Evaluation in Conservation Settings

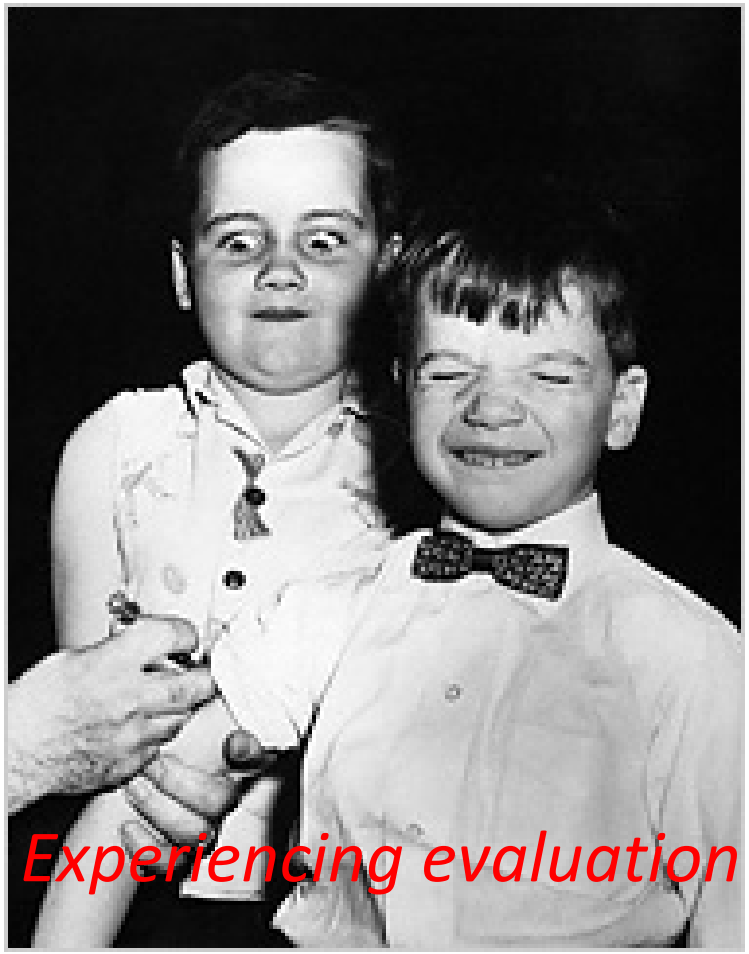
February 2010

Introduction

- First goal is to share what I know from working in North America, Europe, India, Western Pacific and Caribbean
- Second goal is to learn from your experiences in South Africa and elsewhere
- Leading characteristics of my approach to evaluation:
  - Mostly formative or developmental evaluation,
  - Mostly emergent designs,
  - Favor structured information gathering,
  - See my role as an improvement ally,
  - Key decision makers learn of important observations and their implications, and my advice during the evaluation. Reports synthesize what they have already heard.

Topics

- Will talk about the distinguishing characteristics and key challenges for evaluation in conservation settings
- Will talk about a method I have developed to evaluate the environmental and economic effects of a decision (SEEER – Systematic Evaluation of environmental and Economic Effects)
- Will briefly talk about evaluation use based on a review of my recent evaluations.



Key Concepts

- Three types of evaluation:
  - **Summative** evaluation judges the merit or worth of a program. Decisions typically are about the continuation or replication of the program. Programs should already be known to be performing well, usually with assistance of formative evaluations .
  - **Formative** evaluation is about obtaining information, insights and providing advice to help programs improve. This approach is used in decisions to modify the program to improve its effectiveness.
  - **Developmental** evaluation helps programs navigate their way in very complex settings to identify and test approaches that will likely work.
- Program logic, logic models, and a theory of change are ways of capturing the problem the program is addressing and how it thinks it will succeed – i.e. what it needs to achieve to be successful.
  - Evaluation must be ethical and useful, feasible, and the quality of the information must be good enough for the decisions likely to be made. Evaluators aim to be able to judge what the program has contributed relative to a reasonable alternative, although we might not always address this specifically in any given evaluation undertaking

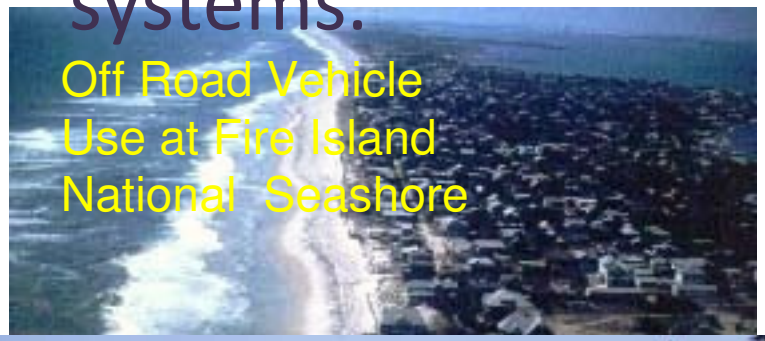
An Illustrative Story

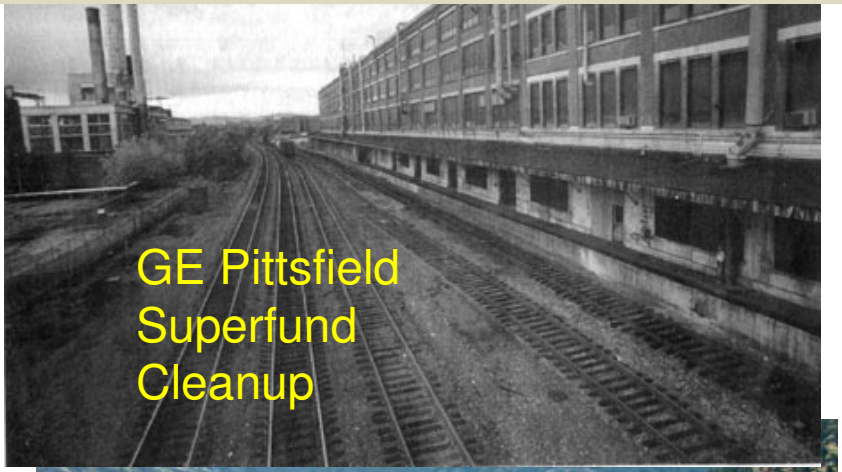
The Evaluators Arrive

- Evaluators arrive in Fiji to start the evaluation of the Western Pacific Locally Managed Marine Areas Network providing conservation benefits from adaptive management of local waters by adjacent communities whose incentives are improved food security and livelihoods.

Distinguishing Characteristic

- The evaluand always occurs at the intersection of linked human and natural systems.





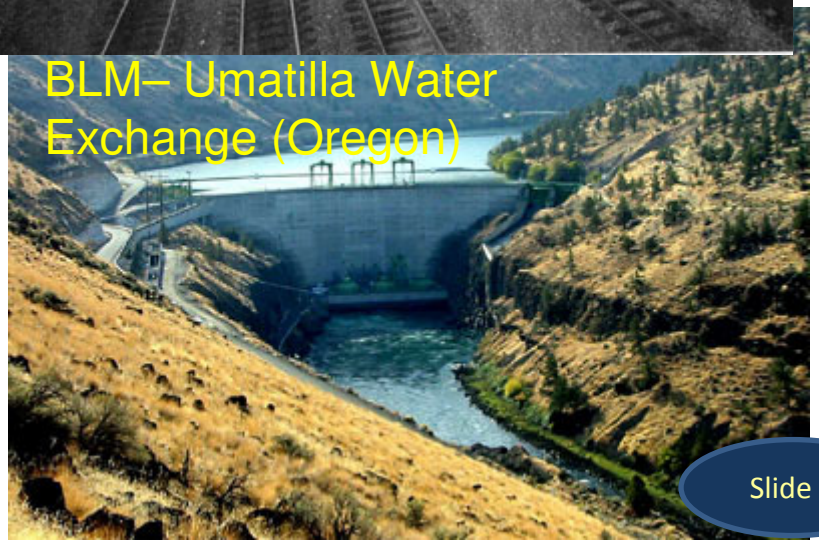


Illustration – Understanding Linked Complex Systems

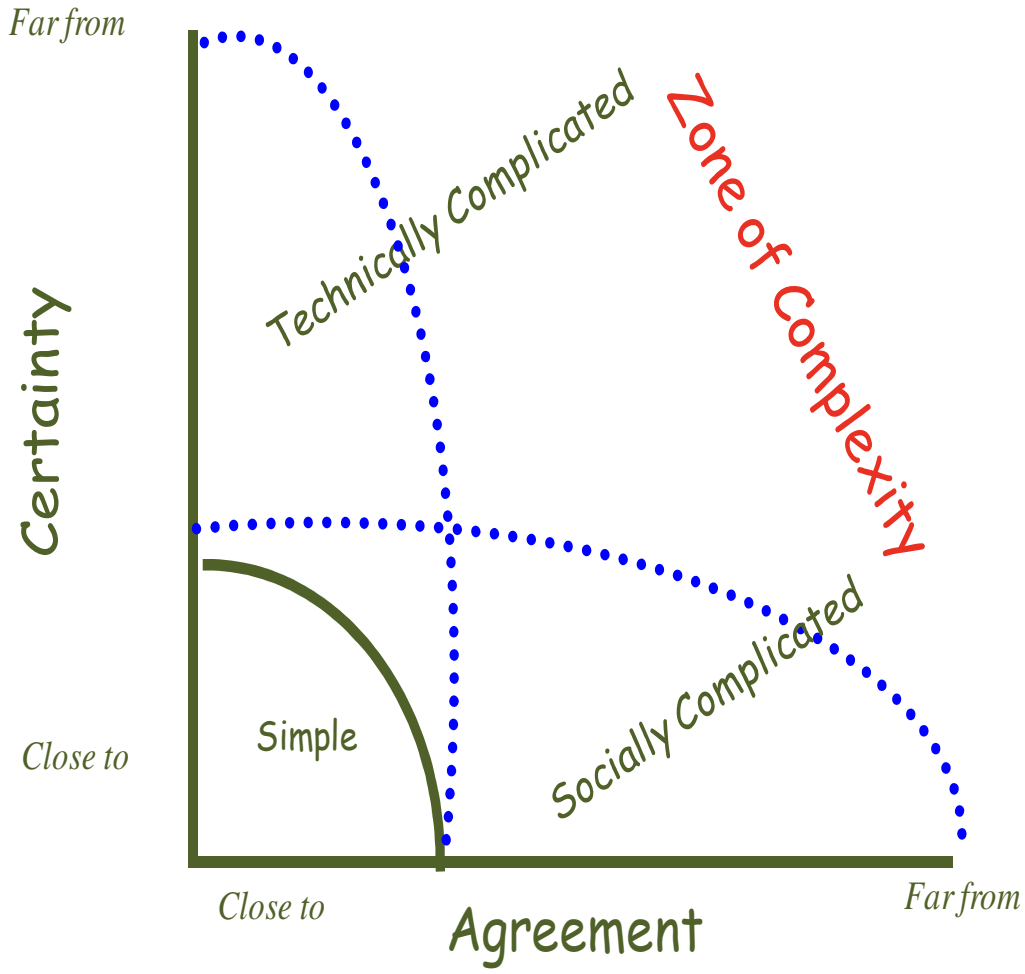
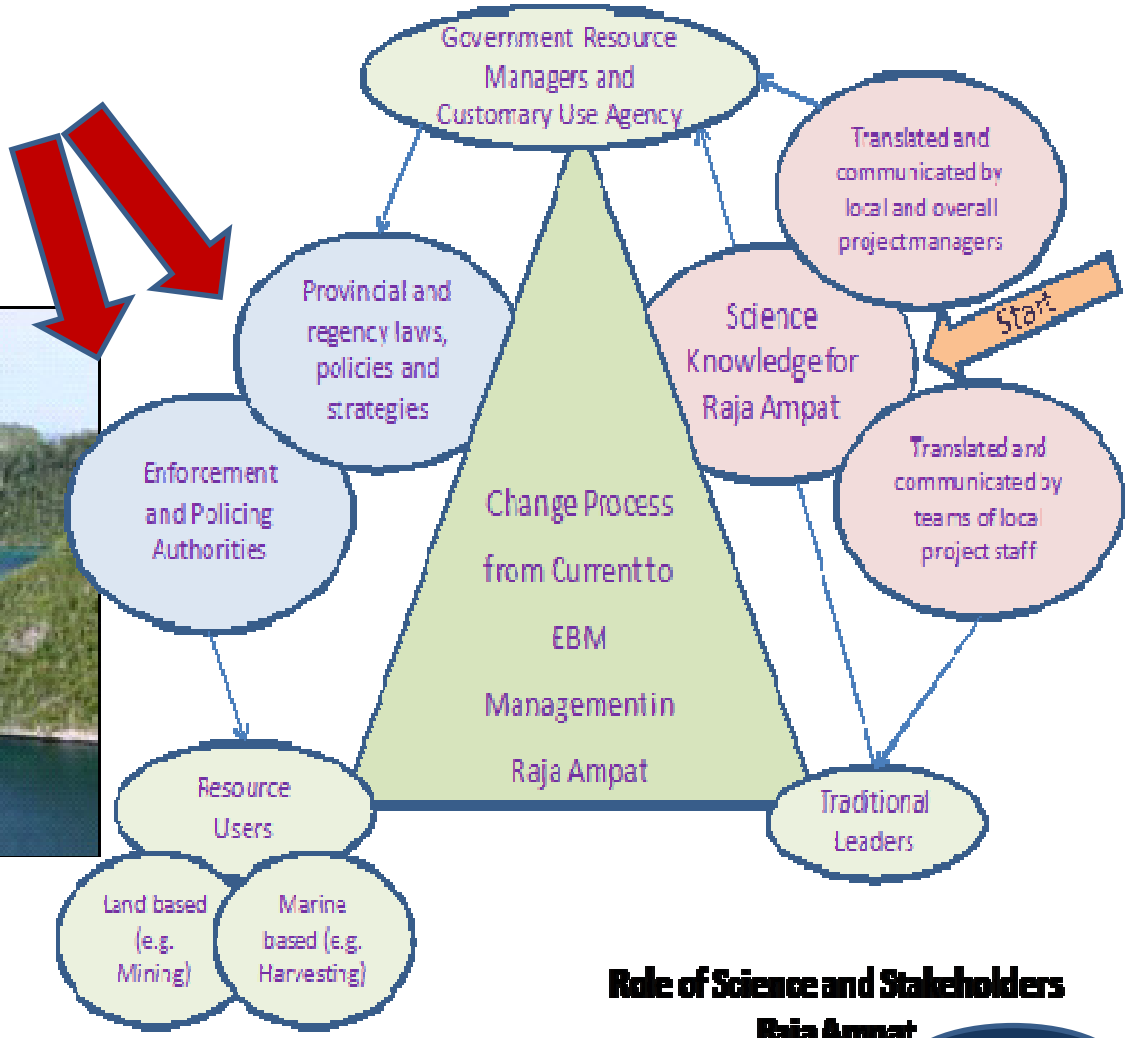


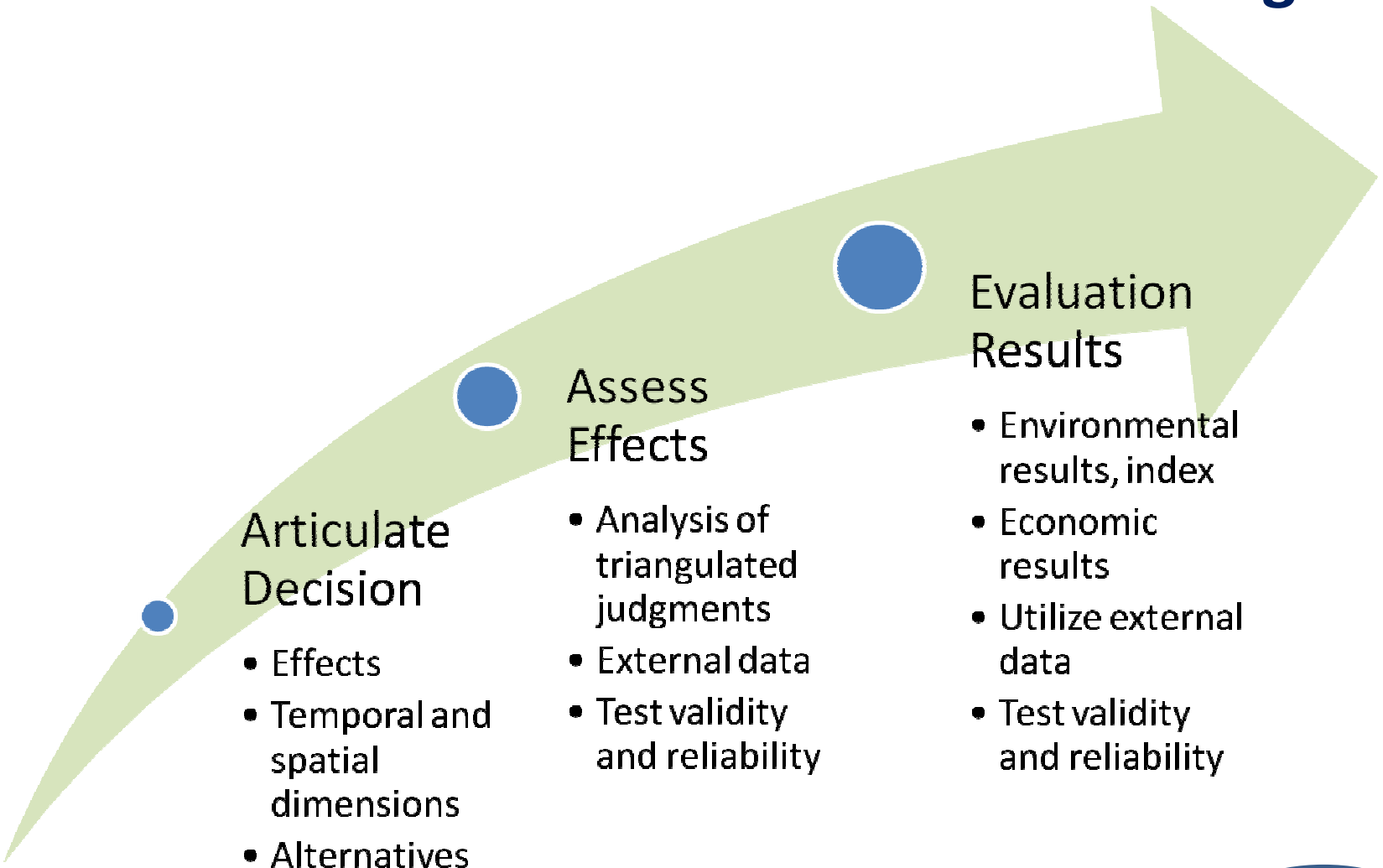
Illustration – What Happens if the Focus is only on the Natural System?



Serious Methods Challenges

- Time and Space and Scale
- Comparison to an alternative - Counterfactual
- Attribution
- Metrics for effects
- Achieving use

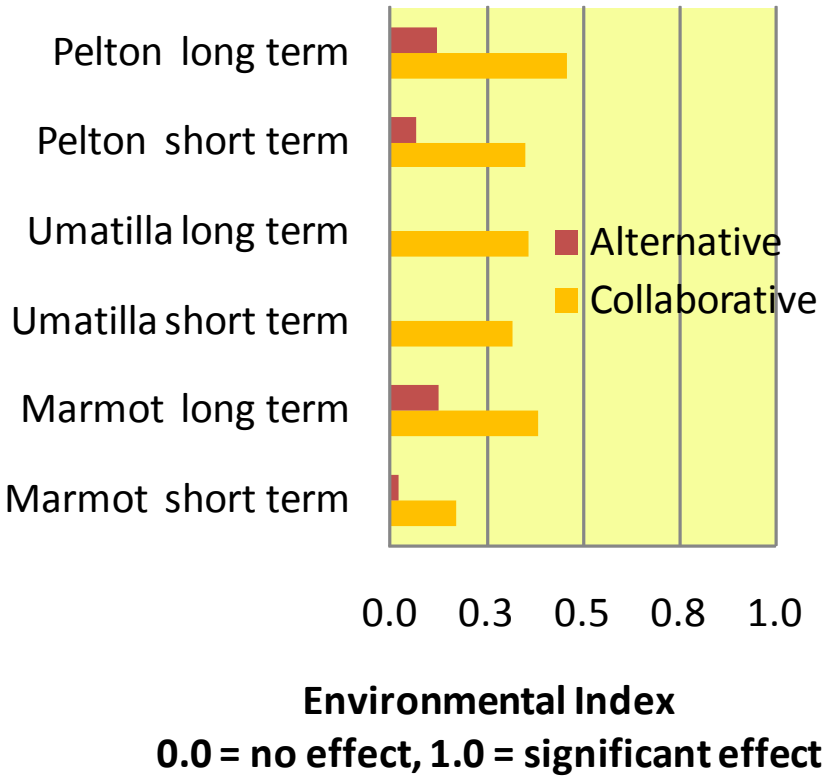
Use SEER to Illustrate That We Can Address These Challenges



Time and Space

- Time for the human system very impatient.
  - How long are resource users willing to wait before they can start consuming?
  - What would be a typical discount period to calculate Return on Investment?
- Time for the natural system very patient.
  - Species adapt well except where there are major external disruptions, particularly from humans
  - Salmon and trout returned to the Umatilla River in Oregon the year that water was again in the river after 50+ years of dewatered status.
- I usually use 10 years for human systems, 60 for natural systems
- Evaluation, to be feasible, often cannot wait for empirical observations.
- Empirical observations often or usually unable to deal with attribution?

Use of Human and Natural System Time Frames



- Different time periods for fish and water effects from three cases in Oregon
- Results are an index of change in environmental conditions attributable to the decision process

Challenges to Attribution

Alternatives and Attribution

- Prospects for experimental or quasi experimental designs are dim when evaluation setting is two complex linked systems.
  - Feasibility, ethics and law mitigate against widespread use of experimental designs
  - Feasibility and context mitigate against widespread use of quasi experimental designs
- How do we identify and assess the *incremental* contribution of the intervention (comparison to the world without the intervention)?

Classes of Alternatives or Counterfactuals

Natural Alternatives

- Possible more often than you would think
- There are often similar interventions at both policy and site specific levels
- Neighboring or nearby locations sometimes offer a good comparison

Negotiated Alternatives

- Our work has shown these to be feasible and useful
- Decision makers and stakeholders regard negotiated alternatives as salient, legitimate and credible
- Evaluation colleagues are skeptical to interested, concerned about bias

Changes Attributable to Use of ADR for Cape Cod ORV Decision

- Parties who reached the agreement for ORV rules that were then implemented, judge the decision to provide, in comparison to NPS writing the rule:
- Natural System
  - Moderately better habit for Piping Plover and other birds
  - Marginal or no improvement in wrack line, shoreline erosion and beachfront habitat
- Human System
  - Improved ORV management process including ORV sub-committee
  - Enhanced use without impairing key environmental responsibilities
  - Feeling by parties that they "were heard"
  - Moderately more harmonious ongoing dealings on ORV, modest gains in harmony on other issues
  - More efficient rule making (DOI saved 2.9 person years making rule)
  - Ongoing savings administering the rule (1.0 person years annually)
  - Moderate gains in social capital for some parties

Examples of Natural Alternatives

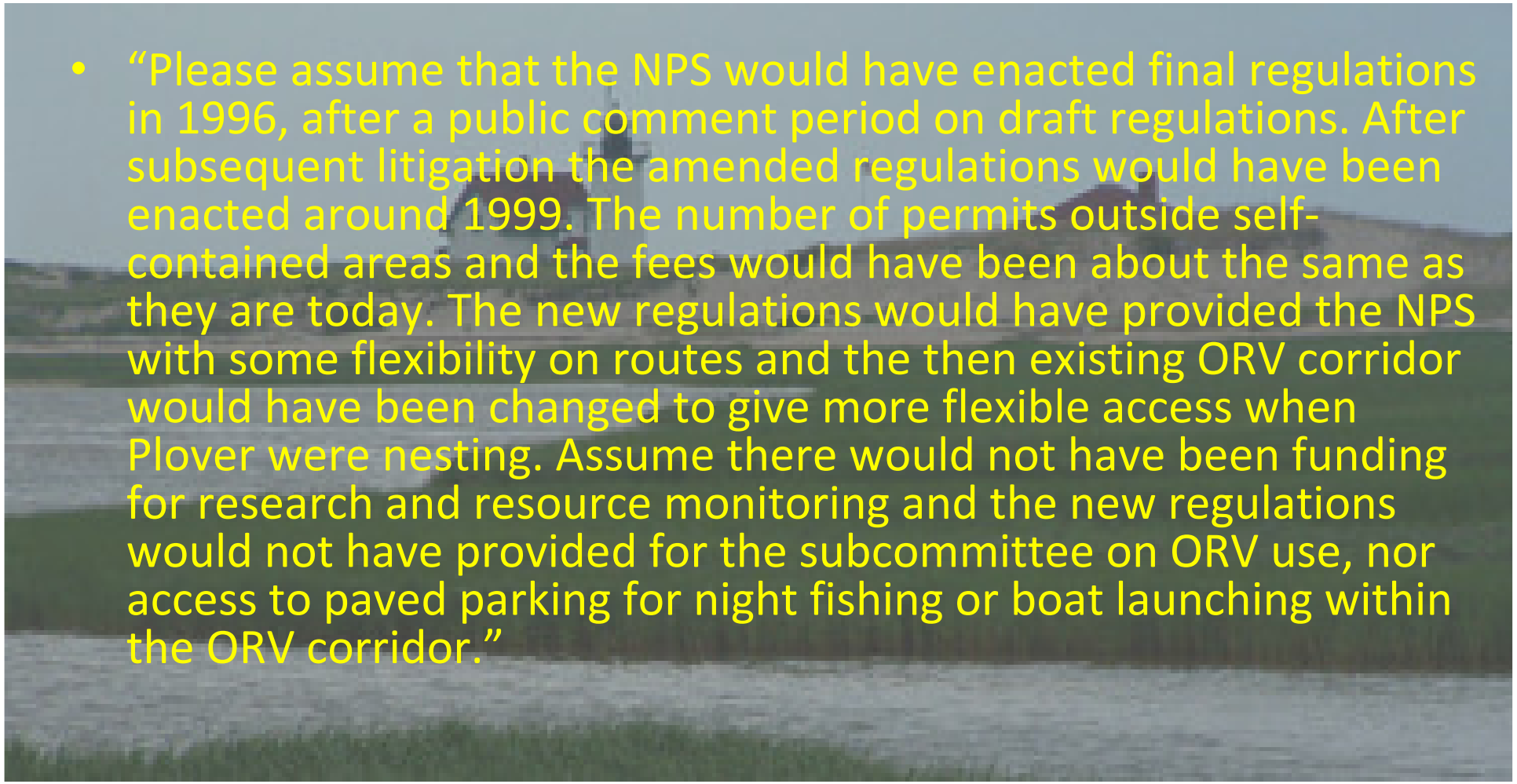
- Indian Ford Creek Collaborative Conservation
  - 40 acre meadow that was conserved through collaboration was part of a much larger ranch
- Alternatives:
  - Step north and you are on the original ranch
  - Step east and you are on former ranch land now a low density residential development
- Off Road Vehicle Use in National Seashores
  - ORV use was closed in 1992 for the lower portion of the shore at Cape Cod National Seashore where the key issue was managing the effect of ORV on Piping Plover, a listed endangered species
  - We can get the incremental effects comparing closed and open areas (key to economic valuation)

Photo by Greg Burke

Using Negotiated Alternatives

- Developing a Negotiated Alternative
  - Formulate potential alternatives from secondary sources and interviews with mediator and convening party.
  - Conduct interviews with other key parties to solicit input on plausible alternative, and details about decision venue, timing, costs, likely outcome.
  - Gain review of statement about alternative from key and convening parties and mediator.
- Use of Negotiated Alternative
  - Used to judge probability and magnitude of each effect (e.g. change in water flow in affect watershed of a river)
  - Judgments on each effect under actual decision and alternative
  - Judgments triangulated (parties to decision, expert panel and technical advisors)
- On cases to date negotiated alternatives are statistically valid and reliable

Cape Cod ORV Use – Negotiated Alternative



- "Please assume that the NPS would have enacted final regulations in 1996, after a public comment period on draft regulations. After subsequent litigation the amended regulations would have been enacted around 1999. The number of permits outside self-contained areas and the fees would have been about the same as they are today. The new regulations would have provided the NPS with some flexibility on routes and the then existing ORV corridor would have been changed to give more flexible access when Plover were nesting. Assume there would not have been funding for research and resource monitoring and the new regulations would not have provided for the subcommittee on ORV use, nor access to paved parking for night fishing or boat launching within the ORV corridor."

Metrics for Effects

Environmental

- Variation occurs from changing the likelihood that change will occur, and the magnitude of the change
- Focus on independent variables
- Triangulate
- Pay attention to validity and reliability
- Results in an environmental index from -1 to +1

Economic

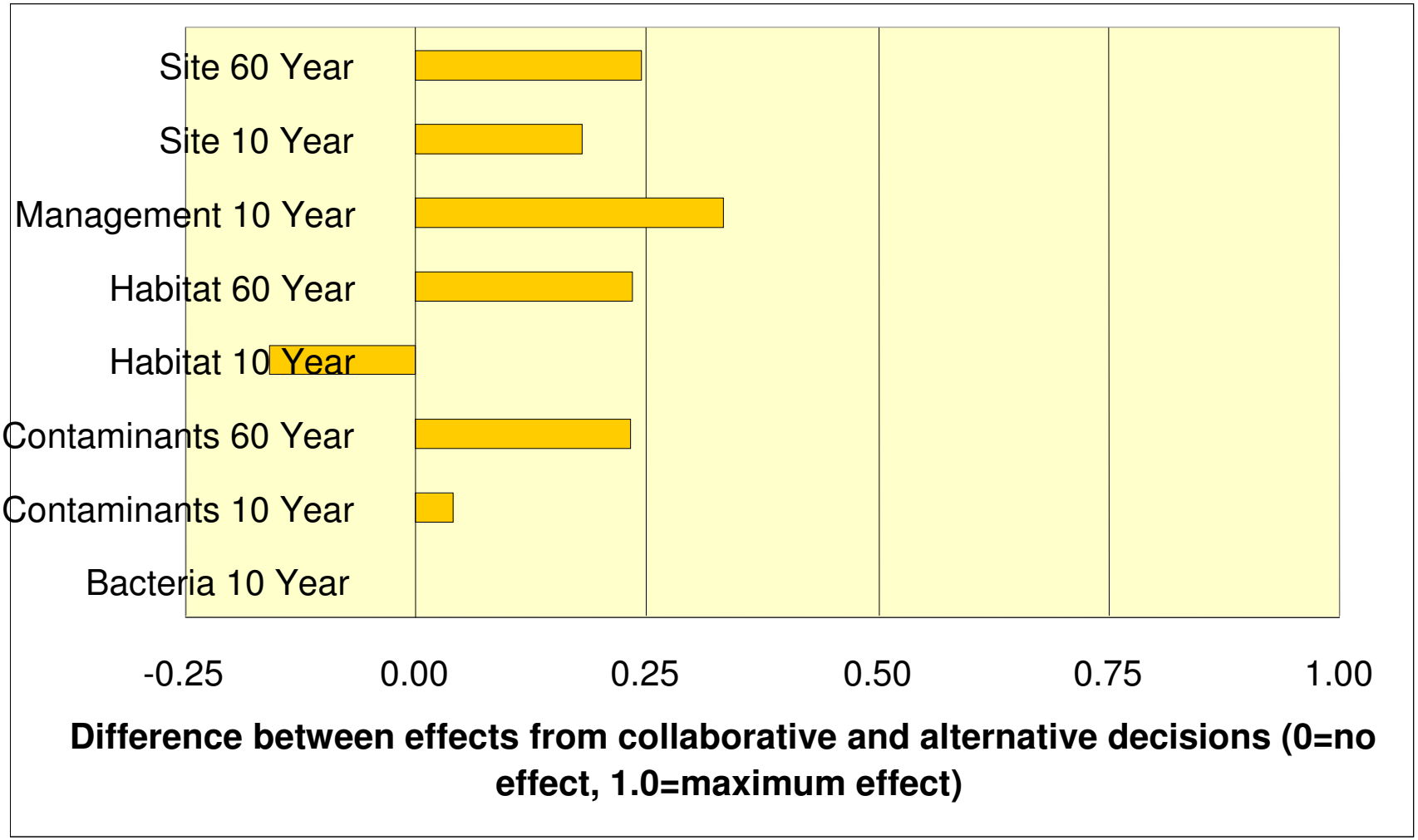
- Effectiveness:
  - Of the decision making process?
  - Of the decision?
- Durability and implementability of the decision
- Social capital

Using Negotiated Alternatives

Environmental Index = (likelihood of effect occurring X expected magnitude of the effect) / maximum possible score

Scale	What is the size of the effect at the location?	How confident are you that the effect will occur?
0	No effect	Will not occur
1	Minimal	Not very
2	Modest	Somewhat
3	Moderate	Strongly
4	Maximum possible	Fully

Environmental Results (EPA Water Cases)



Using the Environmental Index

- Index indicates the likely amount of change attributable to the decisions
- Where baseline data is available, it is used to estimate the magnitude of the change
  - With a baseline of 80,000 Coho Salmon and an index value for fish of 0.25, we expect there will be about 20,000 additional Coho in ten years attributable to the decisions.
  - Using Benefit Transfer economic technique, a Coho in these waters is valued at $104 each, a value of about $2 million USD attributable to the decision
  - With a baseline of heavy metal contamination and a reduction of 0.25 we estimate the amount of metal in the soil over the next ten years
  - Using public health and economic data we can estimate the value of improved human health attributable to the decision
- Key is the environmental index to forecast the level of change in effect of interest

Other Economic Effects

Cape Cod ORV

- Estimated saving to DOI of 2.9 person years (PY) getting the ORV rule in place
- Parties also report significant savings in legal costs from the process
- Estimated annual saving of 1.0 person years to DOI implementing the rule

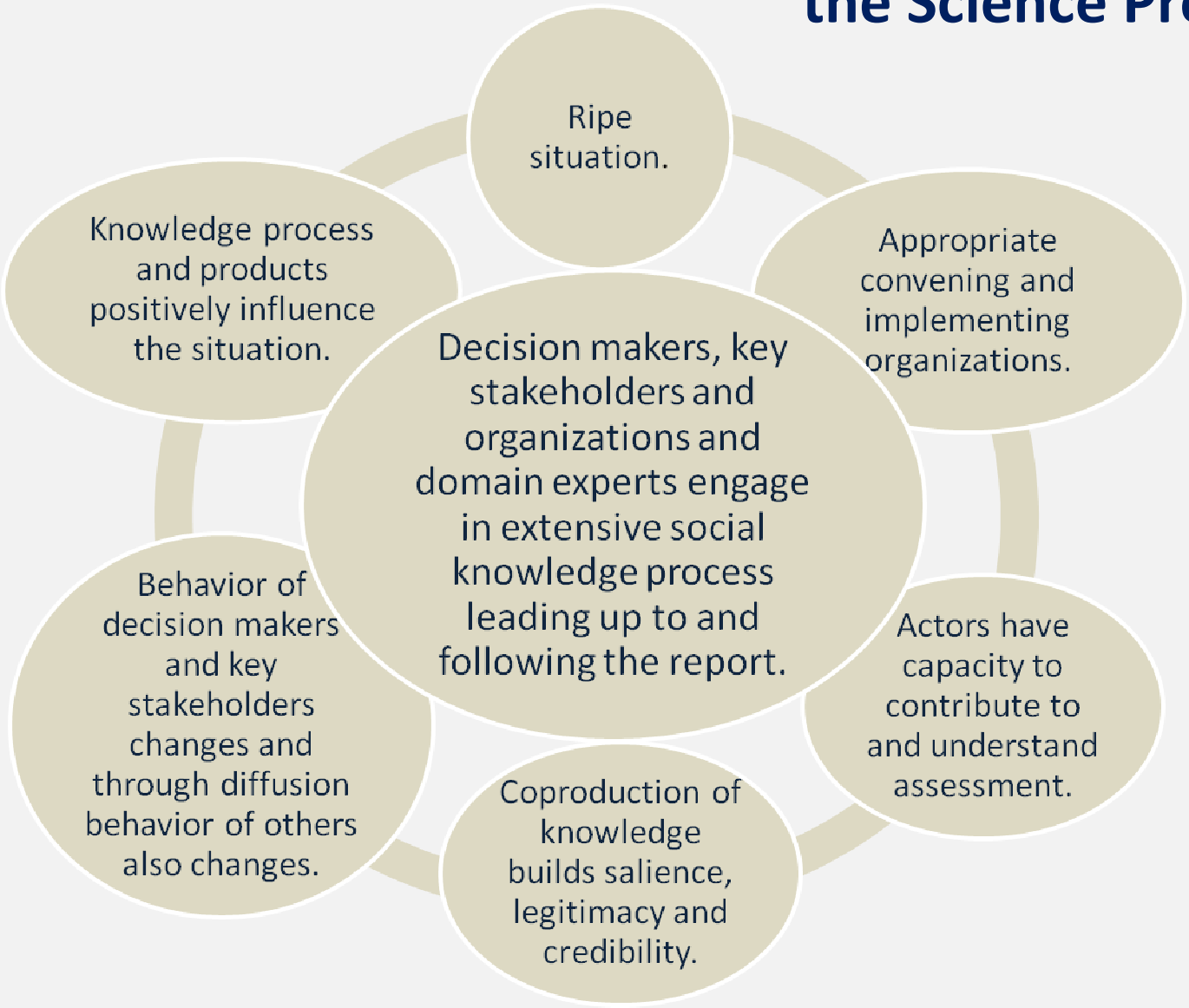
EPA Cases

- GE Pittsfield saved about 1.3 person years (PY) to reach settlement agreement
- Other EPA case savings ranged from about 0.5 PY to negative 65 hours

Achieving Useful Evaluations

- Natural science methods and knowledge will be viewed as more credible than evaluation, regardless of salience or legitimacy.
- Most decision makers and stakeholders on environmental, resource and conservation matters come from natural or engineering science domains.
- My current thinking is that the answer to this challenge lies not in the technique of evaluation, but in its social process.

Draft LKwA Theory of Change for the Science Program



Summary

- Evaluation of environmental, resource and conservation settings is hard because it must involve two complex and linked systems, human and natural.
- Our evaluation methods and techniques need to adapt to these settings:
  - The SEEER approach has developed techniques that successfully addresses these challenges.
- Evaluation use is also more challenging in these settings but attention to the social processes of evaluation can navigate these challenges.