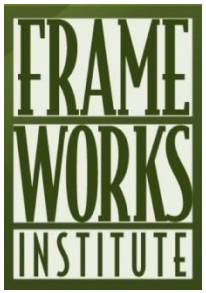
NNOCCI is a partnership between informal science educators, climate scientists, cognitive & social scientists, and evaluators whose mission is to change the world through better communication techniques around climate change.



NNOCCI National Network for Ocean and Climate Change Interpretation

If we train enough voices in proven communication techniques we think we can change the national discourse around climate change to be productive, creative, and solutions focused.

NNOCCI Reach: Phase 1 & 2

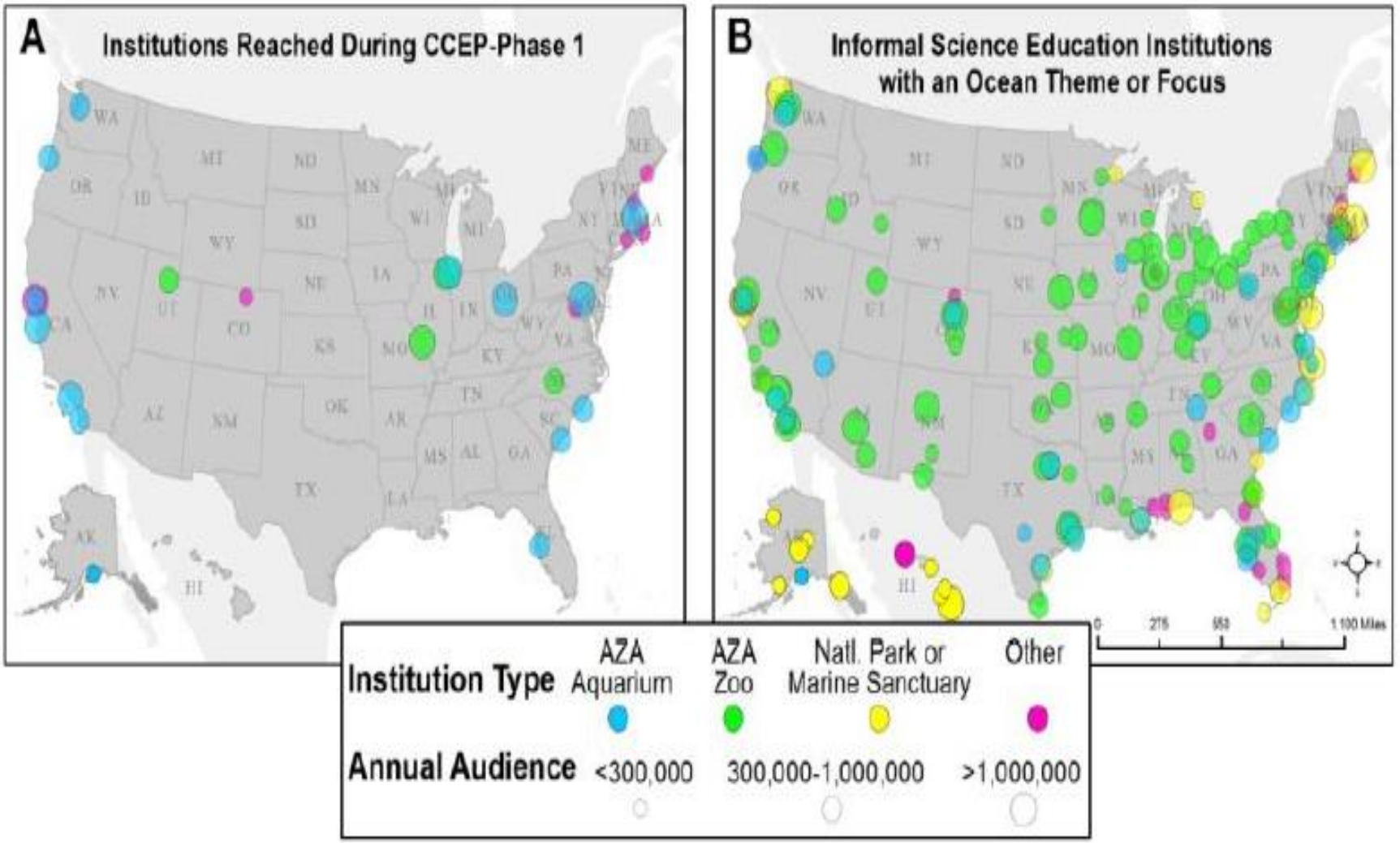


Figure 1: *NNOCCI reached 22 institutions during Phase I. We have identified more than 200 ISEIs with an ocean theme or focus that are potential participants in Phase II; our goal is to reach 140 of these.*

The Opportunity: Audience

130 Million Visitors a Year

The Opportunity: A Primed Audience

70% percent of visitors agree that the most important environmental issue confronting the world is climate change.
(NWZAA, 2009 & Ocean Project 2009)

75% of visitors believe zoos & aquariums should make recommendations for how the public can protect the environment.
(CLiZEN 2012)

So what does NNOCCI do?

- Host training workshops in Strategic Framing – anywhere from 1 hour to 6 month intensive training courses
- Conduct national cultural research: testing communication techniques & attitudes around climate change
- Conduct research on the resiliency of our training mechanisms

Strategic Framing is…

A research based approach that is proven to:

- help the public understand the mechanisms of climate change
- show the public how they can be 'heroes' of the climate change story
- leave the visitor and the interpreter with a sense of hope

Vision*We envision a future for the oceans in which resources are used sustainably, critical species and habitats are protected, and ecosystems are managed wisely.* ***Toward that end, the New England Aquarium aspires to create a broad base of ocean stewards and to be a force for lasting change.*** *New England Aquarium 3.23.13*

The basic mechanism of climate change can be taught effectively in 60 seconds or less.

Elements of Strategic Framing

- **Tone:** reasonable and not crisis
- **Values:** the 'why should I care'
- **Explanatory Metaphors:** making an abstract idea concrete and sticky
- **Causal Sequences:** connecting the dots from animal, to issue to visitor. Creates the understanding for considering multiple solutions.

- **Community Level Solutions:** Solutions that match the scale of the problem, activates the ‘we’
- **Social Math:** Gives context to numbers in a memorable and relevant way
- **Bridging & Pivoting:** Helps navigate around unproductive ideas and conversations to more productive frames

Take-Away #1:

Well-framed conversations have power.

Well-framed conversations:

(1) get people to think like citizens
and
(2) activate networks of supporters.

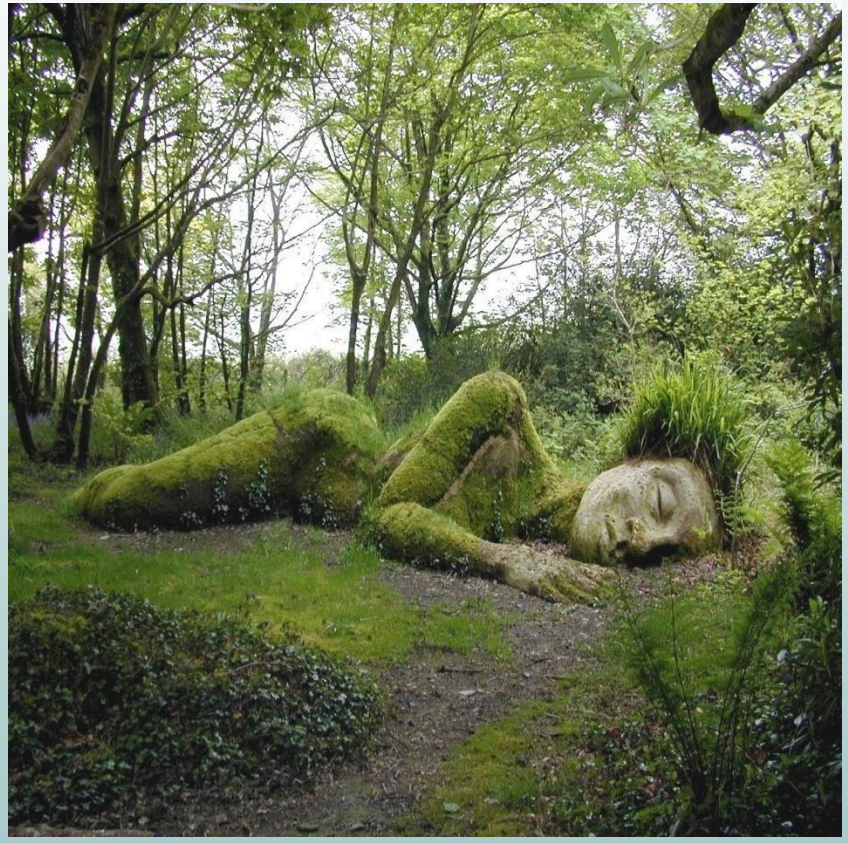
Take-Away #2:

Social change is a marathon, not a sprint.

Conversations happen on multiple levels with multiple stakeholders over time.

Take-Away #3:

Skilled framers in science centers are key to shifting the public conversation on climate.



It is time to wake up the "sleeping giant."

- https://player.vimeo.com/video/75599371

Guessing Machines in Action

Explanatory Metaphors

- Make an abstract idea concrete and sticky
- Help people understand the mechanisms at work
- When linked to causes and impacts they motivate productive consideration of multiple solutions

The Heat Trapping Blanket

Quite simply, when we burn fossil fuels like coal and gas, we pump more and more carbon dioxide into the atmosphere, and this build-up creates a blanket effect, trapping in heat around the world. If nothing is done to halt this process, the planet we leave our children will be hotter, with more violent weather, fewer species, and disrupted systems.

- https://www.youtube.com/watch?v=cC_QbYP-nMU

Almost but not quite…

Excess carbon dioxide is getting into our atmosphere, and it acts like a blanket that traps heat. Over time, our atmosphere is getting warmer.

Almost but not quite…

Humans are causing global warming by their carbon dioxide emissions. All the extra carbon dioxide is building up, creating a blanket of sorts. The blanket is trapping heat from the sun in, instead of letting it out.

Almost but not quite…

When we burn fossil fuels, we are adding greenhouse gases to the atmosphere. These greenhouse gases are creating a blanket that traps the Earth's heat. The ocean acts like a sponge, absorbing some of that heat. So the ocean is getting warmer, too.

Rampant and Regular CO_2

- Plants grow by using the regular CO_2 that humans and other animals exhale. But we are adding CO_2 to the air when we burn coal, oil, or natural gas for energy. We call this “rampant” CO_2 because there’s too much of it and it’s getting out of control. When rampant CO_2 builds up in the ocean, it changes the ocean’s chemistry. Now that we know about rampant CO_2, we need to rethink our use of fossil fuels.

Almost but not quite…

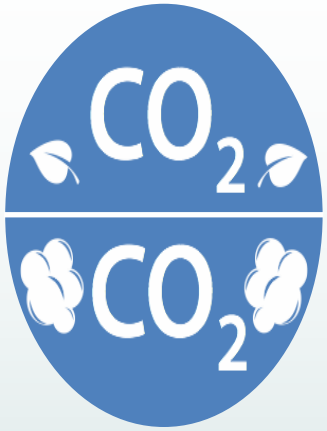
- Regular CO2 exists naturally on earth. When we burn coal, oil and natural gas we add extra CO2 to the earth's atmosphere. We call this extra CO2 rampant CO2 and it is causing problems for the planet.

Almost but not quite…

- There are two types of carbon dioxide. Regular carbon dioxide is the kind that we breathe out, and plants breathe in. It is essential for life on earth. In fact, ocean plants, like phytoplankton and seaweed, take up much of the regular carbon dioxide in the atmosphere, and release oxygen we need to breathe. The other kind of carbon dioxide is what we call rampant, it is emitted through the burning of fossil fuels. We call it rampant, because we are creating much too much of it for our energy needs, and it is getting out of control. Rampant carbon dioxide is building up in the atmosphere and causing problems. The ocean is absorbing much of this rampant carbon dioxide, which leads to problems, like ocean acidification.

HEAT TRAPPING BLANKET

When we burn fossil fuels for energy, the carbon dioxide that is released builds up in our atmosphere and acts like a blanket that traps heat around the world, disrupting our climate.



REGULAR VS. RAMPANT CO_2

Regular levels of CO2 are created by normal life processes, but rampant levels of CO2 are produced when we burn fossil fuels for energy. We need to reduce rampant CO2; it's out of control.

CLIMATE'S HEART

Just as a heart circulates blood and regulates the body's temperature, the ocean regulates the world's climate system by controlling the circulation of heat and moisture.

Identifying Swampy Ideas

The Swamp

What's in the swamp of...

Oceans & Climate Change

Oceans
- Oceans support humans
- Oceans as a resource
- Basis of life
- Its all connected
- Ocean and land=separate worlds
- Drop in the bucket
- Heal themselves
- All on the surface
- Ocean acidification-what's that?
- Ocean is too big to be harmed

Science
- Science is innovation
- "Scientists say..."
- How do scientists know that?
- New study every week
- My observation is as good as yours

Consumerism
- Ecosystems are valuable resources
- Cost/benefit thinking
- Eat it while you can!
- Bottomless grocery store
- Jobs vs. environment

Pollution
- Human caused
- Carbon dioxide=carbon monoxide
- Ocean problems=material pollution
- The root of all environment problems
- Just clean it up
- Solution=Recycling

Nature
- Shared fate
- Nature will fix itself "Works in cycles"
- Change is natural/Fatalism
- Mother nature
- System? What system?
- CO_2 is natural, therefore it is good
-

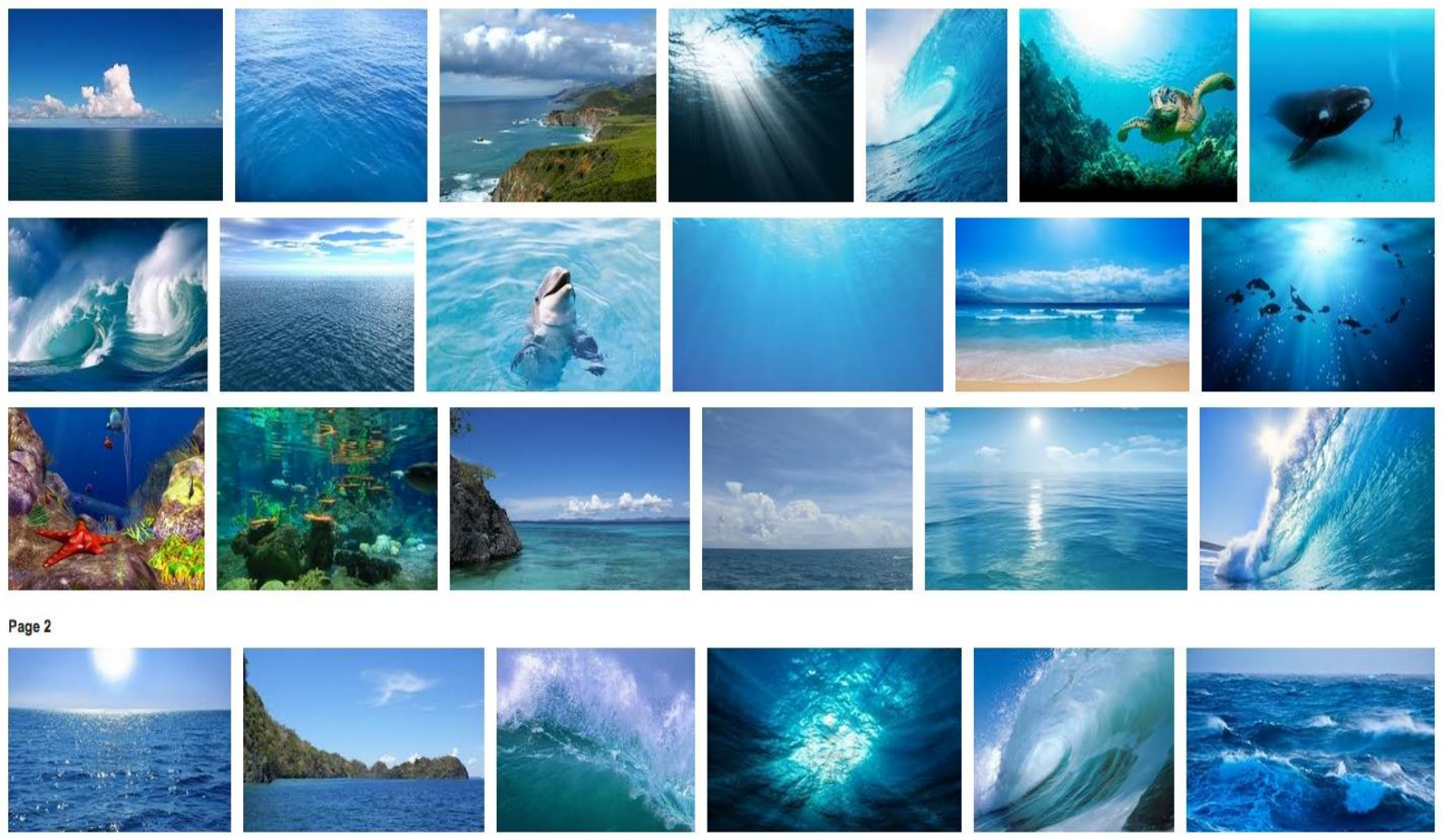
Climate Change
- Something needs to be done
- Climate change = warming
- Melting Ice
- What can I really do?
- Climate=yearly weather patterns in place
- "It's about the ozone isn't it?"
- Big, Scary depressing

Public Affairs
- Americans are problem solvers
- Civic Responsibility
- Government is good at protection
- Two sides to every story
- Even if we do our part, other countries won't
- Politics as usual
- Individualism

Cultural Models Research

- One-on-one interviews that go quite in-depth on a topic – lasting up to three hours
- Anthropologists start with open-ended questions on the topic, then keep probing to get at all the different ways the person thinks about an issue
- Wide range of participants are interviewed
- Recurring ways of thinking across interviews are identified, revealing shared cultural models

What trends do you notice in these pictures?



Cultural Models

- A cultural model is a mental tool we use to understand people and world around us
- Cultural models create a pathway for learning
- Carefully selected values allow us to start the conversation from a place of common understanding through shared cultural models
- These values help to orient the conversation with productive and impactful messages
- Effective use of values helps us as educators to prompt positive conversations and navigate through negative assumptions about climate and ocean change

Our researchers have identified several shared cultural models when the topics of ocean and climate change were brought up.

Each cultural model comes with positive and negative cues.

Values orient a communication

- Values help establish why an issue matters; what is at stake.
- Framers understand Values as a broad category of cherished cultural ideals
- Because Values orient understanding of an issue, it's important to choose Values that lead to the type of thinking that's needed.

Recommended Values for Framing Climate and Ocean Change

Protection

Responsible Management

Protection

‘x’ matters because we have a duty to safeguard the wellbeing of people and places

- We must protect and preserve the habitats and ecosystems we depend on
- Showing concern for others is the right thing to do
- Stepping in to ensure peoples’ safety and well being
- Let’s take measures to eliminate or reduce risks
- Let’s be vigilant in shielding people and places from harm

“We believe in protecting and preserving the world’s unique habitats, like the estuary you see here. By taking action now to ensure that this habitat will be here for the animals that live in it, we are also protecting future generations from the increased storms and floods we can expect to experience due to the changing climate...”

Responsible Management

'x' matters because taking common-sense steps today is in the interests of future generations

- Let's be responsible when it comes to the environment
- Let's look ahead to handle problems before they get worse
- Responsible managers keep an open mind, look to evidence, and take a level-headed, step-by-step approach
- Future generations depend on the decisions we make today

It’s important that we all take responsible steps to manage the issues facing our environment, to leave our planet in good shape for future generations of otters and people! Did you know that by reducing our fossil fuel now, we can actually slow down or even prevent the flooding and erosion that are damaging the otters’ river habitats?

Recommended Values

- Values establish **what is at stake**. A value is defined here as a cherished cultural ideal.

- Begin your story by relating a strongly held value to this topic:
  - Protection
  - Responsible Management

Protection

* We must protect and preserve the habitats and ecosystems we depend on

* Showing concern for others is the right thing to do

* Stepping in to ensure peoples' safety and well being

* We will take measures to eliminate or reduce risks

* We will be vigilant in shielding people and places from harm

PROTECTION

It is crucial for us to protect people, and the places we all depend on, from being harmed by the issues facing our environment.

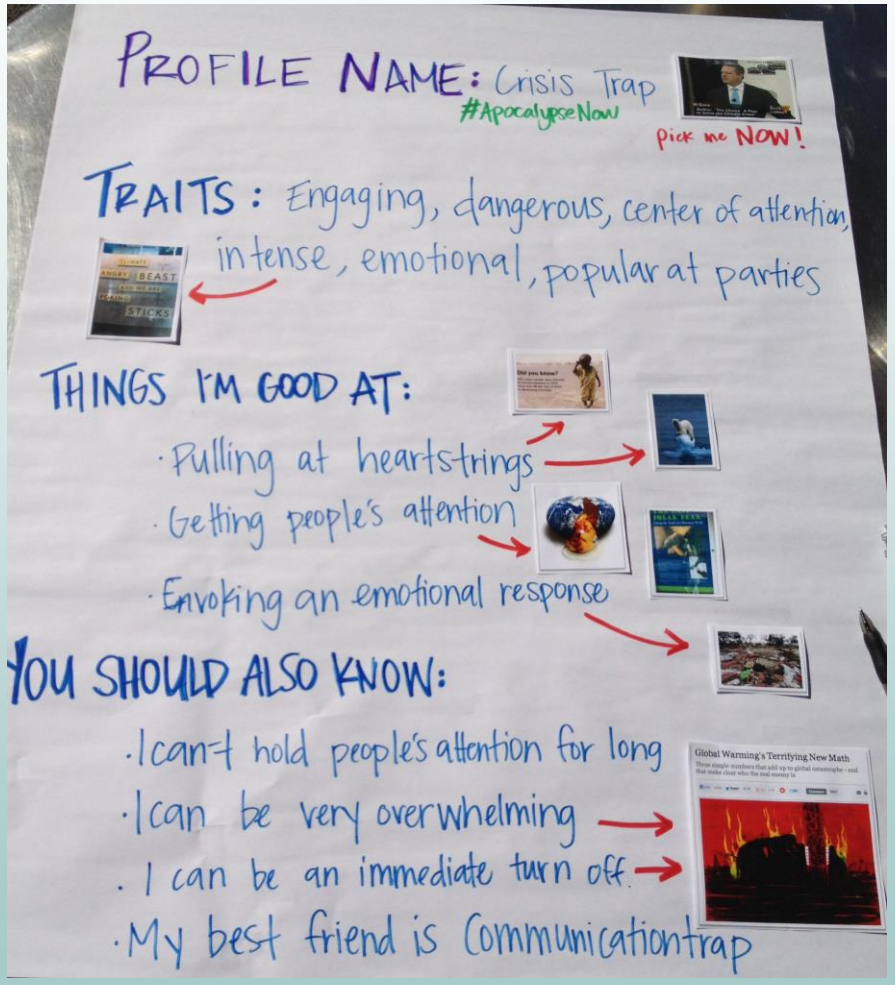
Responsible Management

- * Let's be responsible when it comes to the environment
- *Let's look ahead to handle problems before they get worse
- *Responsible managers keep an open mind, look to evidence, and take a level-headed, step-by-step approach
- *Future generations depend on the decisions we make today

RESPONSIBLE MANAGEMENT

By taking practical steps to address problems facing our environment today, we are acting in the best interest of future generations.

Communication traps



- **Community Level Solutions:** Solutions that match the scale of the problem, activates the ‘we’
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Metaphors help with our understanding of an issue

Heat Trapping Blanket

When we burn fossil fuels for energy, we add more and more carbon dioxide into the atmosphere. This buildup acts like a blanket that traps heat around the world, which disrupts the climate.

NNOCCI

- The atmosphere is like a blanket that surrounds the earth.
- When we burn fossil fuels, we add CO_2, which thickens the blanket.
- The thicker the blanket gets, the more heat it traps.
- The blanket effect leads to warming, which disrupts the climate