



# National Adaptation Forum

April 2-4, 2013



Denver, CO



*Action today for a better tomorrow*

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# Welcome!

## Welcome to the Inaugural National Adaptation Forum!

We are thrilled to have you be a part of this inaugural gathering of the climate adaptation community. The steering committee and other working groups have toiled diligently over the last year and half to create a forum where you can meet and interact with colleagues from around the country who are actively working on climate adaptation. We hope that you will take the time to help make the meeting a success and share your expertise and ideas with other attendees as we all work collaboratively to create a community of adaptation practice.

Thanks to an unexpectedly rich and diverse array of submissions, the Program Committee was able to put together three fantastic days of symposia, trainings and working groups that represent cutting edge research and action around climate change adaptation. We are confident you will find things you always wanted to learn more about, as well as things you didn't know were going on. We trust the program will provide opportunities for insightful exchanges and innovative new ideas.

If you run into any of the dedicated committee members who made this event happen, please take a moment to share your experience and thoughts. They've spent months providing input, ideas and time into making this event happen. Three cheers for the great team who had a collective vision and got you all here!

In addition, please be thinking about what a future National Adaptation Forum might look like and how you could be part of making that happen. This event is only valuable if it serves the needs of the burgeoning climate adaptation community.

There will be an online survey available immediately after the forum, you will receive this link (<http://www.regonline.com/nationaladaptationforumsurvey>) in your e-mail inbox, please take a moment to provide your feedback!

Have a great week in Denver. We look forward to meeting you all and learning more about how adaptation is helping you achieve your long-term goals.

Sincerely,

Lara Hansen (on behalf of the National Adaptation Forum Steering Committee)

### Steering Committee

- Lara Hansen, Chief Scientist and Executive Director, EcoAdapt (Chair)
- Margaret Davidson, Director, NOAA Coastal Services Center
- Naomi Edelson, Director, State & Federal Wildlife Partnerships, National Wildlife Federation
- Mike Goldstein, Special Projects Coordinator, U.S. Forest Service
- Noah Matson, Vice President, Climate Change and Natural Resource Adaptation, Defenders of Wildlife
- Amber Paris, Climate Change Advisor, California Department of Fish & Wildlife
- Joel Scheraga, Senior Advisor for Climate Adaptation, Office of the Administrator, U.S. Environmental Protection Agency

For a complete list of committees and their members, see page 2.



# National Adaptation Forum

The National Adaptation Forum aims to:

- Provide a professional development opportunity for the adaptation inclined;
- Contribute to the development of a community of practice around climate change adaptation;
- Create a venue for practitioners to share information, progress and strategy together, building capacity of the community as a whole and the individual; and
- Support on the ground implementation by providing managers and regional experts with a venue to exchange knowledge of and tools for incorporating climate change into their work.

This event was made possible by individuals who donated their time and ideas to make it happen.

## Program Committee

**Amber Pairis, CA Department of Fish & Wildlife (Chair)**

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**Marina Psaros, Coravai LLC (Lead)**

**Whitney Albright, CA Department of Fish & Wildlife (Lead)**

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Gregg Garfin, University of Arizona

Jeff Smith DeBlieu, The Nature Conservancy

Jessica Hitt, EcoAdapt

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WendyKay Gewiss, EcoAdapt

Lara Hansen, EcoAdapt

## Committee of the "volunteered"

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## Contributors



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Tuesday, April 2

Concurrent Session 1 10:30 a.m. – 12:00 p.m.

Symposia

**Advancing Understanding and Application of Adaptive Capacity to Inform Sustainable Resource Management in a Changing Climate**

Room: *Mattie Silks*

Organizer: *John O’Leary*

Speakers: *Claudia Mengelt, Amanda Robertson, Gretchen Hofmann, Erik Beever, Adrienne Nicotra*

Climate change and associated impacts are threatening species and their ecosystems in terrestrial, aquatic, and marine ecosystems in many parts of the world. Resource managers are working to conduct vulnerability assessments to guide and prioritize adaptation efforts. A critical component of vulnerability assessments is consideration of the species’ adaptive capacity. However, limited knowledge and guidance is available on the adaptive capacity of species and biological systems. This Symposium aims to highlight some of the scientific advances and remaining questions with invited talks. The following day, a recently formed Working Group will convene to outline a path forward to advancing the understanding and application of the adaptive capacity of species and ecosystems.

**Adaptation for Wildland Aquatic Resources**

Room: *Nat Hill*

Organizer: *Charles Luce*

Speakers: *Kate Dwire, Dan Isaak, Sue Mauger, Kelly Elder*

Climate change is altering the amount, timing, and quality of water we receive from mountain snowpacks. In turn, the resulting effects on forest and aquatic ecosystems of the Mountain West are cascading into further shifts in water supply to downstream farms and cities. Adaptation steps considering the breadth of interlaced effects among changes to forest management, aquatic conservation strategies, and water management could be substantially more difficult than addressing any one of them, however there are also adaptation steps with the potential for cross-resource benefits. Identifying, planning, and implementing adaptations that do not force tradeoffs among multiple values and resources will require a deep understanding of the climate change processes and consideration of the relative uncertainties and sensitivities these resources face under a changing climate. The diversity of approaches we see in western adaptation may be helpful in addressing the substantial uncertainty we face in climate change projections.

**Understanding the Problem – The Overlap Between Hazard Mitigation and Adaptation**

Room: *Pomeroy*

Organizer: *Kelly Klima*

Speakers: *Debora Glaser, Vicki Arroyo, Lynne Carter, Michael Cohen*

This symposium will discuss the merits of fostering connections between hazard mitigation and adaptation communities of practice. Presenters will describe hazard mitigation, its overlap with adaptation, the development of new climate information for use by hazard mitigation professionals, the economic benefits of combining adaptation and hazard mitigation, and insurance.

**Coastal Adaptation Lessons Learned: Planning to Implementation**

Room: *Spruce*

Organizer: *Chris Hilke*

Speakers: *Robert Buchsbaum, Kara E. Reeve, Karen Bennett, Patty Glick*

Climate adaptation planning at coastal sites is typically complex and is driven by site-specific considerations. Further, coastal adaptation efforts often exemplify interconnections between natural resource conservation and economic and political priorities, complex ownership patterns, dynamic jurisdictional authority, and diverse management values. Adaptation planning at these dynamic sites requires a commitment to cross-sector engagement and to the integration of other process frameworks including: risk management and assessment, investment forecasting, and stakeholder mediation models. The purpose of the symposium is to provide attendees with a greater appreciation of the inherent complexities associated with coastal conservation, and to provide them with concrete examples of how those challenges are being successfully addressed.

**Seawalls and Wrecking Balls: Overcoming the Barriers to Making CMSP Climate-Smart**

Room: *Denver 3*

Organizer: *Jessi Kershner*

Speakers: *Stephanie Moura, Thomas Okey*

In 2010, President Obama established the first National Ocean Policy directing the Federal government to address climate change adaptation and coastal and marine spatial planning (CMSP). As a forward-looking planning process, CMSP seeks to anticipate and address future natural resource and use conflicts, yet little effort has been devoted to directly integrate climate change considerations and adaptation best practices into ocean planning in the U.S. Why? What is needed to ensure climate impacts and adaptation measures are understood, visualized and communicated as an integral part of CMSP at any scale? This symposium will examine obstacles to climate-smart CMSP and explore approaches to improve integration into ocean planning and management. Panelists will offer examples of recent relevant efforts. This symposium will set the stage for a subsequent Working Group.

**Linking Climate Change Vulnerability Assessment to Adaptation Strategy for Species, Ecosystems, and Landscapes**

**Room:** Denver 4  
**Organizer:** Patrick Comer  
**Speakers:** Bruce Young, Patrick Crist

There is growing experience with climate change vulnerability assessment for biodiversity. Much experience has focused on assessments for individual species. There is currently less experience with assessment for other ecological scales, such as for natural communities or landscapes; and the many interactions of assessments across these scales of ecological organization. There is also limited experience with the translation of results from vulnerability assessment (i.e., how vulnerable is the resource to climate change?) to adaptations strategy (i.e., what should we do to address these vulnerabilities?). This symposium will provide a venue for investigating new methods for vulnerability assessment of species, natural communities, and landscapes. We will encourage symposium attendees to discuss their own experiences relative to each presentation, emphasizing experiences with carrying out vulnerability assessments, and then applying those findings to adaptation strategy development.

**Trainings**

**Part 1: Using Social Ecology, the Science of Community, to Mobilize Citizens and Partnerships for Climate Change Adaptation**

**Room:** Gold Coin  
**Organizer:** Kevin Preister

Social Ecology honors and builds upon what residents are already doing to adapt to climate change while addressing lack of participation, domination by the few and the loud, and political “end runs, dominant in current initiatives. Effective, sustainable social change integrates the interest of informal grassroots society and the formal organizations in place-based communities. The training will impart key concepts in Social Ecology: the Science of Community: The Discovery Process as a means of entering the routines of the community; informal networks and how they operate to sustain the survival, caretaking and cultural life of community; informal network archetypes, such as caretakers, communicators, bridgers, opportunists and why they are important; citizen issues as distinguished from community themes in developing action strategies that work; and Issue Management by which cultural alignment is achieved between citizens and climate change practitioners. Using experiential learning techniques, a set of exercises are conducted with participants on how concepts apply to their home situation.

**Working Groups**

**Navigating the Sea of Adaptation Planning Possibilities: Best Practices in Climate Change Adaptation Planning for Natural Resources and Biodiversity Conservation**

**Room:** Matchless  
**Organizer:** Molly Cross

A number of adaptation planning processes have been developed to help integrate an understanding of climate change effects into natural resource and biodiversity conservation decisions. Starting in Spring 2011, an informal working group of ~10 adaptation-planning practitioners began sharing details of their particular planning approaches via a series of web-based presentations and discussions. Our goal was to compare our different approaches and look for similarities and dissimilarities. We would like to formalize our discussions into a manuscript that: 1) identifies “best practices” in adaptation planning for natural resources and biodiversity, and 2) maps how specific planning approaches might be best suited for particular adaptation planning needs. During our working group we plan to synthesize our previous discussions, add in perspectives from additional adaptation planners (including participants from other sectors), and outline a manuscript.

**Critical Thresholds: Can’t Live With ‘Em, Can’t Live Without ‘Em.**

**Room:** Molly Brown  
**Organizer:** Sascha Petersen

Sure, climate modeling is great and all, but what do those projections really mean for a community? We are seeing more extreme climate and weather events everywhere, but what is “extreme” in Miami and what is “extreme” Denver or Anchorage are two very different things.

A new approach is emerging that builds off user-defined or expert-defined critical thresholds and uses these thresholds to classify extreme events or identify tipping points. This approach has demonstrated potential to directly inform regional planning, support climate action, and increase community resilience. This session provides an opportunity to share your experiences, thoughts, and ideas about what’s working, what isn’t working, and what’s next in customizing climate projections.

**Part 1: Framing Resilience: What is it and How do We Message it Effectively?**

**Room:** Denver 1  
**Organizer:** Missy Stults

This Working Group will delve deeper into the concept of urban resilience, attempting to make progress in our understanding of what urban resilience means across multiple systems and sectors. Discussions will focus on real-world climate efforts, looking at when and how resilience can/should be used and how it compares to terms such as adaptation, adaptive capacity, and vulnerability reduction. In particular, discussions will look at 1) how these terms differ, 2) how they overlap, and 3) when it is contextually most appropriate to use each of them? If time permits and consensus is reached, the Working Group will also begin crafting a draft resilience message and vision, and create a framework for how a community might initiate a process towards becoming more resilient.

**Part 1: Resilience Regionalism – Working at Scale for Integrated Adaptation Outcomes**

**Room:** Denver 2  
**Organizer:** Steve Adams

With notable examples from Southeast Florida, San Diego, San Francisco, the greater NYC region and elsewhere, there’s a growing number of case studies in which climate adaptation initiatives are working at the regional scale in order to effectively integrate climate adaptation across sectors, systems and jurisdictions. The proposed Working Group will be convened for practitioners experienced in such processes and those new and interested. Our primary objectives would be to identify the current “state of the regions” in order to learn what’s working, what’s not and why. Such a working group could improve existing projects while informing and inspiring new ones.

**Training Over Lunch 12:00 p.m. – 1:30 p.m.**

**Climate Savvy Quick Course**

**Room:** Molly Brown  
**Organizer:** Lara Hansen

EcoAdapt specializes in training people how to integrate climate change into their work for better long-term outcomes. This training will help participants identify what they need to gather over the course of the National Adaptation Forum, learn how to apply it into their own work, find lifelines to use after the Forum, and start making adaptation happen when they get back to the office and return to their daily work.

Training includes basic understanding of where to find the climate relevant data need to make climate smart decisions, tutorial in the Climate Adaptation Knowledge Exchange (CAKE), overview of case studies from the State of Adaptation Assessments and CAKE to help stimulate your own adaptation thinking, and a quick assessment of our own work through the Awareness to Action process.

**Working Groups Over Lunch 12:00 p.m. – 1:30 p.m.**

**Successful Adaptation in Space and Time: What Works, What Can Be Improved from Lessons Learned?**

**Room:** Gold Coin  
**Organizer:** Eric Mielbrecht

Effective adaptation planning depends in part on integrated spatio-temporal information that is user friendly. The goal of this working group and symposium is to identify best practices for improving the use of spatio-temporal information in adaptation planning based on lessons learned. The workshop will build on the symposium examples of how spatio-temporal information has been creatively integrated to support climate adaptation planning on multiple scales, how it has actually been used by practitioners in decision-making, and lessons learned for improving its practical use. Attendees will include researchers and practitioners, sharing the perspectives of both generators and users of such information. This working group will outline a draft guidance document for increasing the successful use of integrated spatio-temporal information in adaptation planning. This guidance document will be made available to the community on CAKE.org.

**The Equity Dimensions of Adaptation**

**Room:** Matchless  
**Organizer:** Denise Fairchild

The best way to ensure that the most vulnerable populations are not the most impacted by natural (and manmade) disasters is to plan for it. The disabled, low income and communities of color are the most likely to be in harms way, and the least able to adapt due to physical, economic and cultural barriers. This session identifies the key issues and strategies for addressing these dilemmas as it relates to mitigation and preparedness, as well as response and recovery efforts. Case examples and best practices will be presented. Particular attention is given to ways to adapt and decentralize technical planning and recovery to build resilient communities with local capacity to fully participate and respond to the new normal.

**Part 2: Framing Resilience: What is it and How do We Message it Effectively?**

**Room:** Denver 1  
**Organizer:** Missy Stults

Description listed in Concurrent Session 1.

**Part 2: Resilience Regionalism – Working at Scale for Integrated Adaptation Outcomes**

**Room:** Denver 2  
**Organizer:** Steve Adams

Description listed in Concurrent Session 1.

**Concurrent Session 2 1:30 p.m. – 3:00 p.m.**

**Symposia**

**Communicating Climate Information for Adaptation and Applied Research**

**Room:** Mattie Silks  
**Organizer:** Greg Guilbert  
**Speakers:** Caspar Ammann, Chris Allan, Sascha Peterson

Effective adaptation relies on credible, scientifically sound and transparent data, validated models and projections, and coherent analyses and interpretations in an end-to-end context. However, confusion about the applicability and utility of climate science, incomplete characterization of uncertainty in projections and modelings, and impact analyses that are too narrowly focused are currently hindering climate adaptation efforts.

This session will focus on experiences in integrating outputs from global research to implementation and applied research on challenges in urban development, rural food systems, and flood recovery in South and South East Asia. Drawing on NCAR’s leading role in global climate science research and ISET’s activities in Vietnam, Thailand, India, Nepal and Pakistan, the session will explore how insights and uncertainties in climate science can be used in developing actionable projects for building resilience, reducing disaster risk, and enabling adaptation.

**Resilience Indicators: Ready or Not**

**Room:** Nat Hill  
**Organizer:** Margaret Davidson  
**Speaker:** Amy Luers

A salon is a periodic gathering of notable people in a given field sharing ideas. We are expecting a spirited exchange as we discuss extremes, one of the most tangible manifestations of climate change.

Is our nation “ready” for extremes? How would we know? Businesses, non-profit organizations, government at all levels, individuals, families and communities can be caught unaware by extreme weather events, more frequent flooding and other impacts associated with climate change. How do we communicate these risks in a changing climate in a way that resonates and results in preparedness? Are there lessons that the hazards, sustainability and climate change communities can learn from each other? Are those lessons changing practices or are they simply being learned over and over again? Third in a series of conversations on developing a community of practice around resilience indicators.

**Evolution from Planning to Implementation: Learning from Experience in Bridgeport, CT**

**Room:** Pomeroy  
**Organizer:** Davey Ives  
**Speakers:** Adam Markham, Ted Grabarz, David Kooris

Bridgeport, Connecticut, has undertaken serious climate adaptation planning efforts with support from Clean Air-Cool Planet over the past 15 months—during which time the City has suffered significant impact from three major storms including Irene and Sandy. These climate events have offered Bridgeport a tangible opportunity to engage adaptation as “tests” of preparation and response, the storms have offered an iterative learning curve that has made the City better prepared for continued climate disruption.

This symposium will convene Bridgeport officials to share insights and facilitate audience discussion on how adaptation strategies can grow organically within city departments and be refined through effective coordination. Strategies discussed will be a combination of long and short-range projects: e.g., parks planning which recognizes the role of green space to buffer storm impacts, proactive emergency management that works effectively with FEMA, municipal energy policy which explores innovations like “micro-grids”, public housing efforts, and more.

**Climate Justice Alignment: Strategies and Tools to Build Community Resilience in Low-Income Communities of Color**

**Room:** Spruce  
**Organizer:** Nile K. Malloy  
**Speakers:** Ife Kilimanjaro, Sunyoung Yang, Roberto Nutlouis

Climate change and a lack of sustainability exacerbate social variables that effect the ability of an individual to prepare, respond, and recover from climate catastrophes and natural disasters. Local, regional, state and national climate adaptation planning processes can be strengthened by engaging impacted communities as equal partners at every level of decision making, including needs assessment, planning, implementation, enforcement and evaluation.

The Climate Justice Alignment (CJA) is an alliance of over forty organizations of frontline community groups and allies unified under a vision for an equitable world.

The workshop will consist of presentations from representatives of the Climate Justice Alignment through interactive activities and group discussion. Participants will be engaged to think critically about the impact of climate change on communities and the need to ensure that climate adaptation planning and policy development is inclusive of working class, indigenous and low-income communities.

**Putting Climate – Smart Conservation into Practice**

**Room:** Denver 3  
**Organizer:** Bruce Stein  
**Speakers:** Naomi Edelson, Jordan West, Thomas Gardali, Zoë Johnson

This symposium will preview a forthcoming guide to “Climate-Smart Conservation” being produced by an inter-institutional expert work group consisting of non-profit organizations, federal agencies, and state agencies and led by National Wildlife Federation. The guide is designed to provide conservation practitioners with a framework for understanding the overall adaptation planning and implementation process and for putting adaptation principles into practice. The symposium will provide an overview of the guide’s overarching themes (e.g., intentionality in adaptation; managing for change; reconsidering goals; and integration with exiting work), describe key characteristics of and introduce the climate-smart conservation cycle. The symposium will include how to craft strategies capable of supporting persistence and change in ecological systems. Case studies will illustrate application for on-the-ground restoration, using an example from coastal California, and for natural resource policy and programs, using examples from Maryland.

**Adaptation Initiatives in Tropical Islands: Is it too Late for “No Regrets” Strategies?**

**Room:** Denver 4  
**Organizer:** Gregg Garfin  
**Speakers:** Joel Smith, Kasey Jacobs, Robbie Greene, David Schaller

Tropical islands, with vulnerabilities to sea level rise and intense storms, and limited freshwater and agricultural resource bases, have been described as the canary in the climate change coalmine. Nonetheless, many islands have initiated participatory adaptation planning, enhanced climate change communication, and engaged with communities and decision-makers with a vigor rivaling any initiatives on Earth. This session examines collaborative adaptation planning initiatives and implementation, innovative methodologies for vulnerability assessment, and the co-benefits of mitigation and adaptation planning. A special tone-setting talk will explore the practical prospects for no regrets adaptations to fulfill adaptation goals, and will cut through “it’s all good” notions, by examining the benefits and limitations of no regrets and what it means for adaptation strategies. Presentations will showcase adaptation in Puerto Rico, the Northern Mariana Islands, and American Samoa, and examine obstacles and opportunities.

**Trainings**

**Part 2: Using Social Ecology, the Science of Community, to Mobilize Citizens and Partnerships for Climate Change Adaptation**

**Room:** Gold Coin

**Organizer:** Kevin Preister

Description listed in Concurrent Session 1.

**Part 1: Gaming Adaptation: Introducing Role-Play Simulations for Stakeholder Engagement, Teaching and Research**

**Room:** Matchless

**Organizer:** Todd Schenk

Role-play simulation exercises (RPS) can be of tremendous value to decision makers, facilitators and other stakeholders as they address climate change challenges at any scale. RPS provide safe spaces in which participants can explore threats, the nature of uncertainty and systemic change, and potential pathways forward in a simulated environment. RPS can present one or more possible futures to stakeholders and ask them to work through how they might respond. They can also be used to experiment with tools like scenario planning. Insights gleaned can shed light on how decision-makers can best be supported as they enter uncharted territory in the nascent sphere of adaptation planning. This training session will engage participants in an actual RPS for demonstration purposes, followed by a discussion on the strengths and weaknesses of this tool, and how they might be developed and deployed in various contexts.

**Part 1: Climate Communication: Applying Communication Research to be Effective**

**Room:** Molly Brown

**Organizer:** Gwen Shaughnessy

This training builds upon the 3-day “Climate Adaptation for Coastal Communities” course offered by the NOAA Coastal Services Center. We will explore social science findings and lessons learned for communicating with a variety of audiences on climate and coastal issues. This is a hands-on session that incorporates individual and group activities. The 3-hour session is geared towards a non-technical audience who aim to engage local community members (i.e. land use planners, floodplain managers, hazard mitigation planners, emergency managers). Participants will gain skills and knowledge that will assist them in improving the communication processes in their individual climate adaptation efforts.

**Part 1: Integrating Climate Risk into Major Projects**

**Room:** Denver 2

**Organizer:** Michael Nolan

Climate change impacts to infrastructure and services are a significant risk to companies and government. This impact will be greatest where assets experience accelerated degradation and fail during larger intensity climatic events such as extreme rainfall (flooding), wind, dust storms, hurricanes/ cyclones, storm surge, hail, frost, snow storms, heat waves, bushfires and lightning storms. This practical training class focuses on how and why to consider climate change in infrastructure planning and how to technically incorporate consideration of climate change into infrastructure intensive organisations from risk, development planning and design to operations and maintenance.

AECOM has conducted over 120 climate risk and resilience assessments globally and understands the impact of climate change to infrastructure, materials, services for the private and public sector. AECOM has a range of processes, templates and guidance that has helped infrastructure intensive organisations understand current and future losses to productivity, service and compliance from changes in climate and prioritise best value resilience solutions.

**Working Groups**

**Part 1: Preparing for Change: a Discussion of Evaluation Tools and Techniques to Identify Research and Management Needs for Addressing Adaptation and Climate Change in Aquatic Systems**

**Room:** Denver 1

**Organizer:** Daniel Drinan

As habitats continue to be altered, a better understanding of the degree of local adaptation (increased fitness in native habitats due to natural selection) is imperative to properly manage populations. Identifying climate adaptation strategies (i.e., what habitats and species/populations are vulnerable, what can be done, and what do we focus on) and embedding our understanding of local adaptation into this conservation framework must be considered when developing management plans.

In this working group, we bring together a nationally recognized group of researchers, academics, and managers to discuss current adaptation and climate change research, tools, and techniques as they relate to aquatic habitats. A diverse group of speakers will present on local adaptation, climate change, techniques or related topics. Presentations will be followed by an interactive session in which attendees will discuss their own implementation of evaluation tools and techniques as well as shortcomings and needs.

**Concurrent Session 3 3:30 p.m. – 5:00 p.m.**

**Symposia**

**Fostering Resilience in Vulnerable Communities Through Adaptation and Disaster Planning**

**Room:** Mattie Silks

**Organizer:** Phyllis Grifman

**Speakers:** Jacqueline Patterson, Sarah Heard, Anamaria Bukvic

This session will examine processes and practices for strengthening resilience in vulnerable communities through adaptation and disaster planning. Panelists will examine: an analysis of the human and civil rights implications of disasters and sea level rise on vulnerable communities; a California survey examining the needs of coastal managers in the context of sea level rise, along with a case study of the processes being used in the City of Los Angeles to identify and respond to vulnerabilities; integration of sea level rise adaptation strategies into planning for transportation improvements and land use development in the San Francisco Bay Area; and strategies for developing creative and innovative communication tools to convey the difficult issue of sea level rise to the public and decision-makers and engage them in a dialogue on risks and costs of attempting to remain versus relocation.

**Facilitating Adaptation to Climate Variability and Change Through Community Engagement and Mobilization**

**Room:** Nat Hill  
**Organizer:** Chad McNutt  
**Speakers:** Michelle Selmon, Heather Elmer, Katherine J. Kahl

Processes that improve adaptation to climate variability and change will be presented through the lens of community engagement and mobilization. Focus areas will include identifying vulnerabilities and information needs to improve management practices, identifying barriers to implementing adaptation plans and risk-reduction strategies, and designing approaches for user-focused adaptation training. Case studies will present how social networks can facilitate communication of drought information and mainstream drought risk reduction strategies into long-term policymaking. California’s Integrated Regional Water Management planning process will also present how it is using vulnerability assessments to plan and prioritize water management strategies and projects. Finally, the session will end with discussion of projects that are engaging coastal communities through National Estuarine Research Reserves in the Great Lakes region.

**Climate Change Adaptation: National Policy Landscape**

**Room:** Pomeroy  
**Organizer:** Noah Matson  
**Speakers:** Kathy Jacobs, Kevin Hunting

At the very end of an election season characterized by almost complete “climate silence,” Hurricane Sandy swept climate change back to the forefront of Americans’ attention. Officials at all levels of government (local, state, federal) called for action in the wake of Sandy. In his victory speech, President Obama presented a vision of a nation “that isn’t threatened by the destructive power of a warming planet.” A mid-November Zogby poll found that 65% of Americans believe their elected officials should take action on climate change now, and even among Tea Party sympathizers, more than half are concerned about climate change and its future costs. Clearly, climate change is more on the mind of the public than at any time in the past several years. But will this concern translate into action to advance climate adaptation policy? This moderated panel discussion will address prospects for action in the coming years at the legislative, federal agency, and state and local levels.

**Lest We Forget: the Crucial “People Part” in Advancing Climate Responses**

**Room:** Spruce  
**Organizer:** Susanne Moser  
**Speakers:** Mark Shafer, Tonya Graham, Caroly Shumway

Responses to climate change are often framed as matters of setting the right price signals, getting the right policies in place, and adopting innovative and appropriate technology. Both mitigation and adaptation have long focused analysis and advocacy on these aspects of advancing climate responses. What gets easily overlooked in these types of discourses, however, is the human dimension to actually make the responses happen. This session includes papers that hone in on the “people part” in climate response. Preexisting human capital in communities, political dynamics, constructive engagement in decision-making, individuals’ attitudes, values, and motivation to act, as well as their barriers to enacting change, people’s emotional responses to climate change and their deeply-rooted sense of place and identity are shown to play a crucial role in climate change responses. One common finding is that they deserve far greater attention in research and practice if mitigation, adaptation and sustainability are to be achieved.

**Tribal Climate Adaptation Case Studies – Building on Success**

**Room:** Denver 3  
**Organizer:** Garrit Voggesser  
**Speakers:** Joe Hostler, Jamie Donatuto, Eric Grossman, Seth Moore

This symposium session will focus on tribal activities to develop and implement climate adaptation plans, with emphasis on tribal efforts from various regions and tribes. The session will focus on how these tribes developed their climate adaptation plans, how they are being implemented, and how they have confronted the various economic, administrative and environmental challenges. The session will further outline the various sectors addressed by the tribe’s adaption plans (such as environmental, cultural, infrastructural, health, and economic). The session will additionally address how the tribes have woven together western science and traditional ecological knowledge in their planning efforts. Finally, the session will address how the tribes’ have worked with other partners, including state and federal agencies, organizations, and other collaborative processes.

**Making It Real: Integrating Climate Change into the Day-to-Day Work of a Wildlife Agency**

**Room:** Denver 4  
**Organizer:** Lynn Helbrecht  
**Speakers:** Arpita Choudhury, Amber Pairis

Climate change affects nearly every aspect of a state wildlife agency’s daily activities. While these agencies are gaining a greater understanding of climate change impacts, few alter their standard procedures to fully address these challenges. This Symposium will explore approaches, challenges, and lessons learned by two wildlife agencies actively mainstreaming climate change into daily activities. Washington State Department of Fish & Wildlife, with National Wildlife Federation, is working to integrate climate considerations into a range of agency activities and projects to create an “Adaptation Handbook” that provides guidance. California Department of Fish and Game is taking a proactive approach to address climate change through collaborative partnerships, adaptation planning and action, increasing climate literacy and building internal capacity, and integrating climate change into department programs and policies. These agencies can serve as models for how organizations might approach integrating climate change into current and future programs and projects, including those with limited funding or staff time. Facilitators will engage the audience in a robust discussion on key topics and questions.

**Trainings**

**Part 3: Using Social Ecology, the Science of Community, to Mobilize Citizens and Partnerships for Climate Change Adaptation**

**Room:** Gold Coin  
**Organizer:** Kevin Preister

Description listed in Concurrent Session 1.







**Part 1: North Central Climate Science Center Adaptation Working Group**

**Room:** Denver 2

**Organizer:** Shannon McNeeley

The DOI-sponsored workshop to assess integrated social-ecological vulnerability and adaptation approaches dealing with conservation and land management will focus on the following:

- 1) Identifying and engaging experts and key stakeholders in the region for vulnerability and adaptation assessment and planning.
- 2) Identifying useful frameworks for analysis of social-eco-climate system vulnerability and adaptation.

The workshop will be organized around a set of short presentations on the state of research in the region related to vulnerability and adaptation approaches. The participants will be asked to provide case studies to illustrate useful frameworks for development of assessments and strategies. These discussions will review case studies and their associated frameworks; examine the “pros-and-cons” of these frameworks and approaches, lessons learned, best practices; and to explore how the NC-CSC can support and synthesize activities associated with vulnerability assessment and adaptation planning throughout the north central region.

**Concurrent Session 5 10:30 a.m. – 12:00 p.m.**

**Symposia**

**Pipes, Pumps and Pavement: Infrastructure Adaptation Approaches and Costs**

**Room:** Mattie Silks

**Organizer:** Arleen O’Donnell

**Speakers:** Alex Dews, Michael Simpson, Emilee Ritchie

This session will showcase innovative approaches to infrastructure adaptation shared from the following experiences:

- Green City, Clean Waters: Philadelphia’s ambitious 25-year, \$2 billion plan to improve the City’s stormwater management capabilities by utilizing green infrastructure;
- Plane or Train? Potential multi-modal passenger flow and economic impacts of climate change between rail and aviation systems along the Northeast Corridor of the U.S.
- Adapting stormwater infrastructure to climate and land use change: an actionable protocol for maintaining historical risk levels for communities facing impacts from climate change and population growth in New England and the Upper Midwest.
- Great Floods in the Great Lakes-making smarter choices: climate change and infrastructure alternative scenarios to inform land use and capital infrastructure investment decisions.

**Managing the Landscape in a Changing Climate: Tools, Resources and Considerations for Conserving Biodiversity and Restoring Habitat Health**

**Room:** Nat Hill

**Organizer:** Abigail Derby Lewis

**Speakers:** Mark Anderson, Stas Burgiel, Ann Trainor

Given the potential of climate change to jeopardize many of the past conservation efforts to restore biodiversity and habitat health throughout the United States, it is critical moving forward for natural resource managers to understand how climate change is expected to impact species and natural areas and what actions can be taken to help them adapt. The speakers in this session will discuss the following themes: 1) identifying areas for conservation based on geophysical land characteristics correlated with diversity and resilience, 2) sharing existing tools and knowledge gaps for site managers seeking to reduce the impacts of invasive species in the face of climate change, 3) integrating climate science information into best management practices for natural resources and 4) providing guidance on aligning appropriate adaptation approaches with an agency’s particular conservation goals.

**When Sandy Comes Knocking**

**Room:** Pomeroy

**Organizers:** Lara Hansen and Steve Adams

**Speakers:** Elizabeth Yeampierre, Marjorie Kaplan, Susan Love, Susy Torriente, Paul Fleming

Will your community be ready when Sandy comes knocking? Find out how communities were and were not adapted to the effects of a superstorm or similar events. Late October 2012 was described as the watershed moment in which the need for climate adaptation was fully appreciated. While still very early in the recovery process, this session will explore what adaptation practitioners learned from the Sandy experience, as well as what other regions are preparing for. Moderated by Steve Adams (Institute for Sustainable Communities).

**Getting Organized: A Facilitated Discussion on Catalyzing Community Adaptation Efforts and Avoiding Common Hurdles**

**Room:** Spruce

**Organizer:** Kate Meis

**Speakers:** Brian Holland, Bruce Riordan

Join us to discuss how to catalyze community adaptation efforts and overcome common barriers. Despite the growing momentum adaptation is still a nascent field with many communities struggling to get organized. Barriers, including lack of funding, policy and institutional constraints, and difficulty anticipating exact climate change impacts, still impede action. While there is no one size fits all approach, there are similarities including mainstreaming climate considerations into existing policies and plans, and pursuing no and low regrets strategies. The practice of adaptation can advance through sharing these and other best practices. Facilitators will lead a conversation addressing successful strategies for catalyzing adaptation efforts and overcoming common barriers. The discussion will include: overview of key barriers and lessons learned from local governments across the US, the role of the State (lessons from California) and case studies from diverse California communities at varying stages in their adaptation efforts. Come share your questions, challenges, obstacles and lessons learned as we work together to strengthen the adaptation community.



**Working Groups Over Lunch 12:00 p.m. – 1:30 p.m.**

**Part 1: Adaptation Strategies and Information Needs in Response to Extreme Events**

**Room:** Gold Coin

**Organizer:** Nancy Beller-Simms

Water utilities want to learn from their peers about how they are responding to and planning for extreme weather and climate events. To meet this need, a coalition of Federal and NGO partners (NOAA, EPA, Water Environmental Research Foundation, WaterRF, Concurrent Technologies Corporation, and Noblis) conducted six case studies in California, Georgia, Virginia, Washington, D.C, Texas and Missouri. These studies provide insight into the physical and operational issues that water utilities and show practical adaptation and coping strategies used with a variety of extreme events (e.g., floods, drought, storm surge coupled with sea level rise, severe storms, and freezes).

The Working Group will examine the six case studies and compare them with their own experiences and findings; the discussion will be incorporated into a synthesis report. In addition, since the objective of this project is to facilitate peer-to-peer learning, we will discuss how to make this information more broadly available to inform local adaptation.

**Part 1: From Frameworks to Workflows: Implementing Adaptation Guidance in an Online Collaboration Space**

**Room:** Matchless

**Organizer:** Jessica Hellmann

We encourage anyone interested in developing online interactive adaptation guidance to join the workgroup. The first day of this two-day workgroup will focus on an introduction to the Collaboratory for Adaptation to Climate Change (adapt.nd.edu) and a discussion of the possible benefits and challenges associated with developing on-line guidance that is interactive and shaped by users. In this session, we will demonstrate a prototype of a “workflow” that steps people through an adaptation process, and participants will be asked to share steps they use in their adaptation decision processes. The second day will be a hands-on session with people interested in developing their own workflow, where we work on ideas for modifying to prototype to improve functionality and/or to meet different user needs. The second session will be a continuation of the first so that participants are encouraged to attend both activities. Co-organizers are: Kim Hall, Katie Kahl, and Patrick Doran of the Nature Conservancy and Jason Dzurisin of the University of Notre Dame.

**Part 1: Dialogue on the Growing Array of Vulnerability Assessment Frameworks: Applying Lessons from Domestic Frameworks to Developing Countries**

**Room:** Molly Brown

**Organizer:** Peter Schultz

There is a rapidly expanding set of vulnerability assessment frameworks produced to meet a range of needs. The proliferation of frameworks is indicative of the expanding body of knowledge on how to conduct vulnerability assessments. However, the large number of frameworks has some potential downsides. For example, it has the potential to lead to confusion among practitioners about which frameworks to apply in particular situations. It has the potential to generate confusion among

decisions makers and other stakeholders about which framework(s) to use to inform the range of decisions they face. Among funders, the proliferation has the potential to dilute the availability of funding for further expansion and implementation of the frameworks. The working group will promote dialogue among vulnerability assessment framework developers, practitioners, and funders, with a focus on applying lessons learned in the application of domestic vulnerability assessment frameworks to an international context. Day 1 will focus on lessons learned from domestic vulnerability assessment frameworks and principles. Day 2 will focus on the application of these frameworks and principles internationally.

**Assessing the Vulnerability of Highly Migratory Species to Climate Change Impacts**

**Room:** Denver 1

**Organizer:** Eleanor Babij

The challenges of working across multiple jurisdictions and across great geographic distances make highly migratory species a special case in terms of correctly assessing their vulnerability to climate change impacts. We are seeing some of the effects climate change is having on migratory species such as: widespread shifts in migration timing, direction and strength; the lengthening of some migrations affecting the ability of certain species to reach optimal feeding and breeding locations; and phenological shifts that create a mismatch between species migration and optimal food abundance. In extreme cases, species have truncated or abandoned migration altogether and in other cases, species now migrate to areas where they have not been recorded other than as occasional vagrants. Existing anthropogenic threats further exacerbate the challenges faced by migratory species under a changing climate. Together with climate change impacts, these existing threats will reduce population resilience to cope with such changes and most importantly reduce their ability to adapt.

**Adaptation and Mitigation: Are You or How Are You Integrating These Efforts?**

**Room:** Denver 2

**Organizer:** Gregg Thomas

This working group will convene attendees with climate mitigation and/or adaptation plans who have or are interested in integrating their plans. We will discuss the pros and cons of integrating mitigation and adaptation plans and what the benefits might be in doing so. It would be helpful to get a sense from the attendees on whether their members/staff involved in either or both of these planning efforts have separate skill sets and any lessons learned.

Concurrent Session 6 1:30 p.m. – 3:00 p.m.

Symposia

Legal Challenges for Coastal Communities Adapting to Sea-Level Rise

Room: Mattie Silks
Organizer: Thomas Ruppert
Speakers: Susan Farady, Jamie Wilkins

This panel explores some of the law and policy issues that are increasingly confronted by coastal communities responding to the impacts of climate change. The recent devastation caused by Superstorm Sandy put difficult questions in stark relief. What should be rebuilt? At what cost do we maintain vulnerable coastal infrastructure? Answering such questions requires decision makers to consider existing law, particularly law protecting private property. We examine case studies of coastal community responses to hazards such as erosion and sea-level rise around three themes: 1) issues of rebuilding public infrastructure, 2) issues of rebuilding private structures, and 3) issues of new public and private development in hazardous areas. Legal issues are put in context ensuring accessibility of the presentation to policy makers, planners, coastal residents, and engineers. Participants will gain a better understanding of the law and policy underpinning coastal property issues, and will have the opportunity to explore ideas that can be applied to management decisions about adaptation.

Tribal Climate Adaptation Management: Planning Tools, Capacity Building, and Partnerships

Room: Nat Hill
Organizer: Garrit Voggesser
Speakers: Susan Rose Wotkyns, Sean J. Hart, Kathy Lynn

This session will follow another tribal symposium, "Tribal Climate Adaptation Case Studies – Building on Success." This session will focus on: 1) tools and strategies for tribes to utilize to conduct climate vulnerability assessments and develop climate adaption plans; 2) the challenges and opportunities for tribal-federal agency engagement on climate adaptation; and 3) the opportunities for tribes to collaborate with non-governmental organizations, universities, states, and other entities for climate adaptation planning at the local, regional, and national levels. The presentations will provide overviews of these subjects with ample time for audience interaction.

Coastal Climate Change Adaptation in the Northeast: Lessons Learned

Room: Pomeroy
Organizer: Julia Wyman
Speakers: Juliana Barrett, Julia Knisel, Jennifer Pagach, Pamela Rubinoff, Wesley Shaw, Roger Stephenson

This Symposium will explore coastal climate change adaptation throughout the Northeast, primarily in the five coastal New England states. Climate change threatens coastal ecosystems and the built environment. These changes require informed policy and governance recommendations.

The panel will explore some of the ways that municipalities in coastal New England are adapting to climate change and present lessons learned from their efforts. Panelists will discuss: identifying and engaging key stakeholders in their adaptation efforts; communication and outreach of climate change risks and adaptation efforts to key stakeholders and public; identifying and using data and information resources; and lessons learned that may be applicable to others engaging in climate change adaptation.

Getting the Job Done: How Western US Cities are Preparing for Climate Changes

Room: Spruce
Organizer: Celia VanDerLoop
Speakers: Steve Adams, Vicki Bennett, Leslie Ethan, Lisa Friend

Local governments in the U.S. Southwest are and will be managing climate variability impacts, which may be different than those faced by coastal cities. These impacts include increased drought, stressed water supplies, increased flooding, poorer air quality, and extreme heat and other extreme weather events. As we move forward, local governments have the opportunity to incorporate projected climate changes and associated impacts within our core functions.

This interactive discussion will cover practical approaches for local governments to define and develop a culture of resilience. Utilizing case studies, the session will also introduce the role of learning networks in addressing the challenges of implementing adaptation and resiliency planning. The Western Adaptation Alliance (WAA) is a "learning network" of twelve local governments across four states, self-organized to collaborate on preparing urban areas in arid/semi-arid environments for the impacts of global climate change. The WAA provides a framework for collaborative regional climate adaptation planning, and for partnerships that maximize mutual benefits.

Bringing Climate Adaptation Home: State and Local Agencies Meet the Challenge

Room: Denver 3
Organizer: Lisa Micheli
Speakers: Laurna Kaatz, Bob Manteav, Zoe Johnson

From preparing for sea-level rise along our coasts to providing water for growing populaces under more uncertain weather conditions, the challenge of planning for climate-smart land use, transportation, environment and public health strategies will largely fall to the state and local governments charged with stewarding our community's resources. This session will focus on strategies underway at the state and local levels to respond to the threat of climate change and to expand the issue outside of the "environment box." Learn how local leaders are tapping into the recent innovations in both science and governance to create integrated responses customized to the specific needs and the technical and social infrastructures of their respective regions. Time for discussion will be provided to identify general principles and lessons learned for local leaders working across a variety of cultural settings.

Trainings

Part 3: Building Coastal Resilience

Room: Colorado A
Organizer: Shawn Margles

Description listed in Concurrent Session 4.

**Part 1: Decision Analysis for Climate Adaptation**

**Room:** Colorado B  
**Organizer:** Jennie Hoffman

Skills in decision analysis enable conservation practitioners to identify, evaluate and select among adaptation options in a changing climate. During this training, participants will learn how to use rapid prototyping to frame the decision, clarify objectives, develop alternatives, characterize consequences and make tradeoffs to select their preferred option of climate adaptation to achieve their objectives. After an introduction and case study presentation, participants will work through the decision process in teams. We will address the aspects of climate and related system change that pose challenges to making choices. The decision will focus discussion around the actual objectives for the decision, options for adaptive strategies, ways to predict their consequences, and the inherent tradeoffs in selecting one approach over another.

The training will highlight the scalability of the process, from one person with one hour to multi-stakeholder long-term engagements. It can be qualitative or quantitative, but the process remains the same.

**Part 3: Translating Research to Inform Policy: How to Participate Effectively in the Policy Process**

**Room:** Colorado C  
**Organizer:** Abigail Abrash Walton

Description listed in Concurrent Session 4.

**Part 3: Initiating Adaptation Planning with the Vulnerability and Consequences Adaptation Planning Scenario Process (VCAPS)**

**Room:** Colorado D  
**Organizer:** Kirstin Dow

Description listed in Concurrent Session 4.

**Working Groups**

**Part 1: Adapting After the Disaster: Lessons from Sandy and Irene**

**Room:** Gold Coin  
**Organizer:** Jessica Grannis

Hurricane Sandy turned a spotlight on the nation’s vulnerabilities to extreme weather and climate change; it also turned a spotlight on the nation’s inability to rebuild adaptively after disasters. Although traumatic, disasters present an opportunity for adaptation. With a disaster declaration comes an influx of federal funds. These resources could be used to help a community rebuild in a way that is “climate-smart,” in a way that recognizes that the community should not rebuild as it was, but instead rebuild in a way that anticipates increasing impacts from climate change. The problem is that the current framework for disaster relief (primarily the Stafford Act) precludes this result and in many ways prohibits adaptation.

In this session, experts will first provide an introduction to the laws that govern federal disaster funding, the barriers to using these funds for adaptation, and the experience of state and local officials in trying to adapt after hurricanes Sandy and Irene. Participants will work with the expert panel to develop recommendations of reforms to disaster relief policies to allow for adaptation in the rebuilding process.

**Part 1: Getting to Climate Savvy Fisheries Management: Fish Managers Guide to Climate Change**

**Room:** Matchless  
**Organizers:** Lara Hansen, Roger Griffis

Globally, there is now strong awareness of the vulnerability of fisheries to changes in climate, and growing concern about the implications of climate variability and change for fisheries sustainability and food security. Climate-driven changes in ocean conditions are already impacting marine ecosystems, fish stocks and the communities and economies that depend on them worldwide. These impacts are expected to significantly increase with continued changes in the planet’s climate system. Fisheries managers and fishing industry leaders require robust information and tailored guidance to better understand these implications and respond to the challenges of climate change. To address this need, we propose to convene the relevant fisheries adaptation managers and thinkers to develop a Fisheries Manager’s Guide to Climate Change building on successful guides developed for coral reef managers and other sectors. This working group session will be the first convening of the interested parties developing this product.

**Part 1: Seawalls and Wrecking Balls – The Sequel: Operationalizing Climate-Smart CMSP**

**Room:** Molly Brown  
**Organizer:** Jessi Kershner

The Working Group builds on and creates draft products from the coastal and marine spatial (CMSP) Symposium - Seawalls and Wrecking Balls: Overcoming the Barriers to Making CMSP Climate-Smart. The symposium session explored integrating climate change considerations into CMSP and presented case study examples of how climate change considerations can be integrated into CMSP. The Working Group will focus on two central issues: (1) understanding key political/institutional, policy, scientific, engagement/communications and other barriers to climate-smart CMSP and identifying pragmatic and actionable strategies to address them, and (2) identifying best practices for effectively incorporating climate change considerations into coastal and ocean planning and management. Through a facilitated dialogue, the organizers invite frank and focused discussion among diversely affiliated participants to deepen our collective understanding of challenges and potential solutions, and create a statement of needs and next steps for advancing the practice of climate-smart CMSP.

## Advancing Understanding and Application of Adaptive Capacity to Inform Sustainable Resource Management in a Changing Climate

**Room:** Denver 1

**Organizer:** John O'Leary

Climate change and associated impacts are threatening species and their ecosystems in terrestrial, aquatic and marine ecosystems in many parts of the world. Resource managers are working to conduct vulnerability assessments to guide and prioritize adaptation efforts. A critical component of vulnerability assessments identified in the National Fish, Wildlife and Plant Adaptation Strategy and the National Wildlife Federation publication, Scanning the Conservation Horizons, is consideration of the species' or ecosystem's adaptive capacity. However, limited knowledge and guidance is available on the adaptive capacity of species and biological systems. The purpose of the Working Group Meeting is to discuss the following items: 1. Progress on the writing an initial white paper to date; 2. Solicit ideas from the group on specific research agenda items to include in our writings; 3. Next Steps for the Working Group.

### Part 1: Green-Grey Adaptation

**Room:** Denver 2

**Organizer:** Emily Pidgeon

In addressing the impacts of climate change, decision-makers are now presented with a range of alternatives approaches to many issues: from policy actions to "hard" or "grey" engineering solutions to natural "green" ecosystem-based approaches. These solutions are often presented as exclusive alternatives. However, different approaches to adaptation provide different benefits and a green-grey combination can be the solution most able to provide longterm adaptation and cost-effectiveness. This workshop will draw on existing ecosystem-based and engineering adaptation examples to distill lessons-learned and bring together practitioners working on nature-based adaptation and hard engineering solutions to assess: 1) When can nature-based solutions reduce the extent and cost of engineering needed for adaptation? 2) When are engineering solutions needed to provide ultimate adaptation protection? 3) Which adaptation challenges are most suited to combined "green-grey" solutions? 4) What design parameters determine the relative value of natural and infrastructure adaptation options?

## Concurrent Session 7 3:30 p.m. – 5:00 p.m.

### Symposia

#### Decision Making for Climate Adaptation – Managing Uncertainty for Real Hard Decisions

**Room:** Mattie Silks

**Organizer:** Michael Nolan

**Speakers:** Daniel Williams, Holly Hartmann, Marni Koopman

Struggling with how to best incorporate the impacts of a changing climate into decision making for natural resource management, urban planning and infrastructure investment? This session will provide insight, lessons learned and tools to help you manage uncertainty in decision making to provide transparent, compelling and useful business cases for planning and investing in climate resilience.

The session will cover decision making at many levels using case studies of applied socio-economic cost benefit analysis for coastal urban areas, water supply, transport and power. It will also provide an

approach for connecting future climate change impacts at the landscape scale with social vulnerability and adaptive capacity at the community scale using case studies in Montana and Colorado.

The role of coordinating the response to long-term climate change and natural disasters will also be explored based on the ClimateWise adaptation planning process in communities throughout the Western U.S.

#### Adapting to Climate Change in the Western US: Drought, Fires and Forests

**Room:** Nat Hill

**Organizer:** Colin Quinn

**Speakers:** Roger Pulwarty, Janine Rice, Tim Brown, Brad Udall

The Western US faces many challenges to adapt to a changing climate. 2012 brought historical drought and wildfires to the region; much of the US is still in the grip of this long standing drought. Understanding these events, what effects these events have on ecosystems, and how to prepare for future events is vital for the US, especially the Western region. This session brings together four leaders of their fields to address adaptation challenges the Western region is facing. The session will explore three pressing issues: drought, wildfire, and forest ecological adaptation to climate change. The session will conclude with a 30 minute audience question and answer period.

#### Adapt or Suffer – Tools to Identify Appropriate Coastal Adaptation Strategies

**Room:** Pomeroy

**Organizer:** David Revell

**Speakers:** Nicole Heller, Joy Brown, Kate Skaggs

Climate change and its effects on sea levels, temperature, and precipitation will threaten private property, public infrastructure, and ecosystems. In this session, we will explore some case studies from the East and West Coast focused on adapting to climate change. These examples have developed various decision support tools through engaged stakeholder processes. For each study, these different tools were applied to identify appropriate adaptation strategies for particularly vulnerable areas. A goal of this session is to present these case studies, identify appropriate lessons learned and then discuss the potential and practical application of these tools to supporting coastal adaptation planning around the country.

#### Adaptation in the City: Insights from Metro Initiatives Around the Country

**Room:** Spruce

**Organizer:** Steve Adams

**Speakers:** Dave Erickson, Kimberly Hill Knott, Matt Kuharic

This session will explore insights and lessons learned from climate adaptation and mitigation initiatives from four diverse urban settings within the United States; in four presentations, participants will hear reflections on differing approaches to urban climate action planning, governance and implementation, results to date, and managing the inevitable trade-offs of such processes.



Thursday, April 4

Concurrent Session 8 8:30 a.m. – 10:00 a.m.

Symposia

Adaptation for Landscaping Diversity in Farming and Habitat

Room: Mattie Silks

Organizer: John Wiener

Speakers: Richard Cruse, Reagan Waskom, John McKenzie, William Burnidge

The National Research Council has called for “voluntary adaptation” by the private sector in response to climate change, and also has called for “transformational change” as well as incremental progress in farming systems, to transition Toward Sustainable Agricultural Systems in the 21st Century. The importance of agricultural use of the environment is unquestioned, but farming landscapes are changing very rapidly and responding to short-term influences which are reducing productive capacity. The owners of small and mid-sized agriculture may not be aware of the range of interests that could help support adaptation efforts. This symposium will describe the confluence of interests that help to bring about stabilized diverse agriculture, and common interests at many scales that should participate in adaptive transitions of high potential value.

Managed Relocation: Perspectives on Regulatory Challenges and Management Implications

Room: Nat Hill

Organizer: Arpita Choudhury

Speakers: Ariana Spawn, Jessica Hellman, Chris Hoving, Amber Pairis, Preston Hardison, Nancy Green, Mark Schwartz, Gordon Leppig

This symposium will examine managed relocation (translocation of species outside their historical range to maintain biodiversity under a changing climate) in the context of state and federal regulations and natural resource management. The intent of this symposium is to move beyond theory to the real world in order to examine this potential strategy.

The symposium will begin with a short history of species translocations in the U.S. It will be followed by a suite of presentations from the state, federal, and tribal perspective. The presentations will end with some thoughts on the role the academic community can play to assist management agencies in this endeavour. The second half of the symposium will consist of a facilitated dialogue on the content of the symposium and how best to proceed.

Incorporating Hazard Mitigation and Adaptation into Local Planning Efforts

Room: Pomeroy

Organizer: Kelly Klima

Speakers: Deborah Glaser, Julia Burrows, Nicola Hedge, Steve Moddemeyer, Ryan Towell

This symposium will discuss communicating adaptation and hazard mitigation to communities, businesses, and individuals and provide insights from local, state, and federal groups that have successfully integrating adaptation and hazard mitigation. The moderator will then hold an open discussion on ways to improve and advance the methodology behind hazard mitigation plans.

Moving from Plan to Action: Lessons Learned on Forging and Sustaining an Effective Community-Based Climate Action Coalition in Oakland CA

Room: Spruce

Organizer: Catalina Garzon

Speakers: Nile Malloy, Margaret Gordon, Al Weinrub, Sandra Hamlat

Climate action coalitions can play a key role in moving from the “planning” to the “action” stage of implementing a municipal climate action plan whose ultimate success hinges on the broad-scale participation of city residents and other community stakeholders. Active members of the Oakland Climate Action Coalition (OCAC), formed in 2009, share lessons learned through their role in creating and implementing the City of Oakland’s Energy and Climate Action Plan (ECAP). Adopted in March 2011, Oakland’s ECAP has among the most ambitious greenhouse gas emission reduction goals of any plan in the nation and includes a diverse set of priority actions that advance social equity goals. In this symposium, OCAC coalition members will discuss strategies that worked in sustaining an effective cross-sector coalition to advance community priorities in climate action planning and implementation on a variety of issues including food, energy, transportation, and adaptation and resilience.

A “Rosetta Stone” For Integrating Climate Change into Existing Planning Frameworks

Room: Colorado A

Organizer: Aimee Delach

Speakers: Natalie Dubois, Noah Matson

One significant challenge in climate change adaptation planning is the fact that various federal and state agencies and other entities already have planning processes in place; therefore, climate change must be integrated into these frameworks. This symposium will show how the “Open Standards for the Practice of Conservation,” developed by the Conservation Measures Partnership, can be used as a “Rosetta Stone” that can help identify integration points for incorporating consideration of climate change into a wide variety of planning processes. We will present best management practices for incorporating climate change into: 1) State Wildlife Action Plans; 2) Recovery planning under the Endangered Species Act; 3) National Wildlife Refuge Comprehensive Conservation Plans; 4) National Forest Management Act Planning under the 2012 Planning Rule; and 5) Environmental Impact Statements prepared in accordance with the National Environmental Policy Act.

**“Climate Ready” Management of Living Marine Resources: Planning and Action to Reduce Risks**

**Room:** Colorado B

**Organizer:** Roger Griffis, Malin Pinsky, Laura Petes

**Speakers:** Vera Agostini, Robert Pomeroy, Robert Glazer, Suzanne Langridge

Climate variability and change are already impacting the nation’s oceans, living marine resources and the people and economies that depend on them. The threats and impacts are expected to significantly increase with continued changes in the planet’s climate system, and there is much at risk: in the U.S., living marine resources provide food, jobs and other important services for millions of people and support billions of dollars in economic activity every year from fisheries, tourism, and recreation. This is part two of two linked symposia exploring the challenges, opportunities, and best practices for advancing climate-ready living marine resource management. The presentations and discussion of this session focus on planning and implementing actions that reduce risks and increase adaptation of marine resources and resource-dependent communities in a changing climate. The findings and recommendations will be made available to broader audiences in a symposium summary paper.

**Trainings**

**Part 1: The Refuges VA Framework**

**Room:** Gold Coin

**Organizer:** Patrick Crist

The training will provide an opportunity for participants to understand this fairly unique framework that is focused on the spatial analytical techniques of VA and adaptation planning. They will understand the eight steps of the framework, their conceptual underpinnings, and the tools utilized to conduct the steps. They will understand how spatial decision support tools are used to support the steps and how these tools are interoperated to form toolkits. Participants will be provided with the RVAA Manager’s and Technical Guides PDFs and the training PowerPoint which contain a variety of useful resources for follow up. They will also understand how to get additional help to initiate and conduct an RVAA and the power of partnerships to undergo this process. We propose to also broadcast and record this training as a webinar that can be served from the FWS, NatureServe, and EBM Tools Network websites and linked via Cakex.org.

**Part 1: Moving from Adaptation Planning to Action: Barriers and Opportunities to Protect People and Property from Climate Change through Nature-Based Approaches**

**Room:** Matchless

**Organizer:** Jessica Grannis

Adaptation planning has dramatically evolved over the last decade, but implementation has proven to be more challenging and examples of implemented approaches are more elusive. Implementation is challenging, in part, because plans are not always designed with an eye toward implementation, nor are they developed in anticipation of barriers.

In this training event, participants will be asked to consider a case study of a jurisdiction. We will provide the audience with a description of the community’s layout, topography and key vulnerabilities. Participants will be asked to: 1) Identify adaptation strategies for this community, in consideration of the evaluation criteria; and 2) Discuss, in groups, the barriers to selected policies recommended in the

community’s actual adaptation plan that will feature the use of nature-based solutions and land-use practices to protect people and property from climate impacts. Participants will assume a stakeholder role (e.g., environmental NGO, elected official, city planner, chamber of commerce) and discuss the set of questions.

Each group will report on identified barriers for the case-study community and any personal experiences that participants have encountered in their own communities.

**Working Groups**

**Part 1: Climate Adaptation Indicators for Biodiversity and Ecosystems**

**Room:** Colorado C

**Organizer:** Amanda Staudt

This working group will scope out the key needs, opportunities, and challenges related to developing climate adaptation indicators, particularly in the context of managing ecosystems and conserving biodiversity. Based on this discussion, the working group then will map out a strategy for developing a conceptual framework for climate adaptation indicators.

The working group sessions would begin with a few short presentations to identify some key issues for discussion, related data products and indicator efforts already underway or in development, and relevant scholarship and practice, especially pertaining to measuring conservation success. The majority of the working group sessions will be devoted to discussion among participants of their indicator needs, opportunities, and challenges, and how best to develop a conceptual framework for adaptation indicators.

**Part 1: Tribal Adaptation Action Planning – Defining the Path Forward**

**Room:** Colorado D

**Organizer:** Garrit Voggeser

A World Café Session will address Tribal-Federal Coordination and Policy Engagement to identify current challenges to coordination, opportunities, and identify steps to improve the process; identify proactive next steps to more fully engage tribes; Policy Development and Coordination for Tribes and federal agency representatives to review structures, adaptation planning processes, and tools to facilitate improved coordination and partnerships on policy development and adaptation; Partners, Funding, and Technical Resources for adaptation planning and what role they would play; and Traditional Knowledge (TK) to assess the role of TK in adaptation planning, ways TK can be integrated into assessing vulnerabilities and developing adaptation strategies, and ways to emphasize TK in tribal planning. The discussion outcomes will inform “key next steps” in the follow-up tribal working group session. The second session will prioritize issues and next steps, address collaboration, and the network that would be most effective for the issues to be addressed. The working group will document an action plan framework, collaboration/partnership structure, and develop a statement of commitment to address Tribal priorities to create and implement proactive climate change management responses.

**Concurrent Session 9 10:30 a.m. – 12:00 p.m.**

**Symposia**

**Adaptation in the Coastal Context**

**Room:** *Mattie Silks*  
**Organizer:** *Susanne Moser*  
**Speakers:** *Amy Snover, Steve Adams*

Adaptation to climate change is now a common concern on policy and management agendas. This has led many decision-makers, program managers, and other stakeholders to ask what adaptation success would look like and how one would evaluate adaptation effectiveness over time. This symposium presents comparative insights on these questions from a multi-disciplinary workshop with scientists and three workshops with coastal managers and stakeholders held in California, Oregon, and Washington. Results indicate the necessity to consider both adaptation process and outcomes; and the challenges in particular to define “successful outcomes”. Further findings relate to the difficulty of relating effective process characteristics to effective adaptation outcomes. While the first part of the symposium will present project results, the second half aims to engage the audience in addressing a set of questions about the transferability of findings to other locations, about metrics of success, about possible improvements in the adaptation process to increase the likelihood of moving toward a desirable future.

**On-the-Ground Action for Wildlife Adaptation: Funding Opportunities and Examples from the Field**

**Room:** *Nat Hill*  
**Organizer:** *Darren Long*  
**Speakers:** *Kathryn Socie, Betsy Neely, Louis Misztal, Molly Cross*

There is strong interest in on-the-ground climate adaptation conservation, but so far very little practical guidance available and even fewer examples of case studies have been implemented or described. Participants will come away with practical knowledge about developing climate change adaptation projects, the science needed to support this work, adaptation planning processes, how others are moving from science and planning to on-the-ground action, and available funding opportunities.

**Climate Change Adaptation Planning and Practice**

**Room:** *Pomeroy*  
**Organizer:** *Erika Rowland*  
**Speakers:** *Rebecca Esselman, Christine Pickens, Marni Koopman*

Climate change adaptation is a dynamic process that incorporates opportunities for learning along the way, ultimately promoting flexible responses over the long term. The presentations in this session cover the synthesis and application of learning from the early stages of adaptation efforts through the consideration of the evaluation of implemented projects. The first presenter will offer reflections from efforts focused within the Huron River watershed engaging local stakeholders toward action. Next will be a comparative look at multiple planning exercises applying a particular decision support method (scenario planning) in many different landscapes. The latter half of the session will address climate change adaptation effectiveness. Leading off will be a report on the early results of TNC’s four years of coastal

restoration work at the USFWS’ Alligator River National Wildlife Refuge. The concluding speaker will present a review of performance measure frameworks toward the design of one for tracking progress and conservation outcomes for the diverse Landscape Conservation Cooperatives (LCCs).

**Making Transportation More Resilient to Climate Change: New Approaches to Assessing Vulnerability and Adaptation Options**

**Room:** *Colorado A*  
**Organizer:** *Robert Hyman*  
**Speakers:** *Karl Peet, Jeff Perlman*

Transportation agencies are investigating tools and approaches that can be used in identifying infrastructure vulnerability to climate changes and to evaluate the adaptation options at their disposal. In this session, we will learn from three transportation agencies developing methods to plan for greater resilience. The Federal Highway Administration will describe approaches used and lessons learned in developing and implementing a framework for assessing the vulnerability of transportation systems to climate change. The Chicago Transit Authority will provide the perspective of a public transit agency and discuss the findings of their study of the vulnerabilities of the Chicago transit system, and some potential adaptation options. Finally, the North Jersey Transportation Planning Authority will describe how the results of a vulnerability assessment develop adaptation options and integrate into agency planning and practice, especially post-super storm Sandy. A panel discussion will allow for direct interaction with the audience regarding the issues faced, best practices, and lessons learned.

**Supporting Adaptation in Coastal Watershed Communities: Models, Methods, and Measures of Success**

**Room:** *Colorado B*  
**Organizer:** *Sherry Godlewski*  
**Speakers:** *Steve J. Miller, Julie La Branche, Chris Keeley*

The New Hampshire Coastal Adaptation Workgroup, (NH CAW) composed of representatives from 19 federal, state, regional, municipal, consulting, non-profit and academic institutions, is collaboratively using engagement to support climate change adaptation planning in our coastal watershed communities. NH CAW has been successful in delivering information our communities have asked for through educational forums and directed research. Our collaborative nature allows us to access grant funds and local data to better inform community dialogue and decision making. We will illustrate the various methods we have utilized to educate and engage coastal decision makers about the potential impacts and existing tools available to assist them in incorporating adaptation into their planning. We will highlight how we gauge community readiness through working directly with community members and decision makers. Our discussion will include ways in which we can recognize a community’s progress with adaptation.

## Part 1: Equitable Community Engagement in Adaptation Planning and Disaster Response

**Room:** Spruce

**Organizer:** Ann Baughman, Queen Quet, Jacqueline Patterson, and Cara Pike

This community engagement training will begin with a dialogue among four leaders in public outreach and community engagement who will share their perspectives on the steps that need to be taken to effectively engage the public in climate adaptation and disaster response efforts and the tools practitioners need to be effective.

Participants will be walked through a series of planning steps that need to be taken to ensure equitable and inclusive public engagement and will be given the chance to apply the process to their own work. Components of this interactive session will include: an introduction to climate adaptation communications; tips on how to design a community engagement process from start to finish; respectful methods for engaging indigenous and tribal groups; and addressing the human and civil rights dimensions of disaster planning and response programs.

### Trainings

#### Part 2: The Refuges VA Framework

**Room:** Gold Coin

**Organizer:** Patrick Crist

Description listed in Concurrent Session 8.

#### Part 2: Moving from Adaptation Planning to Action: Barriers and Opportunities to Protect People and Property from Climate Change through Nature-Based Approaches

**Room:** Matchless

**Organizer:** Jessica Grannis

Description listed in Concurrent Session 8.

### Working Groups

#### Part 2: Climate Adaptation Indicators for Biodiversity and Ecosystems

**Room:** Colorado C

**Organizer:** Amanda Staudt

Description listed in Concurrent Session 8.

#### Managed Relocation Working Group

**Room:** Colorado D

**Organizer:** Chris Hoving

This will be a new working group; those interested in participating are asked to contact Chris Hoving (HOVINGC@michigan.gov) prior to the session. This group will build on the work of a working group that recently published a paper on the need to integrate consideration of the challenges involving managed relocation, i.e., the translocation of species outside their historic range in an attempt to conserve biodiversity in the face of a changing climate. This new group would focus more on the

biological, scientific, and applied management aspects involved in considering the possible use of managed relocation as a climate adaptation tool; the group will not take a position for or against managed relocation. Although a few academics from the informal group would be involved, the core of this new group would be individuals with relevant expertise from state, federal, and tribal government agencies with regulatory authority for species translocations. Members also include individuals from non-governmental organizations with relevant expertise.

### Working Groups Over Lunch 12:00 p.m. – 1:30 p.m.

#### Part 2: Adaptation Strategies and Information Needs in Response to Extreme Events

**Room:** Gold Coin

**Organizer:** Nancy Beller-Simms

Description listed under Wednesday's Working Groups over lunch.

#### Part 2: From Frameworks to Workflows: Implementing Adaptation Guidance in an Online Collaboration Space

**Room:** Matchless

**Organizer:** Jessica Hellmann

Description listed under Wednesday's Working Groups over lunch.

#### Part 2: Dialogue on the Growing Array of Vulnerability Assessment Frameworks: Applying Lessons from Domestic Frameworks to Developing Countries

**Room:** Molly Brown

**Organizer:** Peter Schultz

Description listed under Wednesday's Working Groups over lunch.

#### Part 1: Western Adaptation Alliance

**Room:** Colorado C

**Organizer:** Vicki Bennett

The working group session will feature members of the Western Adaptation Alliance (WAA) who will talk about the development of their learning network. The WAA includes cities in the western U.S. in arid climates in Colorado, Utah, Arizona and Nevada. The working group will be a discussion to further strategic next steps for WAA, meet with other interested partners and identify needs and opportunities to support and measure adaptation implementation efforts. This working group will offer an opportunity for face to face interaction among WAA members and guests and will focus time developing tangible and actionable outputs such as a set of recommendations for the regional network and specific local action.

**Part 2: Tribal Adaptation Action Planning – Defining the Path Forward**

**Room:** Colorado D

**Organizer:** Garrit Voggesser

Description listed in Concurrent Session 8.

**Concurrent Session 10 1:30 p.m. – 3:00 p.m.**

**Symposia**

**Coastal Resilience: An Emerging Approach to Address Floodplain and Coastal Community Vulnerability**

**Room:** Mattie Silks

**Organizer:** Lily Verdone

**Speakers:** Zach Ferdana, Eric Grossman, Greg Guannel

Climate change, amplified coastal erosion, inundation and extreme weather events are affecting hundreds of millions of people and important infrastructure, with significant losses to national and local economies. Ecosystem degradation raises these risks by further exposing communities and assets to more waves, winds and water. Coastal Resilience, a program of The Nature Conservancy with partners including NOAA, USGS, Association of State Floodplain Managers, the Natural Capital Project, the United Nations University and the University of Southern Mississippi, is working to move beyond anecdotal information to answer rigorous questions about the role nature can play in reducing risk. Coastal Resilience is a 4-step approach: (1) Assess Risk, (2) Identify Solutions, (3) Take Action, and (4) Measure Effectiveness (<http://network.coastalresilience.org>). Presentations will be structured around the 4-step approach that is being applied in geographies throughout North America, including Washington, California and Alabama. The Coastal Resilience approach is helping decision-makers create strategies for climate change that are cost efficient and effective for both people and nature.

**Rural Climate Adaptation for Forest, Water and People: Essential Elements Leading to Effective Implementation**

**Room:** Pomeroy

**Organizer:** Gwen Griffith

**Speakers:** Marcie Bidwell, Julia Kintsch, Carl Lindquist, Vanitha Sivarajan

With water and forest adaptation as our focus, the Climate Solutions University (CSU) program has engaged 24 communities across the U.S. since 2009 to conduct climate adaptation planning and implementation. The program partners with local community leaders and integrates forest, water and economic adaptation in rural settings. This session will share the experiences of the CSU program for factors of success and lessons learned for the adaptation planning process, and real on-the-ground resilience outcomes. Presenters will include three CSU Program Team members who direct the planning curriculum, the implementation support network, and the development activities. In addition we'll have two community leaders to give the community-based perspective on what has worked in Colorado and the Great Lakes region. The symposium will include interactive sessions for participants to share their experiences, learn from each other, and add to the body of knowledge about effective adaptation planning and implementation. (Model Forest Policy Program at [www.mfpp.org](http://www.mfpp.org))

**Adapting the Forest for the Trees: Examples of On-the-Ground Action in Forestry and Habitat Restoration**

**Room:** Colorado A

**Organizer:** Melinda Koslow

**Speakers:** Chris Swanston, Meredith Cornett, Doug Inkley

This session will showcase on-the-ground examples of adaptation in forestry and habitat restoration. These examples implement adaptation through two frameworks: the Climate Change Response Framework and the Climate-Smart Restoration Framework. The Climate Change Response Framework is the result of a partnership network including the U.S. Forest Service, The Nature Conservancy, state agencies, universities, and numerous other organizations. The Climate-Smart Restoration Framework is the result of a partnership between National Wildlife Federation, EcoAdapt, and NOAA along with those supported by the Great Lakes Restoration Initiative. Climate change vulnerability assessments provide a critical step prior to adaptation planning and implementation. Results from vulnerability assessments are included in this discussion and linked to adaptation decisions. Implementation actions highlighted include: fish habitat restoration, re-forestation of fallow agricultural land, and plantings and ecologically-based harvesting. These examples emphasize the Great Lakes/Midwest region, however have applications far and beyond.

**“Bridging the Divide:” Developing Shared Understanding of Climate Risk Management among the Insurance, Finance and Public Sectors**

**Room:** Colorado B

**Organizer:** Brian Holland

**Speaker:** Cynthia McHale

Three trends are converging to put public/private sector collaboration in cities at the forefront of climate resiliency and risk management efforts--infrastructure value is rising, assets with multi-decadal lifespan will be exposed to unrecognizable shocks, and a focus on the resilience of interdependent systems is critical. Climate-related risks to these systems are managed by a complex array of agencies, investors, insurers and property owners, and by working hand in hand, these actors have the power to manage the overall risk landscape. In this session, participants will explore how to bridge the divide between these sets of stakeholders. Facilitated by staff from ICLEI (leading network of cities and counties) and Ceres (leading network of investors and companies), who are working in partnership to create a systematic understanding of climate risk between these stakeholders through a series of city-level workshops. Findings from these workshops will be presented, along with insights from other projects, such as Ceres' 2012 report on insurance industry climate risk disclosure and ICLEI's award-winning adaptation planning project.

**Part 2: Equitable Community Engagement in Adaptation Planning and Disaster Response**

**Room:** Spruce

**Organizers:** Ann Baughman, Queen Quet, Jacqueline Patterson, and Cara Pike

Description listed in Concurrent Session 9.

### **Implementing the National Fish, Wildlife and Plants Climate Adaptation Strategy**

**Room:** Colorado D

**Organizer:** Roger Griffis

**Speakers:** Lynn Helbrecht, John O'Leary, Robert Glazer, Karen DeBord, Noah Matson

The National Fish, Wildlife and Plants Climate Adaptation Strategy provides a unified approach—reflecting shared principles and science-based practices—for reducing negative impacts of climate change on America's species and the natural systems they depend on. The session will provide an overview of the Strategy, exploring the theme of “implementation” using case study examples from diverse partners (state, federal, tribal, and non-profit) to highlight challenges, opportunities, and recommendations for aligning new and ongoing adaptation actions with the Strategy and stepping down broad goals into actual actions on the ground. Finally, the session will share lessons learned from the Strategy's extremely broad and successfully partnership and outreach efforts. This information-sharing session will also solicit input and responses from participants on future directions of these efforts.

### Trainings

#### **Part 3: The Refuges VA Framework**

**Room:** Gold Coin

**Organizer:** Patrick Crist

Description listed in Concurrent Session 8.

### Working Groups

#### **Is it Doing Any Good? The Need for Adaptation Monitoring.**

**Room:** Molly Brown

**Organizer:** Lara Hansen

Climate change monitoring programs may be categorized as those that (1) assess climatic and environmental changes, (2) evaluate how climate change affects management or planning goals, and (3) determine the effectiveness of management and policy actions so that they may be redesigned, if necessary. This last category is especially important in order to improve the success of climate change response strategies. Metrics for evaluating the success of efforts to reduce greenhouse gas emissions are fairly standardized and applied, while metrics to monitor the effectiveness of adaptation are few and far between. Because the field of adaptation has grown so quickly, many of the strategies that have been designed and/or implemented are not being monitored and evaluated for effectiveness. This session will explore examples from all three monitoring categories, and create an ad hoc think tank to discuss and develop ideas to support the evaluation of climate-smart strategies.

#### **Part 2: Western Adaptation Alliance**

**Room:** Colorado C

**Organizer:** Vicki Bennett

Description listed under Thursday's Working Groups over lunch.

Poster session with presenters: Tuesday April 3, 5:30 p.m. – 7:30 p.m. Colorado E

Open for viewing: Monday evening through Tuesday evening

**Note:** Poster authors listed by presenting author only, full details, including abstract can be found on the forum website.

### Adaptation Into Practice

#### **Mainstreaming Climate Change Adaptation in Canadian Water Resource Management**

Samantha Boardley, ESSA Technologies Ltd.

#### **Preparing for Climate Change in Three New England Coastal Communities: Lessons Learned and Recommendations for Adaptation Practitioners**

Chris Keeley, New Hampshire Sea Grant

#### **Creating ClimateWise® Communities**

Keith Henty, Geos Institute

#### **Sea Level Rise Adaptation and Communication in Parks and Recreation Areas Through the Adapting to Rising Tides Project**

Maggie Wenger, San Francisco Bay Conservation and Development Commission

### Assessing Vulnerability

#### **Capturing Complexities and Establishing Threshold for Retreat: the Climate Change Relocation Leaf**

Anamaria Bukvic, Virginia Tech

#### **Assessing Climate Vulnerabilities in Delaware**

Jennifer De Mooy, Delaware Division of Energy & Climate

#### **Using Enduring Features to Set Conservation Agenda**

Wendy Francis, Yellowstone to Yukon Conservation Initiative

#### **Assessing Vulnerability of Marine Fish Stocks in a Changing Climate**

Roger Griffis, NOAA Fisheries Service

#### **Setting the Stage: Using a Watershed Based Climate Assessment in Coastal New Hampshire to Stimulate Planning for Climate Adaptation**

Steve Miller, Great Bay National Estuarine Research Reserve

#### **The Adapting to Rising Tides (ART) Project in the San Francisco Bay Area**

Sara Polgar, San Francisco Bay Conservation and Development Commission

#### **Modeling Impacts of Climate Change Hazards To Support Adaptation of Resilient Coastal Communities**

David Revell, ESA PWA

#### **Using Climate Data in Vulnerability Assessments: A Beginner's Guide to Accessing and Visualizing Climate Data**

Danielle Shannon, Northern Institute of Applied Climate Science (NIACS)

#### **Adapting to Rising Tides – might your infrastructure be at risk?**

Claire Bonham-Carter, AECOM

## Posters

### State of Understanding

**What 70 Major Global Cities are Reporting about Climate Risk and Adaptation Planning**  
Claire Bonham-Carter, AECOM

**Cambridge's Climate Change Vulnerability Assessment: Linking Theory and Practice**  
Lisa Dickson, Kleinfelder

**Using the Economic Profile System Software to Identify Vulnerable Populations and Economic Sectors**  
Ray Rasker, Headwaters Economics

### Making Plans Happen

**Incorporating Climate Change into the California Wildlife Action Plan**  
Whitney Albright, California Department of Fish and Wildlife

**Scenario Planning to Help Natural Resource Managers Face Climate Change**  
Sara Moore, Sonoma State University

**Regional Policy Empowering Local Adaptation in the Coral Triangle: Exploring The Region-wide Early Action Plan for Climate Change Adaptation and the Climate Change Adaptation Guide for Coastal Communities in the Coral Triangle.**  
Catherine Courtney, NOAA Coral Reef Conservation Program

**Lessons from the Third Coast—Communication and Adaptation Planning Strategies from the Great Lakes Region**  
Elizabeth Gibbons, Graham Institute - University of Michigan

### Making a Plan

**Climate Change Adaptation Planning for Michigan's Wetlands**  
Anne Hokanson, Michigan Department of Environmental Quality

**Elastic Stormwater Infrastructure + Public Space**  
Keihly Moore, University of North Carolina

**Planning for the Health Impacts of Climate Change in NC**  
Lauren Thie, NC Department of Health & Human Services

**Developing a Community Coastal Resilience Plan in Guilford, Connecticut**  
Adam Whelchel, The Nature Conservancy

**Hazard and Climate Mitigation in Bridgeport, Connecticut: A Proactive Municipal Perspective**  
Adam Whelchel, The Nature Conservancy

**Adapting to Wisconsin's Changing Climate: Science and Collaboration**  
Bill Walker, University of Wisconsin-Madison

**Climate Change Impacts on Wisconsin's Water Resources**  
Bill Walker, University of Wisconsin-Madison

### Adaptive Capacity and Capacity Building

**How does Climate Change Affect the Fundamental Aspects of Monitoring Programs?**  
**Lessons from a Large-landscape Project in Montana.**  
Anne Carlson, The Wilderness Society

## Posters

**Harnessing Nature: The Ecosystem Approach to Climate-Change Preparedness**  
Aimee Delach, Defenders of Wildlife

**Formative Evaluation of the Gulf of Mexico Climate Community of Practice (CoP)**  
Stephanie Fauver, Mississippi-Alabama Sea Grant Consortium

**Climate Change Adaptation Strategy Evaluation at a State Natural Resource Agency**  
Andy Holdsworth, Minnesota Dept. of Natural Resources

### How to Make Adaptation Happen

**Case Studies: Water Resource Strategies in Response to Extreme Climate/Weather Events**  
Nancy Beller-Simms, NOAA Climate Program Office

**Without Federal Funding: Innovative Funding for Community Adaptation**  
Katrina Durbak, Louisiana State University

**Updating Freshwater Conservation in Agricultural Watersheds: Testing our Strategies and Tools**  
Kim Hall, The Nature Conservancy

**Urban and Community Forestry Climate Preparedness and Response**  
Matt Kuharic, King County

### Communication and Socialization

**Lessons from the International Stage: Making Adaptation Policy and Case Studies Relevant at the Regional Level**  
Diane Husic, Moravian College

**Engaging Public Audiences in Climate Science through Citizen Science, Nature Journaling and Art Workshops, and Community Dialogue about Local Adaptation Priorities**  
Diane Husic, Moravian College

**The Curious Absence of Political Scientists from the Adaptation Conversation**  
Debra Javeline, University of Notre Dame

**Boats in the Sandbox: Using Role-Play Simulation Exercises to Explore How Infrastructure Planners in Seaport Regions Can Best Respond to Uncertain Futures Under Climate Change**  
Todd Schenk, Massachusetts Institute of Technology + Consensus Building Institute

**Green Streets for Green Infrastructure**  
Daniel Staley, DCS Consulting Services

**Solar Power and Urban Forests: Coexisting in a City Near You**  
Daniel Staley, DCS Consulting Services

**Adaptation Media Relations: Serving, Not Selling**  
Roger Stephenson, Clean Air-Cool Planet

### Regional Adaptation Resources

**Adapting Science to a Warming World: What Stakeholders in Alaska Say about how the Process and Practices of Science should Change**  
Corine Knapp, University of Alaska Fairbanks

**The Collaboratory for Adaptation to Climate Change**  
Jason Dzurisin, University of Notre Dame

## Posters

### **New England Climate Adaptation Project**

Danya Rumore, Consensus Building Institute; Massachusetts Institute of Technology

### **Coastal Resilience at Work, Reducing Risk of Future Natural Disasters and Climate Change: from Planning to Action**

Christine Pickens, The Nature Conservancy

### **Regional Adaptation Tools and Efforts**

#### **A State Guide for Climate Preparedness Planning**

Ben Chou, Natural Resources Defense Council

#### **Helping Communities Become ClimateWise**

Tonya Graham, Geos Institute

#### **Moving from Theory to Action Using the Climate Adaptation Knowledge Exchange**

Rachel Gregg, EcoAdapt

#### **Translating Science into Conservation Policy and Practice: Incorporating Climate Change Strategies into NYS Policy**

Samantha Hoff, Audubon NY/SUNY Albany

#### **Made in the Crown of the Continent: The Roundtable on the Crown of the Continent's Homegrown Approach to Climate Change Adaptation**

Gary Tabor, Center for Large Landscape Conservation

#### **Building Resilience Against Climate Effects - A Framework for Public Health Agencies**

Jessica Thomason, US Centers for Disease Control and Prevention

#### **Lessons Learned while Coordinating a National Climate Change Science Delivery Website for Land Managers.**

Kristen Schmitt, Northern Institute of Applied Climate Science

### **Lessons to Learn From**

#### **The US-Netherlands Connection Program**

Stan Bronson, Florida Earth Foundation

#### **The National Sea Grant College Program's Coastal Community Climate Adaptation Initiative: Local Adaptation In a National Network.**

Joshua Brown, NOAA Sea Grant

#### **Roadmaps, Toolboxes, and Networks: Fostering Innovation and Adaptation at Scale with the Carpe Diem West Academy**

Holly Hartmann, University of Arizona

#### **Assessing Public Transportation Agencies' Climate Change Adaptation Activities and Needs**

John MacArthur, OTREC/Portland State University

#### **The Best Laid Plans: Building Partnerships for Effective and Equitable Resilience Planning**

Kirsten Schwind, Bay Localize

#### **Accelerating informed use of climate projections and knowledge in adaptation to climate variability and change**

Caspar Ammann, NCAR

## Exhibitor Listing

### **American Society of Adaptation Professionals**

[www.adaptationprofessionals.org](http://www.adaptationprofessionals.org)

The American Society of Adaptation Professionals (ASAP) is an emerging professional society designed to organize and support the needs of climate change adaptation professionals – whether in academia, public and non-profit sectors, or the private sector – working on the challenges of adaptation at various scales (national to local), within or across multiple sectors (e.g., transportation or water supply), and within or across multiple vectors of climate change impacts (e.g., drought or sea level rise). ASAP seeks to advance the field of climate change adaptation by providing a unifying professional identity for practitioners currently engaged in efforts across the nation.

### **Defenders of Wildlife**

[www.defenders.org](http://www.defenders.org)

Defenders of Wildlife is a national, nonprofit, membership organization dedicated to the protection of all native wild animals and plants in their natural communities.

### **EcoAdapt**

[www.ecoadapt.org](http://www.ecoadapt.org)

EcoAdapt has one goal – creating a robust future in the face of climate change. Our team of innovative adaptation professionals is helping build the field of adaptation, train practitioners to make climate savvy choices, and supporting efforts to implement climate smart solutions to your daily work.

### **Georgetown Climate Center**

[www.georgetownclimate.org](http://www.georgetownclimate.org)

The nonpartisan Georgetown Climate Center seeks to advance effective climate, energy, and transportation policies in the United States—policies that reduce greenhouse gas emissions and help communities adapt to climate change.

### **Geos Institute**

[www.geosinstitute.org](http://www.geosinstitute.org)

The Geos Institute uses science to help people predict, reduce, and prepare for climate change.

### **Association on Climate Change Officers**

[www.accoonline.org](http://www.accoonline.org)

ACCO's mission is to define, develop and support the functions and communities necessary for effective leadership in addressing climate change.

### **National Wildlife Federation**

[www.nwf.org](http://www.nwf.org)

National Wildlife Federation (NWF) inspires Americans to protect wildlife for our children's future, and is committed to advancing the emerging field of climate change adaptation.

### **The Nature Conservancy**

[www.nature.org](http://www.nature.org)

The Nature Conservancy is a leading conservation organization working around the world to protect ecologically important lands and waters for nature and people. Climate and Disaster Risk Reduction is one of the Conservancy's priorities globally and in North America.

### **NOAA**

[www.climate.gov](http://www.climate.gov)

NOAA is an agency that enriches life through science, service, and stewardship. We advance understanding of Earth's climate, weather, oceans, and coasts, and we share our knowledge and information freely with the public. NOAA seeks to quantify and assess how and where climatic and environmental conditions have changed and to predict how they're likely to change in the future. Based on our strong science foundation, NOAA delivers regionally relevant data and forecasts to decision makers, and works with them to develop and implement action plans for reducing risks and minimizing impacts from weather, climate, and environmental extremes.

### **Stratus Consulting Inc.**

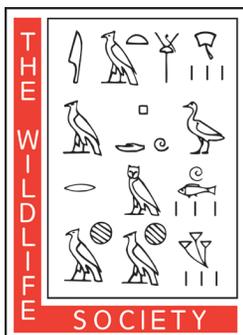
[www.stratusconsulting.com](http://www.stratusconsulting.com)

Stratus Consulting is an environmental research and consulting firm, with primary offices in Boulder, CO and Washington, DC. We offer comprehensive, multidisciplinary expertise in environmental sciences, economics, information management, and policy analysis. Stratus Consulting has a deep understanding of the complex issues involved in climate change, including experience working in this area for federal agencies, state, and local governments; nonprofits and foundations; and international organizations. Our staff has internationally recognized experience assessing climate change adaptation, mitigation, and impacts. Stratus Consulting offers capabilities in modeling emissions and control options, analyzing vulnerability to climate change, and using decision analytic techniques to assess adaptation options.

## Certification Opportunities

A goal of the National Adaptation Forum is to build the community of practice and support the education and training of professionals throughout their careers.

We are happy to support opportunities to offer and earn professional development certification and renewal credits. If you would like to propose credits through a program you offer, or earn credits while you are here please refer to the National Adaptation Forum website (Registration>Professional Development Certification and Renewal Credits) for further details.



At printing, The Wildlife Society was offering credits, allowing for a maximum of 22 contact hours in Category I of the Certified Wildlife Biologist Renewal/Professional Development Certificate program for participation in the National Adaptation Forum. To learn more about The Wildlife Society certification process go to [www.wildlife.org](http://www.wildlife.org), click on the Certification Tab or hover over for the submenu.



## General Information

### ADA

The Denver Marriott City Center adheres to all ADA guidelines and has ramps and elevators throughout the property as well as guest rooms to accommodate specific needs.

### ATM

There are ATM's conveniently located in the main lobby and also in the office building lobby.

### Badges

Forum badges must be worn at all times when attending forum functions. For your safety, do not wear your badge outside of the hotel.

### Business Center

The Business Center is located on Lower Level 1 next to the restaurant.

### Concierge Desk – Hotel Information

The Marriott City Center Concierge Desk is located in the main lobby. The staff will assist you with restaurant reservations, directions, rental car information, or other hotel/city information you are seeking.

### Emergency

The Denver Marriott City Center Hotel has an emergency response team that is well trained on emergency procedures. Guests may dial 0 from any house phone and ask for the Security Department.

### Fitness Center

The Fitness Center is open 24 hours a day, and there is no charge for hotel guest use of the Fitness Center. You will need your guest room key to access the Fitness Center and Indoor Pool. The Pool is open daily from 5:00am – 11:00pm, complimentary access to all hotel guests.

### Hotel

Check-out time is 12 Noon.

### Internet

High Speed Internet Access (HSIA) is available in the guest rooms, complimentary for National Adaptation Forum attendees. Complimentary wireless access is available for hotel guests in the public spaces of the hotel, such as the lobby.

### Lost and Found

Available 24 hours per day. Items found by National Adaptation Forum staff will be stored at the Registration Desk until April 4 and then will be turned over to hotel security.

### Medical

The closest hospital to the hotel is Exemplar Saint Joseph Hospital, 303-837-7111, 1835 Franklin Street, Denver, CO 80218.

### Safety Deposit Boxes

The hotel offers safety deposit boxes at no charge. Safety deposit boxes are located at the Front Desk.

### Security

The Denver Marriott City Center has video surveillance cameras located throughout the property. Badges will be required for entrance to all forum meetings and receptions. Dial 0 from any house phone to reach the hotel operator, to be directed to the Security Department.

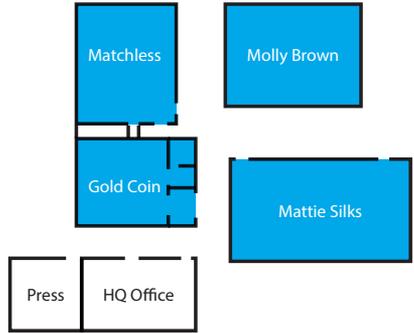
### Smoking

The Denver Marriott City Center is a smoke-free facility. Smoking is available in various outdoor designated locations.

## Lower Level 1

- Matchless
- Molly Brown
- Mattie Silks
- Gold Coin

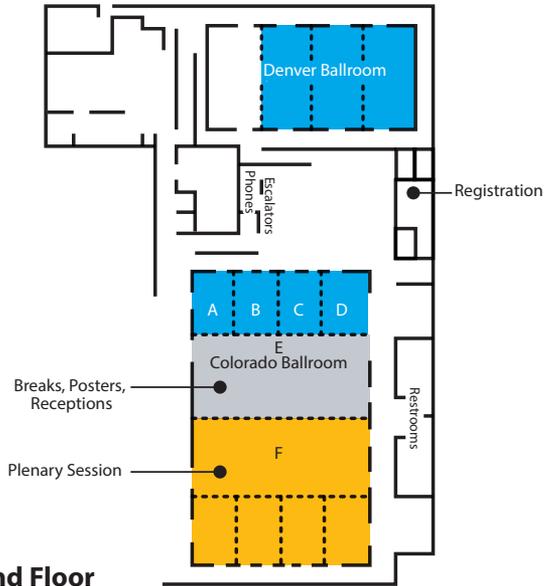
## Lower Level 1



## Lower Level 2

- Registration
- Denver 1-4
- Colorado A-D
- Colorado E
- Colorado F

## Lower Level 2



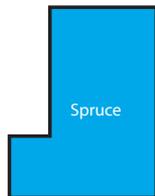
## Second Floor

- Spruce

## Third Floor

- Nat Hill
- Pomeroy

## Second Floor



## Third Floor



- Plenary Sessions
- Breaks, Posters, Receptions
- Symposia, Training, Working Groups