

ASTC: Communicating Climate Change (C³)

Summative Evaluation Findings

October 2011

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Innovations in Science Learning



Intended Professional Impacts

◆ Short-term

- ◆ Increase **knowledge of concepts, methods, and tools of climate change research**
- ◆ Improve **understanding of how the public learns about climate change**
- ◆ Build **capacity to communicate about climate change**
- ◆ Increase **prioritization of climate change programming**

◆ Long Term

- ◆ Provide a **model for national collaboration**
- ◆ **Public messages about climate science** appropriate for ISE
- ◆ Methods for **using citizen science data as a foundation for ISE programs**
- ◆ Mechanisms for science centers to **use media for broader outreach**

Intended Public Audience Impacts

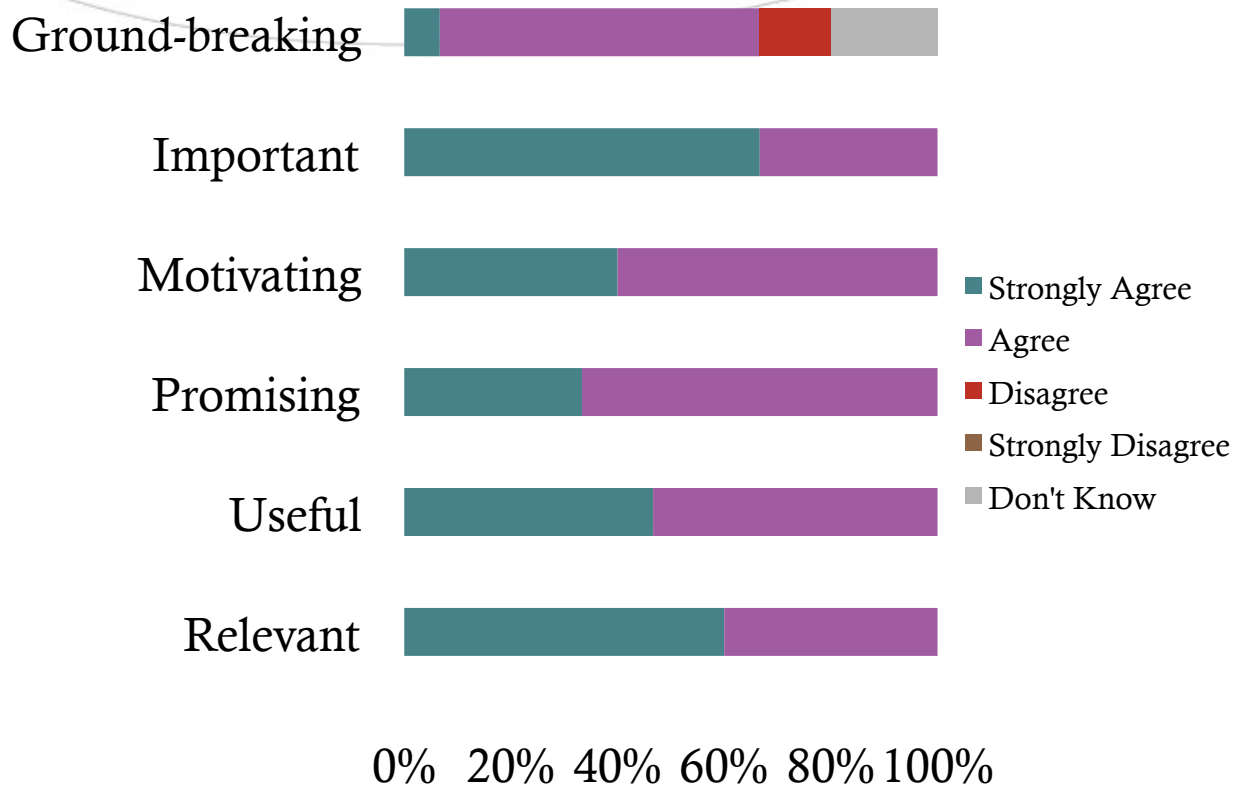
Short-term

- ◆ **Increase public access** to current information regarding climate change
- ◆ **Increase opportunities for public engagement** in scientific data collection
- ◆ **Increase opportunities for the public to interpret scientific data**

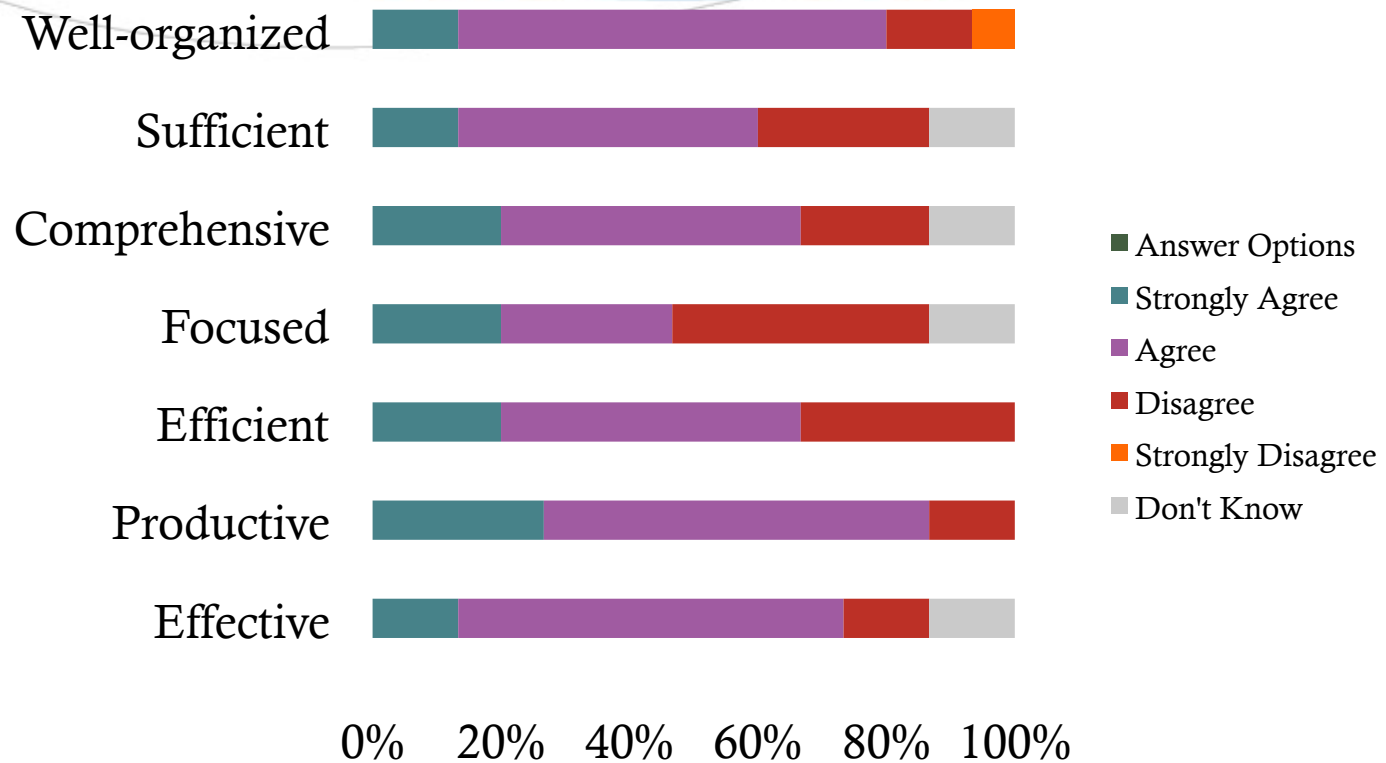
Long Term

- ◆ To increase:
 - ◆ **Climate literacy**
 - ◆ **Ability to communicate about climate in a meaningful way**
 - ◆ **Ability to make informed and responsible decisions** regarding Earth's climate.

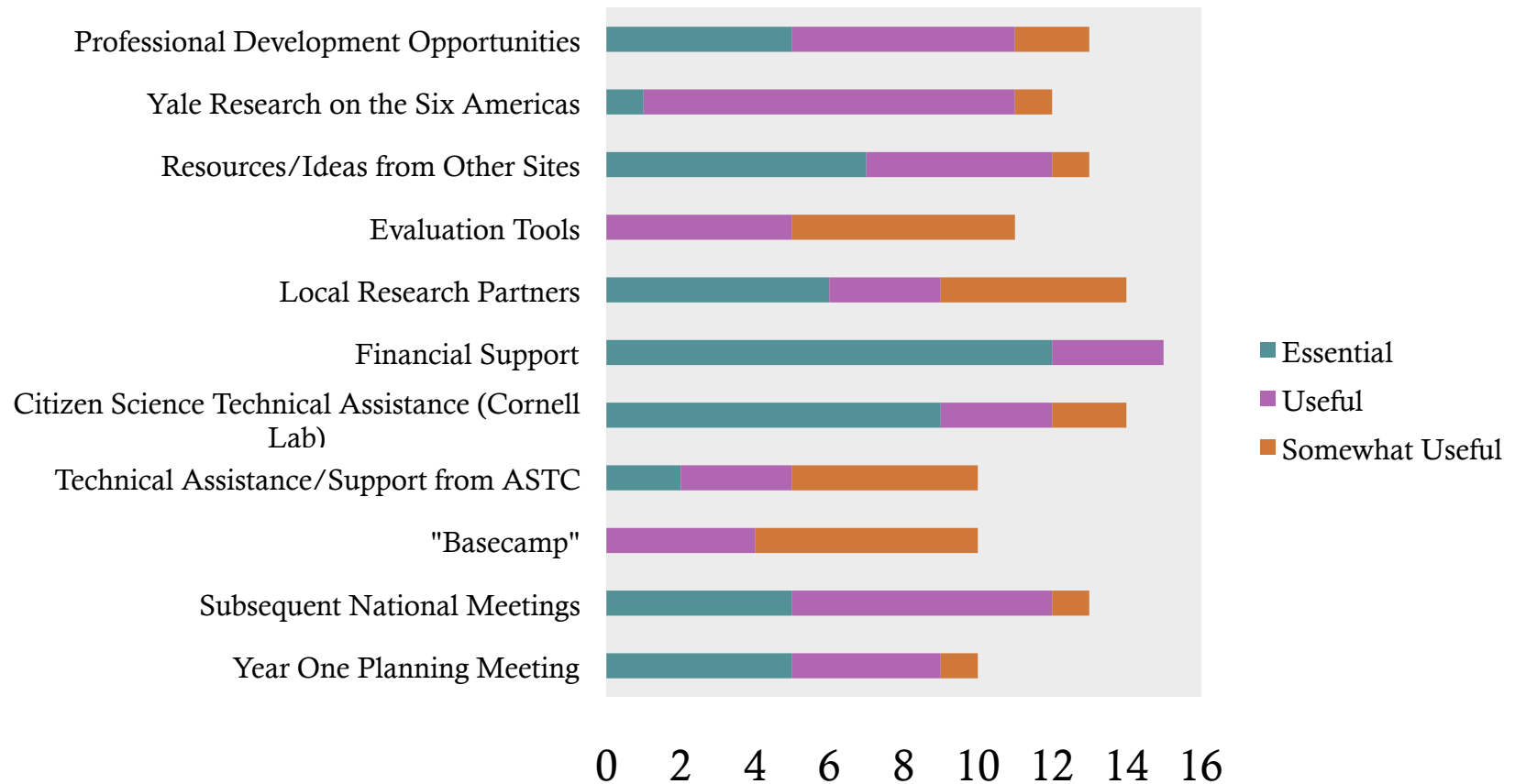
Potential of the C³ Model



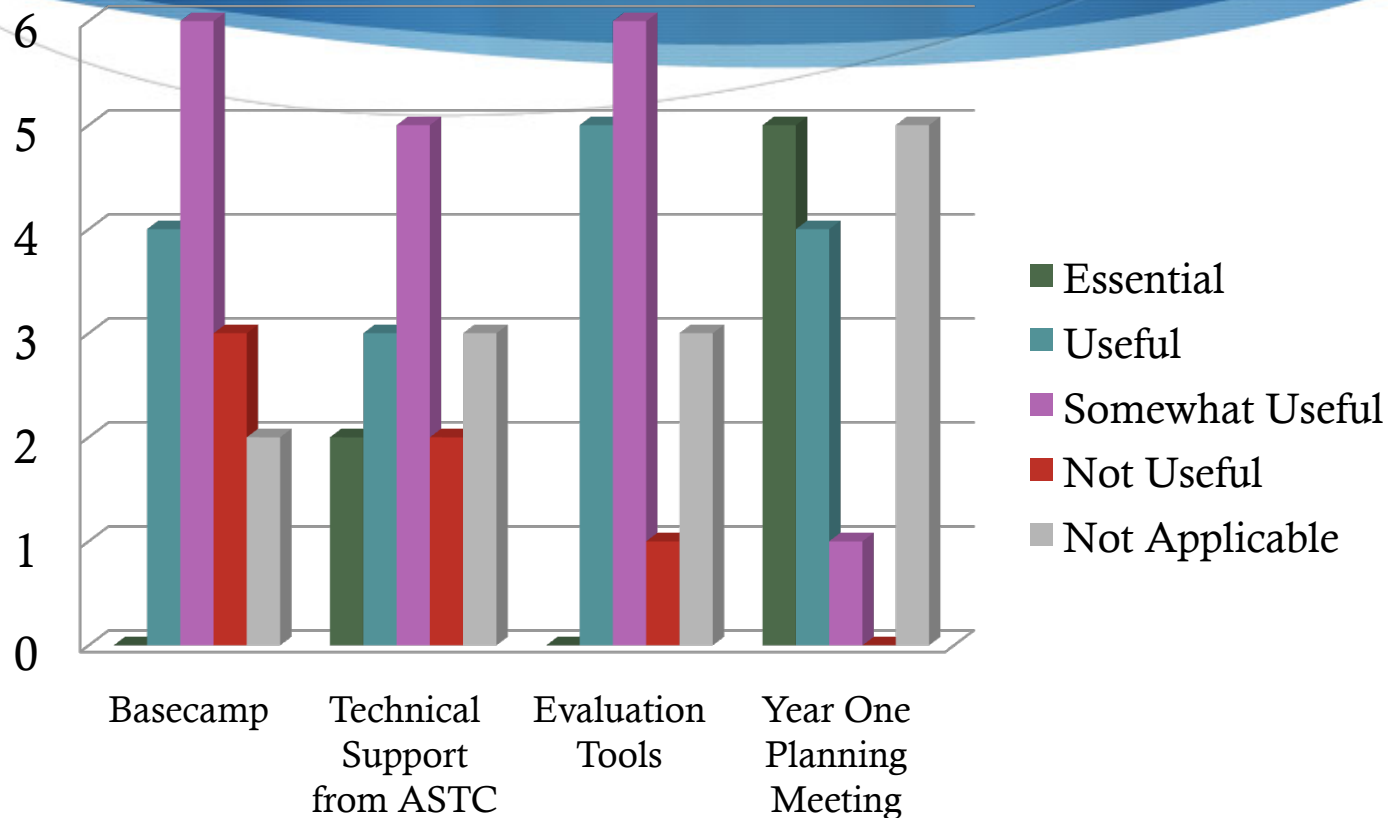
Is the Model.....?



The Collaborative Model: What Worked?



The Collaborative Model Opportunities for Enhancements



Individual Case Studies

- ◆ The primary methodology for conducting the summative evaluation
 - ◆ Staff interviews
 - ◆ Observations
 - ◆ Document reviews
 - ◆ Program participant surveys
- ◆ Providing an in-depth look at each site's unique challenges and programs



Arizona Science Center

Partners:

- ◆ **Central Arizona - Phoenix LTER**



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What was done?

- ◆ **Bark Beetles in Arizona: Clues to Climate Change**
- ◆ **Other C³ Contributions**
 - ◆ Interpretive tools
 - ◆ Teaching aquarium
 - ◆ Climate change lab
 - ◆ Exhibits

Arizona Science Center

Challenges Faced

- ◆ No prior climate change materials
- ◆ Public perception



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What was accomplished?

- ◆ Sustainable and integrated products
- ◆ Facts instead of emotions or politics
- ◆ Increased climate change literacy
- ◆ Contributed to scientific research

Bishop Museum

Partners:

- ◆ **School of Ocean, Earth Science and Technology, University of Hawaii**
- ◆ **Malama Maunalua: Makai Watch**



What was done?

- ◆ **Holoholo Program**
- ◆ **Other C³ Contributions**
 - ◆ Reef Check Hawaii
 - ◆ Curriculum development
 - ◆ Interpretive tools
 - ◆ Programming
 - ◆ Events

Bishop Museum

Challenges Faced

- ◆ Finding a research partner
- ◆ Communication
- ◆ Staffing

What was accomplished?

- ◆ Sustainable products
- ◆ Increased climate change literacy
- ◆ Networking



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Chabot

Partners:

- ◆ **University of California, Berkeley**
- ◆ **Save the Redwoods League**
- ◆ **East Bay Regional Park District**



What was done?

- ◆ **Fern Colony & Precipitation Monitoring Project**
- ◆ **Other C³ Contributions**
 - ◆ 2009 Climate Change Institute
 - ◆ Programming
 - ◆ Community Conversations

Chabot

Challenges Faced

- ◆ How to define “public”
- ◆ Attracting participants
- ◆ Communication
- ◆ Time

What was accomplished?

- ◆ Sustainable products
- ◆ Increased climate change literacy
- ◆ New strategic focus on Earth Science and climate change
- ◆ Contributed to scientific research
- ◆ Local partnerships

EdVenture

Partners:

- ◆ **University of Minnesota**
- ◆ **Baruch Institute for Marine & Coastal Science**
- ◆ **H. E. Corley Elementary**
- ◆ **The Boys and Girls Club**

What was done?

- ◆ **Monarch Larva Monitoring Project (MLMP)**
- ◆ **Other C³ Contributions**
 - ◆ Programming
 - ◆ Professional development
 - ◆ Exhibits
 - ◆ Events



EdVenture

Challenges Faced

- ◆ Finding a research partner
- ◆ Public perception
- ◆ Staffing

What was accomplished?

- ◆ Built community relationships
- ◆ Made climate change accessible
- ◆ E. H. Corley's Green Connection website

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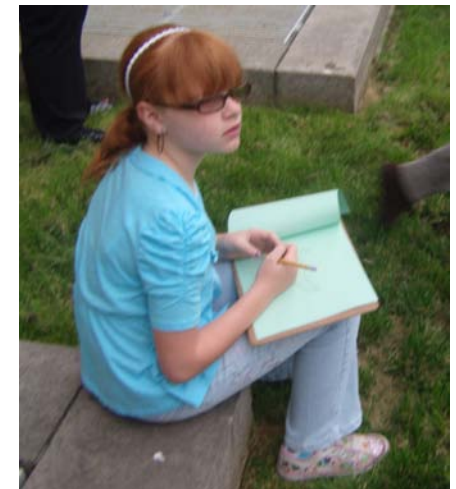
The Franklin Institute

Partners:

- ◆ **Cornell University**
- ◆ **Partnerships for Achieving Careers in Technology and Science (PACTS)**
- ◆ **Geophysical Fluid Dynamics Lab**

What was done?

- ◆ **Philadelphia Youth Citizen Science Project: Bird Migration (eBird)**
- ◆ **Other C³ Contributions**
 - ◆ Curriculum development
 - ◆ Exhibit
 - ◆ Programming



The Franklin Institute

Challenges Faced

- ◆ Local indicator
- ◆ Building technology comfort



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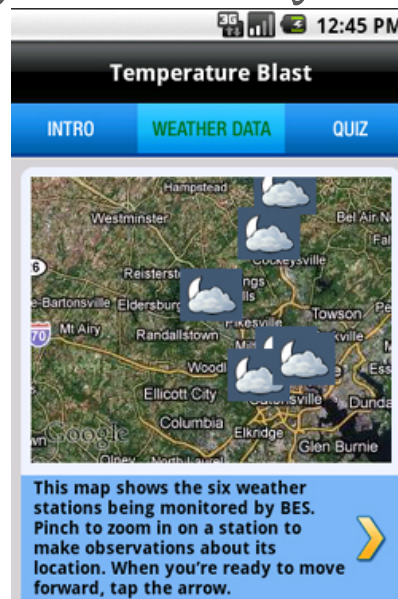
What was accomplished?

- ◆ Sustainable products
- ◆ Contributed to scientific research
- ◆ Filling an education gap
- ◆ Increased climate change literacy
- ◆ Created future opportunities

Maryland Science Center

Partner:

Baltimore Ecosystem Study



What was done?

- Temperature Blast
- Other C³ Contributions
 - Professional development
 - Programming
 - Interpretive tools

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Maryland Science Center

Challenges Faced

- ◆ Attracting participants
- ◆ Staffing changes



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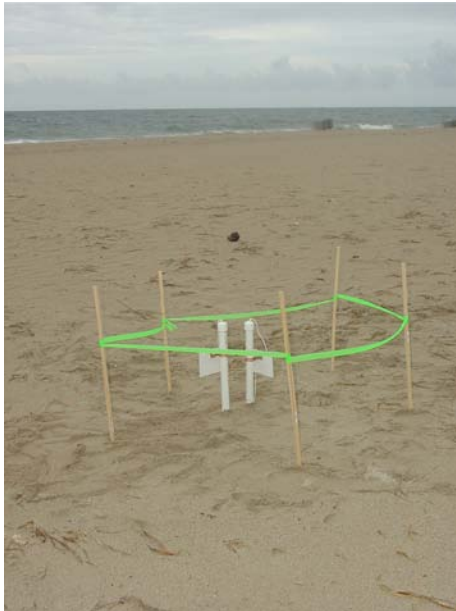
What was accomplished?

- ◆ Sustainable products
- ◆ Created future opportunities
- ◆ Creation of a website and phone app

Museum of Discovery and Science

Partner:

- ◆ **Nova Southeastern University**



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What was done?

- ◆ **Sea Turtle Research**
- ◆ **Other C³ Contributions**
 - ◆ Programming
 - ◆ Half-day and full-day events
 - ◆ Exhibits
 - ◆ Community Conversation

Museum of Discovery and Science

Challenges Faced

- ◆ Created their own Citizen Science project
- ◆ Finding a local research partner
- ◆ Communication



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What was accomplished?

- ◆ Sustainable products
- ◆ Moved outside their comfort zone
- ◆ Increased institutional reputation
- ◆ Created future opportunities
- ◆ Contributed to scientific research

New Mexico Museum of Natural History and Science

Partner:

- ◆ Sevilleta LTER



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What was done?

- ◆ Bio Blitz
- ◆ Other C³ Contributions
 - ◆ Seminar lecture series
 - ◆ Programming
 - ◆ Professional development
 - ◆ Events

New Mexico Museum of Natural History and Science

Challenges Faced

- ◆ Communication Issues
- ◆ Attracting and retaining participants



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What was accomplished?

- ◆ Sustainable and integrated products
- ◆ Successfully targeted multiple audience groups
- ◆ Networking
- ◆ Local partnerships

New York Hall of Science

Partner:

- ◆ **American Geophysical Union**



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What was done?

- ◆ **BudBurst**
- ◆ **Other C³ Contributions**
 - ◆ Programming
 - ◆ Curriculum development
 - ◆ Events
 - ◆ Interpretive tools

New York Hall of Science

Challenges Faced

- ◆ Research partnership
- ◆ Staffing change
- ◆ Attracting and retaining participants
- ◆ Tracking participation

What was accomplished?

- ◆ Sustainable and integrated products
- ◆ Increased climate change literacy
- ◆ Made climate change accessible
- ◆ Filling an education gap

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Reuben H. Fleet Science Center

Partner:

- ◆ San Diego Natural History Museum, Botany Department

What was done?

- ◆ San Diego County Phenology Project
- ◆ Other C³ Contributions
 - ◆ Climate Conversations
 - ◆ Programming
 - ◆ Events



Reuben H. Fleet Science Center

Challenges Faced

- ◆ Attracting and retaining participants
- ◆ Finding a research partner



What was accomplished?

- ◆ Sustainable and integrated products
- ◆ Increased climate literacy
- ◆ Very successful Climate Conversations

Sciencenter

Partner:

- ◆ Cornell Lab of Ornithology



What was done?

- ◆ NestWatch
- ◆ Other C³ Contributions
 - ◆ Curriculum development
 - ◆ Programming
 - ◆ Interpretive tools

Sciencenter

Challenges Faced

- ◆ Communication Issues
- ◆ Wanted more evaluation focus on individual site programs rather than collaborative as a whole



What was accomplished?

- ◆ Sustainable products
- ◆ Emphasis on positive action
- ◆ Networking
- ◆ Created future opportunities

Saint Louis Science Center

Partner:

- ◆ Washington University,
Department of Biology
- ◆ Webster Groves Nature Study
Society



What was done?

- ◆ FrogWatch
- ◆ Other C³ Contributions
 - ◆ eBirds
 - ◆ Professional development
 - ◆ Lectures
 - ◆ Exhibit
 - ◆ Community Conversations
 - ◆ Programming

Saint Louis Science Center

Challenges Faced

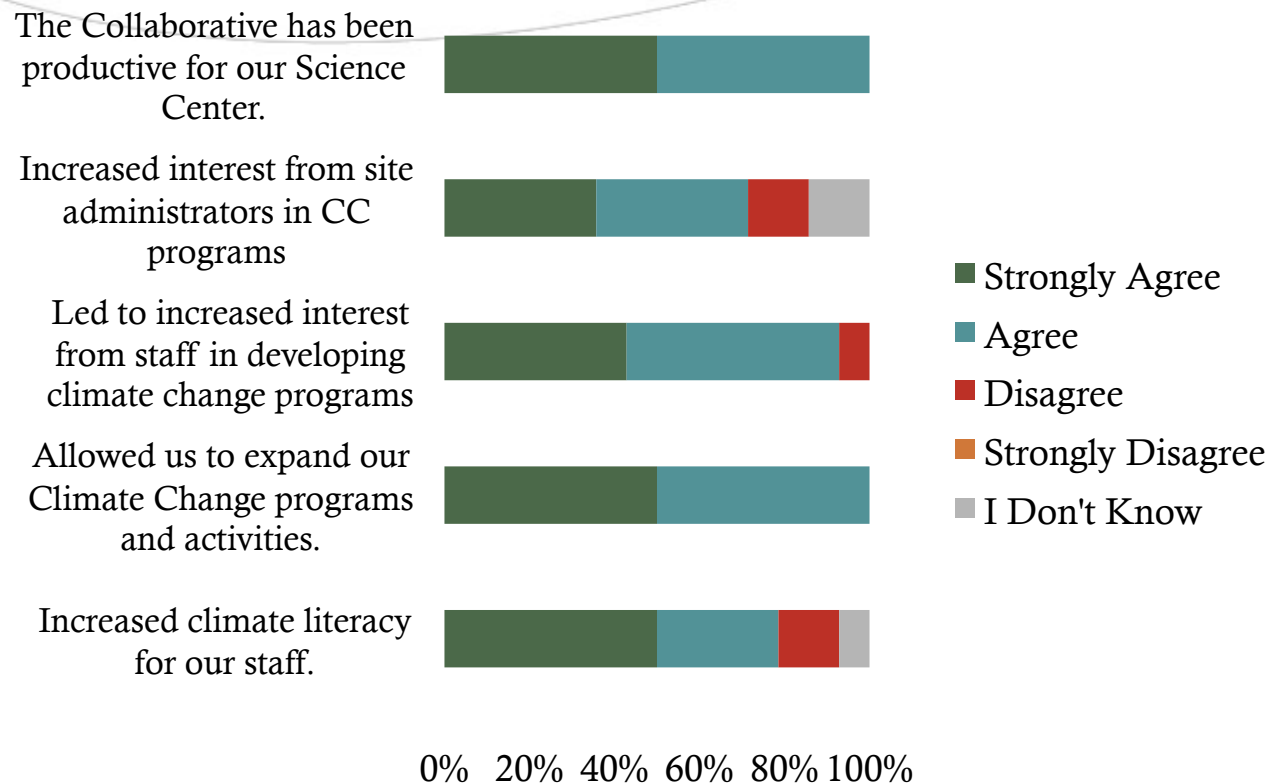
- ◆ Finding a research partner
- ◆ Finding a local indicator
- ◆ Creating relevancy



What was accomplished?

- ◆ Sustainable products
- ◆ Networking
- ◆ Local partnerships
- ◆ Made climate change accessible

Professional Impacts



Public Impacts

Impacted large numbers of our visitors.



Impacted large numbers of our members.



Inceased visitor motivation to make responsible decisions



Increased climate literacy among our visitors and participants.

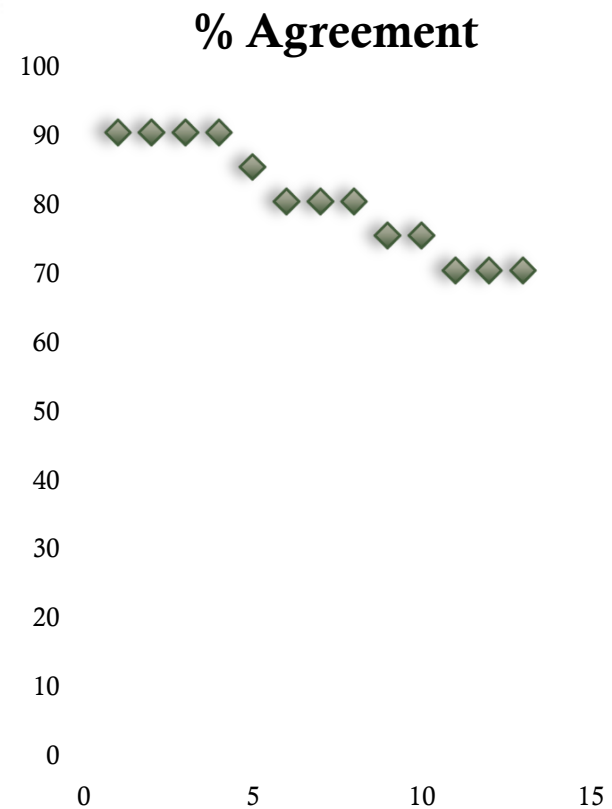


■ Strongly Agree
■ Agree
■ Disagree
■ Strongly Disagree
■ I Don't Know

0% 20% 40% 60% 80% 100%

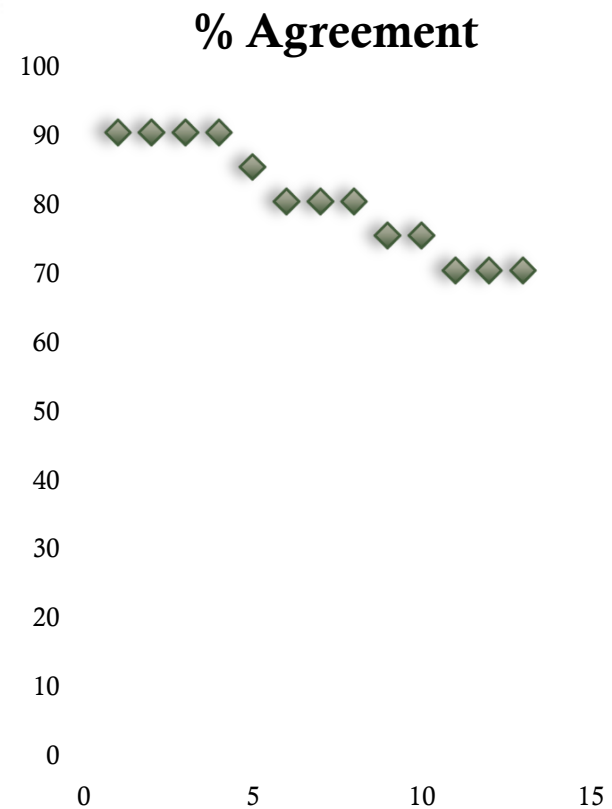
Public Impacts: An example

1. I enjoyed the experience.
2. I learned something new about climate change.
3. I learned something that I can use to teach about CC.
4. I acquired tools, materials and/or activities that I can use.
5. I engaged in thoughtful discussion with my colleagues.
6. I deepened my understanding of climate/climate change.
7. I can now communicate more effectively about climate change.
8. I have a better understanding of what Citizen Science is.



Public Impacts: An example

9. I am more aware of the local indicators of climate change.
75%
10. I acquired valid scientific information on climate change.
75%
11. I better understand how Citizen Science programs contribute. 70%
12. I learned some things that we can do to slow climate change. 70%
13. I learned some things that we can do to slow climate change. 70%



Next Steps

Extension Opportunities:

Dissemination Efforts: Getting the Word Out

Sharing Resources/Website

Lessons Learned to Inform other Collaborative Efforts

Exploring Potential of Expanded Partnerships with Citizen Science Programs

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Anecdotes Please

Do you have an anecdote or two to share that you believe illustrate the heart and soul of your C³ programs? Please email to Susan at sburger@davidheil.com



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Summative Evaluation Findings

Thank You!

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For a copy of this presentation go to www.davidheil.com

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