

Reframing Science

Why Science Needs Social Science to
Communicate About Climate Change
and Oceans



Susan Nall Bales
President
FrameWorks Institute

Work with Policy Experts, Advocates and Scientists

Harvard Center on the Developing Child – how to explain gene-environment interaction, child and family mental health, executive function, resilience

National Research Council – how to talk about fiscal policy, skills development and assessment

Pew Commission on Oceans – how to explain the state of world's marine systems

APHA, ASTHO, APHL – how to get people to understand the field of environmental health: what it does, who does it and why it is a public responsibility

W. K. Kellogg Foundation – how to explain how changes in the food system make it less sustainable and healthy

**Stickiness
is an
Empirical
Pursuit**

“So a good process for making your ideas stickier is:

- (1) Identify the central message -- find the core;
- (2) Figure out what is counter-intuitive about the message -- why isn't it happening naturally?
- (3) Communicate your message in a way that breaks your audience's guessing machines
- (4) Once their guessing machines have failed, help them refine their machines.”

Chip Heath and Dan Heath, *Made to Stick*. New York:Random House. 2007

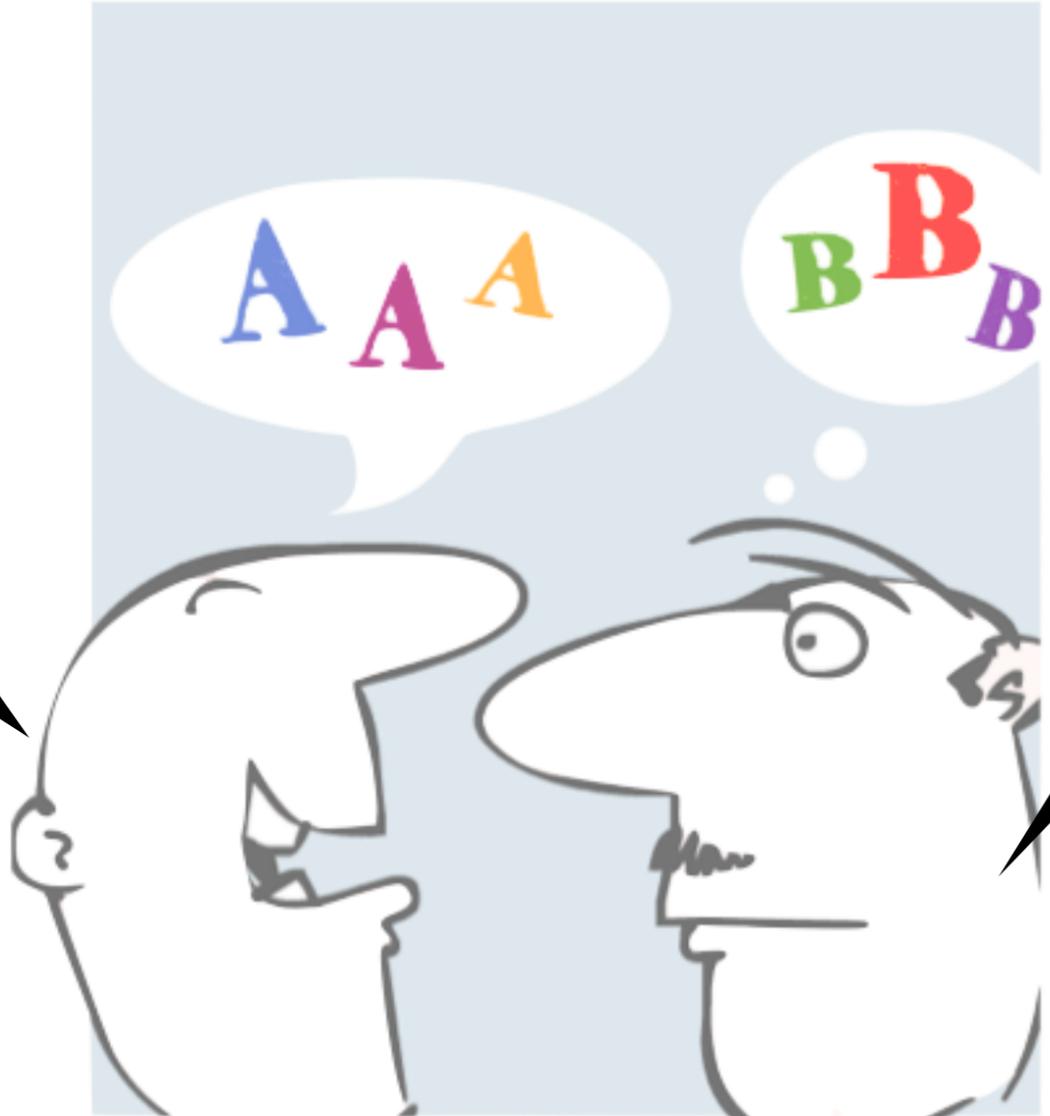
What We Know



FrameWorks' Research Base on Climate Change and Oceans

Lost in Translation

Climate change is a serious problem



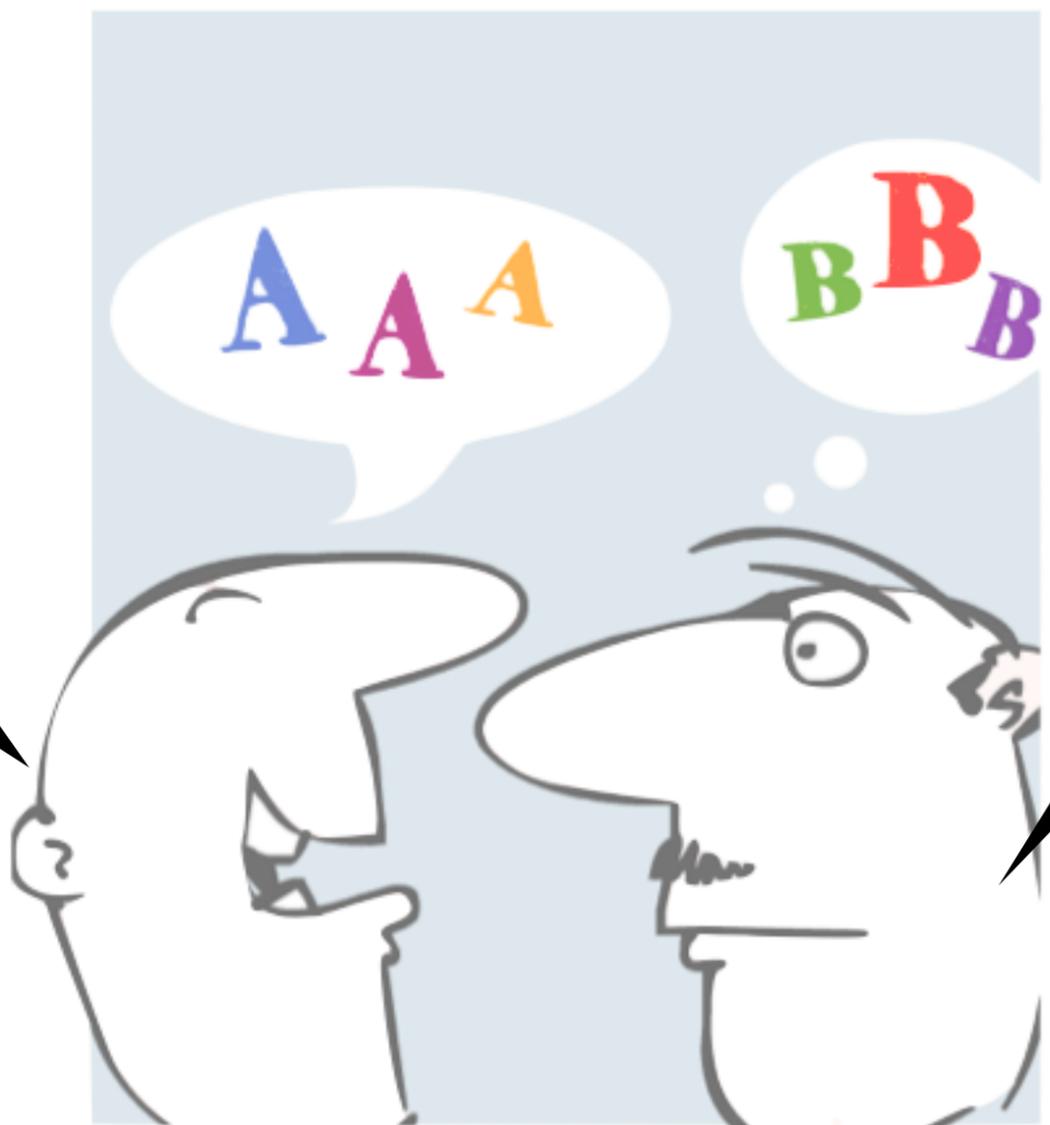
Black Box

Advocate

Public

Lost in Translation

There are solutions to the problems associated with climate change



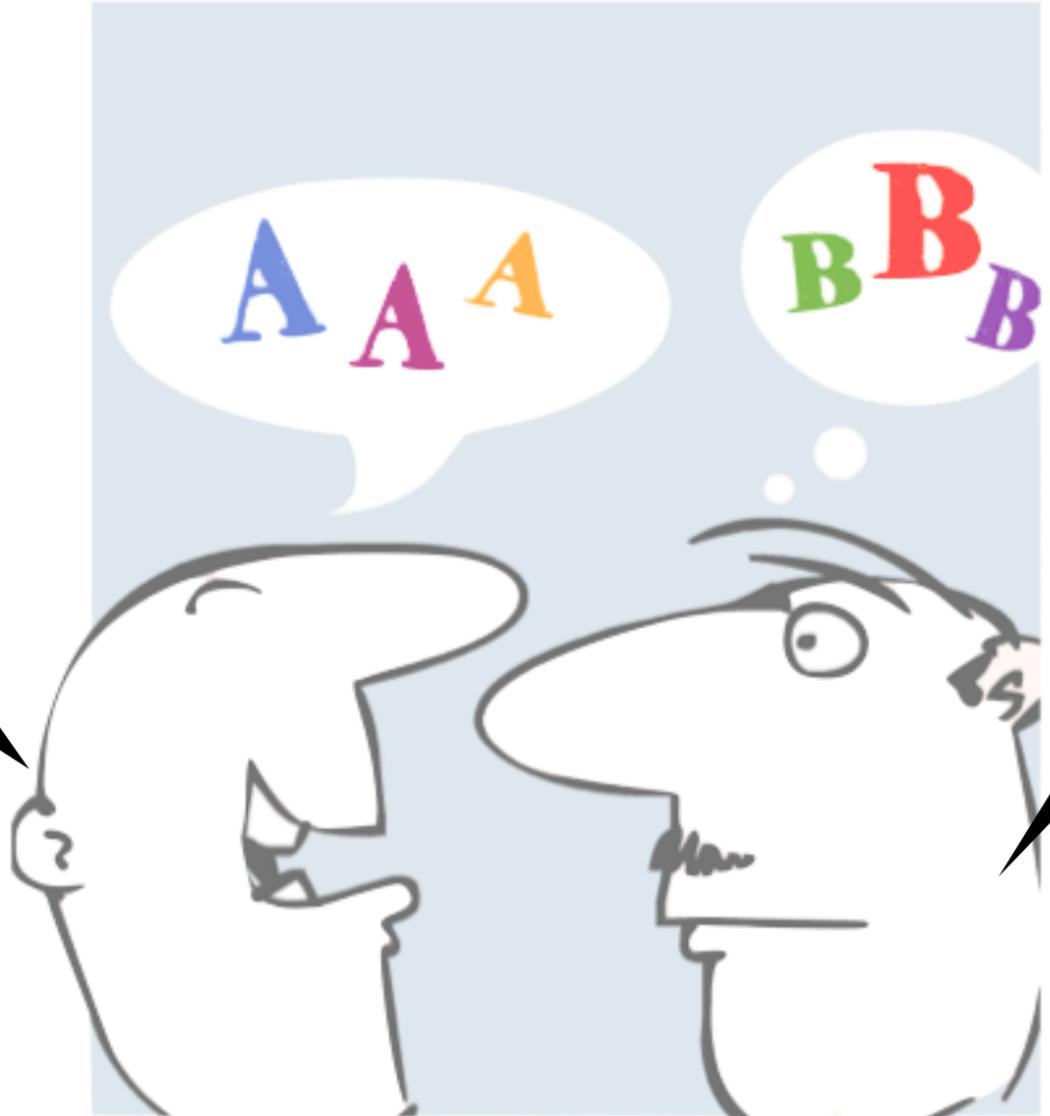
Individual + Pollution = Solution

Advocate

Public

Lost in Translation

The government has a role, in implementing better policies



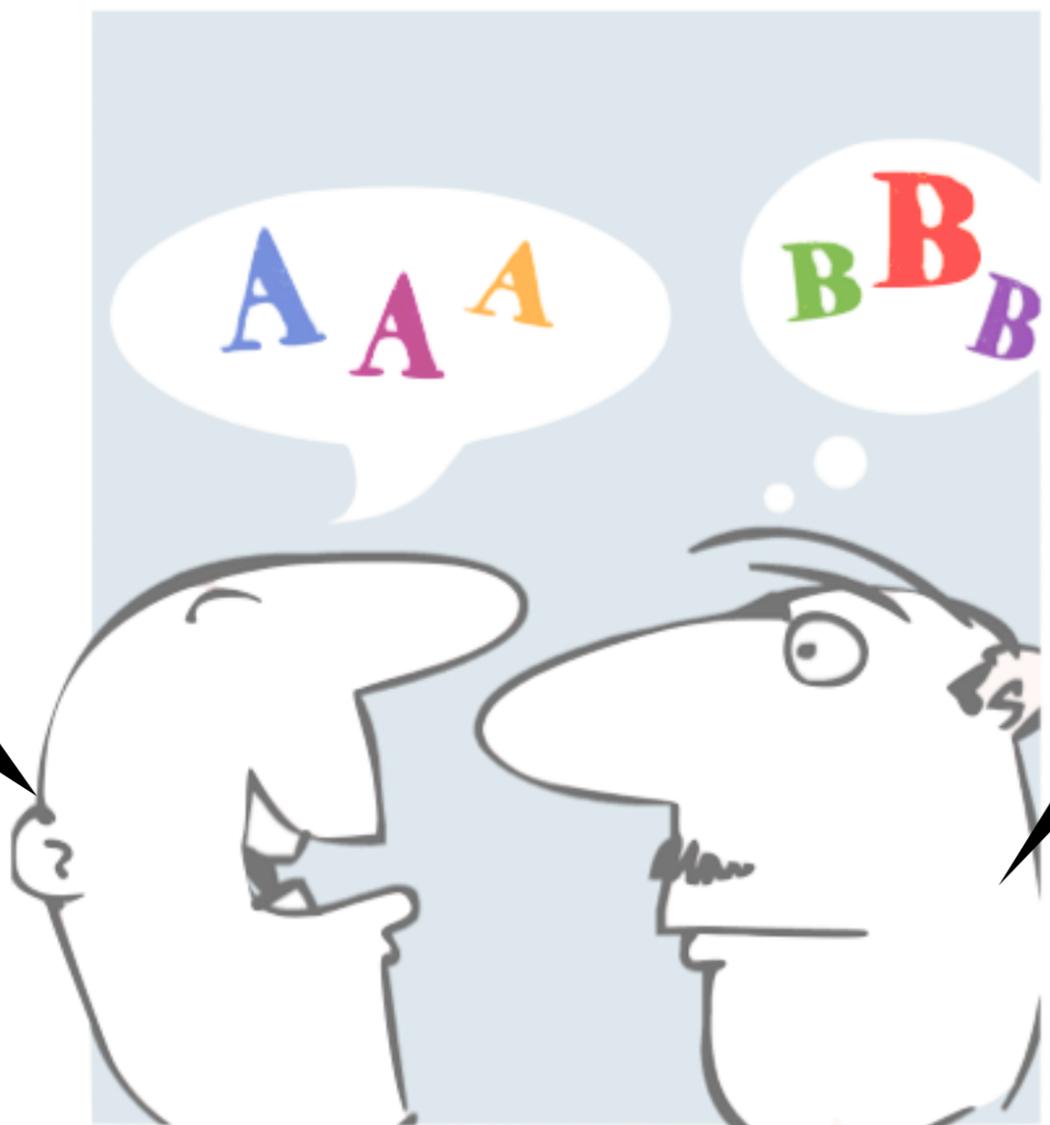
Partisan Politics

Advocate

Public

Lost in Translation

Climate change requires immediate action to fix the damage we've done



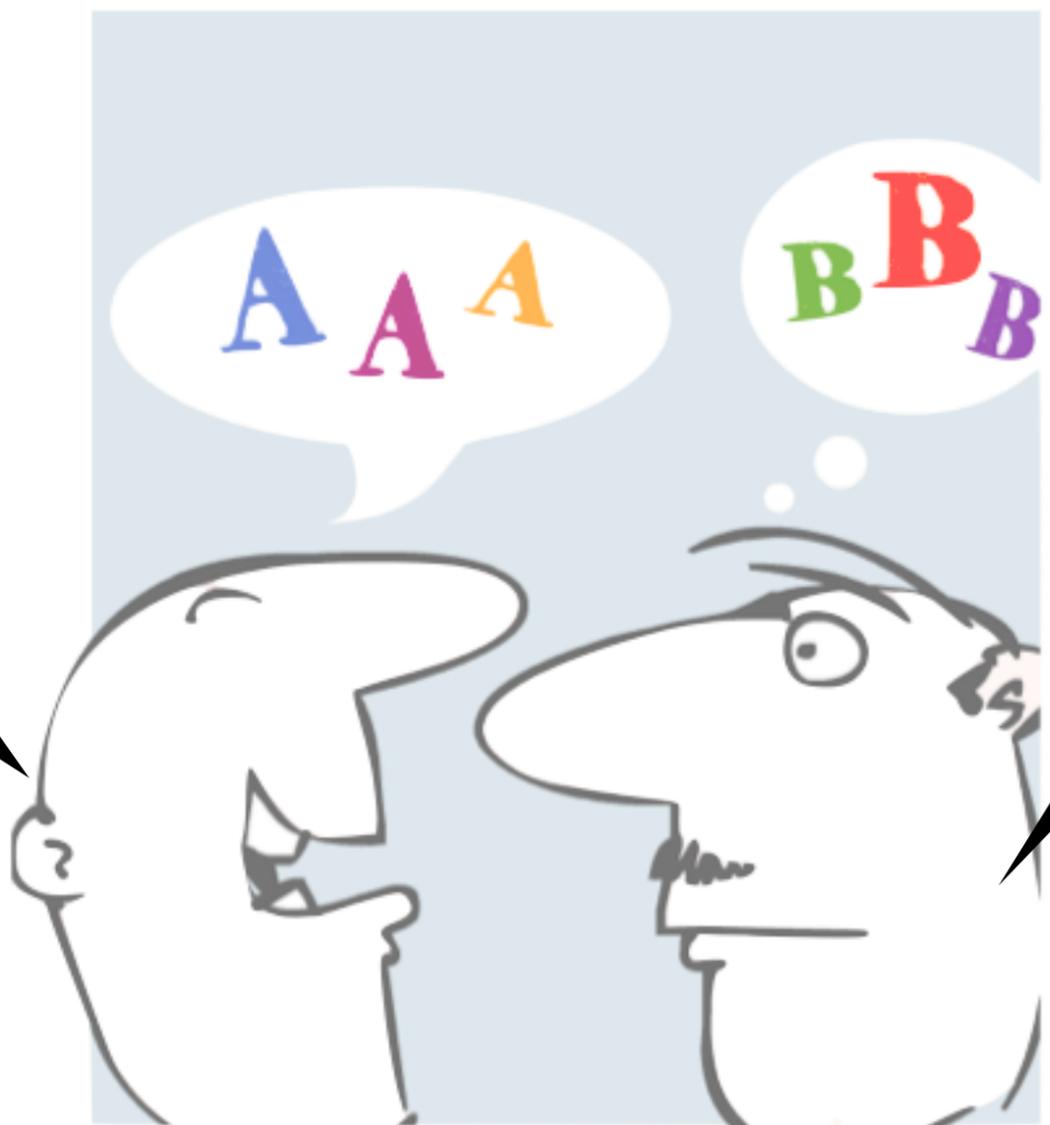
The Earth/Oceans Heal Themselves

Advocate

Public

Lost in Translation

There have been many studies done on issues related to climate change



Scientists Have an Agenda

Advocate

Public

Science

Curiosity and wonder

Science will save us
How do scientists know that?

Predictions are just guesses
New study every week
No solutions yet

Public Affairs

Civic responsibility
We can do it!
Oceans are a public resource

Government is good at protection

Politics as usual
Two sides to every story

Consumerism

Ecosystems are valuable resources

Cost-benefit thinking

Zero-sum: jobs vs. environment
Bottomless grocery store
Eat it while you can!

Climate Change

Something needs to be done
It's weather
What can I really do?

Big, scary, depressing
My observation is as good as yours
Political football
It's about the ozone isn't it?

What's in the swamp of... Climate Change & Oceans



Progress

Americans are problem solvers

Can't go back
Comes with costs
There's winners and losers

Oceans

A shared public resource
Oceans support humans
It's all connected

A special, beautiful place

A different world
Drop in the bucket
Heal themselves
All on the surface

Nature

We need to take care of it
Shared fate; one big web of life

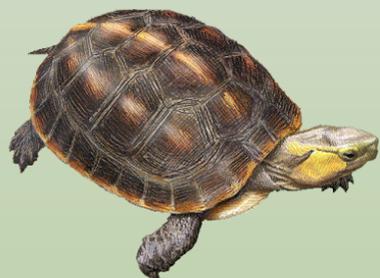
Works in cycles

Mother Earth
Change is natural; you shouldn't/ couldn't stop it

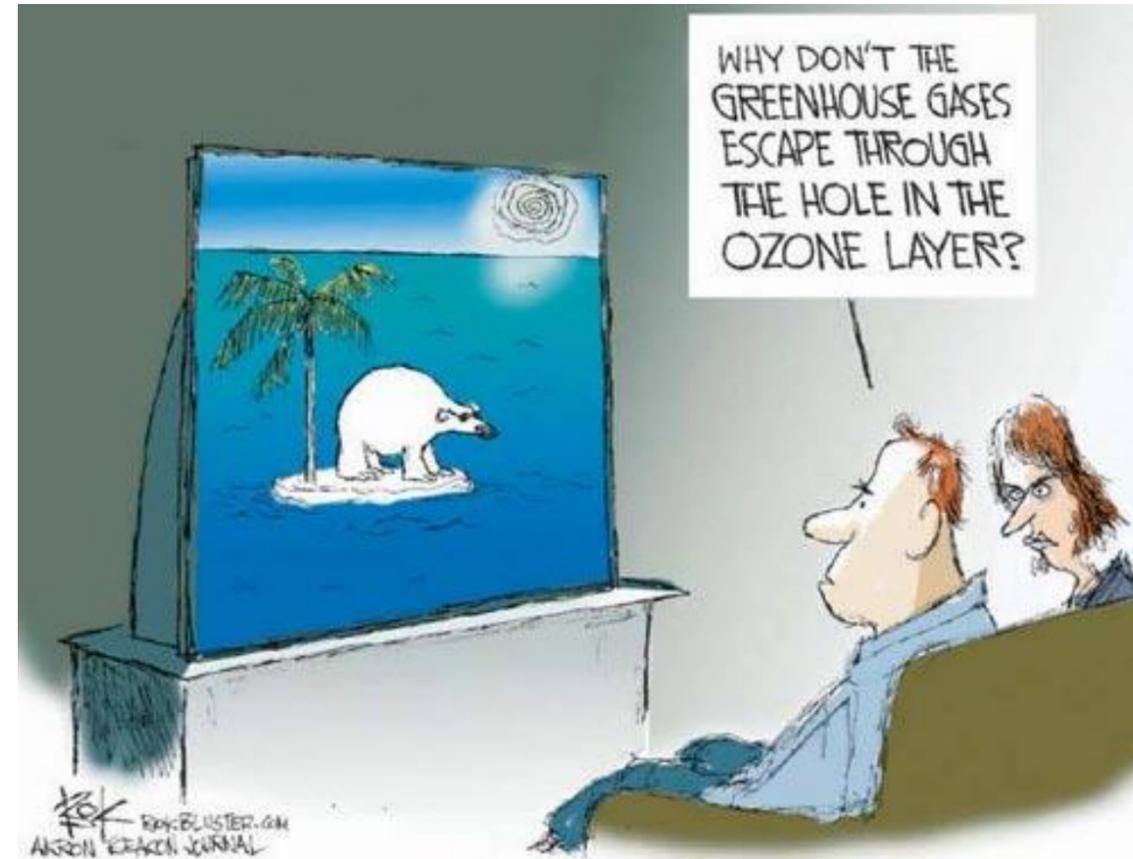
Pollution

Human caused
Dirty (not necessarily damaged or dead)

The root of all environmental problems
Just clean it up
Even if we do our part, other countries won't



Bad Models Have Consequences



“The cultural models available to understand global warming lead to ineffective personal actions and support for ineffective policies, regardless of the level of personal commitment to environmental problems.”

—Kempton, Boster & Hartley, *Environmental Values in American Culture* (MIT Press, 1995)

“Unless existing behavioral science evidence ... is brought to bear on climate literacy and education, there is no reason to believe that future efforts will be any more successful in improving public understanding or willingness to take action ... than past efforts.

Individuals holding mental models that conflict with the available scientific evidence are not a blank slate, as the metaphor of illiteracy suggests, so the needed educational process is not one of adding to knowledge but one of inducing conceptual change.

Simply ‘translating’ climate science into less technical language without such understanding is likely to be inadequate, but well-designed decision support systems might actually improve public understanding.”

Weber, E. and Stern, P.C. Public Understanding of Climate Change in the United States, *American Psychologist*, May – June 2011.

Frame Elements That Break People's Guessing Machines

NARRATIVE, to override people's default patterns of expectation about a complex, abstract issue by substituting the expectations of a well known narrative structure

CAUSAL CHAINS, to help people connect causes and consequences

Different Kinds of Stories Set up Different Solutions

EPISODIC

- ➔ Individuals
- ➔ Events
- ➔ Psychological
- ➔ Private
- ➔ Appeal to consumer
- ➔ Better information
- ➔ Fix the person

THEMATIC

- ➔ Issues
- ➔ Trends
- ➔ Political/Environmental
- ➔ Public
- ➔ Appeals to citizens
- ➔ Better policies
- ➔ Fix the condition



“That the mind lives in the brain, the brain lives in the body and the body lives in a community is the key to understanding mental health in all cultural contexts.”

—Karen Hopenwasser, M.D.
NYT Magazine 1-17-10

Why is the Sawtooth Fish on the Endangered Species List?



Little Picture Storytelling With Predictable Results

Opening statement: “The rising concentration of carbon dioxide in the atmosphere doesn’t just change the climate; it lowers the pH of ocean water, and that’s bad news for things made of calcite, which may dissolve as the pH drops.”

Blog post: “Plankton don’t care! Plankton don’t give a s***! they’ve come through the worst the cosmos can serve, with flying colors.”

Blog post: “You’re right, plankton won’t care but we will!

Better statement further down: “Photoplankton form the base of the marine food web, and coccolithophores are one of the most abundant groups. Most plankton groups will be impacted by ocean acidification, which could result in serious ecosystem changes. Like burning the grass in a cow pasture, knocking out phytoplankton ultimately means nobody eats.”

Example of a Good Causal Chain

The world's marine systems are nearing a point of collapse, due in large part to overfishing, overdevelopment and other wasteful practices. By destroying critical breeding areas, disrupting food chains, and catching millions of tons of fish that end up being thrown away, we are making it impossible for ocean systems and populations to keep themselves going.



Frame Elements That Break People's Guessing Machines

VALUES, or goals to re-mind people of what's at stake or what they already care about that this issue connects to

METAPHORS, to place issues in people's everyday action scenario, enhance their understanding of processes and mechanisms and increase agency

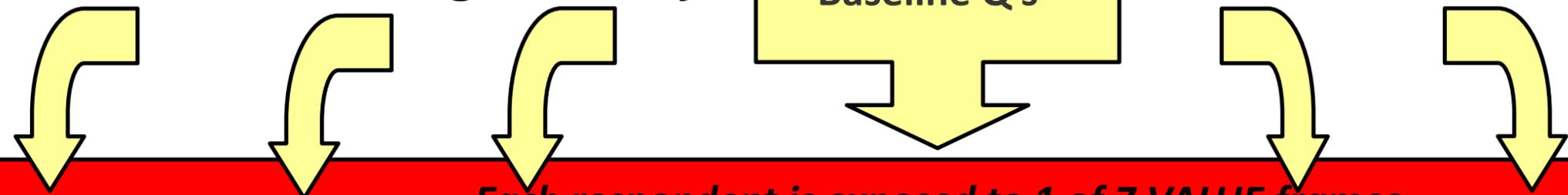


... AND IF YOU DON'T
RECYCLE, SUZIE, THE
EARTH WILL HEAT UP,
THE OCEANS WILL EXPLODE
AND BOILING RAIN
WILL SCALD ALL THE
BABY ANIMALS...
ANY QUESTIONS?



Values +
Messengers Study

START:
Baseline Q's



Each respondent is exposed to 1 of 7 VALUE frames



Stewardship



Innovation



Management



Science



Crisis



Kyoto

Each respondent is exposed to 1 of 3 MESSENGERS



Scientist



Citizen



Environmentalist



Final Policy
Battery

Effects of Values on Canadian Experimental Survey Results

- Innovation/Can Do had the best effects on policy support of all values frames tested and was statistically significant, raising support by 6 points over the control
- Science as a value had no effect over the control
- When Crisis was combined with Greenhouse Gases, support for policies plummeted by 15 points over the control
- When an Environmentalist issued a Crisis message, support for policies declined by 11 points over the control
- When the Scientist delivered that same message, there was no change in support
- The Ordinary Person talking about the Kyoto Accord reduced support for policies by 6 points over the control
- But when the Ordinary Person talked about Responsible Stewardship of the planet, support increased by 5 points

A Message Template for Climate Change and Oceans

LEVEL ONE

Values

Ingenuity, Innovation, Responsible
Management, Stewardship,
Interdependence

LEVEL TWO

**Issue
Category**

Climate Change

TO CONCRETIZE LEVEL TWO

Explanatory Metaphors

**CO2 as “Heat-Trapping Blanket*
System Collapse****

LEVEL THREE

**Specific Policy
Solutions**

**Clean technology, Renewable energy sources,
Energy Conservation, Carbon-free transportation,
Local Agriculture**

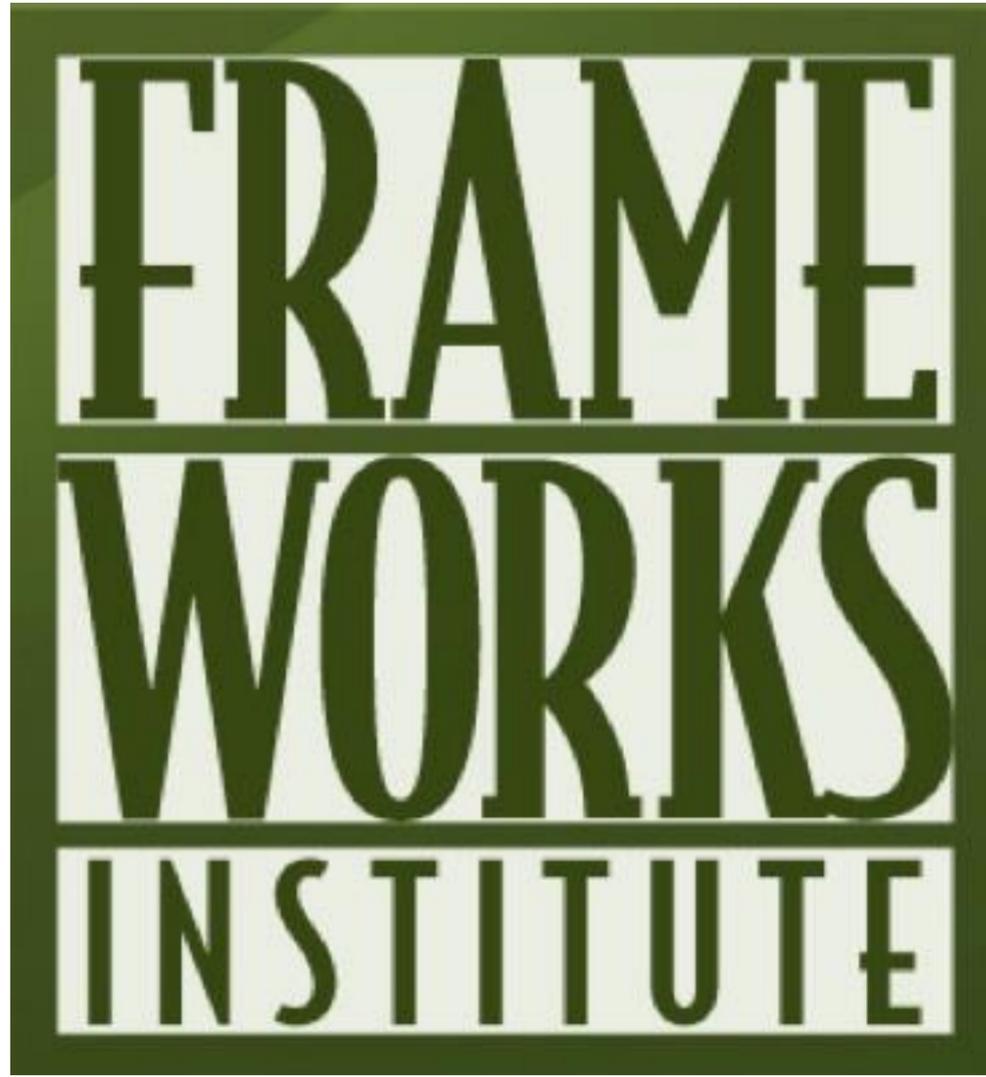
*FrameWorks tested

**FrameWorks developed

***Science generated

To Make Science Sticky...

- Anticipate the Swamp
- Redefine the Issue Using Values
- Explain the Science Using Metaphor
- Engage and Empower Society
- Tell a Complete Story



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