Programme Evaluation, Conservation and Use

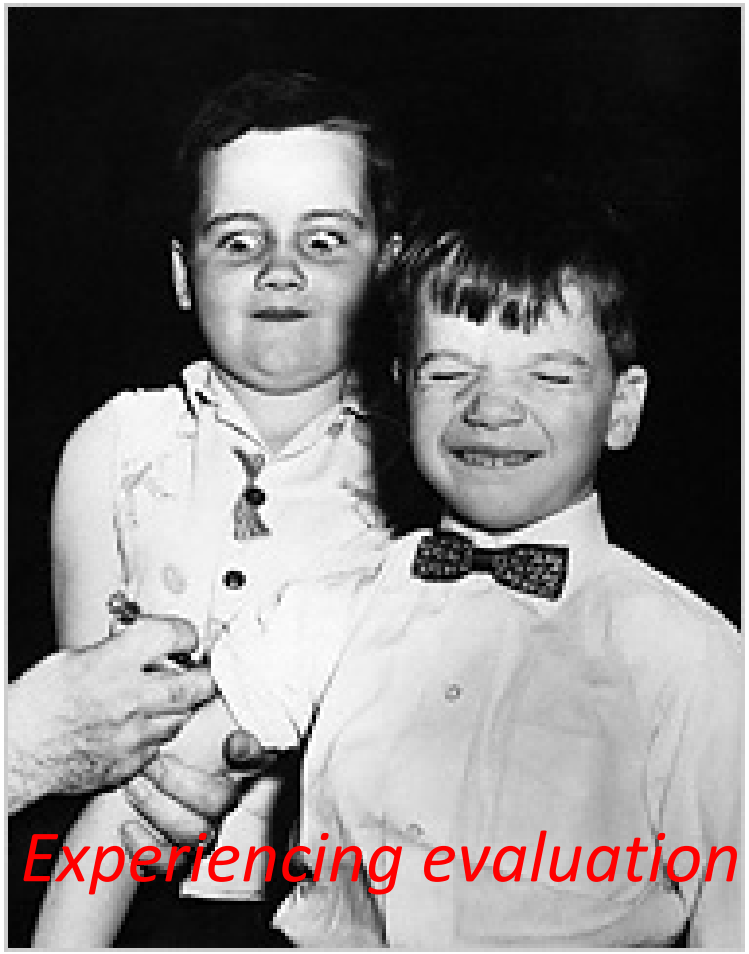
February 2010

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 environmental settings
- 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)
- Briefly talk about evaluation use based on a review of my recent evaluations.



Key Concepts

- Three types of evaluation:
  - **Summative** evaluation judge 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 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, theory of change are ways of capturing the problem the program is addressing and how it thinks it will succeed – what it needs to achieve to be successful
  - Evaluation must be ethical and useful, feasible, 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

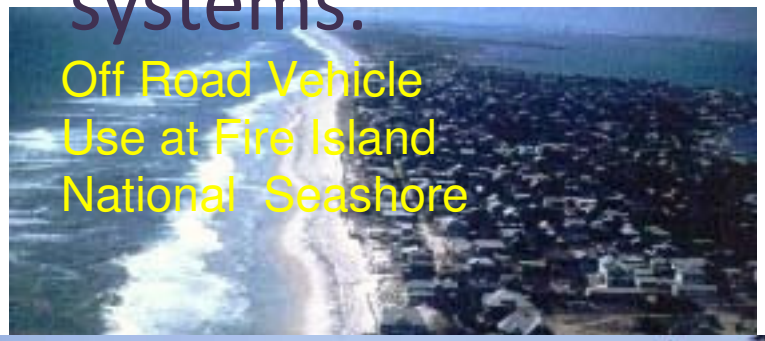
An Illustrative Story

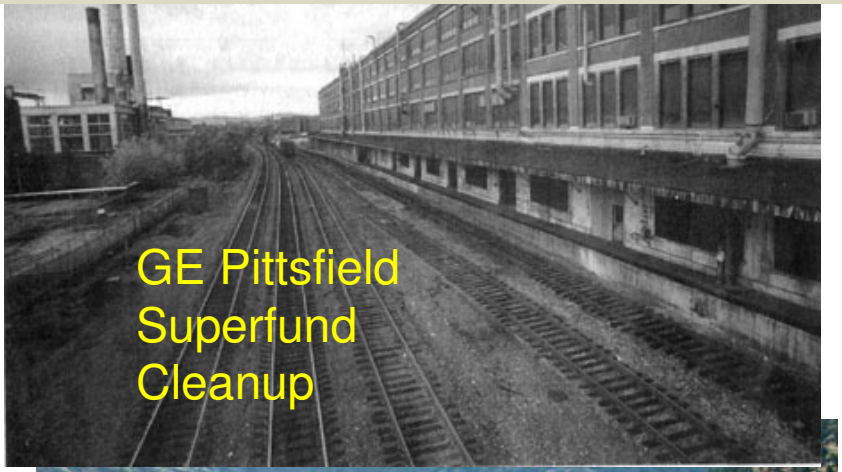
The Evaluators Arrive

- 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.





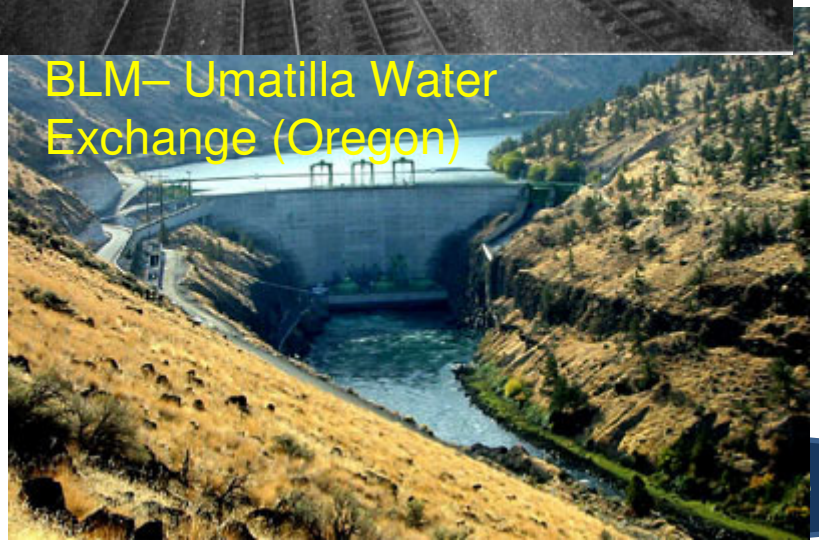


Illustration – Understanding Linked Complex Systems

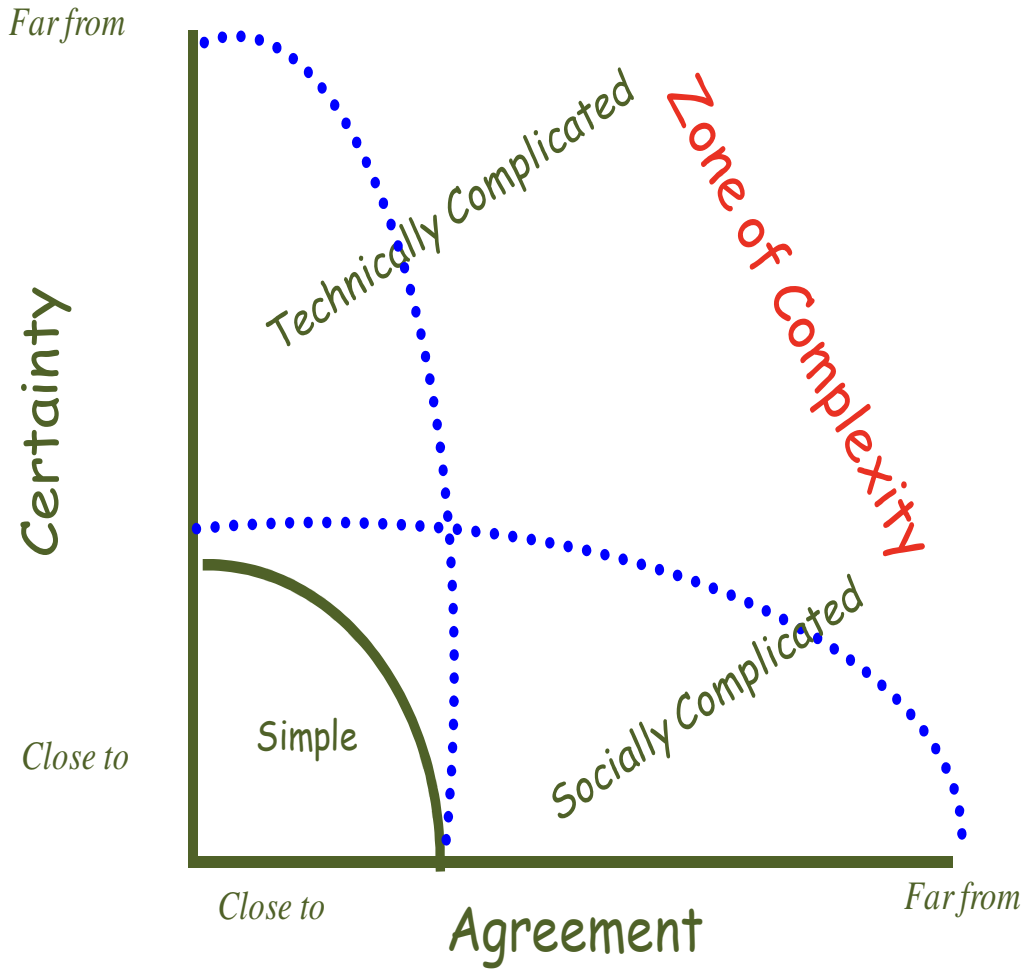
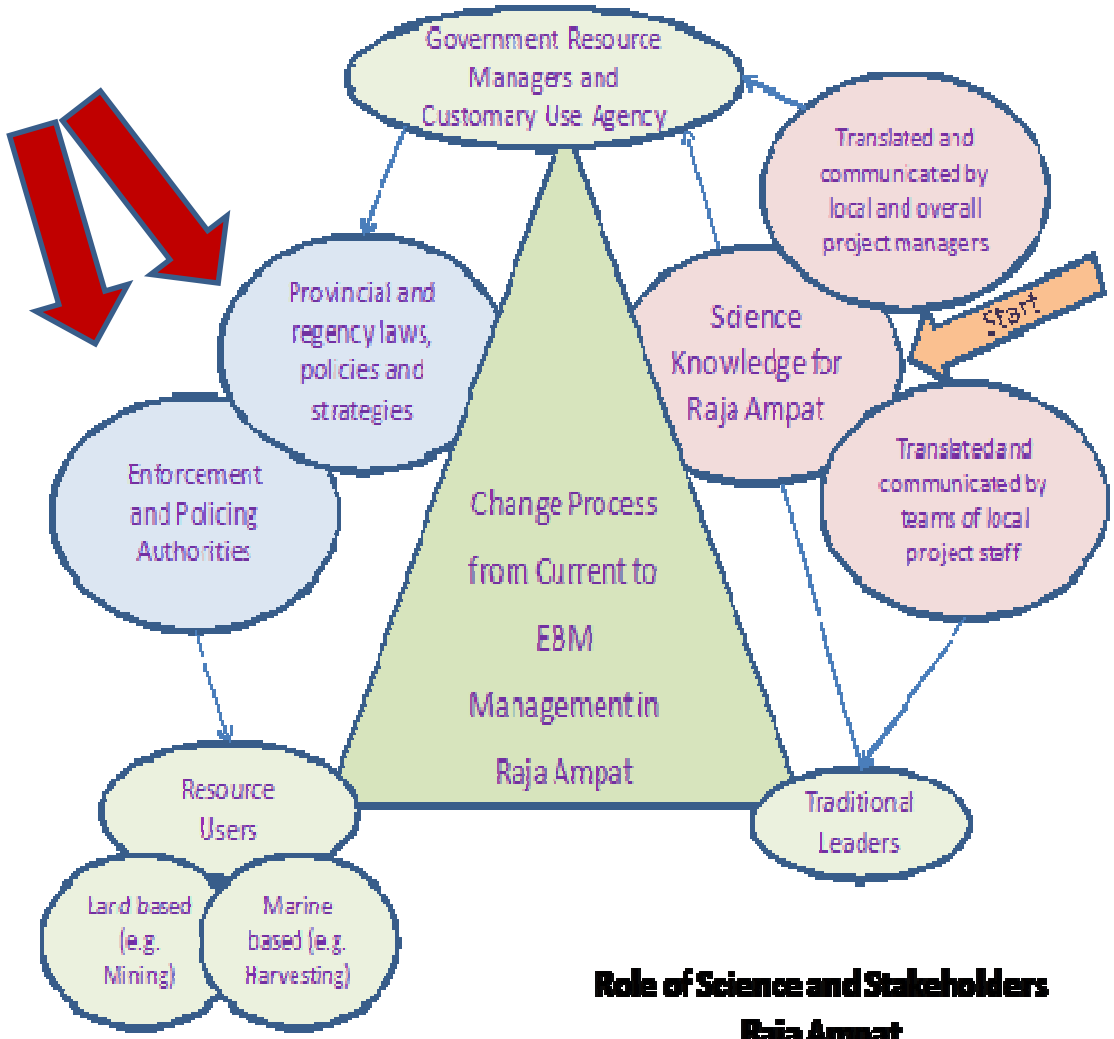


Illustration – What Happens if the Focus is only on the Natural System?



Role of Science and Stakeholders Raja Ampat

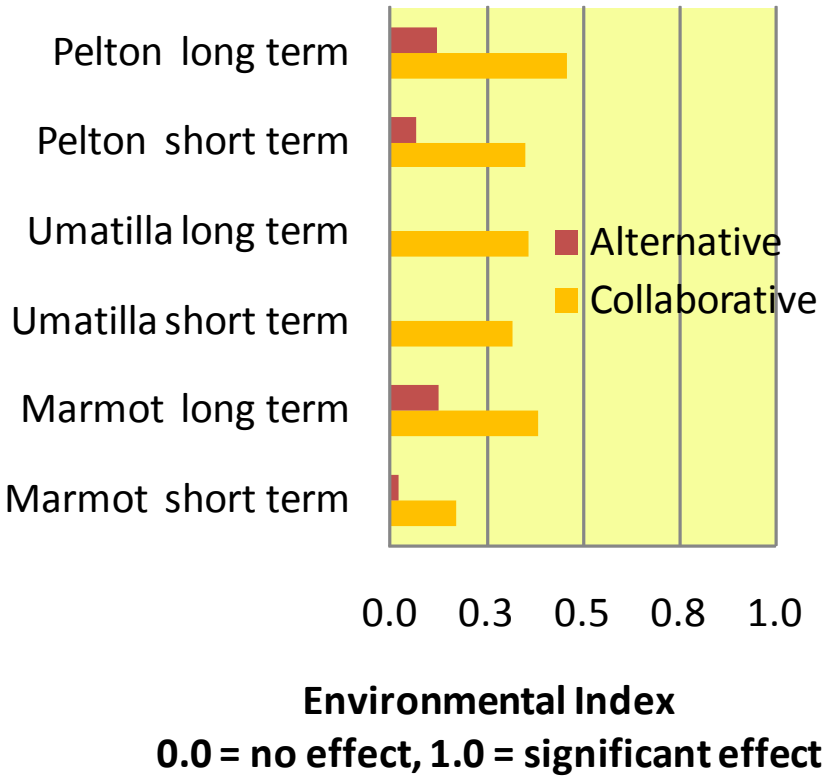
Serious Methods Challenges

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

Time and Space

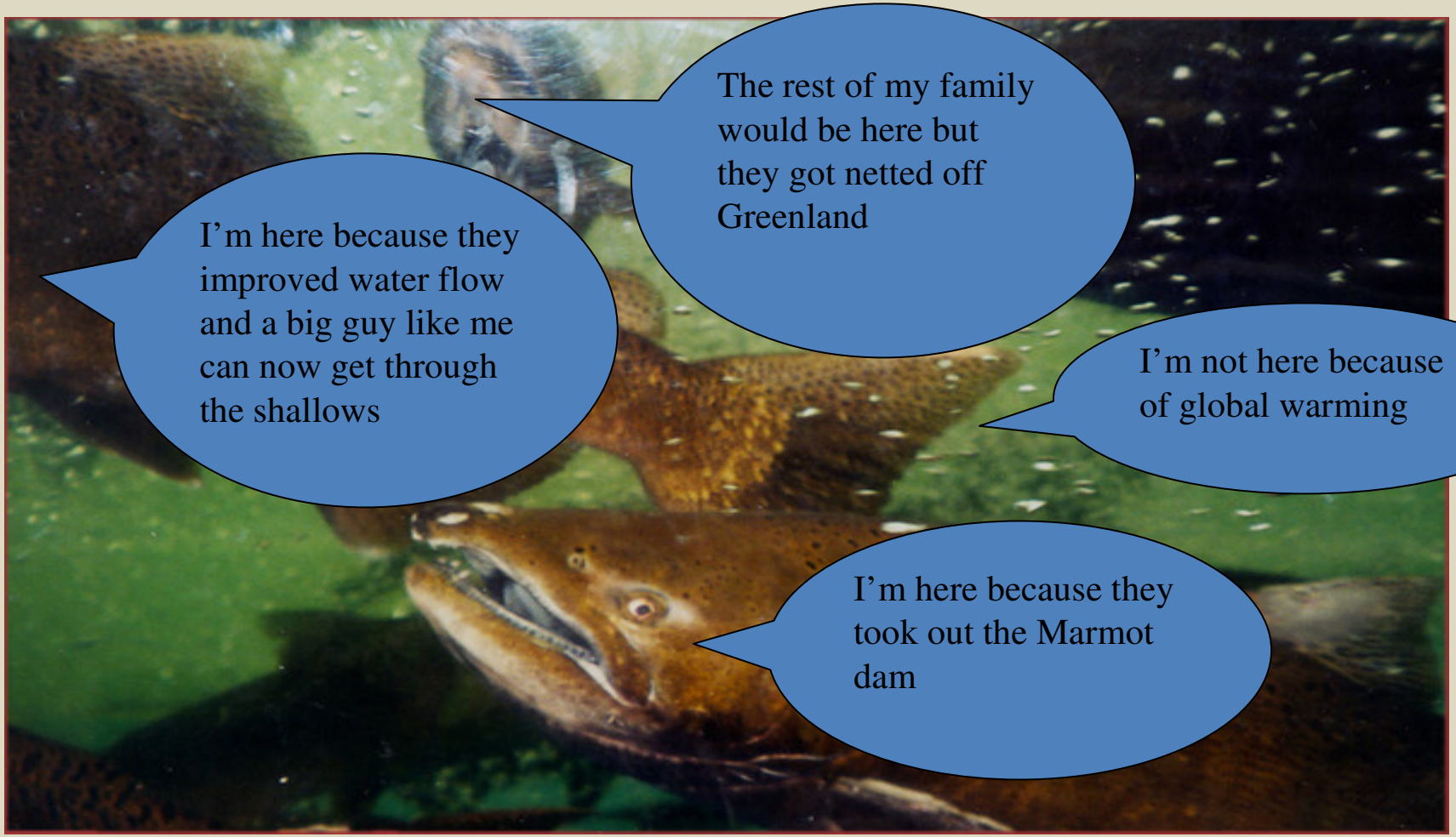
- Time for the human system very impatient.
  - How long are resource users willing to wait before they can start consuming?
  - What would be a typical discount period to calculate Return on Investment?
- Time for the natural system very patient.
  - Species adapt well except where they are major external 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



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

Natural Science Methods do not Address Attribution in Uncontrolled Settings



Alternatives and Attribution

- Prospects for experimental or quasi experimental designs 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)?

Even Apparently Similar Cases Have Important Differences

Fire Island National Seashore	 Cape Cod National Seashore
Tension between vehicle use and ESA	Tension between vehicle use and ESA
10 – 15 nesting pairs of Piping Plovers	80 – 90 pairs of Piping Plovers
Dynamic dunes and shoreline	Dynamic dunes and shoreline
Everyday driving <u>needs</u> for residents, visitors and businesses	All driving <u>demand</u> is recreational
18 well established seasonal and year round communities in place when park created	Park adjoins communities with traditional use, Park lands sparsely and seasonally populated

Attribution Can be Very Difficult

Protecting Plover at Cape Cod

- Prior to arrival
  - Close beaches to pets and kite flying
  - Close historic nesting sites with signage and symbolic fencing
- During nesting and hatching
  - Monitor continuously to identify potential or real nests
  - Protect each nest from pedestrian and **vehicle traffic**, reroute traffic if birds move
  - Install predator exclosures

Changes in Plover population

- 18 nesting pairs on seashore beaches when plover listed in 1986
  - Inflexible ORV plan implemented in 1985
- 83 pairs of nesting plovers in 1995 prior to negotiated rule
  - 33 pairs in ORV corridor
- 76 nesting pairs in 2001
  - 24 pairs in ORV corridor
  - 10 were in areas open to ORV traffic

Changes Attributable to Use of ADR for Cape Cod ORV Decision

- Parties who reached the agreement for ORV rules and that was implemented, judge the decision to provide, in comparison to NPS writing the rule:
  - Moderately better habit for Plover and other birds
  - Marginal or no improvement in wrack line, shoreline erosion and beachfront habitat
  - 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

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:
  - Ranch land where a portion is in conservation, another portion in low density residential and the remainder is still ranch
  - Oregon adopts statewide policy on fish passage, Washington state did not.
- Liken to use of Benefit Transfer economic technique that can be used where conditions are sufficiently similar

Negotiated Alternatives

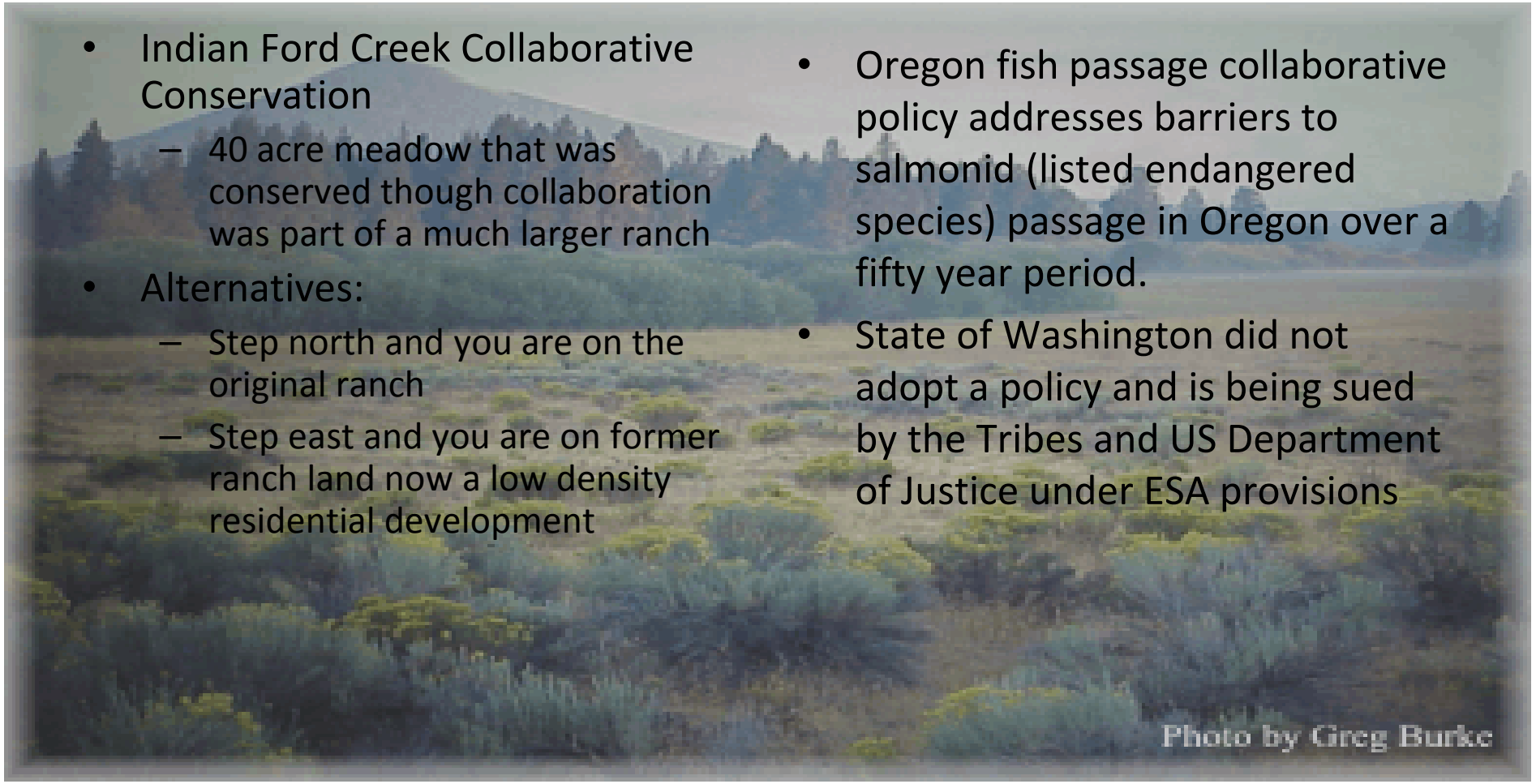
- Our work has shown these to be feasible and useful
- Decision makers and stakeholders regard negotiated alternatives as salient, legitimate and credible
- Evaluation colleagues are skeptical to interested, concerned about bias.

Examples of Natural Alternatives

- 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)
- Licensing a hydro dam
  - Similar dam licensing decision in a similar setting with similar issues and affected interests and environmental effects, but through traditional FERC processes without collaboration

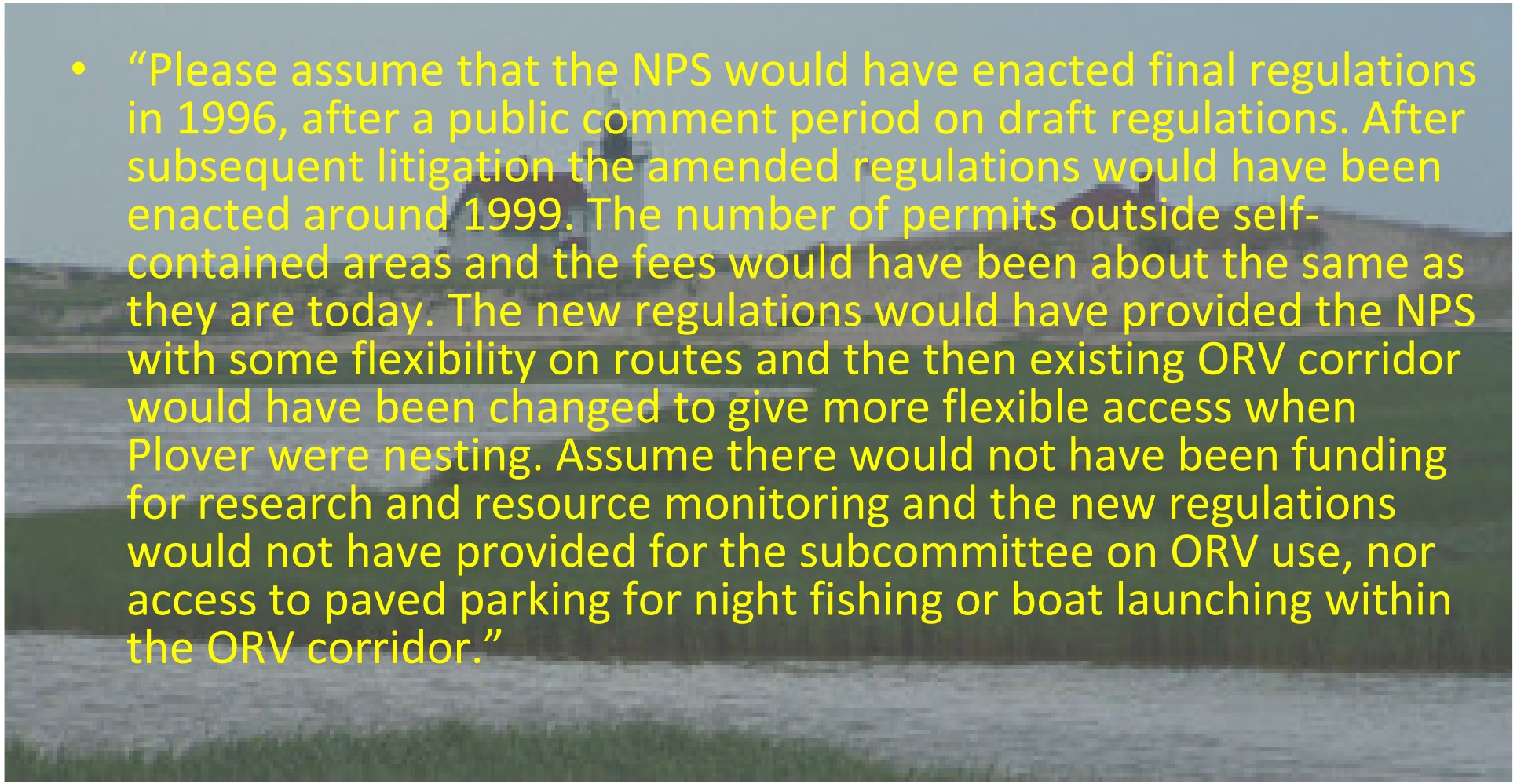
Photo : Footbridge Over the Marmot Dam (PGE)

Other Examples of Natural Alternatives



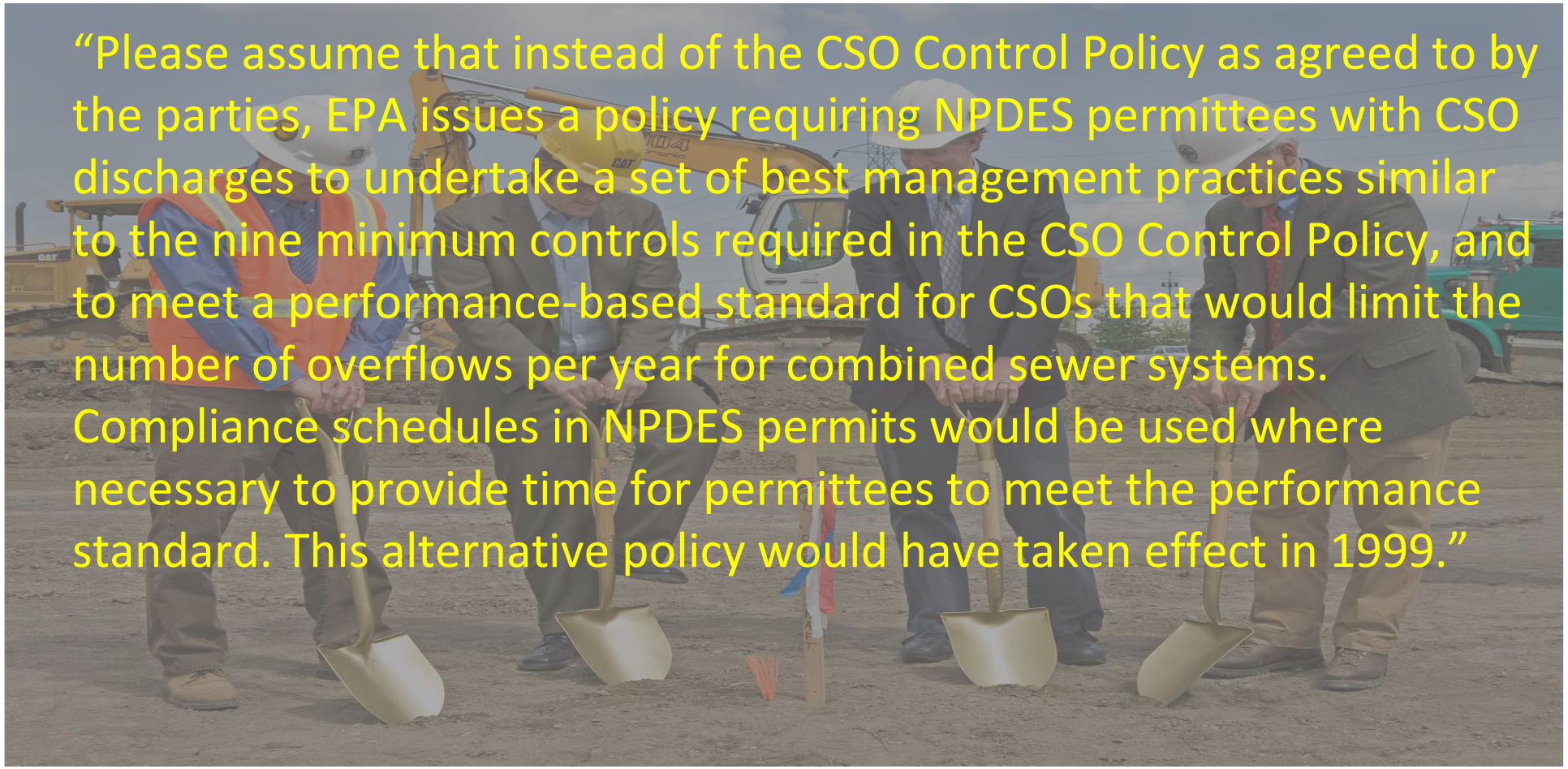
- Indian Ford Creek Collaborative Conservation
  - 40 acre meadow that was conserved though collaboration was part of a much larger ranch
- Alternatives:
  - Step north and you are on the original ranch
  - Step east and you are on former ranch land now a low density residential development
- Oregon fish passage collaborative policy addresses barriers to salmonid (listed endangered species) passage in Oregon over a fifty year period.
- State of Washington did not adopt a policy and is being sued by the Tribes and US Department of Justice under ESA provisions

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."

Combined Sewer Overflows Policy – Negotiated Alternative



"Please assume that instead of the CSO Control Policy as agreed to by the parties, EPA issues a policy requiring NPDES permittees with CSO discharges to undertake a set of best management practices similar to the nine minimum controls required in the CSO Control Policy, and to meet a performance-based standard for CSOs that would limit the number of overflows per year for combined sewer systems. Compliance schedules in NPDES permits would be used where necessary to provide time for permittees to meet the performance standard. This alternative policy would have taken effect in 1999."

Using Negotiated Alternatives

- Development of Negotiated Alternative
  - Formulate potential alternatives from secondary sources and interviews with mediator and convening party.
  - Interviews with other key parties solicit input to 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
  - In survey to all parties to gain their judgments about the environmental and economic effects if alternative had been used.
  - Same use in triangulated venues
- On cases to date negotiated alternatives are statistically valid and reliable

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

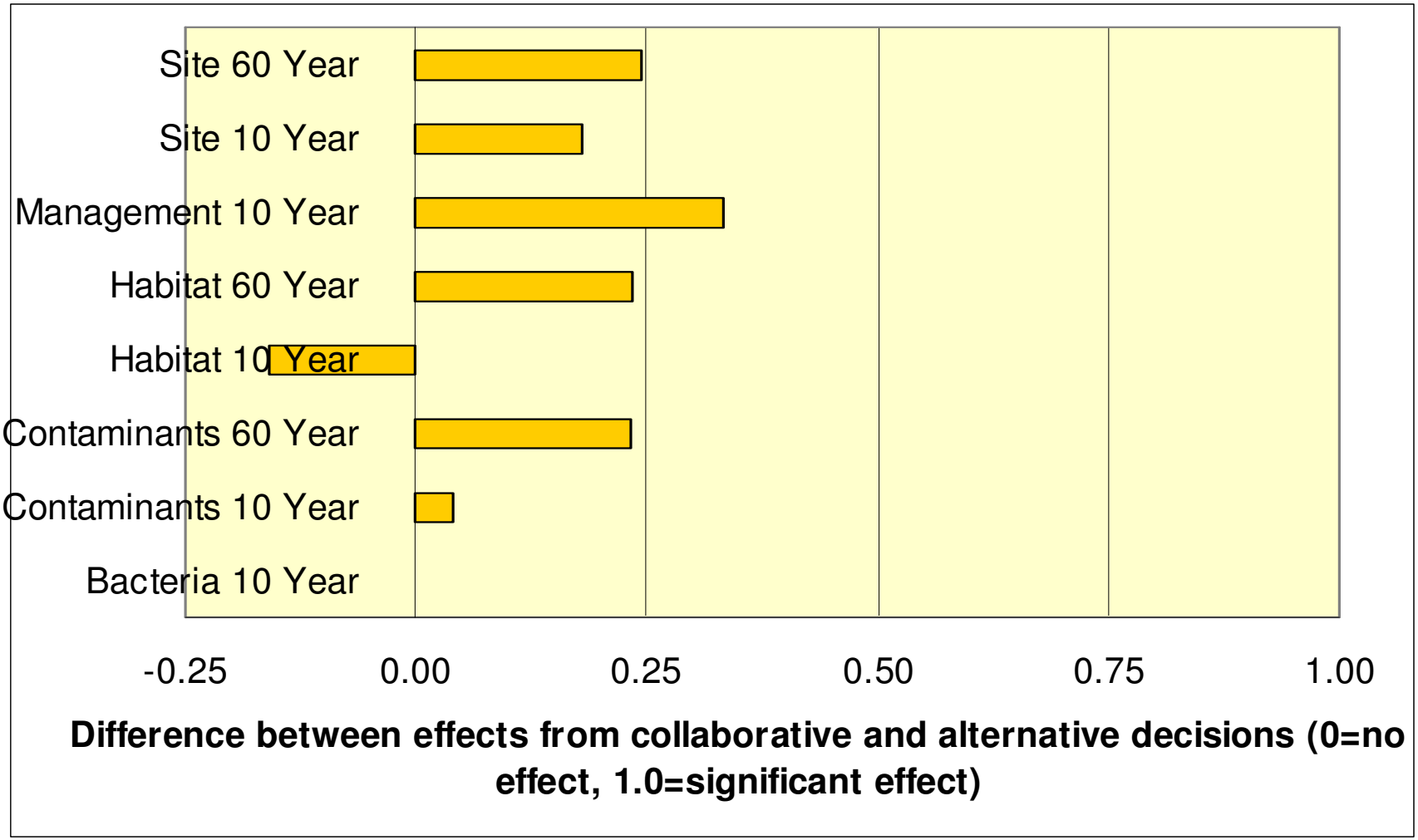
- Effectiveness:
  - Of the decision making process?
  - Of the decision?
- Durability and implementability of the decision

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)



Valuing Economic Effects

- Valuing the estimated change in the resource enables us to generate useful indicators of the effectiveness of the decision
- This is feasible for some resource and environmental settings, but not all
  - Studies have estimated the value of some recreational activities such as recreational fishing
  - We can estimate the potential value of increasing the numbers of fish available for commercial harvesting
  - Public health provides values we can associate with reducing e coli levels
  - But for Piping Plover we cannot move from the estimated increase in bird years to a monetary value
- Key is the environmental index to forecast the level of change in effect of interest

Less Time to Reach and Implement the Agreement

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 cases 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.
- *Social science research, by contrast, does not aim for or achieve evaluative conclusions. It is restricted to empirical (rather than evaluative) research, and bases its conclusions only on factual results—that is, observed, measured, or calculated data. Social science research does not establish standards or values and then integrate them with factual results to reach evaluative conclusions. In fact, the dominant social science doctrine for many decades prided itself on being value free.* Scriven in Coffman
- 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.

Background on My Reflective Review

- Over the past year I have been talking about use to programs with whom I have worked as an evaluator.
  - Review included a semi structured initial interview followed by follow up discussions.
- Three types of evaluations: formative evaluations, formative evaluation systems and developmental evaluation.
  - Evaluation system is self administered and was the first rigorous evaluation of environmental conflict resolution.
- Reflection Process has been collaborative:
  - In 2008 federal and state programs using the evaluation formed a session to discuss use at the biannual Environmental Conflict Resolution Conference.
  - In 2009 one of the programs and I discussed use of their evaluation at a session at the annual Environmental Evaluators Network conference.

Example of Evaluation Advice and Program Response – NFWF Chesapeake Bay

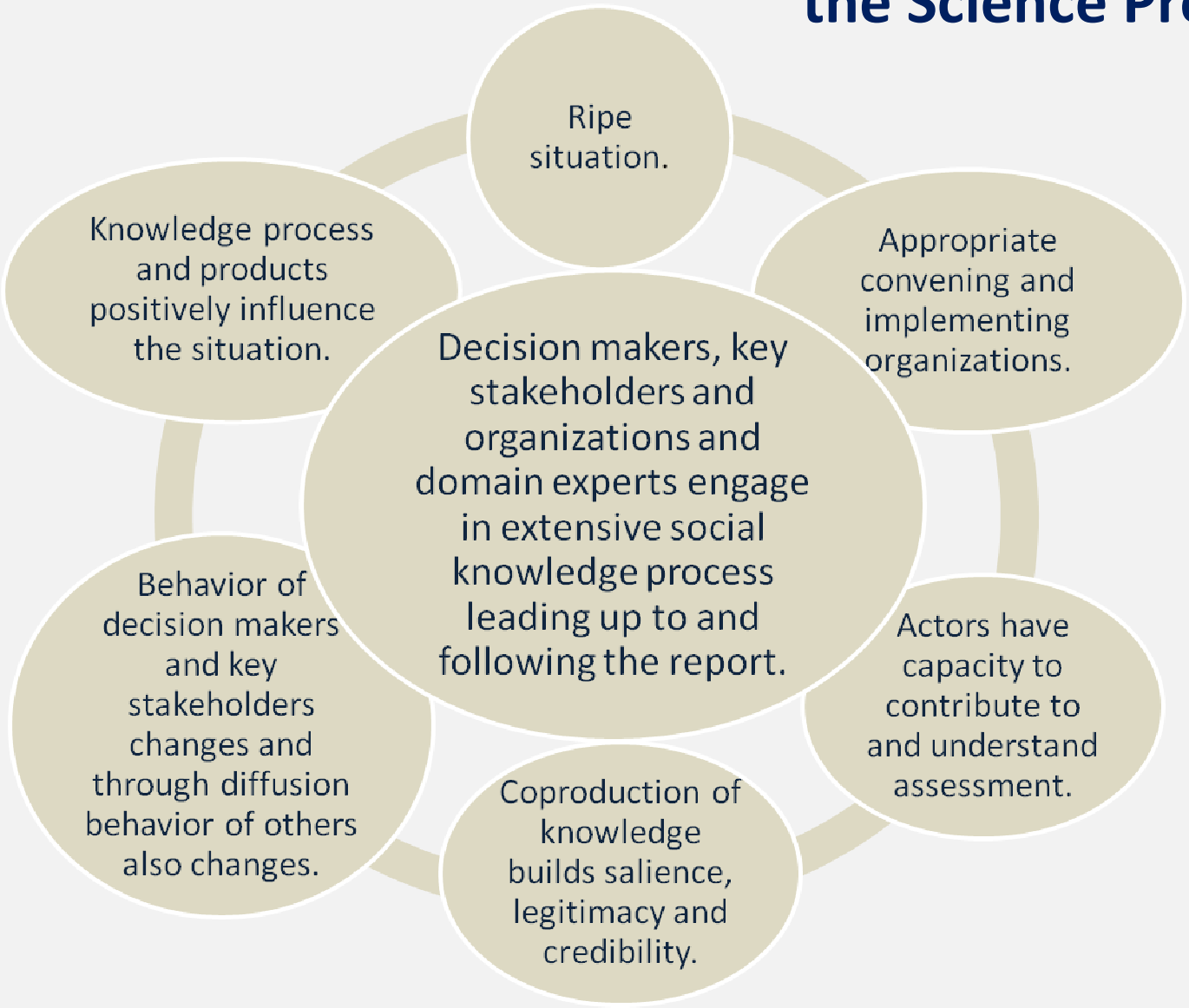
Advice

- Convert from community based in name to community based in reality
- Program acquire capacity in working with communities
- Provide TA to grantees on monitoring and collaborating with communities and use for post project assessments.
- Ensure maintenance of actions.
- Site visits to projects.
- Change size of grants,
- Simplify and improve admin, better direction to grantees for reporting.

Response

- Site visit Fridays
- TA contracts
- More credible community efforts
- Grant program modified, higher ceiling and new smaller entry / planning grants
- Administrative changes adopted Foundation wide, not attributable to the evaluation

Draft LKwA Theory of Change for the Science Program



LKwA Fits Evaluation Use Examples

- Ripe Situation
  - Openings for change were created by changes in staffing and management, additional funding
  - Implementation of agreed changes
- Capacity
  - Programs and other decision makers were able to engage with the evaluators in the evaluation process, contribute value to exploring changes
- Coproduction
  - Engagement of programs contributed to salience and legitimacy
- Behaviour Change and Diffusion to Grantees
  - By program using transparent collaborative approaches

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.