



# Climate Program Office Review

May 24-26, 2022

Pre-Recorded Presentation

Supporting Review Activity Area 2: Climate and Societal Interactions

## **The Evolution of Today's Adaptation Sciences Program**

Nancy Beller-Simms, PhD

Adaptation Sciences Program Lead



# Overview

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2021: the inaugural year of the Adaptation Sciences (AdSci) Program and the Biden Administration.

AdSci leverages innovative collaborations which have been established over the last two decades that combine deliberate and strategic use of research announcements with purposeful engagement and partnerships.

# Adaptation Sciences: Program Foci

## NOAA-CPO AdSci Program

**Mission:** To advance the knowledge, methods and frameworks needed to move society beyond incremental adaptation toward more widespread, connected, adaptive pathways, and resilience strategies with clear economic and societal co-benefits.

**Lines of Effort:** AdSci's current programmatic foci (Adaptation Pathways, Water, Coastal, Fisheries and International) are shown in this graphic, highlighting AdSci's unique research and partnerships.



## Ad. Pathways

**Focus & Activities:** Research designed to advance knowledge about key drivers and conditions that shape and enable adaptation across multiple temporal and spatial scales (e.g., socioeconomic considerations and adaptive behaviors, risk perception, public awareness and education)

**Examples of Key Partners:** Research community, decision and policy makers in focused sectors

\*NOFO Focus in FY22



## Water

**Focus & Activities:** Funding research, leading studies, producing webinar series, and supporting communities of practice focused on the needs of stakeholders within the water resource management sector

**Examples of Key Partners:** NOAA NESDIS, OAR, and NWS; and major US water, planning and utility NGOs

\*NOFO Focus in FY21



## Coastal

**Focus & Activities:** Funding research, engaging in communities of practice, to better understand the interactions, impacts, and vulnerabilities of the coastal built and natural environment in a changing climate

**Examples of Key Partners:** NOAA, NMFS, Academics, NGOs

\*NOFO Focus in FY21



## Fisheries

**Focus & Activities:** Advancing understanding of climate related impacts on fish stocks and fisheries and fishing dependent communities; develop tools and information to promote adaptation and resilience of the nation's fisheries and fishing dependent communities

**Examples of Key Partners:** NMFS, Academic, and Federal Partners

\*NOFO Focus in FY22 & FY23



## International

**Focus & Activities:** Supporting technical collaboration, knowledge development and peer-to-peer learning through internationally-focused partnerships

**Examples of Key Partners:** State Department, NCEI, NOAA/OAR PSL, NOAA MPA Center, EPA

\*Potential NOFO Focus: FY23

# Evolution of AdSci - Water, Coasts, and Drought (2017-2021) - Research



## Current Staff:

- Nancy Beller-Simms, PhD, Lead
- Bhaskar Subramanian, PhD
- Amanda Speciale, UCAR

## Next Generation Staff:

- Lapenta Interns: 2020 and 2021
- Knauss Fellow: 2017
- Intern: 2019
- Sponsored EPP PhD: (2019 - 2 students)

## AdSci (CCR Funding) - FY21-22:

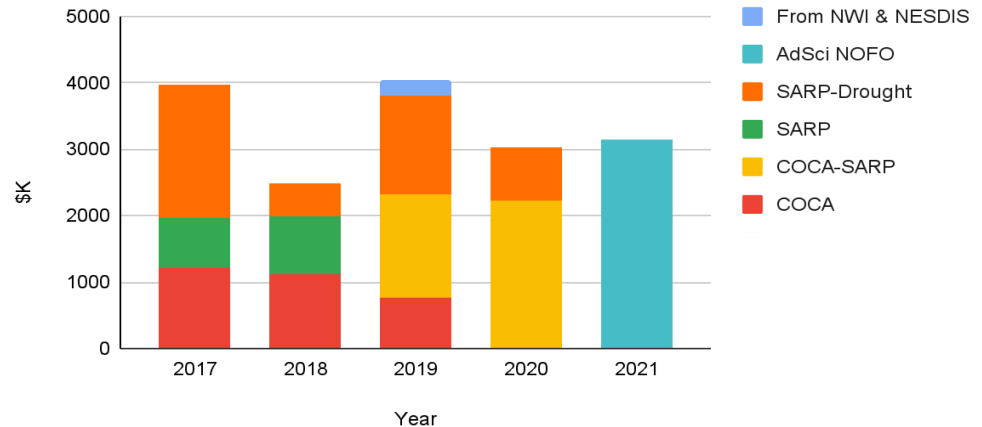
- Budget \$3,138k/yr
- 116 Submitted LOIs
- 62 Full proposals Reviewed
- 17 Full projects funded - (FY21-22)

**Goal:** Foster widespread, science-based adaptation by:

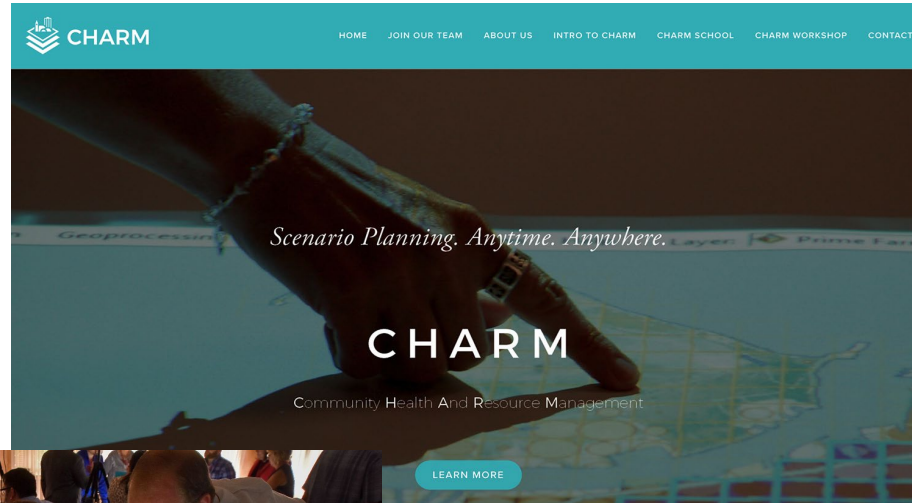
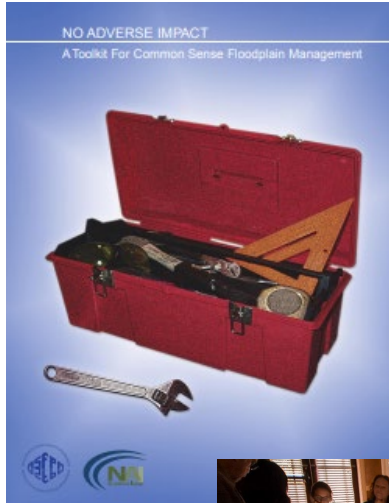
- (a) developing an understanding of key drivers and conditions that shape and enable adaptation across multiple temporal and spatial scales; and
- (b) identifying key aspects of and promoting opportunities for the use of scientific information to best support preparedness and planned adaptation of high value to social and economic goals.

## AdSci Programs FY17-21 Budgets

Funds for Water, Coasts and Drought Research and Independent Study



# Key Accomplishments: A Look at Research Quality



**Coupling the CHARM Platform with the No Adverse Impact Approach: A Participatory Decision Support System to Enable Plan Integration for Extreme Events** - Steven Mikulenak et al TAMU



“extreme flooding and drought are often treated as random events, instead of chronic conditions to plan for. Improved planning for these events will require that sectors from across the community participate in long-term community planning and consider innovative approaches to conventional development practices.”





# Key Accomplishments: A Look at Research Relevance

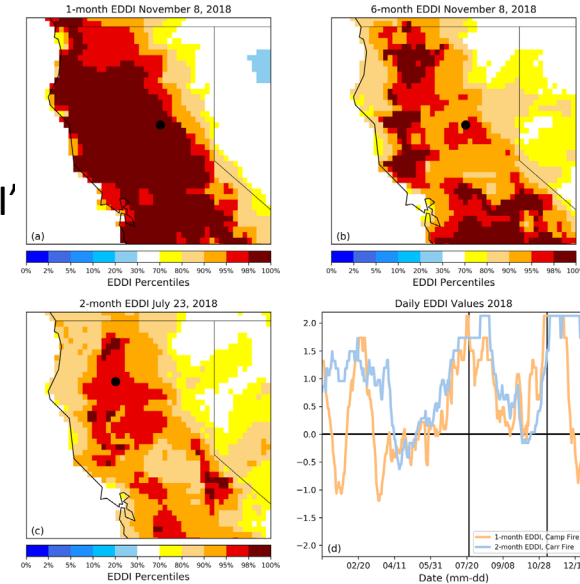
PIs: Tim Brown and Dan McEvoy, DRI and WRCC



Summary:  
Developing a Wildfire Component for the California-Nevada Drought Early Warning System

## Accomplishments:

- EDDI and SPEI now easily accessible to fire managers through
- development of NOAA's EDDI tools and DRI's Climate Engine
- Successful integration of EDDI into fire management operations with California Predictive Services; EDDI is being used in Severity Funding Requests, daily fire weather briefings, seasonal fire potential outlooks, and will soon be incorporated into the national Fire Behavior Field Reference guide and wildland firefighter training curriculum



*EDDI indicated high fire potential leading up to both the Carr and Camp Fires during the 2018 California wildfire season (Figure: Nauslar et al. 2019, BAMS State of the Climate)*

Co-PIs:  
Tamara Wall,  
Justin Huntington, DRI  
and WRCC  
Mike Hobbins,  
NOAA/CIRES  
Mark Svoboda, UNL



# Key Accomplishments: A Look at Research Performance

## Co-producing Climate Knowledge and Sustained Engagement in the Great Lakes in Support of Stormwater Management Adaptation

### Project Summary

In partnership with the Huron River Watershed Council, GLISA engaged directly with **12 local governments** within the Great Lakes region to:

1. Co-produce climate information using a comprehensive **climate and social vulnerability assessment tool** for stormwater management
2. Assess whether the boundary chain model can **reduce transaction costs for scaling up sustained stakeholder engagement** by exploring different forms of engagement: **in-person, webinar-assisted, and self-guided**



### Major Accomplishments

- Created customized climate and socioeconomic vulnerability assessment (VA) templates and workbooks for 12 cities
- Conducted successful engagements: 3 in-person workshops, 4 webinars, and 3 self-guided
- Final assessments have already proved useful to cities. Outcomes include:
  - Incorporated in climate adaptation/resilience planning and capital improvement planning
  - Used in grant and budget proposals
  - Improved interdepartmental collaboration and data collection
- Lessons learned have been applied to the VA tool and engagement approach in a scaled-up project in the Gulf region (FloodWise Communities)

PREPARING FOR CLIMATE CHANGE



CLIMATE CHANGE VULNERABILITY  
ASSESSMENT FOR STORMWATER

CITY OF FERNDALE

# Key Accomplishments (FY17-21): Examples of Other Successes



## Peer Reviewed Publications Examples

**Climate Science-oriented**

e.g., Nature Climate Change, Climatic Change, BAMS, Advances in Meteorology

**Interdisciplinary/Social Science-oriented**

e.g., Weather, Climate and Society; Natural Resources Journal; Environmental Science and Technology

**Sector/Decision Support Oriented**

e.g., International Journal of Disaster Risk Reduction, Environmental Law Review, Journal of Water Resources Planning and Management, Rangeland Ecology & Management, Environmental Modeling & Software

## Impacts to Society/Transitioning Research to Applications

Improved drought monitoring capabilities; better understanding of the impacts of drought on ranching and farming (Otkin)

Better understanding of impediments to adaptation and possible legal changes - Alaska making changes in their hazard mitigation planning process for communities (Ristroph)

Development of a riverine-coastal integrated modeling framework that can provide flood risk assessments for current and future climates; will contribute to TX efforts to establish statewide integrated flood frameworks (Zhang)

Built adaptive capacity to coastal flooding in urban neighborhoods, focusing on NYC & Boston. Results in the New York Panel on Climate Change (NPCC) report (Mada)





# Strategic Lookahead



## New Considerations for Future Water and Coast Activities:

- Changing staff and expertise
- Infrastructure Bill
- PREPARE
- Results of first year of competition
- New fiscal NOFO funding
- New Climate/Extreme Events
- Community needs



## Near-Term:

- Summary Report of AdSci Webinar Series
- New Monographs
- Fiscal NOFO panels/results
- Community of Practice continuation

## Longer-Term:

- Development of Roadmap for the Future
- Mining stormwater/wastewater (green-grey infrastructure), webinar partnerships, and collaboration opportunities
- Continue work with Atlas 14 upgrades for-community implementation
- NOFO (with community of practice)



# Final Thoughts

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The opportunity for building the Adaptation Sciences portfolio is now.

Our efforts will be based on our past programs and include an open, accessible research program

- with and for communities -

working to build a changing climate into broader social goals and equitable outcomes.