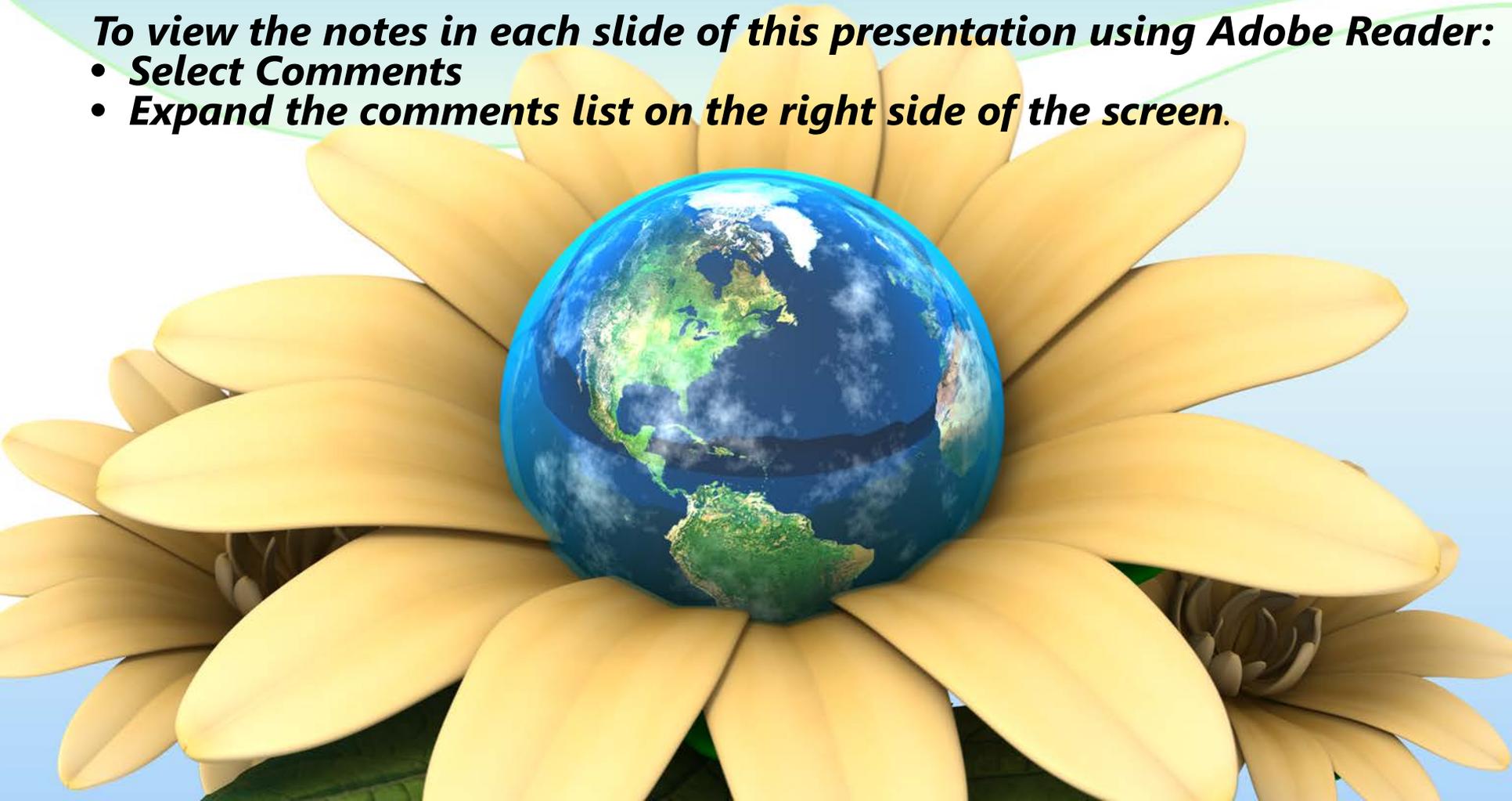


# NOAA Climate Stewards Education Project



***To view the notes in each slide of this presentation using Adobe Reader:***

- ***Select Comments***
- ***Expand the comments list on the right side of the screen.***





# NOAA Climate Stewards Education Project





# Who Are We?

**NOOS**  
 NATIONAL OCEAN SERVICE Education

 **CLIMATE PROGRAM OFFICE**  
 Understanding climate variability and change to enhance society's ability to plan and respond

 **NOAA FISHERIES SERVICE**  
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

 **NATIONAL MARINE SANCTUARIES**

 National Oceanic and Atmospheric Administration's  
**National Weather Service**  [weather.gov](http://weather.gov)

 **NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM**

 **NOAA SATELLITE AND INFORMATION SERVICE**  
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION 

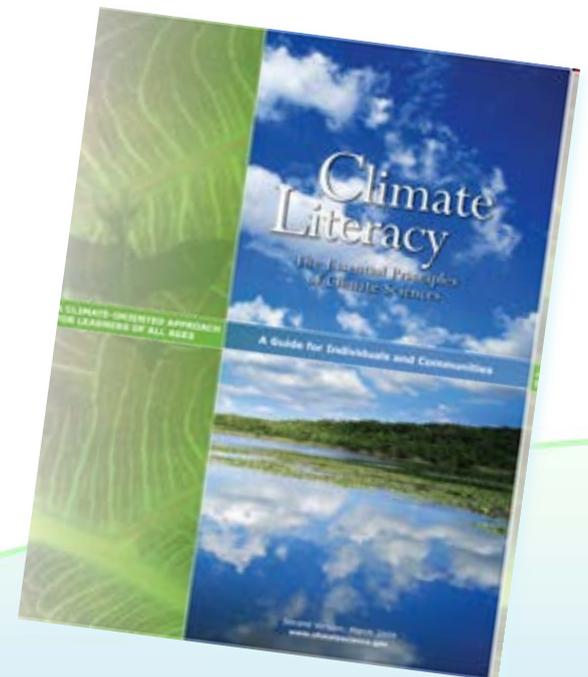




# NOAA Climate Stewards

Builds Climate Literacy so educators and students can:

- ***understand*** the concepts of climate
- ***assess*** the scientific credibility of information
- make ***informed*** and ***responsible*** decisions, and ***initiate actions*** in the community





# Benefits for Participants

- **Sustained professional development** (webinars, discussion groups, regional workshops)
- **Mini-grant funding** opportunity to apply for funds to develop, implement and evaluate a climate stewardship project.
- **Travel reimbursements** to attend/present at workshops and select professional development conferences.
- **Educational resource prizes** via special contests





# Why Climate Stewards?

## **NOAA's education mission:**

To educate and inspire the Nation to use science toward improving ocean and coastal stewardship, increasing safety and resilience to environmental hazards, and preparing a future workforce to support NOAA's mission.

\*\*\*\*\*

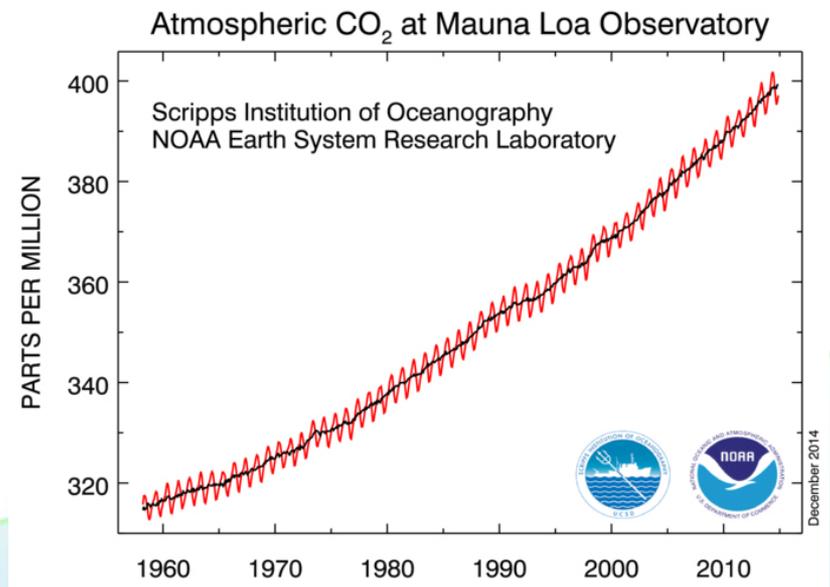
Public understanding of Earth's interconnected systems is crucial to our ability to apply knowledge and problem-solving skills to real-world issues (Hoffman and Barstow, 2007). The stewardship of our planet's resources for current and future generations is critical to the long-term sustainability of society and the planet.





# Educators have trouble talking about climate change

- Discussions of climate change are politicized
- More than 25% of teachers reported having arguments over this issue. (NESTA Survey of Earth Science Teachers, 2011)
- Many educators are not sure of the science are looking for credible information sources and education resources





# Climate Science is an integral part of NGSS

NGSS introduces global climate change as a core idea in middle/high school including:

- human activities affect global warming
- decisions to reduce the impacts of global warming depend on understanding climate science, engineering capabilities, and social dynamics
- global climate models used to predict changes continue to improve





# Indicators of Success: Evaluation Results

## NOAA Climate Stewards:

- Showed increased confidence in teaching about climate related topics
- Adopted changes to their teaching practice
- Developed and implemented stewardship projects
- Expressed interest in continuing to participate in ongoing professional development experiences.



*"I am much more able to effectively integrate climate into the curriculum due to the resources and training in the program"*



# **Organizational Structure: 2 Ways to be Involved!**

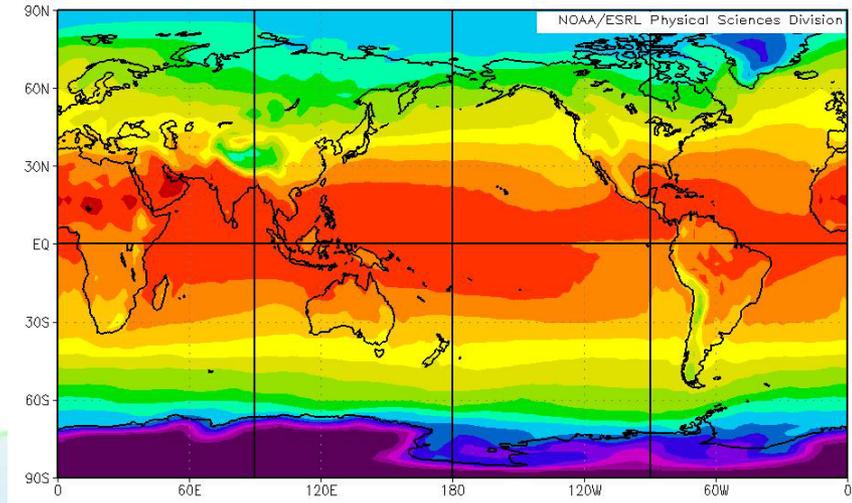
- I. The Education Community**
- II. The Stewardship Community**





# I. The Education Community

- Monthly webinars
- Monthly discussion groups
- Regional workshops
- Community-wide communication via interactive listserv
- You choose the level of involvement
- Limited commitment - just participate in occasional online evaluations.





# II. The Stewardship Community

Support for projects in your classroom or community



- Must propose a stewardship action project to join (apply via public website in fall)
- Community-wide communication via participant-driven list-serve
- Must Participate in Peer Review Groups to:
  - refine stewardship project proposal
  - qualify to apply for funding (up to \$2000)
- Opportunities for travel reimbursements to present at conferences/CSEP regional workshops
- Invitations to participate in special events/PD opportunities





# What is a stewardship project?

A climate stewardship project must involve **action-based behavioral activities focused on the mitigation of, or adaptation to climate change impacts.**

The IPCC defines climate change mitigation as, "A human intervention to reduce the sources or enhance the sinks of greenhouse gases" and climate change adaptation as, "The process of adjustment to actual or expected climate and its effects."

Climate change mitigation involves activities that reduce the production of human generated greenhouse gases, i.e. energy reduction/conservation in homes and transportation, recycling; or increasing sinks of carbon dioxide i.e. reforestation, planting regionally appropriate gardens.

Climate change adaptation involves making changes in our environment or the way we do things to respond to changes in climate i.e. habitat restoration, planting regionally appropriate gardens, establishing regionally appropriate pollinator habitats, birdhouses.





# Project Suggestions:

1. **Manageable:** Keep your project at a reasonable size for you.
2. **Meaningful:** Make sure the project is meaningful to your "audience". Success stems from empowerment.
3. **Measurable:** Make sure your project is quantifiable. Be able to measure an outcome.





# Stewardship in Action!

- Restoration and Carbon Sequestration with Beach Grasses
- Polar Bear Challenge: Conserve Energy and Change Habits
- Anti-idling Campaign: ↓ Carbon Dioxide, ↑ Health
- Climate Changes Impacts on Wetlands
- Schoolyard Gardens & Biochar – Sequestering Carbon
- Ocean Acidification on Hawaiian Ecosystems: What Can We Do?





# Strong effects on stewardship project participants:

- Feeling they could make a difference (9.1/10)\*
- Increased knowledge of climate science (8.9)
- Readiness to apply what they had learned (8.7)
- Increased awareness of climate science careers (8.1)
- Meeting other climate-interested people (7.5)

\*Scale of 1-10





# Stewardship Community Process

Apply to CSEP  
with a project  
idea

Assigned to a  
peer feedback  
group

Meet monthly  
to discuss get  
feedback on  
projects

Refine project  
ideas and  
budget

Apply for  
funding in  
summer.  
Initiate  
project in fall





# Key Components: The Stewardship Project Application

- What is the Climate Change Issue?
- What is the desired outcome of your project?
- Describe the information you will collect to measure progress toward your desired outcome.
- How will you collect the information described above?





# Key Components: Stewardship Project Application

- Who and how many individuals (approximate) will be actively involved in this project?
- Describe the activities of your project and provide an estimated timeline.
- List the NOAA and non-NOAA climate science resources you will use to inform the project.





# Key Components: Stewardship Project Application

- What STEM Careers will participants in your project learn about and how?
- Who do you need to communicate with about this project before, during and after its implementation? What do they need to know?
- What is your proposed budget?





# [oceanservice.noaa.gov/education/climate-stewards](https://oceanservice.noaa.gov/education/climate-stewards)



## NOAA Climate Stewards Education Project

 ABOUT US

 HOW TO APPLY

 WHAT WE DO

 IMAGES

 RESOURCES

## Calling All Educators!

Do you want to learn more about climate science? Become part of a science learning community? Join other educators who are supporting climate resilience? **Then you should become a NOAA Climate Steward!**



## What is the NOAA Climate Steward Education Project (CSEP)?

CSEP provides formal and informal educators working with elementary through university age students with sustained professional development, collaborative tools, and support to build a climate-literate public that is actively engaged in climate stewardship. CSEP also provides support for educators to execute climate stewardship (mitigation or adaptation) projects with their audiences to increase understanding of climate science and practical actions to reduce the impact of climate change. The project is part of NOAA's portfolio of activities to strengthen ocean, climate, and atmospheric science education.

There are two levels of involvement



# Not a NOAA Climate Steward now? Want to join these communities?

Sign up for the Listserv at:

[https://list.woc.noaa.gov/cgi-bin/mailman/  
listinfo/noaclimatestewards/](https://list.woc.noaa.gov/cgi-bin/mailman/listinfo/noaclimatestewards/)





# Questions?

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