



Class website

Course home

Course information ▾

Module 1 ▾

Module 2 ▾

Module 3 ▾

Module 4 ▾

Module 5 ▾

Additional Resources ▾

WFA8433 - Natural Resource & Conservation Decision Making

Announcements

- Welcome to WFA8433 Natural Resource And Conservation Decision Making

<https://mcolvin.github.io/WFA8433-Natural-Resource-Decision-Making>

Class website

- <https://mcolvin.github.io/WFA8433-Natural-Resource-Decision-Making/>



Decision makers & managers, scientists, & stakeholders oh my...



I'm bringing you into the decision making process – pick a number between 1 and 10



An interview with Jim Nichols

Integrating science into conservation decision-making: an interview with Jim Nichols

published by harisridhar on Mon, 01/18/2016 - 10:45














Citation for this post: [BibTeX](#) | [RIS](#)

James D. Nichols has been a wildlife biologist with the US Geological Survey for more than 40 years and a long-time collaborator on conservation research projects in India. At the [Student Conference on Conservation Science, Bengaluru SCCS – Bengaluru](#) in September 2015, Dr. Nichols spoke about ways to integrate science into conservation decision-making, drawing upon his own experiences working with wildlife managers in North America. Hari Sridhar spoke to Dr. Nichols after the talk, to find out more about his work.

Hari: In your talk at **SCCS-Bengaluru**, you said that the way in which scientists usually engage with park managers and conservation decision-makers is inefficient. Why do you think so?

Jim Nichols: I guess the first thing I should say is that inefficiency is not a horrible crime. It is just that, in the conservation world today, our dollars and efforts are so limited. If we can do better within our limited means, why not do so?

I think the inefficiency comes via a lack of communication and a lack of a central programme within which everyone works. What often happens - or at least what I have seen in my world - is a group of scientists interested in a particular system will get money for studying that particular system, claiming that what they learn will be useful to conservation folks. They will then go out and perform the study, learn something and then give

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Themes....

- People & Natural Resources
 - Objectives
 - Interdisciplinary
 - Tranparent
 - Repeatable
- Process for making decisions....

Integrating science into conservation decision-making: an interview with Jim Nichols

published by harisridhar on Mon, 01/18/2016 - 10:45

Citation for this post: BibTeX | RIS

James D. Nichols has been a wildlife biologist with the US Geological Survey for more than 40 years and a long-time collaborator of the Science, Bengal science into conservation North America.

Hari: In your talk, you mention that park managers and conservationists often don't talk to each other.

Jim Nichols: I guess that's true. I guess conservation workers don't do so?

“I think the inefficiency comes via a lack of communication and a lack of a central program within which everyone works.” J. Nichols

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I think the inefficiency comes via a lack of communication and a lack of a central programme within which everyone works. What often happens - or at least what I have seen in my world - is a group of scientists interested in a particular system will get money for studying that particular system, claiming that what they learn will be useful to conservation folks. They will then go out and perform the study, learn something and then give that information to the manager or conservation guy who is actually on the ground doing things. I don't claim that what is learnt is never useful, but very frequently it doesn't hit the mark. In other words, what scientists learn is

Stakeholders Increasingly Interested & Judicious

IN THE UNITED STATES COURT OF FEDERAL CLAIMS

Ideker Farms, Inc.; Lynn and Elaine Binder, Todd and April Binder, and Tyler and Valerie Binder; Richard Binder, Dustin Binder, and Darwin Binder dba Midwest Grain Co.; Eddie Drewes, Robert W. Drewes Recoverable Trust, Rita K. Drewes Recoverable Trust and David Drewes, individually and dba Drewes Farms, Inc.; Patrick Newlon dba Newlon Farms, Inc.; David Newlon
Plaintiffs,

v.

UNITED STATES OF AMERICA,
Defendant.

Case No.: _____

Attorneys for Plaintiffs

UNITED STATES DISTRICT COURT FOR THE DISTRICT OF MONTANA GREAT FALLS DIVISION

DEFENDERS OF WILDLIFE; and
NATURAL RESOURCES DEFENSE
COUNCIL,

Plaintiffs,

v.

UNITED STATES ARMY CORPS OF
ENGINEERS; UNITED STATES BUREAU
OF RECLAMATION; and UNITED STATES
FISH AND WILDLIFE SERVICE,

Defendants.

Case No.

**COMPLAINT FOR
DECLARATORY AND
INJUNCTIVE RELIEF**

COMPLAIN

NATURE OF THE

1. Plaintiffs bring their claims for a taking of property without just compensation, by means of a significant and deliberate action by the United States Army Corps of Engineers (“the Corps” or “Corps”) from its decade

Stakeholder visibility



ARCHIVES CONSERVATION ART VIDEOS SOTM WALLPAPER GIVEAWAYS F

New Regulations a “Slap in the Face”

January 9, 2017 moldychum



The Abaco Fly Fishing Guides Association is not a fan of the new Bahamas fly fishing regulations and shared their thoughts in this press statement.

[LINK](#) (via: The Bahamas Weekly)



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PRESS I

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[EXPLORE THE ISSUES](#)

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[Home](#) | [Press Releases](#) | [Plan for Yellowstone Dam and Fish Bypass “Won’t Pass” for Pallid Sturgeon](#)

PLAN FOR YELLOWSTONE DAM AND FISH BYPASS “WON’T PASS” FOR PALLID STURGEON

FOR IMMEDIATE RELEASE

October 14, 2016

MEDIA CONTACT:

Jennifer Witherspoon: Defenders of Wildlife, (202) 772-0269, jwitherspoon@defenders.org

Plan for Yellowstone Dam and Fish Bypass “Won’t Pass” for Pallid Sturgeon

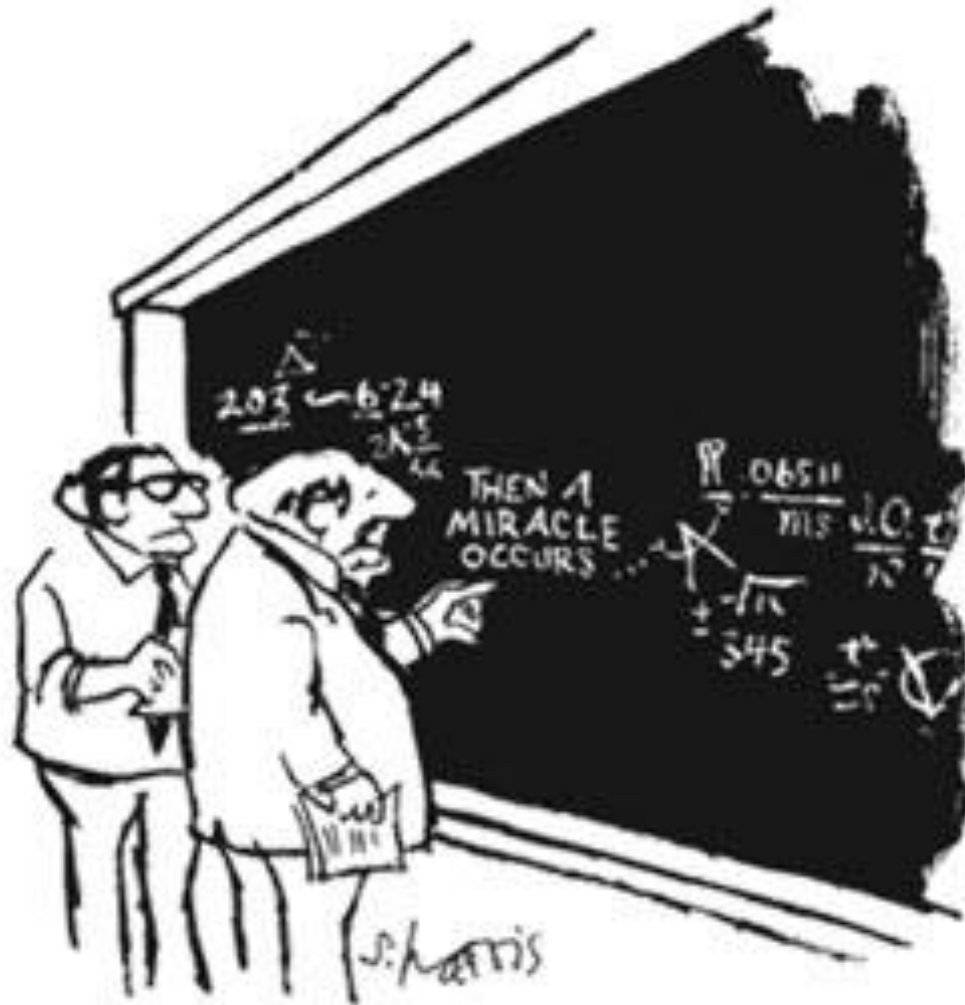
DENVER – Defenders of Wildlife expressed strong opposition to the action proposed in the Army Corps of Engineers (Corps) and the Bureau of Reclamation’s (Reclamation) **Final Lower Yellowstone Intake Diversion Dam Fish Passage Project Environmental Impact Statement (FEIS)**, which calls for construction of a larger, more permanent dam and artificial fish bypass near Glendive, Montana on the Yellowstone River.

Numerous independent, state and federal agency scientists criticized the Corps and Reclamation’s approach, saying the efficacy of a fish bypass to get the pallid sturgeon around the dam is ‘unfounded’

Black box management



Unstated assumptions



"I THINK YOU SHOULD BE MORE EXPLICIT HERE IN STEP TWO."

4. Finite resources

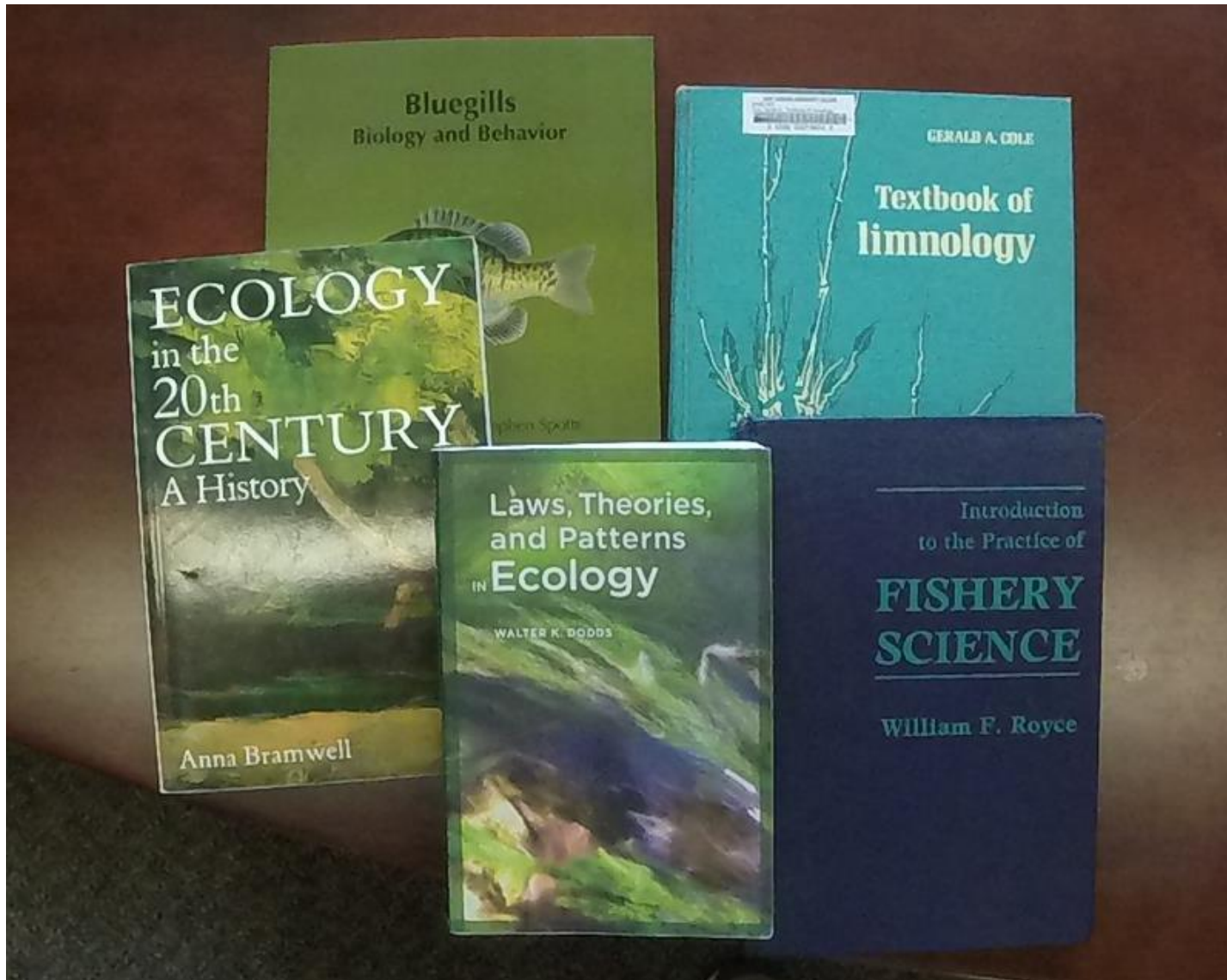
How do we prioritize monitoring?

How do we prioritize research?

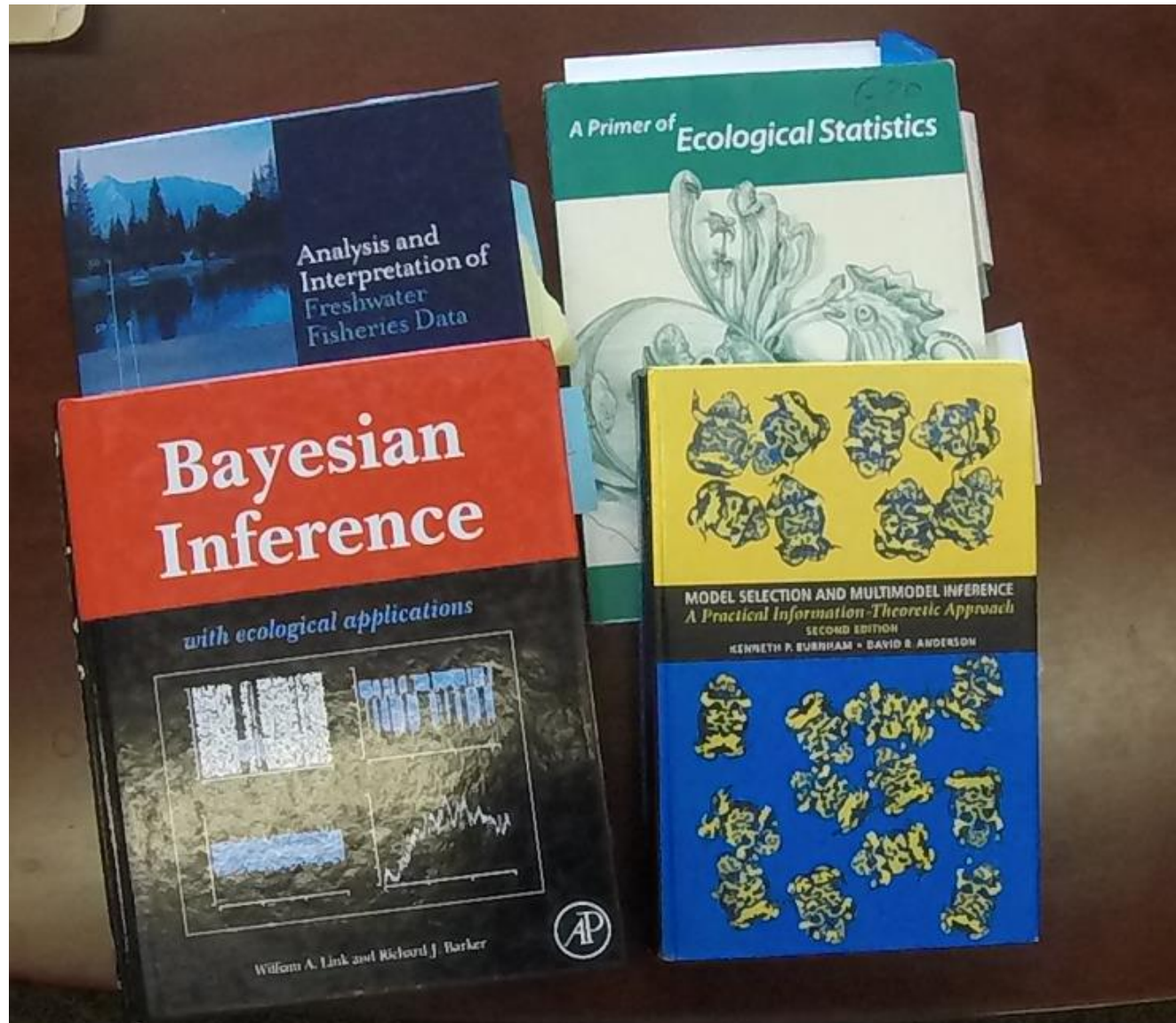
If something has to be cut what
should it be?

Will it impact decision making &
management?

Biologists & ecologists spend time reading biology & ecology books



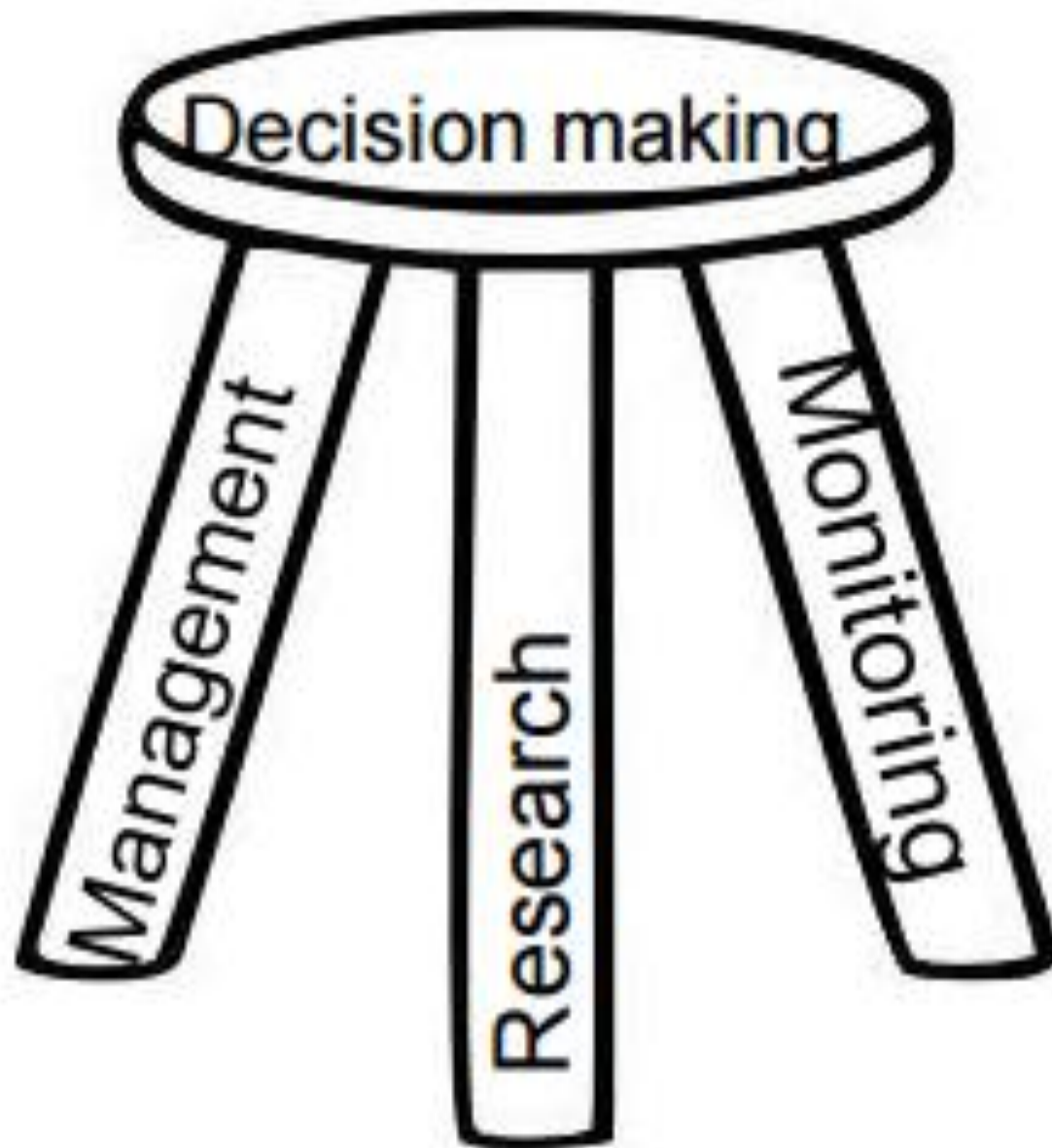
Biologists & ecologists spend time reading methods & statistics books



We do not read books about
decision making & analysis

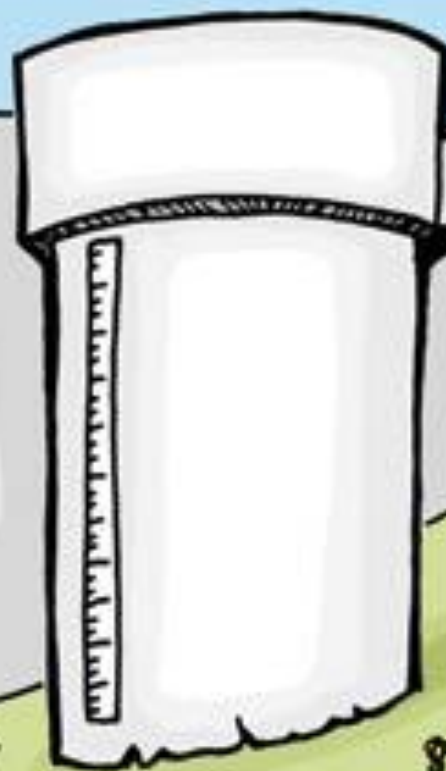


A Central Program



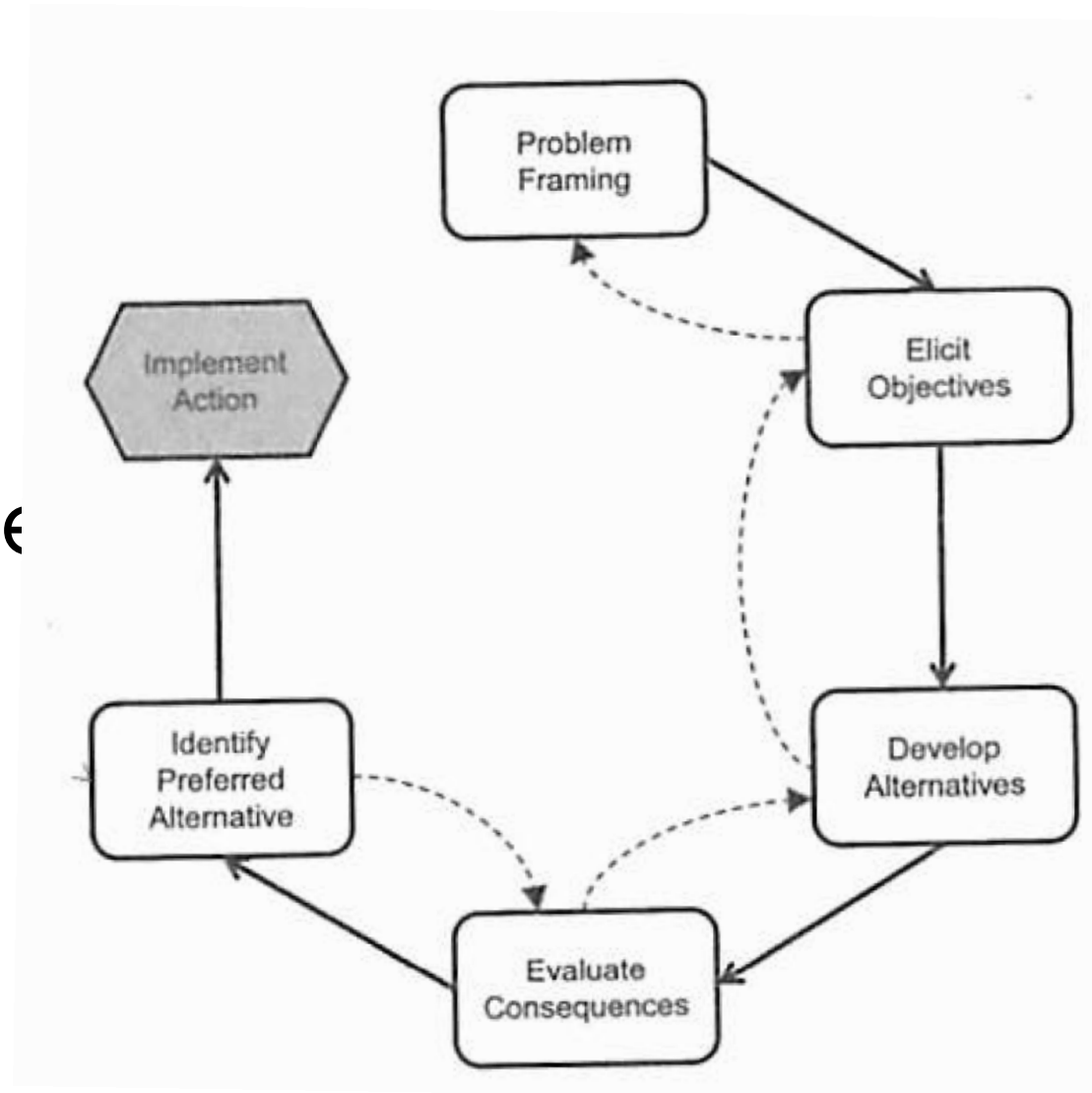
WATER RESOURCE DECISION MAKING TODAY.

TO CUT BACK WATER ALLOCATIONS,
TO NOT CUT BACK WATER ALLOCATIONS,
TO CUT BACK WATER ALLOCATIONS,
TO NOT CUT BACK WATER ...



A structured process: PrOACT

1. Problem
2. Objectives
3. Actions
4. Consequences
5. Tradeoffs



Suite of tools

- Stakeholder analysis
- Models
- Decision trees & networks
- Decision models
- Sensitivity analysis
- Value of information
- Elicitation
- Optimization





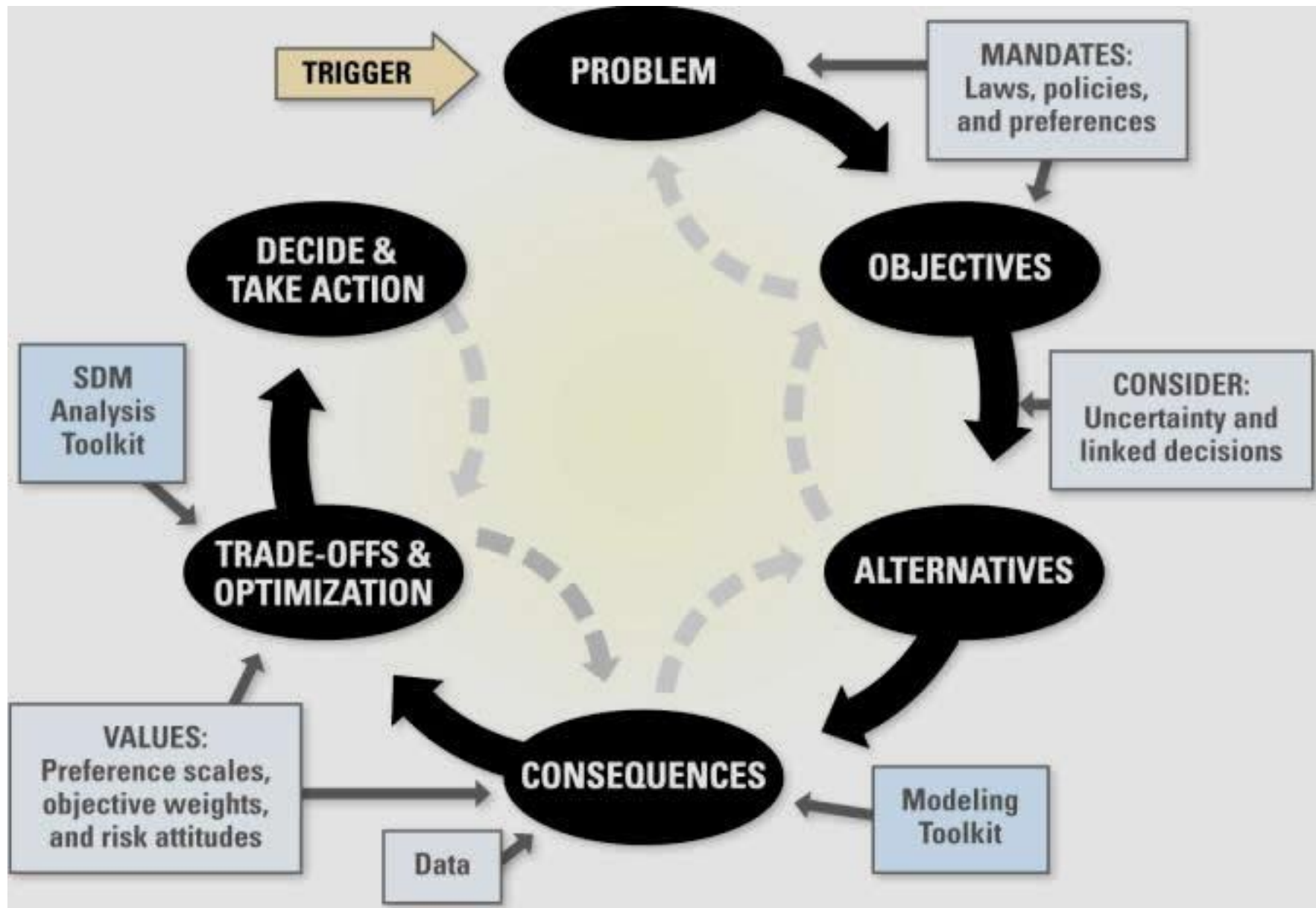
**But we've
always done
it this way**

GCU 7

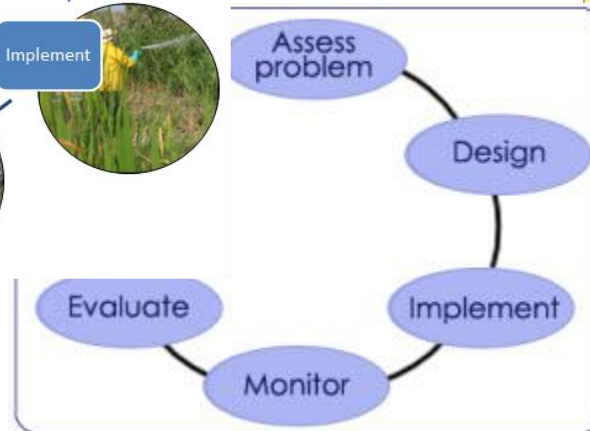
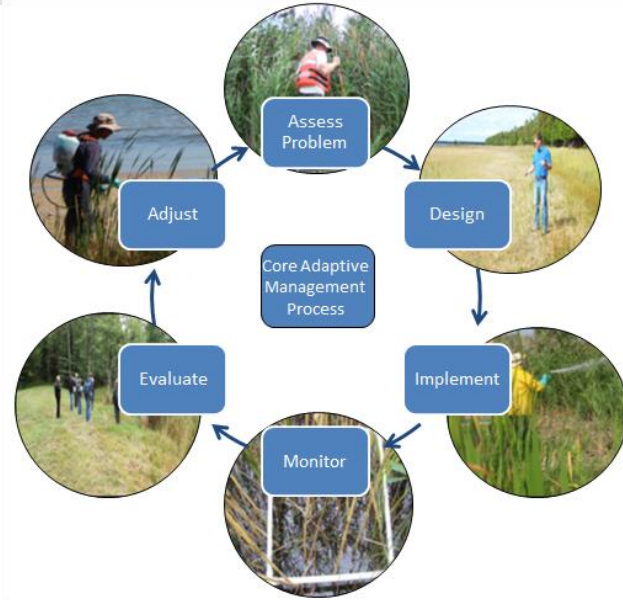
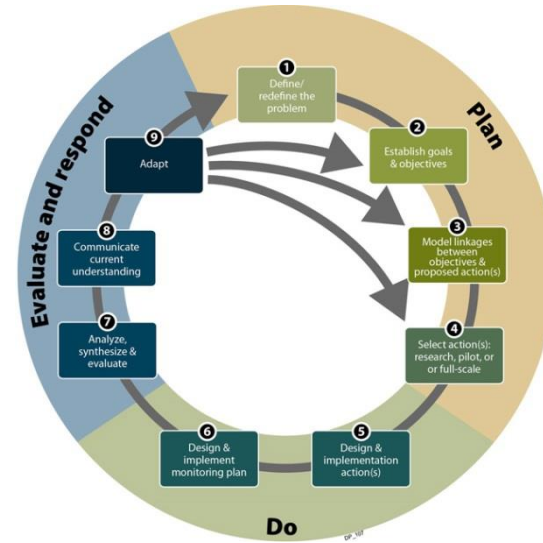
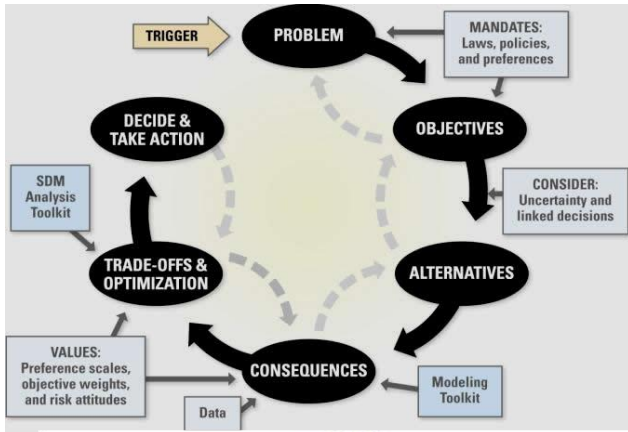
PROBLEM

The most important step

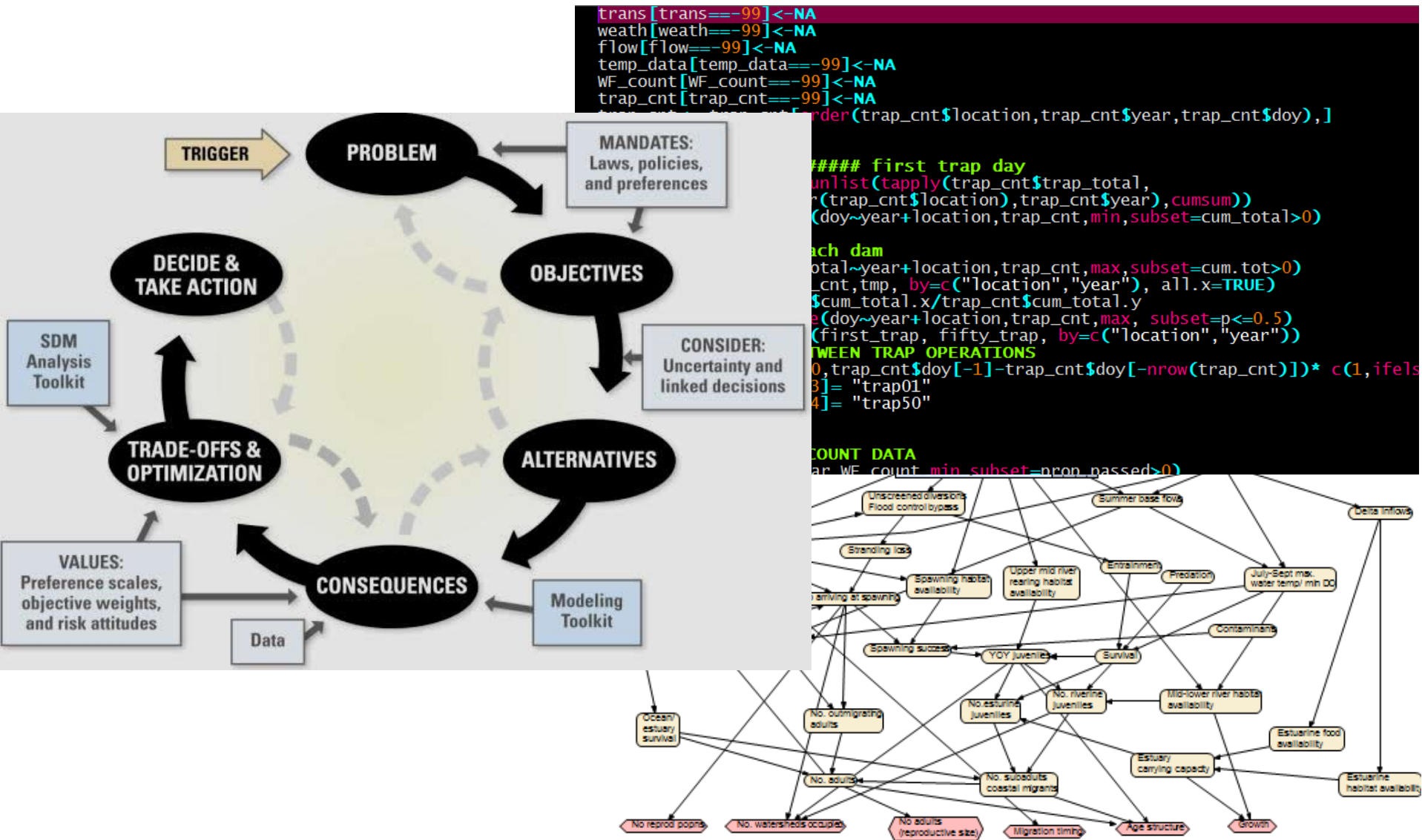




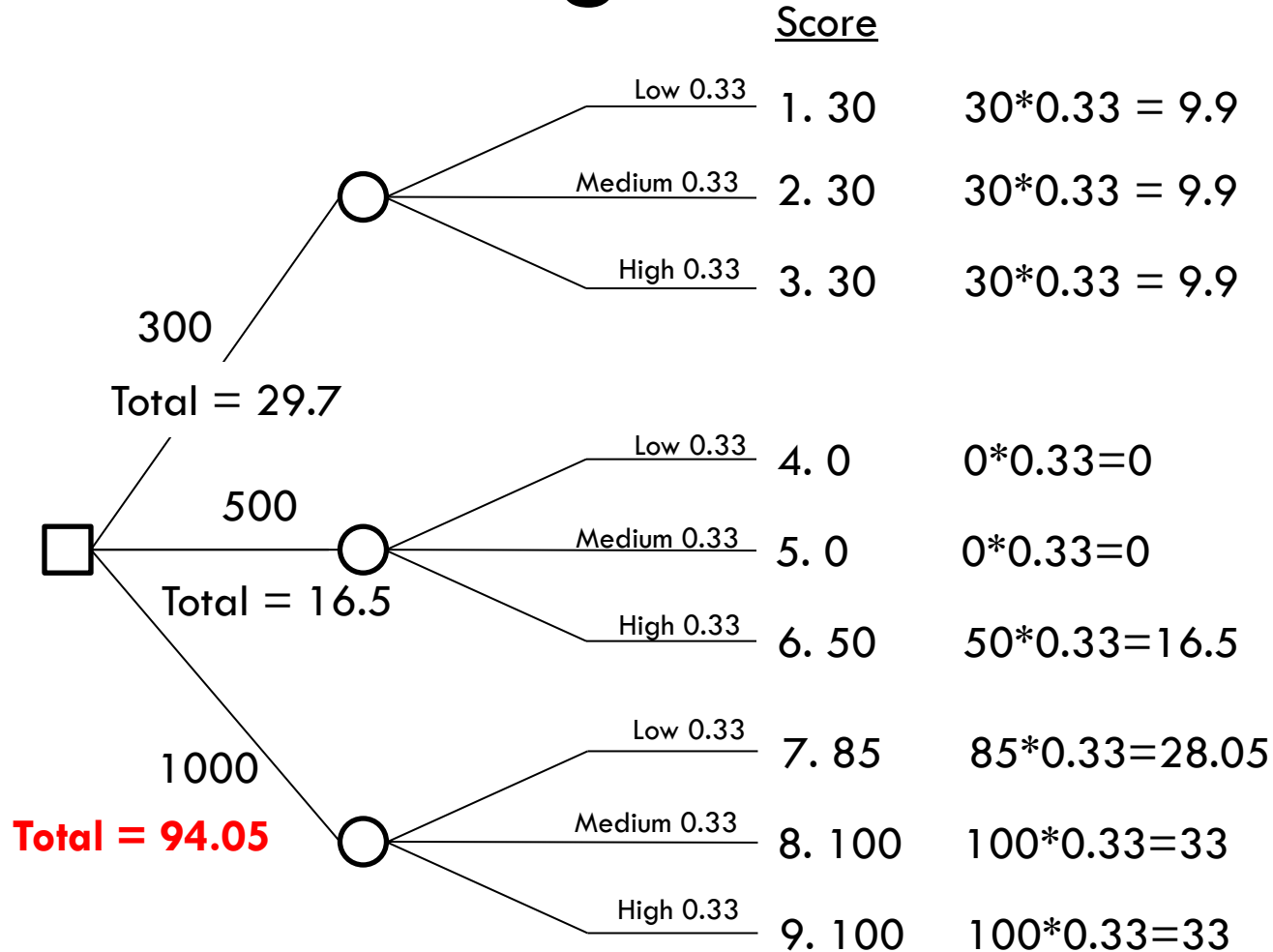
Folksy to Formal



To a formal process...



Ranking the outcomes



Proportional scoring

$$Utility = \frac{Value - \min(Value)}{\max(Value) - \min(Value)}$$

$$Utility = \frac{2600 - 2047}{2730 - 2047}$$

$$Utility = 0.81$$

Proportional scoring

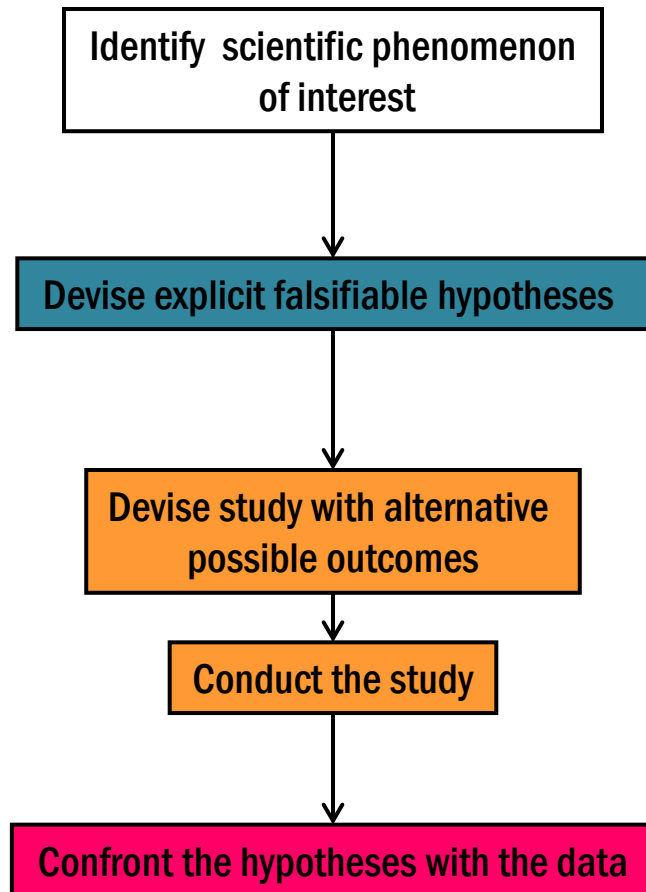
$$Utility = \frac{Value - \min(Value)}{\max(Value) - \min(Value)}$$

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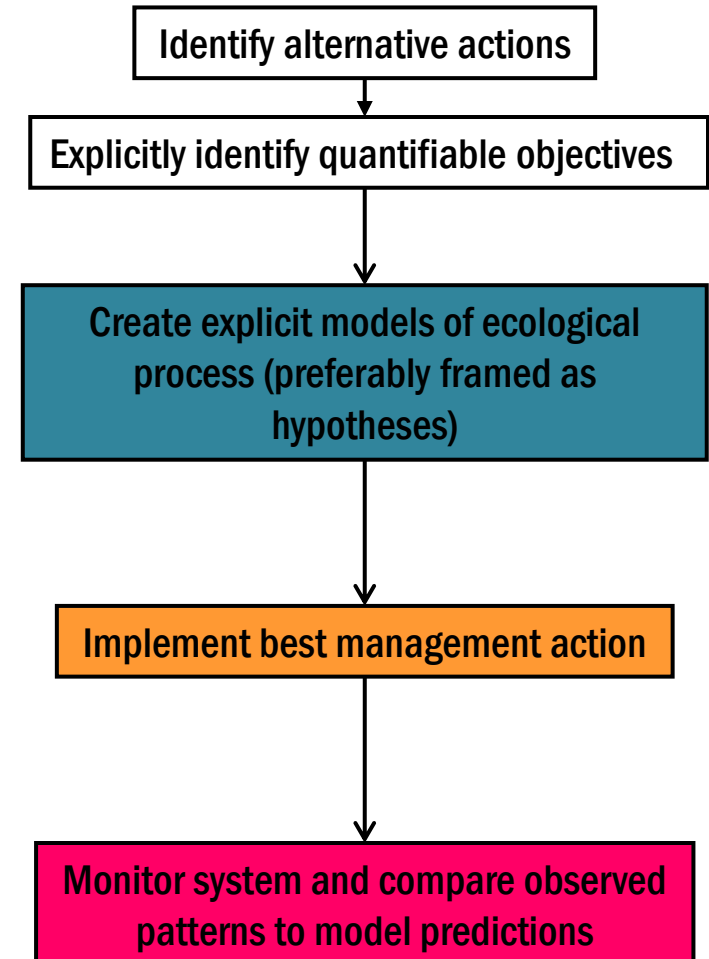
$$Utility = 0.81$$

The Scientific Method and Natural Resource Decision-Making

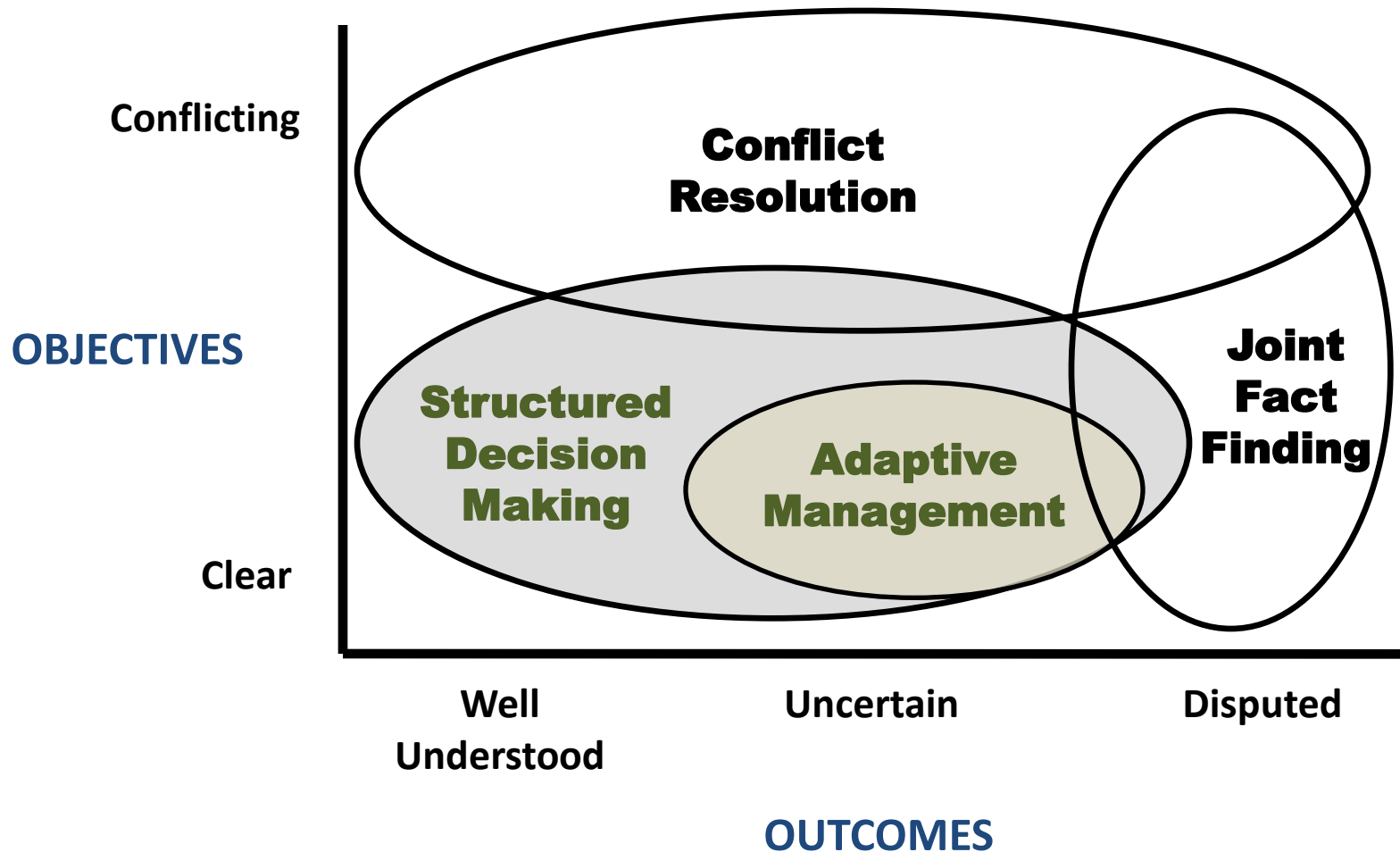
The Scientific Method



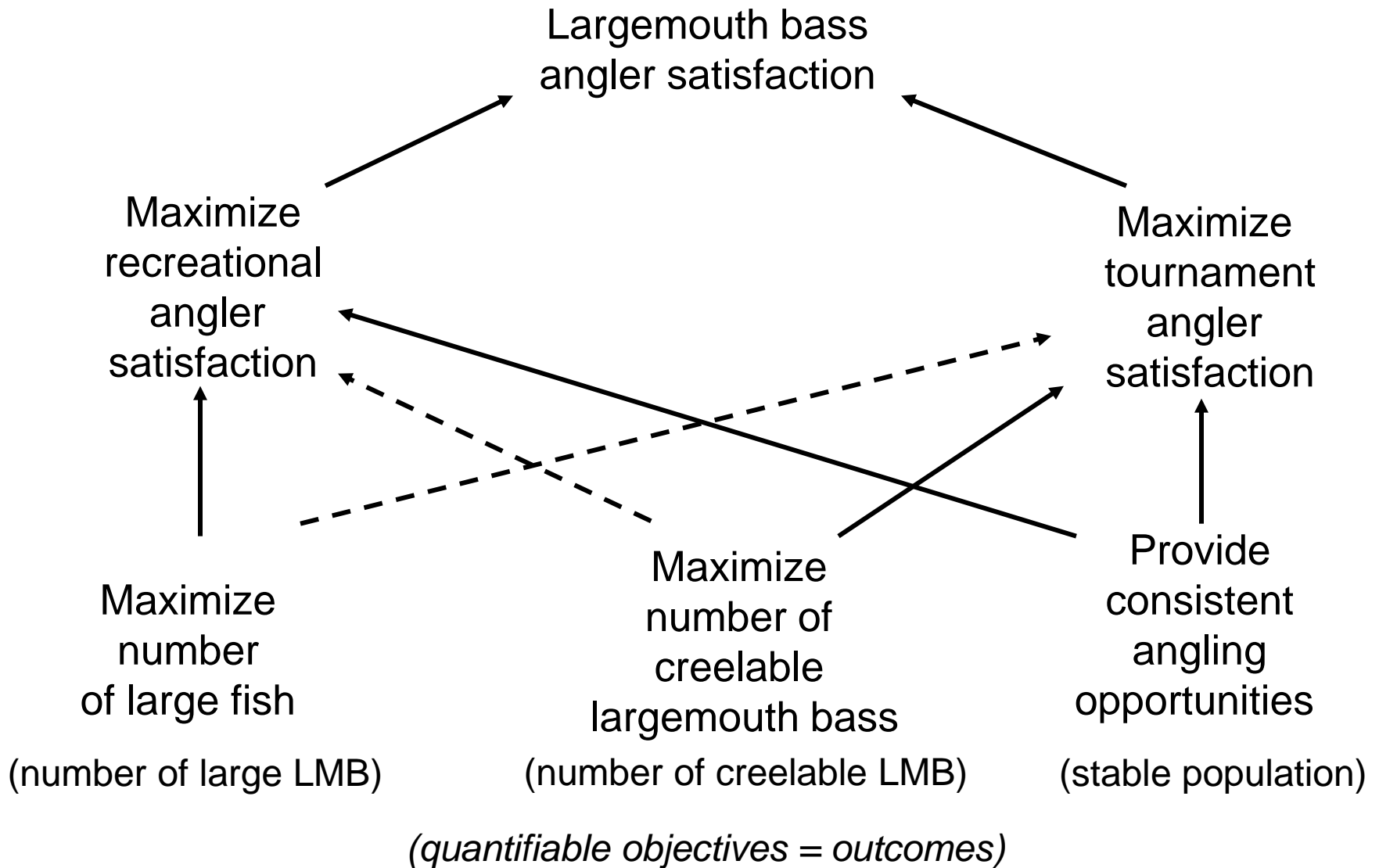
Structured decision making

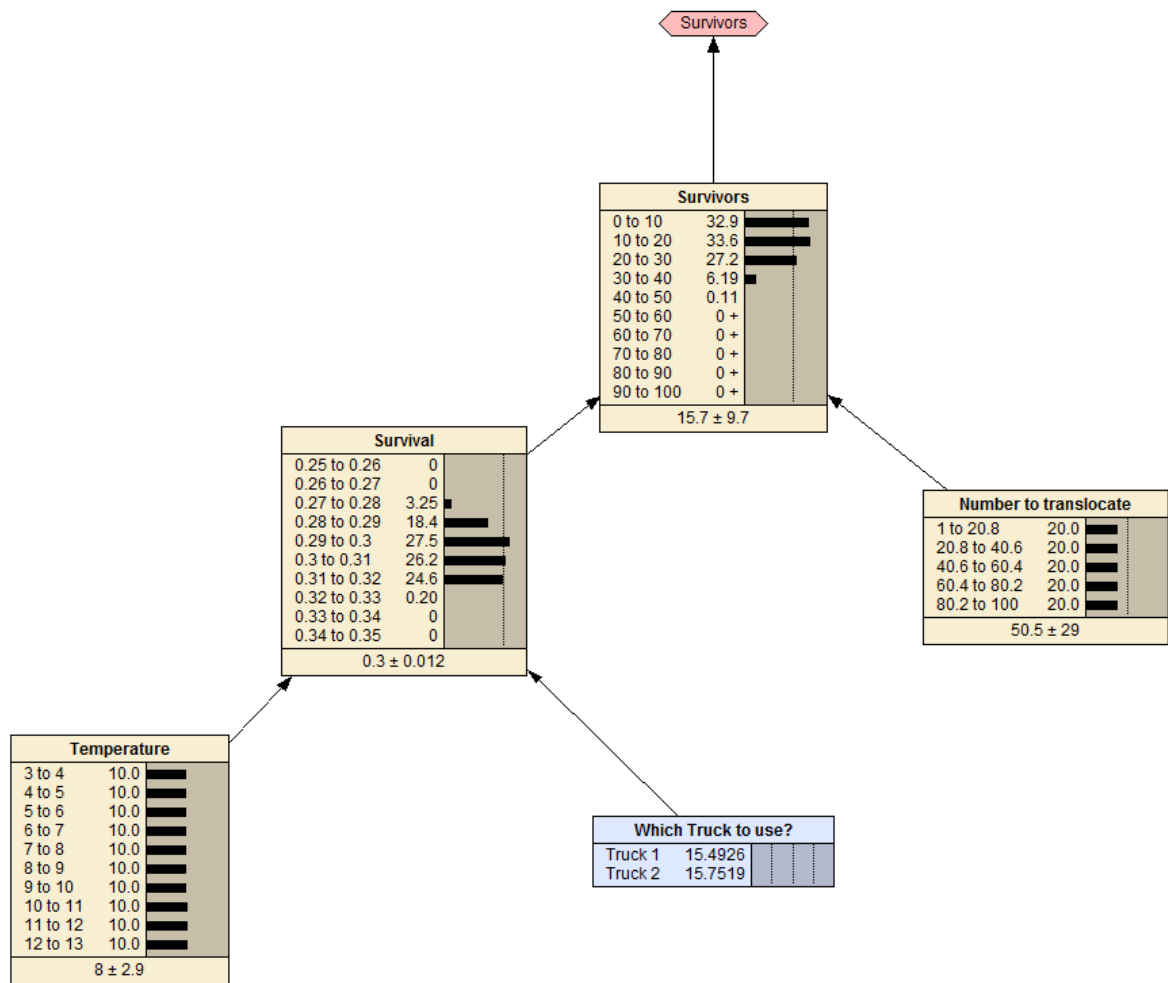


What About Adaptive Management?



Structuring Values and Objectives



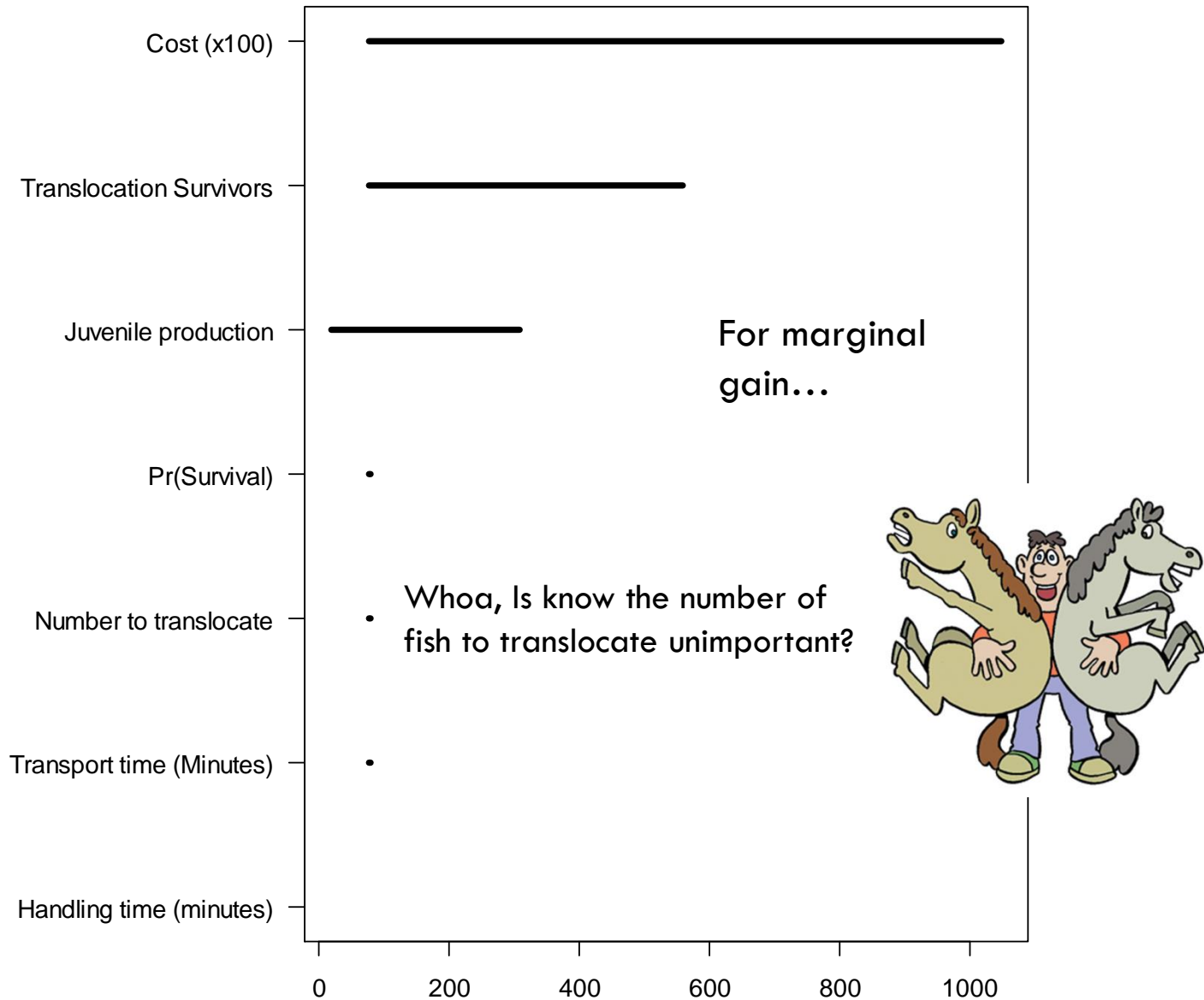


Statistics and Decision Making

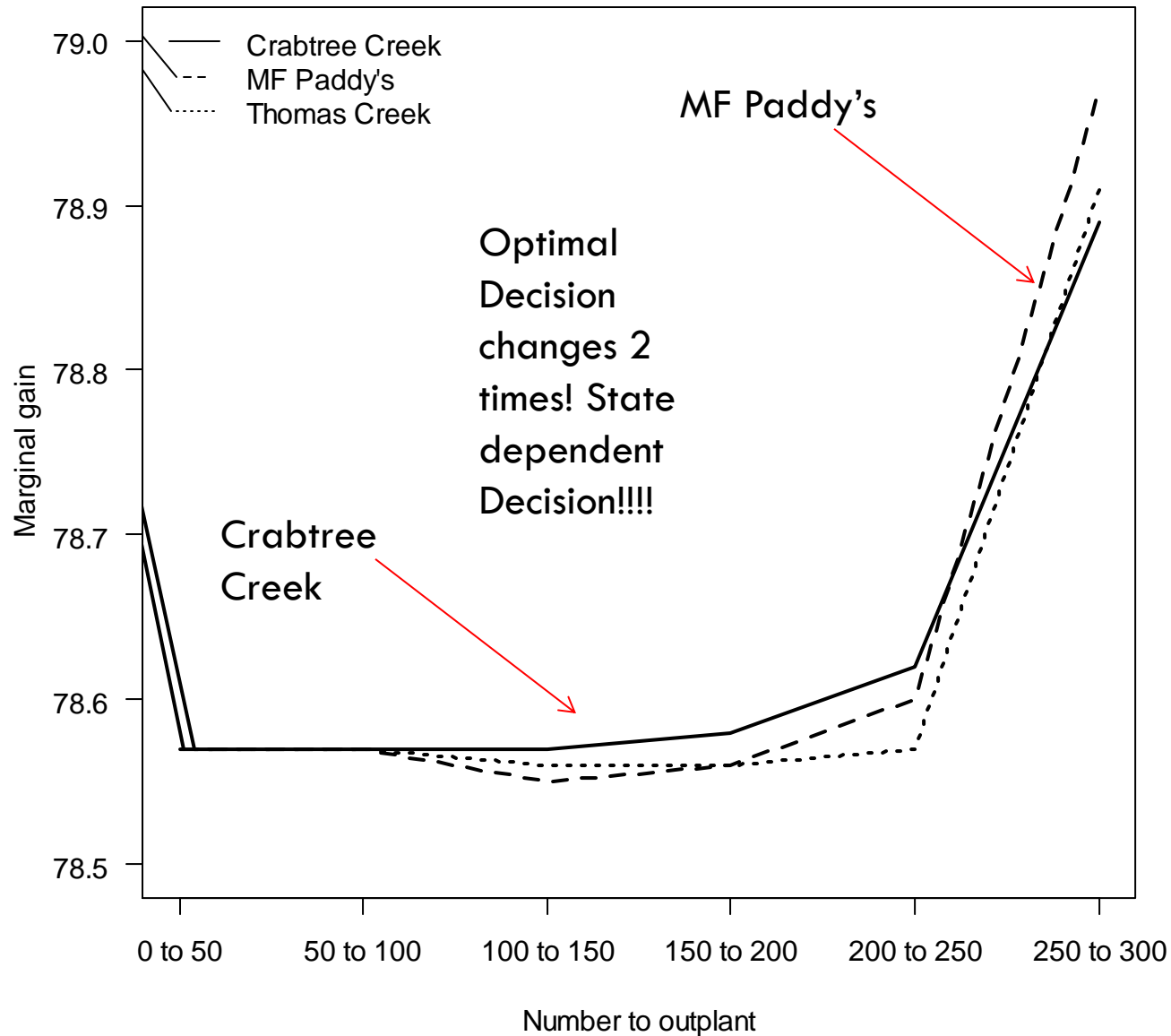
- How to use your statistics
- How to deal with uncertainty



Tornado Plot



Response profile

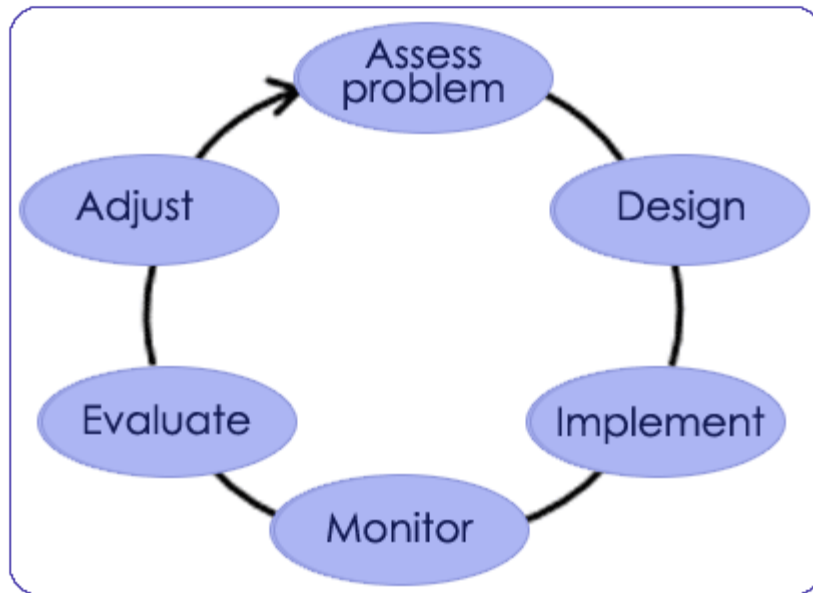
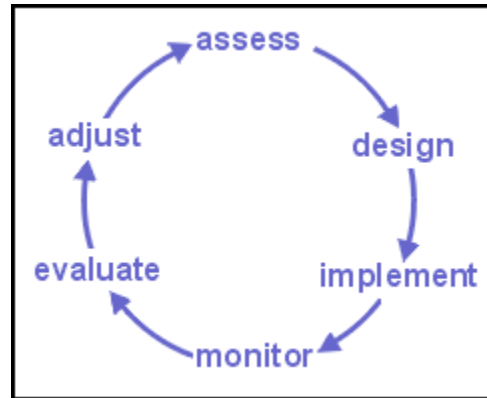


Structural uncertainty

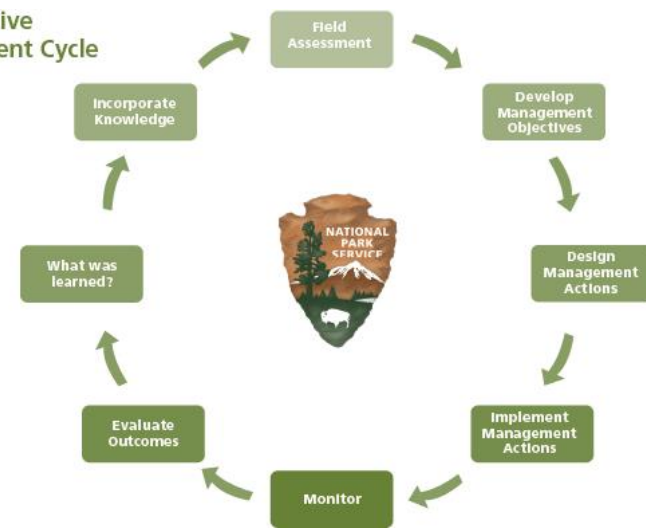
Where learning occurs

- *Effect of harvest: Additive, Compensatory, Partially compensatory*
- *Important as you can't harvest populations with additive mortality as hard as compensatory ones!*

Just pretty flow charts?



The Adaptive Management Cycle



1. Conceptualize

- Define initial team
- Define scope, vision, targets
- Identify critical threats
- Complete situation analysis

5. Capture and Share Learning

- Document learning
- Share learning
- Create learning environment

**Conservation Measures
Partnership
Open Standards**

2. Plan Actions and Monitoring

- Develop goals, strategies, assumptions, and objectives
- Develop monitoring plan
- Develop operational plan

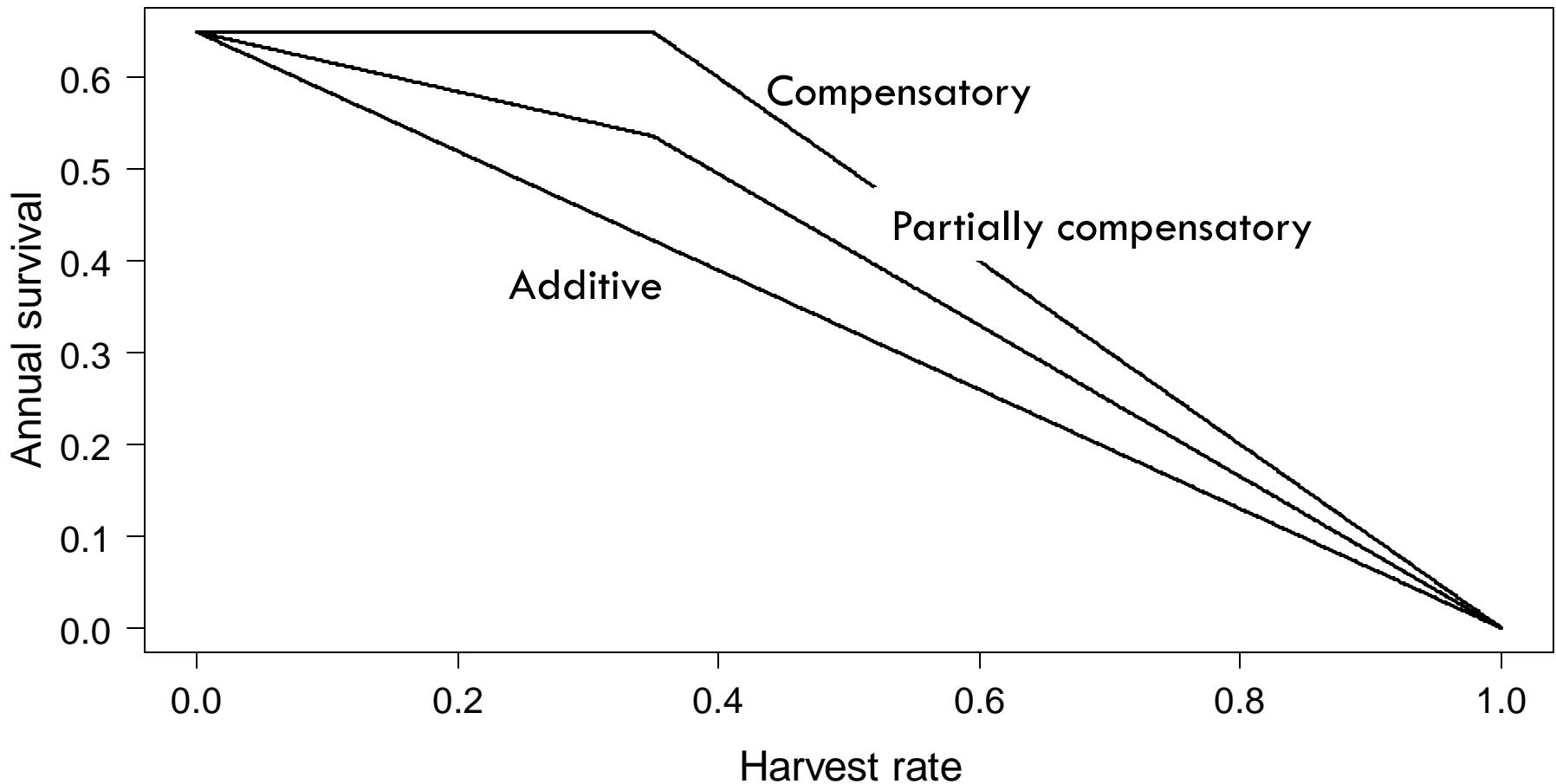
3. Implement Actions and Monitoring

- Develop work plan and timeline
- Develop and refine budget
- Implement plans

4. Analyze, Use, Adapt

- Prepare data for analysis
- Analyze results
- Adapt strategic plan

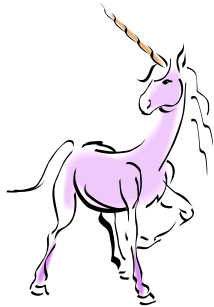
Learning: 3 hypotheses of the effect of harvest on a population



Myths about ARM

It's research

It *is* management



It's too risky

It distracts from management goals
no tradeoffs required

It's too complicated/ technical.....



Myth: ARM too complicated/ technical

Most agencies already incorporate most- if not all- of the components of ARM

Decisions

Objectives

Models (implicit)

Monitoring

What is needed: linking decisions to objectives with explicit model and targeted monitoring



Single and double loop learning

