed to reduce pollution in the watershed and protect water from further degradation. Today we will identify the action items that

connect to work you are already doing. As a group we will determine which actions can be addressed realistically in the short term to improve water quality. We will tap your expertise to identify longer term actions that can improve water quality, resource needs to accomplish those actions and a timeline for future work together."

### The Values Elicitation Exercise

This exercise addresses Elements 2, 3, 4, 5. The values elicitation exercise brings the knowledge and values of individual participants into conscious awareness as a resource for group problem solving. Presented at the beginning of a Collaborative Learning activity this exercise also works as an icebreaker.

Give each workshop participant a sheet of flip chart paper and three different colored markers. Participants write their name and title across the top of the page and use a green marker to answer the following question, "What is the importance and value of water to you?" Participants write their answers as free form lists or pictures in the center of the flip chart paper. When the group completes the first question, participants use the red marker to list things that threaten the values of water. Write the threats in a large ring at the outer edge of the paper, surrounding the values. As the final task, participants use the blue marker to answer, "What actions do you take at work that protect water?" These responses are recorded in the space between the core values and the circle of threats. Each group member can then

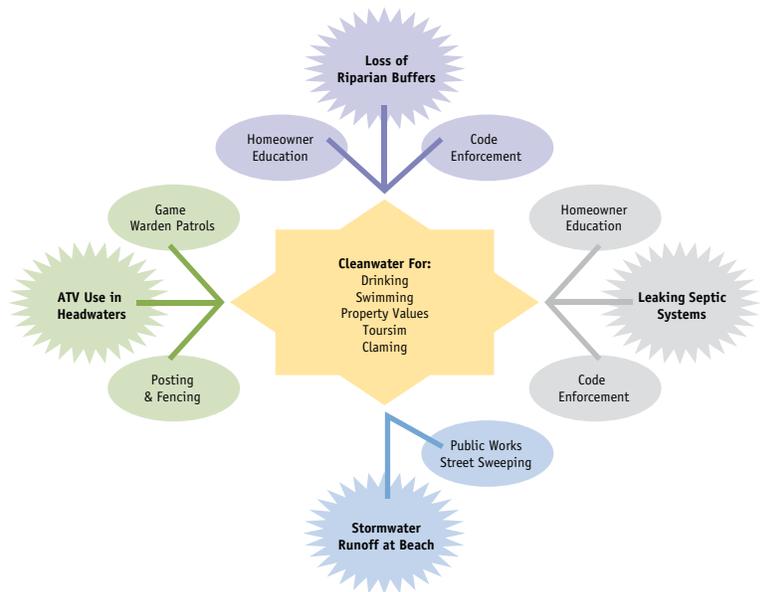
introduce themselves and describe an "aha moment" or highlight associated with completing the activity. Individual pages are taped to the tables in front of each participant.

The values elicitation exercise can be adapted to suit the purpose of any Collaborative Learning activity. The assessment conducted for the project identifies stakeholder knowledge and values. This activity taps that resource to bring values and perception of threats to the surface and begins to develop a shared picture of the situation. This activity also reinforces connections to work. This approach differs from traditional approaches that describe the structure and function of a pristine watershed and how humans degrade that system. This exercise focuses on values and responsibility for water.

## Create a Situation Map to Build Shared Understanding (Element 4)

Use the same technique for building a situation map described on pg. 9. Basic elements of the map developed during the assessment can be a starting point to speed the process. Ideas from the values elicitation exercise can be added to the situation map. Use participants' exact words to create the map and ask participants to review the final map during a break to make sure that key ideas are represented. A simple situation map is shown in Figure 8.

Figure 8. Situation Map for Protecting Our Children's Water



## Individual Issue of Concern (Element 5)

### Sample Individual Concerns Worksheet Protecting Our Children's Water Workshop

Name \_\_\_\_\_

1. What part of the Situation Map are you involved with in your work?
2. What are your specific concerns and interests about these issues?
3. What other parts of the situation must be considered when designing improvements to this part of the map?
4. What people or views must be considered in designing improvements related to this issue or area?

After a break when people have had time to review the situation map, ask each participant to complete an individual worksheet with their concerns related to the situation.

## Small Group Evaluation of Issues of Concern and Improvements Worksheet (Elements 4, 6 & 7)

### Improvements Worksheet for Small Group

1. How can management be improved? Describe the outcome of this action.
2. Why is the outcome desirable?
3. How is this outcome feasible? Who would be responsible for implementing and funding the improvement?
4. What barriers are currently preventing this outcome? How would you overcome the barriers?
5. How is this improvement connected to other parts of the situation map?

After people capture their ideas and reactions to the situation map on an individual worksheet. People meet in small groups to discuss individual concerns and brainstorm a list of potential improvements that can be made to achieve desired outcomes. This activity can include evaluation of action items from a pre-existing plan or generation of new action items. The questions on the worksheet are designed to stimulate dialogue.

## Full Group Presentation of Improvement Worksheets and Development of Action Strategy (Elements 8, 9, & 10)

The worksheets completed in small groups are the raw material for developing the action strategy. The three most important considerations in developing an action strategy that supports ecosystem management are time, outcomes and accountability. Some rules of thumb...

- The Collaborative Learning process must include adequate time for dialogue and development of action items linked to outcomes. At least half of the time in the agenda should be allotted for discussion.
- The time to implement action items must be realistic and based upon resources and capacity. If resources and capacity don't exist, create an action item to secure resources and build capacity. If the person with expertise in implementing an action item is not in the room defer decisions on that item until that expertise can be accessed.
- Be honest about the time scale for outcomes to manifest as a result of actions taken. The Protecting Our Children's Water project timescale is 2005-2025.
- Outcomes must be feasible, measurable and attributable to the actions taken. There are always actions that can be taken to improve some aspect of a complex situation. Focus on improvements that allow a group to develop a track record of success.
- Develop a mechanism for accountability. The next section of this guide provides ideas for accountability, adaptive management and evaluation.

1. Provide orientation to: purpose, process, outcome
2. Establish relevance to work
3. Connect to values
4. Build shared understanding
5. Generate individual issues of concern
6. Evaluate issues of concern – small group
7. Develop improvement analysis – small group
8. Share improvements
9. Develop action strategy – Who will do what and when?
10. Develop accountability

## Evaluation Connects Collaborative Learning to Goals of Ecosystem Management

This guide presents Collaborative Learning as an expert practice for designing, implementing and evaluating the dialogues that support ecosystem management. Collaborative Learning can be used to build research teams, management teams and communities of practice, and to engage those teams in work focused on shared goals. The work of collaborative teams and the action strategies they develop must be linked to the fundamental goal of ecosystem management - sustaining the natural systems that provide clean water, healthy air quality and life support for all living things. Taking action to sustain natural systems and improve the places where people live, work and play is the outcome of the Collaborative Learning process. Determining if those actions are moving toward the collaboratively developed vision of the group and the goals of ecosystem management is the fundamental challenge of evaluation.

Evaluation skills are hard wired in our brains. Evaluation is learning what works, recognizing when something isn't working and figuring out a new course of action that gets us where we want to go. Evaluation works best when actions can be compared against a baseline or starting condition and measured with a goal or outcome in mind. Evaluating effectiveness includes assessing the time, resources and effort that go into producing desired outcomes and making progress toward shared goals.

The goal of ecosystem management is to sustain ecosystem structure and function by integrating ecological, socioeconomic and institutional perspectives. Collaborative Learning applied at a scale to sustain the places where people live, work and play brings the goals of ecosystem management into focus so that people can take actions to improve the places they are most connected to through livelihood, family and experience.

## Evaluation Pervades the Collaborative Learning Process

Understand that evaluation is not an end of process activity. Evaluation is a continuous process of attending to, documenting and reflecting on the goals and objectives of each phase of a Collaborative Learning process. Individuals involved with Collaborative Learning evaluate their participation in the process and their achievement of personal action items as part of a larger strategy generated by the group. Planning team members evaluate both the design and implementation of the process and the progress of the group toward shared goals. Participants in an on-going Collaborative Learning process can develop the evaluation strategy that matches the needs and scope of the project. Evaluation of Collaborative Learning is analogous to adaptive ecosystem management in that projects are designed with the mindset that each activity is an experiment in social learning. Evaluation measures the outcomes of each activity against the objectives and goals of the project, providing course corrections for continued improvement.



evaluate

### IS COLLABORATIVE LEARNING WORTH THE EFFORT?

Collaborative Learning is one tool among many for accomplishing the goals of ecosystem management. It is an effective method for improving the capacity of organizations to implement ecosystem management through stakeholder engagement. Implementing the first Collaborative Learning process is resource intensive and difficult, but it gets easier. With practice, the key elements of the process become instinctive. Knowledge about the social system within which ecosystem management occurs and skill for facilitating

collaborative process are not part of the education of many scientists and resource managers. I would be less than honest if I didn't admit that after facilitating an exhausting workshop or contentious planning meeting, I experience a longing for the simplicity of counting species in a salt marsh vegetation transect. Scientific knowledge can carry us only so far on the path to sustainable practices. Collaborative Learning is a way to bring science into the policy and management arena and put that science to work.



**1 Tracking Improvement Toward Ecosystem Management Goals**

The goal of Collaborative Learning is improvement in a situation. Participants generate action strategies that they think will result in improvement and take ownership of actions that they have the power to implement. Collectively, the improvements move toward a longer-term outcome that is recognized by the group. Tracking movement toward longer-term outcomes is part of the evaluation phase of Collaborative Learning.

Collaborative Learning groups can adopt an existing set of outcomes and standards and orient their action strategy toward those goals. The Protecting Our Children’s Water project used a completed watershed management plan to select action items aligned with short-term outcomes. The assembled Kaleidoscope

of Expertise evaluated the feasibility of each action item. Discussion among planners, public works directors and code enforcement officers from neighboring towns provided a reality check for scaling the general action items proposed in the plan down to specific implementable and measurable action.

**Overarching Goal:**

Protecting Our Children’s Water

**Long-term Goal:**

Protecting riparian buffers to improve water quality

**Watershed Management Plan Action Item:**

Reduce ATV impact in headwater streams

**Action Items From Collaborative Learning Process:**

- Photograph damage
- Explain extent of problem to elected officials to gain their support
- Site visit with local and state policy makers
- Secure DEP commitment to document extent of damage
- Investigate targeted enforcement with local police and game wardens
- Seek funding to explore mitigation options with partners

**2 Documenting Learning, Conflicts & Ideas Through Meeting Minutes**

Meeting minutes are a resource for measuring the social learning that occurs during Collaborative Learning. Minutes also document sources of conflict, innovative ideas and anticipated barriers to progress.

Minutes of a Collaborative Learning process should incorporate flip chart notes, situation maps and individual worksheets such as the Values Elicitation Exercise and Themes of Concern. Evaluation requires that the minutes documenting the meeting are reviewed and approved by participants.

Formal evaluation for research or legal purposes may require video recording and transcription of meeting minutes. In most cases, meeting minutes submitted to participants for review and correction and archived in a stable accessible format serve the needs of Collaborative Learning.

**3 Soliciting Feedback Through Participant Surveys & Dialogue**

Participants are a critical source for evaluating the process of Collaborative Learning and progress toward shared goals. Written surveys and formal interviews can require agency approval and design assistance from a social scientist. If your access to such resources is limited, post-workshop evaluations, follow-up phone calls and chatting over a cup of coffee are effective ways to learn what participants think about a process.

Breakfast at the Cockpit Café in Sanford, Maine became a favorite way to meet and discuss the progress of watershed councils during the Protecting Our Children’s Water project. Informal dialogues at a participant’s workplace or walking in places where action plans are based provide powerful ways to develop an understanding of the reactions of stakeholders and to solicit feedback to improve progress. Take a hard look at your approach to working with stake-

holders. How much time do you spend with email contacts, researching on-line and talking with people in your own organization? Compare that to the amount of time you spend face to face with stakeholders from the groups you collaborate with. Collaborative Learning benefits from knowledge that you as a process designer and facilitator develop about the work environment and places of importance to the people involved in the process.

**4 Accountability**

Ecosystem management must be accountable to governing bodies elected to represent the interests of the people. In the case of the Protecting Our Children’s Water project, elected officials serving on Boards of Selectmen and Town Councils were the primary governing bodies responsible for overseeing policies about land use that impacted water resources. Each town governing body was approached before the project began.

After viewing a 10-minute presentation about the project, elected officials from each watershed town voted to support participation of municipal staff for an experimental period of four months. Elected officials wanted information on cost to the town, time required away from employee’s regular duties, and the mechanism for reporting outcomes of the work. Officials wanted to be sure that participation on the watershed council would not obligate the town for unplanned expenditures. Participation in the first round of Collaborative Learning events required 32 hours of staff time, all of which were linked to municipal goals for clean water described in town Comprehensive Plans.

When the four-month experimental phase ended, participants indicated on written surveys and during discussion, a willingness to continue to work as a watershed council. Reporting to elected officials at the end of the experimental phase was part of the evaluation. Elected officials received a one-page summary of the project, viewed a brief presentation, and discussed extending the commitment to participate. In each of the seven towns participating in Protecting Our Children’s Water, elected officials voted unanimously to continue town participation on the watershed councils.

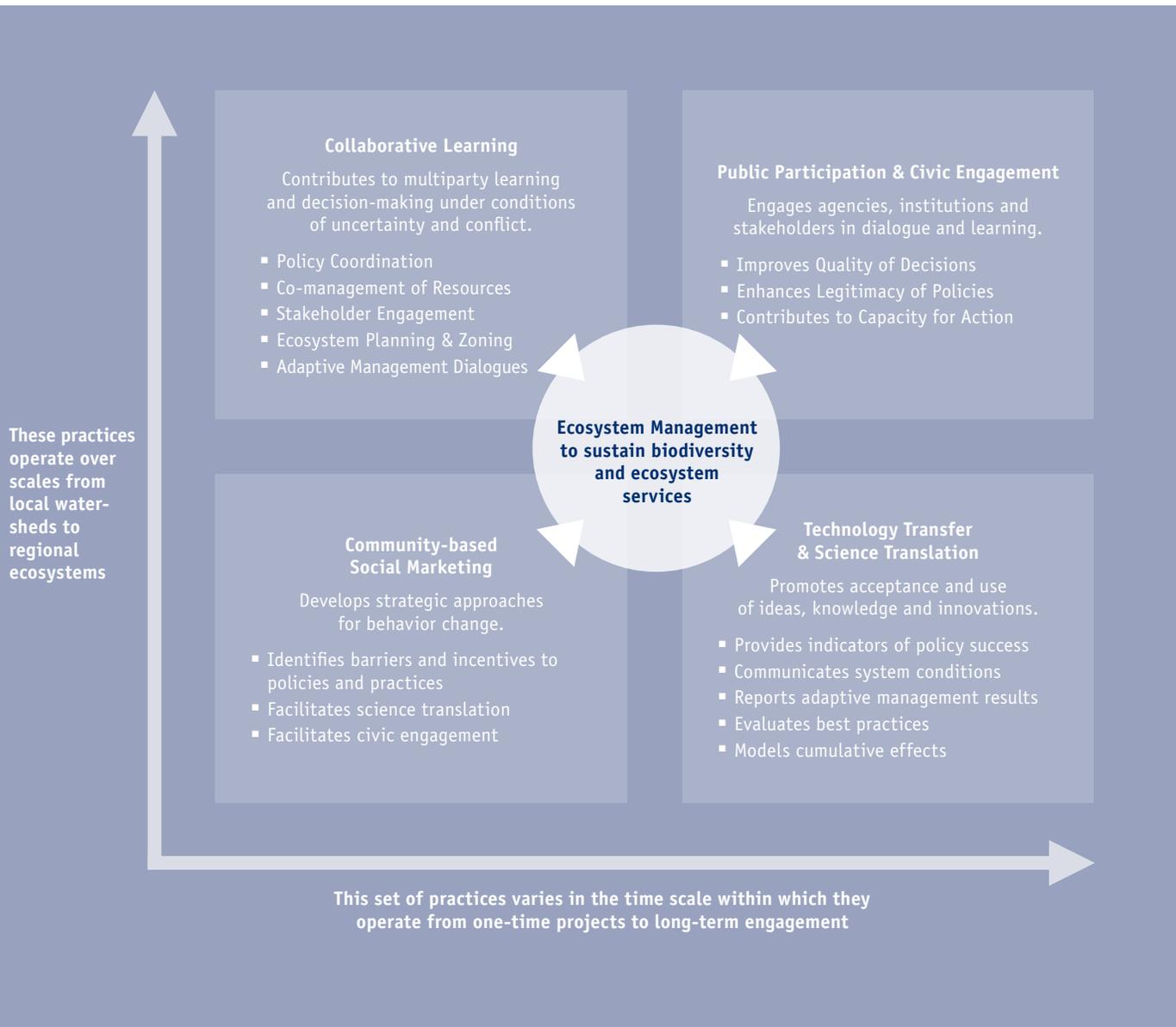
# The Landscape of Environmental Communication

This guide introduces Collaborative Learning as one tool for structuring the complex dialogues that drive ecosystem management. Collaborative Learning is part of the rapidly growing field of Environmental Communication. This field encompasses scholarly research and practical applications illuminating the ways society understands and responds to environmental messages and events. Environmental Communication marries participatory and collaborative approaches with traditional environmental education and interpretation, taking the most effective practices and principles from the craft and framing them within theories of learning and behavior. This rich interdisciplinary field addresses the communication of science and environmental risk, multi-stakeholder collaboration, public participation in environmental

decision-making, conflict resolution, social marketing, environmental journalism, the representation of nature in popular culture, and environmental advocacy campaigns (Cox, 2006). These approaches provide tools to alert, educate, persuade, mobilize and engage people in ecosystem management.

Three approaches to Environmental Communication are highlighted here for comparison with Collaborative Learning. Because each approach is based upon different theoretical and applied traditions, they vary in their orientation to learning, behavior change, and communication. Each of these approaches, along with Collaborative Learning, contributes to achieving the goals of ecosystem management.

Figure 9. Environmental Communication Contributions to Ecosystem Management





## Public Participation & Civic Engagement

The history of public participation has strong roots in the New England town meeting. Public participation in federal environmental policy increased with the passage of the National Environmental Policy Act (NEPA) in 1969.

The relationship among federal environmental agencies and public participation has evolved through a series of laws, policies, and on the ground experience during the past four decades. Political theorist Kai Lee (1993) captured the link between public participation, which he refers to as civic engagement, and ecosystem management. He uses the metaphor of the compass and gyroscope. Science is the compass that guides ecosystem management toward goals of sustaining ecosystem structure

and function. Civic engagement is the gyroscope providing course corrections related to societal goals and priorities. Public participation consists of a rich collection of approaches aimed at improving the quality and legitimacy of decisions and increasing the capacity of federal agencies and their constituencies to engage in long-term policy dialogues. The Collaborative Learning process is one technique that can be adapted to facilitate public participation (NRC, 2008).

engagement

## Community-based Social Marketing (CBSM)

Drawing from theory and practices associated with social psychology and marketing, Community-based Social Marketing can be applied to foster practices that support ecosystem management objectives.

CBSM uses a rigorous four-step method to design and implement behavior change projects (McKenzie-Mohr & Smith 1999). The key to success with this method is preliminary research to identify the barriers and benefits of the desired action. Combining this knowledge with behavior change tools results in a strategy designed to reduce barriers and increase benefits. The strategy for behavior change is tested and improved through piloting. Evaluation is a critical step that documents behavior change effectiveness by comparing project outcomes with baseline conditions before the project.

CBSM is frequently applied to implement local projects like riparian buffer restoration. Such projects support the larger goals of ecosystem management. CBSM

can be applied at a broader scale to identify and overcome barriers to building capacity for ecosystem management. In the Protecting Our Children's Water project, elements of CBSM supported the development of Watershed Councils. The assessment phase of Collaborative Learning identified barriers to Watershed Management Plan implementation and cooperation across institutional and political boundaries. The Collaborative Learning process was designed to secure buy-in by local elected officials. The project connected disparate professional disciplines and organizational missions under the umbrella of Protecting Our Children's Water. These steps reduced barriers and created incentives for participation in the Watershed Council.

## Technology Transfer & Science Translation

The theory of the diffusion of innovations eloquently explains how new ideas move through society. The application of scientific findings to the practice of ecosystem management is influenced by the same principles that explain how the latest cell phone technology moves through the marketplace (Rogers, 1995).

The speed of science translation and technology transfer is influenced by a number of factors. Adopters of new information and technologies must perceive an advantage to the new idea. How will the idea help get the job done? New ideas that are consistent with adopter values, experiences and needs are picked up faster. This is why linking adopter values, experiences and needs to the process of technology development and the design of management relevant research is vital. Simplifying complex practices allows people to try new methods. This guide aims to simplify the Collaborative Learning process to encourage practitioners to experiment with the approach and facilitate its

adoption as a tool for ecosystem management. The ability to observe the results of applying new ideas stimulates discussion and speeds the adoption of ideas through visibility.

The *delivery* of information model that underlies the terms technology transfer and science translation can be transformed from one-way communication to a learning network that supports ecosystem management by using Collaborative Learning. The process of Collaborative Learning is the bridge that connects the science and technology generating system to the management system where the new information and tools can be put to work.

## Resources for Developing Skills for Collaborative Learning

This guide adapts the work of Steven Daniels and Gregg Walker presented in their book, *Working Through Environmental Conflict: The Collaborative Learning Approach*. This is a good resource for understanding the theory and principles underlying Collaborative Learning, as well as being an invaluable guide to practices and techniques. Other resources discovered during the development of the Protecting Our Children's Water project are collected here.



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### A DOZEN KNOWLEDGE-EXPANDING SITES

The Environmental Communication Network: [www.esf.edu/ecn/](http://www.esf.edu/ecn/)

The Society for Organizational Learning: [www.solonline.org/organizational\\_overview/](http://www.solonline.org/organizational_overview/)

National Extension Water Outreach Education Facilitating Access to Resources and Best Education Practices: <http://wateroutreach.uwex.edu/>

Foundations of Success – Improving the Practice of Conservation through Learning and Adaptive Management: [www.fosonline.org/About\\_FOS.cfm](http://www.fosonline.org/About_FOS.cfm)

The Ecosystem Management Initiative: [www.snre.umich.edu/ecomgt/aboutemi.htm](http://www.snre.umich.edu/ecomgt/aboutemi.htm)

The Center for Watershed Protection: [www.cwp.org/](http://www.cwp.org/)

The Local Government Environmental Assistance Network: [www.lgean.org](http://www.lgean.org)

The Society for Applied Anthropology - Environmental Anthropology: [www.sfaa.net/eap/abouteap.html](http://www.sfaa.net/eap/abouteap.html)

Fostering Sustainable Behavior through Community-Based Social Marketing: [www.cbsm.com/](http://www.cbsm.com/)

Nonpoint Education for Municipal Officials (NEMO): <http://nemonet.uconn.edu/>

ICLEI - Local Governments for Sustainability Water Campaign: [www.iclei.org/index.php?id=799](http://www.iclei.org/index.php?id=799)

The Groundwater Foundation: [www.groundwater.org/index.html](http://www.groundwater.org/index.html)



UNH/NOAA Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET). CICEET uses collaborative research principles to foster the development of coastal environmental technologies: [ciceet.unh.edu](http://ciceet.unh.edu). Funding and support for this report and the Protecting our Children's Water project was provided by CICEET, the Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET). CICEET works with the National Estuarine Research Reserve System to develop, test, and demonstrate technology that can be applied to improve coastal resource management in a time of climate change and intensifying development. CICEET is a partnership of the National Oceanic and Atmospheric Administration and the University of New Hampshire.

## Recognizing Ecosystem Management

This guide captures lessons learned from the practice of community-based ecosystem management in southern Maine. Ecosystem management becomes reality in local communities. Here town employees, members of volunteer boards, community groups, and community-oriented members of state and federal agencies combine forces to make the places where they live, work and play noticeably better for people today and for future generations. This Kaleidoscope of Expertise is the social capital for ecosystem management. The Kaleidoscope of Expertise consists of people whose collective knowledge, experience and actions are a force for protecting and sustaining nature's ability to provide clean, abundant water.

Land use creates local water conditions. Evaluating and designing land use practices that protect our children's water can benefit from the dialogues and problem solving approach of Collaborative Learning. Recognizing ecosystem management at the local scale requires expanding traditional ideas about responsibility for sustaining natural systems. Collaborative Learning can transform the relationships among the groups of people working from different disciplines and approaches by orienting people toward shared values and goals. The communities, groups and agencies recognized below contributed to this guide through their participation in the Protecting Our Children's Water project. The work of these people and their willingness to engage in this experiment in collaboration made this Guide a reality.

### The Collaborative Learning Guide for Ecosystem Management is dedicated to the people representing the groups listed below:

Town Managers, Town Planners, Boards of Selectman, Town Councils, Town Planners, Code Enforcement Officers, Public Works Directors, Town Engineers, Highway Supervisors and members of Planning Boards, Open Space Committees and Conservation Commissions in the Maine towns of: Biddeford, Eliot, Kennebunk, Kennebunkport, Kittery, Sanford, South Berwick, Wells, and York.

The Kennebunk, Kennebunkport and Wells Water District	Maine Department of Environmental Protection	Maine Sea Grant New Hampshire Sea Grant
The York Water District	Maine Coastal Program	Great Bay National Estuarine Research Reserve
The Kittery Water District	Maine Drinking Water Program	Casco Bay Estuary Partnership
The York Rivers Association	Southern Maine Regional Planning Commission	New Hampshire Estuary Program
The Spruce Creek Association	Land Trusts serving southern Maine	The Coastal Training Program Coordinators of the National Estuarine Research Reserve System- the architects of collaborative regional ecosystem management.
The Kennebunk River Action Coalition	Wells National Estuarine Research Reserve	
The Kennebunk River Committee	The University of New England Department of Environmental Studies	
The Cape Neddick Watershed Association	Antioch New England Graduate School Department of Environmental Studies	
The Mount Agamenticus to the Sea Conservation Coalition	Rachel Carson National Wildlife Refuge	
Maine Nonpoint Education for Municipal Officials		

The Coastal Training Program of the Wells National Estuarine Research Reserve and the Center for Sustainable Communities of the University of New England are committed to building the capacity of groups, organizations and institutions to use Collaborative Learning to support ecosystem management that leads to positive environmental outcomes. Please contact Dr. Christine Feurt to learn more about capacity building and training opportunities.

Please direct comments about this guide and your experiences with Collaborative Learning for ecosystem management to:

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