



Danielle Boudreau

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Call-in: 1-888-240-2560

Entry Code: 73461-58230#



National Estuarine
Research Reserve System
Science Collaborative

Overcoming Uncertainty through Climate Scenario Planning

Collaborative Science for Estuaries Webinar Series

- Monthly webinars
- Feature research, integrated assessment, and science transfer projects funded by the NERRS Science Collaborative
- Feature the efforts of Science Collaborative team members as they engage the reserve system

National Estuarine Research Reserve System



LIST OF RESERVES

Great Lakes

1. Lake Superior, Wisconsin
2. Old Woman Creek, Ohio

Northeast

3. Wells, Maine
4. Great Bay, New Hampshire
5. Waquoit Bay, Massachusetts
6. Narragansett Bay, Rhode Island
7. Connecticut (*Proposed*)

Mid-Atlantic

8. Hudson River, New York
9. Jacques Cousteau, New Jersey
10. Delaware
11. Chesapeake Bay, Maryland
12. Chesapeake Bay, Virginia

Southeast

13. North Carolina
14. North Inlet-Winyah Bay, South Carolina
15. ACE Basin, South Carolina
16. Sapelo Island, Georgia
17. Guana Tolomato Matanzas, Florida

Gulf of Mexico

18. Rookery Bay, Florida
19. Apalachicola, Florida
20. Weeks Bay, Alabama
21. Grand Bay, Mississippi
22. Mission-Aransas, Texas

West

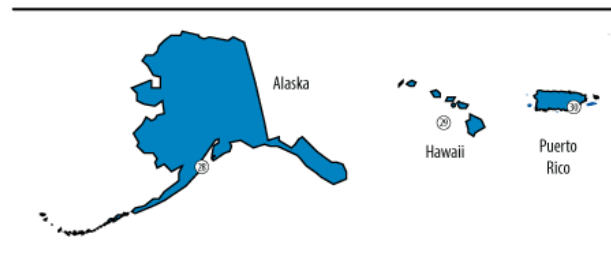
23. Tijuana River, California
24. Elkhorn Slough, California
25. San Francisco Bay, California
26. South Slough, Oregon
27. Padilla Bay, Washington
28. Kachemak Bay, Alaska

Pacific

29. He'eia, Hawai'i

Caribbean

30. Jobos Bay, Puerto Rico



NERRS Science Collaborative

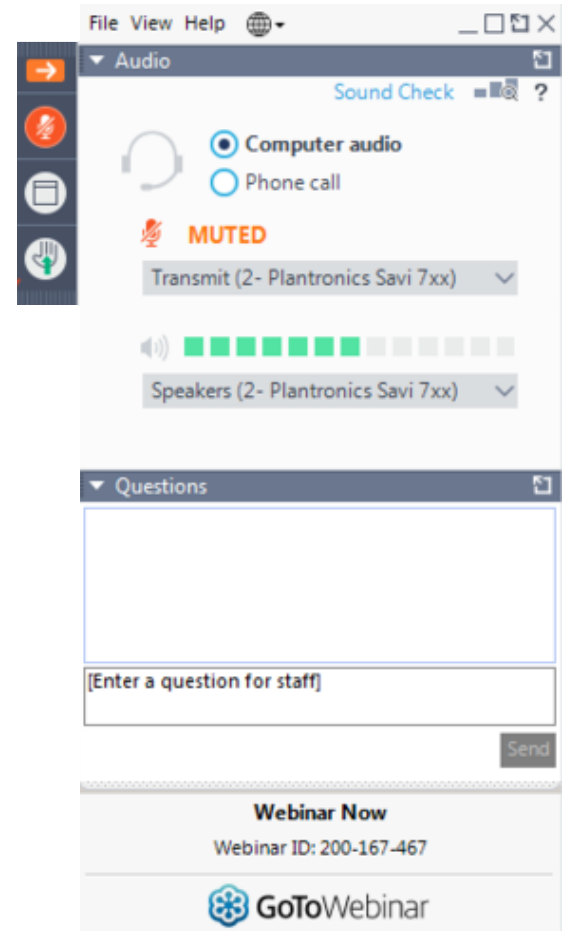
- Research funding mechanism for the NERRS, which supports:
 - Reserve management needs
 - Highly collaborative projects (integrate end users)
 - Outcome-oriented products

Engagement Activity

Poll Question: Do you have experience using scenario planning to plan for climate change?

Housekeeping

- Use the “Questions” function to pose questions throughout the webinar.





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Overcoming Uncertainty through Climate Scenario Planning



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Blooms of Harmful Algae



Forest Fire Frequency



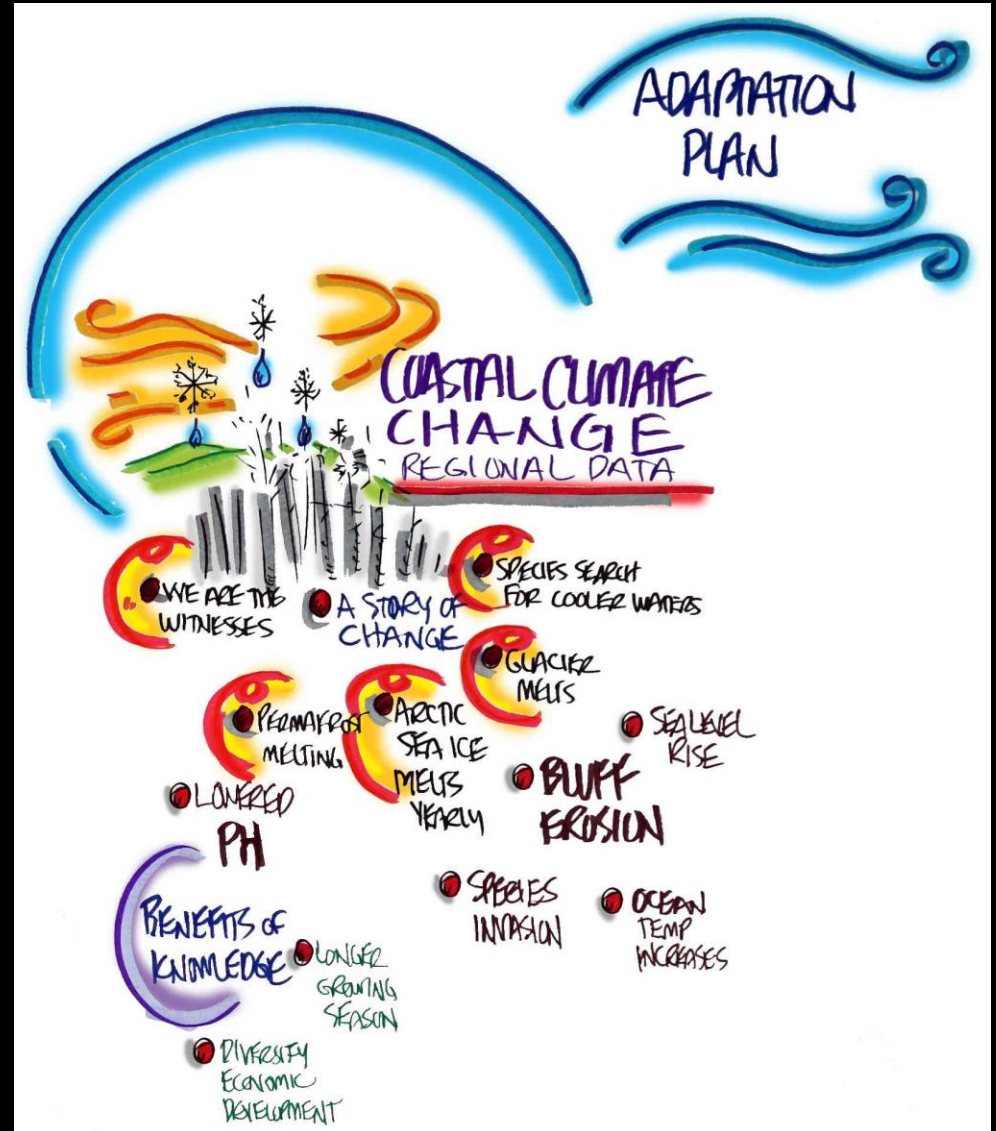
Growing Season Length



Ocean Acidification & Temperature

Aligning multiple opportunities

- NERRS Science Collaborative Transfer grant
- NOAA Office for Coastal Management CACC training
- Successful Adaptation Indicators & Metrics (SAIM) project



Bringing it all together

March 2016

CLIMATE ADAPTATION FOR COASTAL COMMUNITIES

Introduction to climate change science – Observed and projected changes

Basics steps of the adaptation planning process

Communicating climate change and adaptation



Framework

October 2016

SCENARIO PLANNING AND PATHWAYS TO SUCCESSFUL ADAPTATION

Vision for Homer & Kenai Peninsula

Climate scenarios

Pathways & Trigger points



Vision & Pathways

April 2016

SUCCESSFUL ADAPTATION PART II: STRATEGIES, PATHWAYS, AND EVALUATION

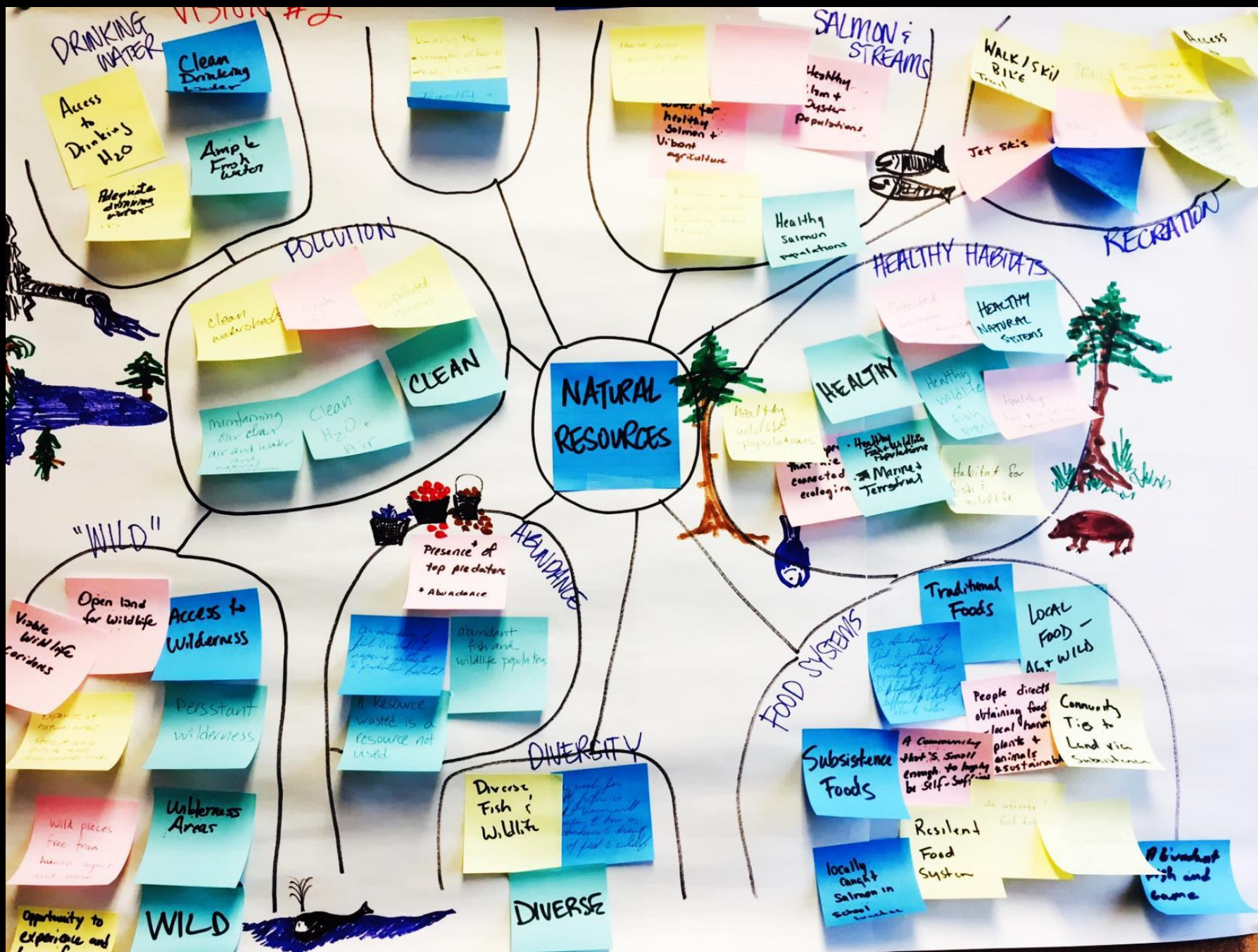
Climate-sensitive strategies to solve existing problems

Transparent adaptive decision-making

Indicators of progress and success, and building capacity for ongoing learning



Indicators & Metrics



High Groundwater Recharge

Sitka (SE Alaska)



*Mud slide buries
Two Sisters Bakery*

Wet & Wetter



Future for salmon uncertain

Current
State

Extreme Surface Flow

Steady Flow & Dry Below



*Sucking Us Dry:
Lacking groundwater
recharge blamed for
economic decline*

Drier Landscape & Flashier Floods



*Community stability?
Change is the new norm*

Low Groundwater Recharge

Steady Surface Flow

Synthesize workshop + reconnect with EVERYONE! Syverine

Jess - Find help for Syverine

Workshop is revision to House Climate Action Plan + champion incorporation climate into other comprehensive plan
Dane hosted

Dane Working w/ KSNERR + Spore to identify and implement innovative ways to comp. update about climate change +

Stacey: Data tools resource for Homer, specifically submitting time-series trends

Sus, Help Spv on communication

Anna will...
Dane will be the...
some science plan...
support by a...
principles on the...
of the plan...

Tony will...
focus on...
article for John...
revision

...

Cooper will: organize a meeting between partners interested/invested in incorporating landscape processes into decision-making

Kyra: I will commit to providing ag + food info to the Borough/City Comp Plan

I will...
participate in the House Climate Action Plan update...
regarding climate...
resilience

...

Ed Berg write articles about climate change

...

BRYR WILL DESCRIBE IN DETAIL THE KINDS OF RESEARCH AND INFO NEEDED TO HELP IMPROVE AND ADVANCE THE PERMITTING PROCESS

...

...

STEVE BRIND wants to meet w/ SVT (MICHAEL, STEPHEN + JAN) to begin understanding how KSNR/SVT can work together

...

JOHN ROSEN Host workshop on LAND-USE + LAND-OWNERSHIP ON RURAL PROPERTIES: OPPORTUNITIES FOR WORKING AGRICULTURE

JAN Community + Sea Week

Keith Holm...
- Goal uses -
- New Center (cost)
- Follow up on...
- Collaborated with...
- on climate action...
- hydrology...
- plan for...
- plan for...
- plan for...

Sal...
I will...
...

...

...

CHRIS Participate in Public Forums

Hig Work with Syverine on Climate Outreach Group

I will...
the community and...
build support...
in my daily...
interactions

...

Michael will share data, learn about, and time to help make the...
come to fruition





Identifying Key Strategies and Actions to Create a Path to the Future

GUIDING QUESTIONS

- What's working?
- What should we keep and keep doing?

Discussion in thematic break-out groups
60 minutes in same group, four questions
Make sure everyone gets to speak



Engagement Activity

Poll Questions: What methods of engagement are you interested in learning more about?



“A real value is that this is cross pollinating.

Because we are in the same room we are aware of others”

-Stream Ecologist

“I feel 100% more empowered to talk about climate change with a wide variety of people” –Municipal Planning Staff

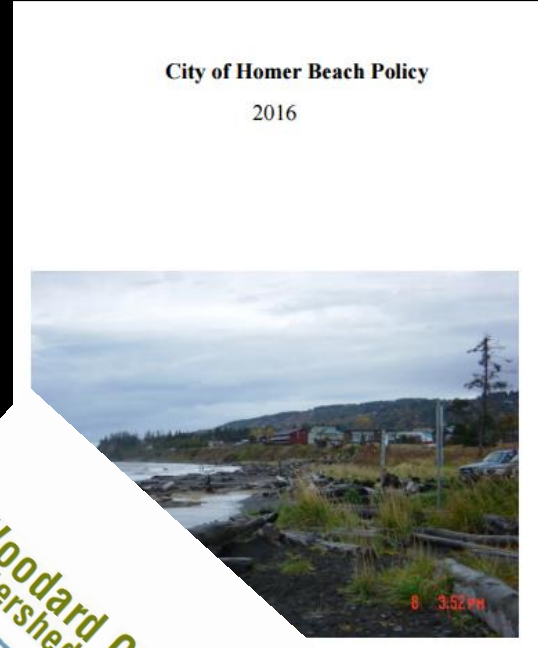
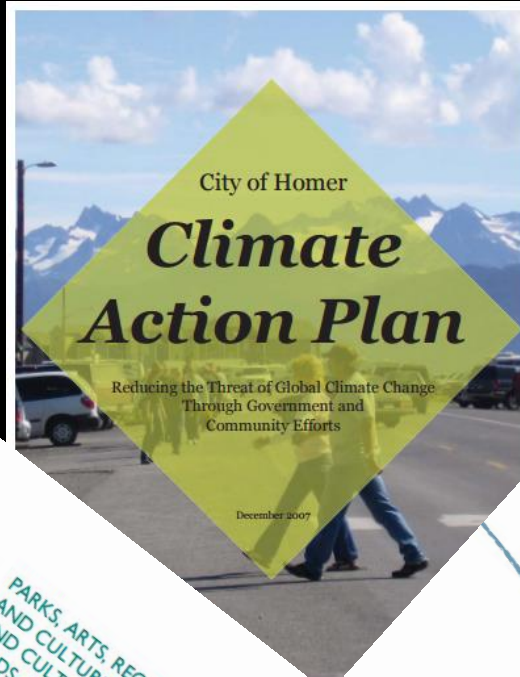


**City of Homer
All-Hazard
Mitigation Plan**

2016 Upd



**PARKS, ARTS, RECREATION
AND CULTURE (RECREATION
NEEDS ASSESSMENT)**
Prepared for the City of Homer, Alaska
By Agri-Link Consulting
Spring 2015



**Woodard Creek
Watershed Plan**

WOODARD CREEK COALITION
Homer, Alaska
January, 2017





Alaska Lt. Governor Byron Mallott

Like This Page · March 20 · Edited ·

I chose the artwork of Homer Student Beatrix Strobel. She illustrated on silk the "Blooms of Alexandrium Catenella", which looks like a red tide along our coast, but is actually algae. Algae which can cause paralytic shellfish poisoning or PSP. Warmer oceans and elevated sea levels can cause the amount of the algae to rise. — at [Alaska State Capitol](#).



Representative Paul Seaton

*“So empowering and beautiful to be able to create art about a challenging topic”
—Parent of art student*



Fisheries Business Resilience

Partners: Alaska Sea Grant, Alaska Marine Conservation Council



Groundwater Resources

Partners: KBNERR Community Council, Project GRAD, Cook Inlet Keeper, Kenai Peninsula Borough Land Management, the Homer Soil and Water District, and University of South Florida



Case Study: Tyonek Grown Community Gardens

Complementing subsistence harvests with community gardens in Rural Alaska

Rural Alaska residents participate in a subsistence lifestyle including activities such as salmon fishing, moose hunting, berry picking, and more. The availability of fresh healthy produce to complement healthy wild foods is limited. Gardens provide healthy, locally-sourced food while promoting self-reliance and community well-being. Gardening in rural communities in Alaska can often be a challenge due to lack of materials, weather, and short growing seasons. However, one of the benefits of a warming climate is a longer growing season, and communities are finding ways to work together to overcome logistical limitations to and promote gardening.



Coastal Erosion Threatens Habitat & Infrastructure

Complementing subsistence harvests with community gardens in Rural Alaska

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Sharing Success Stories

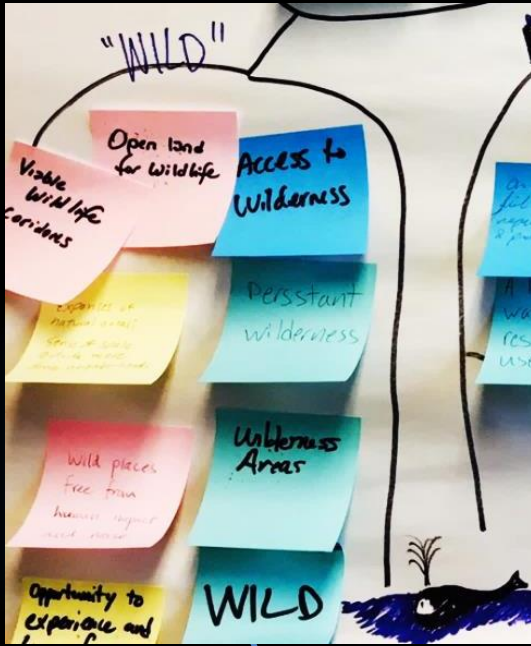


Case Study:
Climate Art + Science Collaborative



Case Study:
Kenai Lands Forum

Tracking Adaptation Strategies



Local Option Zoning

Participation

of property owners

Extent of application

of acres

Habitat created

Species abundance

Carbon storage

of t of C sequestered

Learn more about the
SAIM project next month...



December Webinar



The poster features a circular portrait of Susi Moser on the left. The background is a landscape of an estuary with a winding waterway. Text is overlaid on the image in white and blue. The top right corner has the text 'COLLABORATIVE SCIENCE FOR ESTUARIES WEBINAR SERIES'. The main title is 'Successful Adaptation Indicators & Metrics Project: From Pilots to System-wide Benefit'. The speaker's name and title are 'Susi Moser, Director & Principal Researcher, Susanne Moser Research & Consulting'. The date and time are 'Date: January 10, 2017' and 'Time: 2:00-2:45pm EST'. The bottom left corner has the NOAA logo and the text 'National Estuarine Research Reserve System Science Collaborative'.

COLLABORATIVE SCIENCE FOR ESTUARIES
WEBINAR SERIES

Successful Adaptation Indicators & Metrics Project: From Pilots to System-wide Benefit

Susi Moser
*Director & Principal Researcher,
Susanne Moser Research & Consulting*

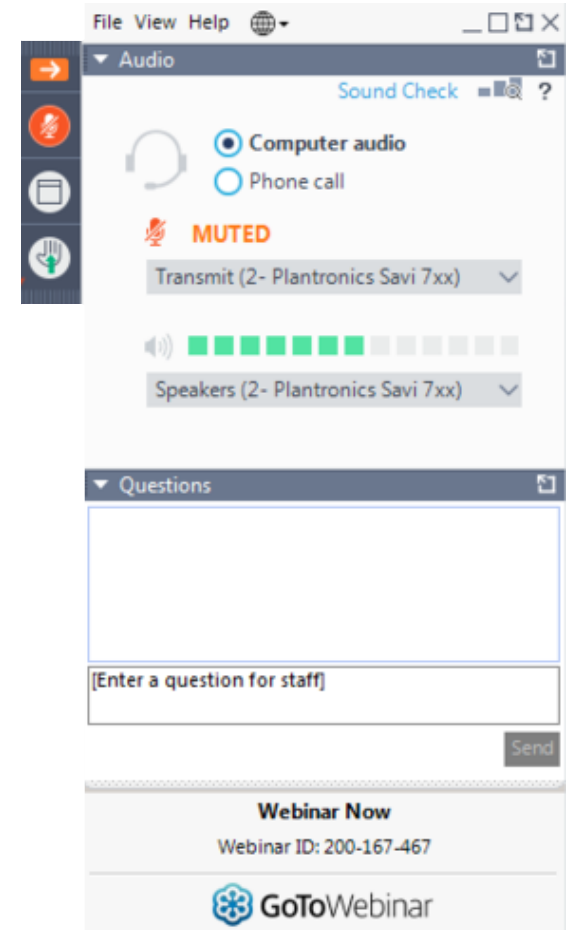
Date: January 10, 2017
Time: 2:00-2:45pm EST

 National Estuarine Research Reserve System Science Collaborative

<http://graham.umich.edu/water/nerrs/webinar>

Question and Answer

- Use the “Raise Hand” feature on the GoToWebinar console
 - Press *4 to unmute when called on to ask your question
- Submit your questions through the “Questions” box



Thank you!

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Additional assistance provided by

Susanne Moser, Susanne Moser Research & Consulting

James Arnott, University of Michigan

Gwen Shaughnessy, NOAA Office for Coastal Mgmt

For more information

- accs.uaa.alaska.edu/kbnerr/climate-resilience
- trnerr.org/climate-scenario-planning-alaska/

*Thank you to our funder the
NERRS Science Collaborative!*



NATIONAL ESTUARINE
RESEARCH RESERVE SYSTEM
SCIENCE COLLABORATIVE

