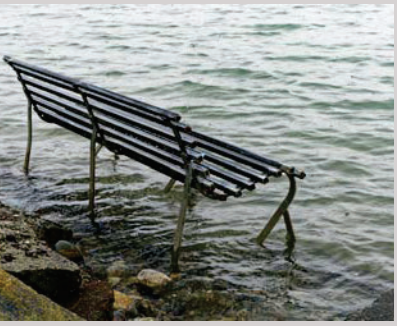
People on the Move in a Changing Climate

SOUTHWEST REGIONAL WORKSHOP SYNTHESIS

January 2024



NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE

Sea Grant
UNIVERSITY OF SOUTHERN CALIFORNIA

PEOPLE ON THE MOVE IN A CHANGING CLIMATE

NSF

Background

There is a major research gap on how shifts in population patterns intersect with the underlying socioeconomic, cultural, political, and environmental impacts of climate change. We also know little about the resources (or lack thereof) that either enable or constrain climate change-induced human mobility (e.g., displacement, migration, and planned relocation) or immobility.

In response, the **National Science Foundation** Coastlines and People Research Coordination Network Grant funded the project entitled "**People on the Move in a Changing Climate (PEMOCC)**," led by the Georgia Sea Grant Program and nationwide partners. Leading PEMOCC's Southwest Region Project Team, the **University of Southern California (USC) Sea Grant Program** convened a virtual workshop in 2022, facilitating a discussion among experts and stakeholders to:

- Feature the current state of knowledge on climate-induced human mobility;
- Explore local, regional, and international case studies; and
- Determine the unique needs of the underserved and underrepresented coastal communities within the Southwest Region.

Twenty-one experts in migration studies, climate communication, and law and policy presented their work. Here we summarize the workshop introduction, keynote address, and six-panel presentations and then present a synthesis of research, policy, communications, and collaboration needs based on these panels and workshop breakout discussions. This workshop's findings will be synthesized with those of other regional PEMOCC workshops to inform the National Science Foundation's research in this field.

"Relocation is rarely, if ever, solely climate-driven."
—Susanne Moser

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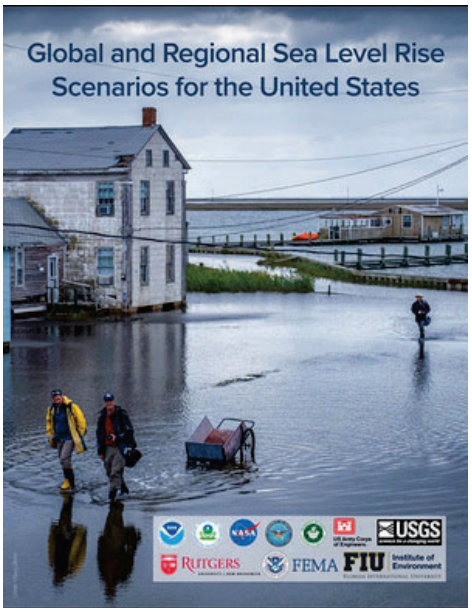
Cover Image of Sand:

Karina Alvarez

Juliette Hart, PhD, Director, Science Policy and Engagement, Pathways Climate Institute

Summary

Current research highlights the need to consider climate-induced human mobility in the U.S. Southwest region, especially due to coastal hazards such as groundwater rise, erosion, and sea level rise (SLR). In the next 30 years, 10-12 inches of SLR are projected—equal to the scale of SLR that occurred in the past 100 years. Flooding is predicted to be 10 times more damaging by 2050. Current emissions make 2 feet of SLR likely from 2020 - 2100, and uncurbed emissions could result in 3.5 - 7 feet SLR in this same timeframe. Communities in California wildfire zones already experience challenges related to climate-induced human mobility. These may mirror present and future challenges associated with coastal hazards, especially where these hazards overlap geographically. Those are the facts. What is harder is knowing what to do with that information, and that is what will be discussed throughout this workshop.



Questions to Consider Now

You lost everything: how do you restart? Do you have insurance? Did it pay anything out?
Do/can you rebuild? Should you move somewhere less risky? Where is less risky?
Will there be affordable housing? Do you want to leave your community?
Who gets to decide … anything? How do we limit displacement?
How do we limit gentrification? How can receiving communities prepare?
Who pays? Where does the money come from? How do we both adapt and receive?

> ***"When the water comes, it doesn't just gracefully leave. It takes a little bit of the land with it...and the water just keeps coming."***
>
> *—Juliette Hart*

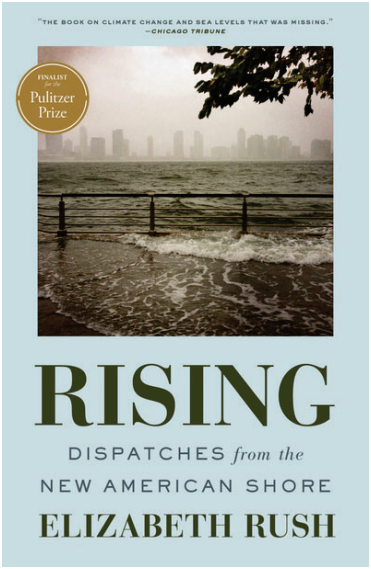
Keynote Address

Rising Together: On Managed Retreat, Agency, and the Art of Listening

Elizabeth Rush, MFA, author of Rising: Dispatches from the New American Shore

Summary

As Elizabeth Rush discusses in her 2019 book, *Rising: Dispatches from the New American Shore, t*he act of listening is an underutilized tool in helping people cope with the emotionally charged need to relocate. An on-the-ground investigation of sea level rise's impact on front-line communities, *Rising* focuses on communities along the eastern shores of Staten Island, New York, who were considering relocation following Hurricane Sandy. Despite geographic differences between New York and California, Rush anticipates that the disproportionate impacts of sea level rise on both coasts' vulnerable populations may mirror each other. In both places, vulnerable people living on vulnerable landscapes will be faced with similar difficult decisions.



Rush shared best practices for engaging with, rather than extracting from, communities. By listening to community members, practitioners can integrate community values and concerns into adaptation processes. Rush herself employed methods for active listening, including asking for permission to share stories, using an iterative writing process allowing for feedback from her interviewees, and using accessible language to describe day-to-day climate change impacts rather than vague and hyperbolic terms such as 'record-breaking.'

> ***"The more I worked on this project, the more I realized that resilience means different things in different places."***
>
> *—Elizabeth Rush*

Rush also encouraged everyone to consider how long managed retreat policies last, and what becomes of the land once people have retreated. Finally, it is crucial to use forums that empower communities to own their stories, such as creating a community archive of memories for a low-lying area and empowering communities to lead relocation planning. 'Emotional untethering' is a powerful factor in individuals considering relocation and illustrates the importance of community cohesion and the need to collectively reimagine what 'home' can become in the future.

Panel 1.1 — From academia to understanding

Elizabeth Kozlov, PhD, University of California, Los Angeles
Maxwell T. Boykoff, PhD, University of Colorado, Boulder
Jessica Ruvinsky, PhD, Bellwether Collaboratory

Key Insights

Home buyouts can be successful, but they have limitations. Usually led by the federal government, buyouts often address individual risk from a singular hazard rather than building community-level resilience. However, buyouts in Staten Island following Hurricane Sandy in 2012 were unique because the relocation was largely community-led, and the community decided to disperse despite having the choice to move together. Those in Staten Island who accepted buyouts reported significantly lower stress levels than those who stayed in place. Successful cases such as these may help practitioners recognize and address the limitations of this tool in the U.S. Southwest. This region experiences a unique mix of overlapping climate hazards and compounding risks.

Connecting science to policy is critical. The Colorado Local Science Engagement Network (CO-LSEN) focuses on linking science to policy decisions at local and state levels and building a contingent of policy scientists. CO-LSEN's projects help integrate science advocates into decision-making processes, support advocacy with training and guidance, and ensure lawmakers have access to a robust range of perspectives. For example, the #BetterKnowAColorado project uses story mapping and interviews to share local environmental stories. The "Science Notes" program shares timely information on state issues via short, accessible, evidence-based, and policy-relevant articles.

Infrastructure and mobility interact in a positive feedback loop. The 2021 Los Angeles County Climate Vulnerability Assessment found that infrastructure systems in the county are highly interdependent and that workforce availability is central to the network, making investment in workers key to disaster preparedness. For example, flooding on a bus route would impact workforce availability for all sectors. Therefore, climate-induced human (im)mobility has the potential for cascading impacts, positive and negative, for an entire region.

> ***"...it is not just about climate migration needs per se but about needs holistically and the need to better understand how the context of climate change is affecting the pressures, constraints, and aspirations that communities are already reckoning with."***
>
> *—Elizabeth Koslov*

Panel 1.2 — The importance of storytelling

Rosanna Xia, The Los Angeles Times
Marina Psaros, King Tides Project and author of *The Atlas of Disappearing Places*
Phyllis Grifman, Facilitator, USC Sea Grant

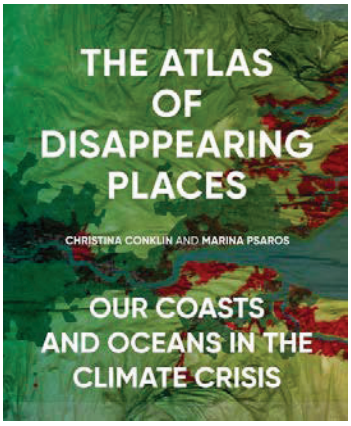
Key Insights

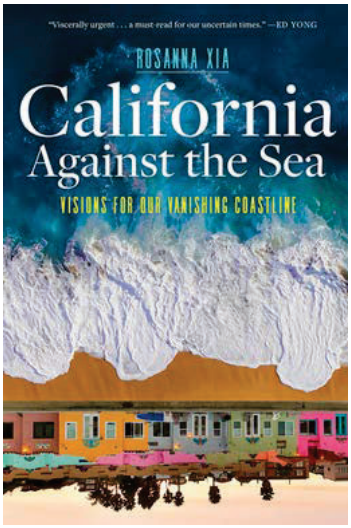
- **Climate change communications should be relatable.** Climate change communication today is improving and should continue focusing on tangible everyday impacts (e.g., the California King Tides project). Additionally, storytelling is more impactful and empowering when it focuses on vulnerability rather than solely on economic risk assessments.

- **Interdisciplinary storytelling is powerful.** Unlike traditional journalism, which often operates in silos, Xia and fellow Los Angeles Times reporters collaborate across subject-area teams. Rather than having a specific climate change team, all environmental reporters consider their work through the lens of climate change. Similarly, practitioners across fields should consider more collaborative storytelling.

- **Leverage breaking news for big topics.** Breaking stories tend to capture people's attention, but only for a short window of time, and they often lack context. It is challenging for journalists to communicate risk accurately and with enough depth in breaking news, but doing so will maximize impact.

- **Balance hope and despair in storytelling.** While a story with "too much" hope can make a reader feel that there is no urgency to act, one with "too much" despair can make a reader feel no agency to act. One solution is to provide the reader with tangible, actionable calls to action, and another is to tell realistic stories with both hope and despair.





> ***"I think it is really important not to just tell someone the sky is falling without giving them some sense of agency."***
>
> *—Rosanna Xia*

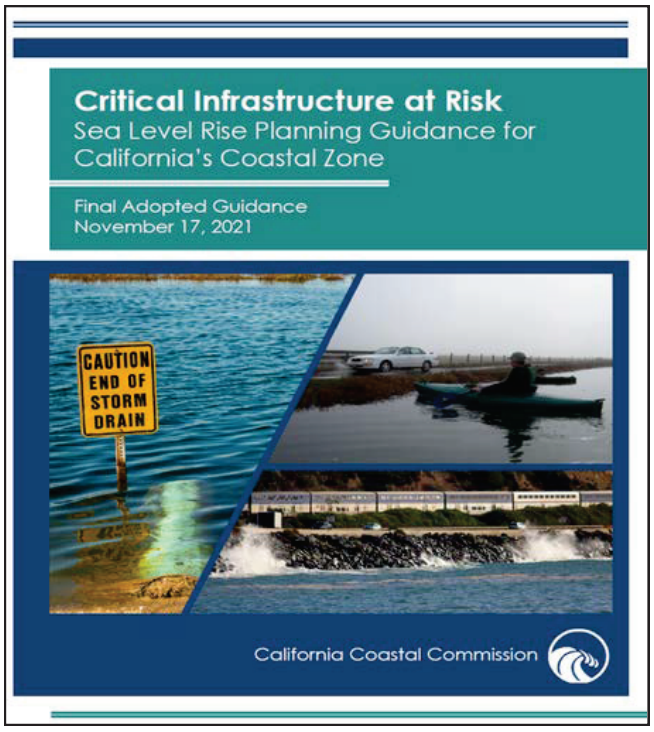
Panel 1.3 — Current climate-induced migration policies and practices

Carrie Rosenbaum, JD, Chapman University
Charles Lester, PhD., JD, University of California, Santa Barbara
Robin Craig, PhD, JD, University of Southern California

Key Insights

Managed retreat is contentious in coastal adaptation planning in California. The California Coastal Commission requires coastal jurisdictions to integrate sea level rise into their local plans. However, as of September 2022, only about two-thirds of these jurisdictions had completed vulnerability assessments, about one-third had completed adaptation plans, and few had updated their land use plans to address sea level rise. For some communities, this delay is due to contentious discourse over managed retreat.

> *"You can't isolate sea level rise."*
> —*Robin Craig*



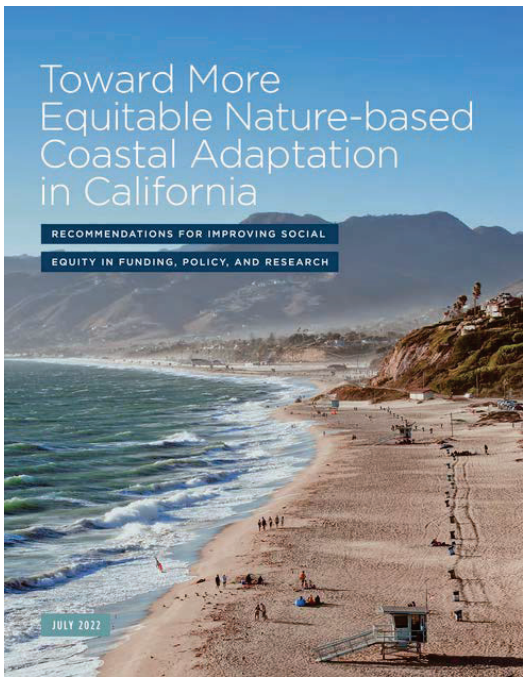
Examples of relocation in CA abound. Despite the highly controversial nature of managed retreat in California, managed retreat is occurring throughout the state at various scales. A common coastal management tool for relocation is rolling easements, requiring owners of existing structures to agree to potentially remove development in the future as the sea rises. In the future, the public trust doctrine may be another relevant legal tool. Although expensive and time-consuming, managed retreat often provides multiple co-benefits. Future managed retreat may similarly present opportunities for positive, equitable transformation, especially by incorporating traditional ecological knowledge, land return, and co-management.

Key Insights (*continued*)

Federal policy is needed. While California implements coastal adaptation through the Californa Coastal Commission, there are fewer laws and mechanisms in other states or at the federal level. Research suggests many climate havens (communities that will be relatively insulated from the effects of climate change) are in the U.S. Northeast and Great Lakes region, indicating potential substantial interstate migration. Additionally, considerable infrastructure needs (e.g., housing) of moving populations will likely require federal-scale attention and support. The federal government has opportunities to address these challenges through financial support and federal coordination.

International policy is needed. The U.S. will likely receive international climate migrants, so it will be important to coordinate responses to international migrants and mitigate forced relocation. We also need terminology for people whose movement is in some way induced by climate change (currently called climate migrants or climate refugees, among various other terms). This international definition will have implications; for example, in the U.S., "refugees" are defined as those who experience political persecution, but this term may not apply to climate-induced human mobility. Formalized definitions are critical for building legal frameworks.

Homes in Newport Beach are vulnerable to extreme high tides, sea level rise, and storm events. (Source: G Rindge)



California Ocean Science Trust Report

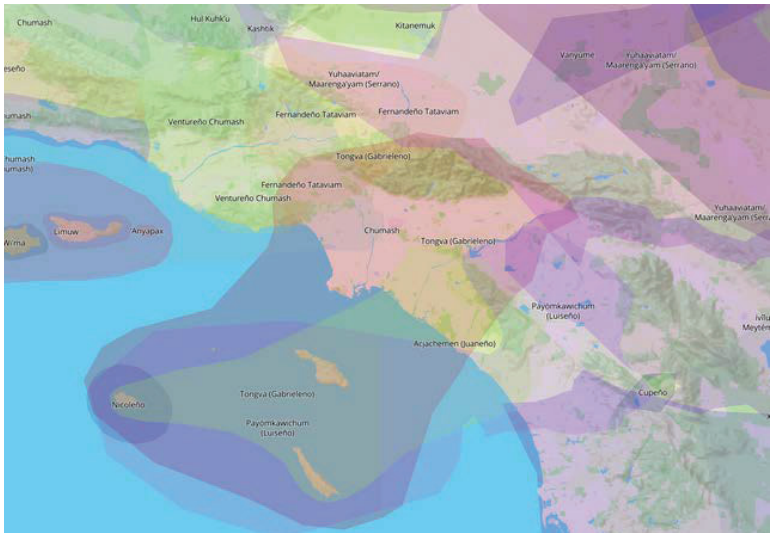
Panel 2.1 — Environmental justice, disadvantaged communities, disproportionate impacts, and identifying what's missing in research

Gabrielle Crowe, Gabrielino-Shoshone Tribal Council
Idowu Jola Ajibade, PhD, Portland State University
Effie Turnbull Sanders, JD, University of Southern California & California Coastal Commission
Santina Contreras, PhD, University of Southern California

Key Insights

Indigenous peoples' knowledge and experience are key to equitable relocation. The Gabrielino/Tongva tribes have been present in the Los Angeles Basin for over 8,000 years, and California currently has the greatest number of Indigenous people compared to any state. Throughout history, American Indigenous communities have had little in the way of community-based or community-planned relocation (i.e., 18th century mission period, the Rancho period, the Indian Removal Act of 1830, the "Trail of Tears," the Gold Rush, and the Indian Removal Act of 1956). Indigenous people retain substantial knowledge of the land, history, and unjust forced relocation that should inform equitable relocation in the future.

Mobility and immobility are functions of existing vulnerabilities. Both mobility and immobility result from existing, multi-layered social, economic, and political injustices and vulnerabilities, all of which are exacerbated by climate change and rooted in power, privilege, and identity. Whereas some people see climate migration as an opportunity, others perceive it as harmful. People balance tradeoffs differently depending on their backgrounds (e.g., cultural, political).



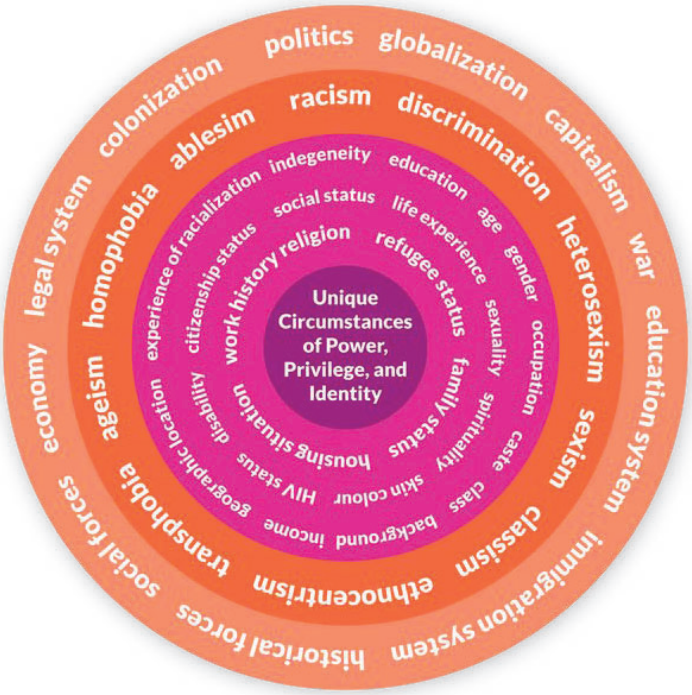
(left) Map of tribal land in the greater Los Angeles area (source: native-land.ca)

> ***"The thought of having to move from the place that you have always known and loved and know as your home is just a very traumatic experience…"***
>
> *—Gabriella Crowe*

Key Insights (*continued*)

Environmental justice is a priority in CA coastal management. Although coastal management in California did not historically consider equity (e.g., land theft from Indigenous communities, genocide, redlining), the California Coastal Commission today works toward equity and justice. In 2016, California Assembly Bill 2616 required the Commission to have an Environmental Justice (EJ) Commissioner to consider EJ, equality, and social equity when issuing project permits. Additionally, a 2017 bill discouraged seawalls unless absolutely necessary, citing EJ considerations to both protect infrastructure and support environmental justice.

Relocation alone does not address community needs. While planners often focus on a singular environmental risk when determining "safe" locations, community members often focus on non-environmental factors such as quality housing, infrastructure access, public health, and security. In a place with multiple hazards, like the U.S. Southwest, a siloed view of a single environmental hazard may not reduce the overall risk for relocated communities and may erode trust. However, as shown in a Puerto Rico case study, the disconnection between planners and community groups can be overcome by empowering communities to lead resilience efforts.



Source: Simpson, Joanna. (2009). *Everyone Belongs: A Toolkit for Applying Intersectionality*.

"There are multi-level scale of injustices, but there are also existing social, political, economic crises that makes vulnerability more difficult for communities to deal with."

—Idowu Jola Ajibade

Panel 2.2 — How to prepare receiving communities and what do they need?

Hannah Teicher, PhD, Harvard University
Alice Kaswan, JD, University of San Francisco
Kathryn McConnell, PhD, Brown University
Gwen Shaughnessy, Facilitator, NOAA Office of Coastal Management and Lynker Strategies

Key Insights

- **Receiving communities will experience migration differently based on their characteristics.** Legacy cities (e.g., Buffalo, New York) and rural interiors (e.g., small towns) are more likely to brand themselves as receiving communities because they see it as an economic opportunity. In contrast, inland and rural gateway cities (e.g., Denver, Colorado) already experience large migration inflows and will likely receive climate migrants whether or not they position themselves as climate havens.

- **Migration may be a form of adaptation, but only if integration occurs**. In-migration will likely change community dynamics. Practices and policies for two-way integration that can benefit migrants and existing residents include land use planning (e.g., for intergenerational households and multi-use public spaces); tempering relocation as an economic development strategy; understanding the needs of newcomers; and considering equity in planning.

- **Multilevel governance is critical for preparing receiving communities**. A nationwide strategy integrating federal, state, and local government roles could advance preparation. For example, national-level research on migration trends and projections may help identify likely receiving communities. The federal government could also support receiving community planning through models such as the Affirmatively Furthering Housing Program, which combines federal oversight with local planning and needs assessments. Federal law may even condition federal resources for local land use planning to limit exclusionary zoning and reduce segregation.

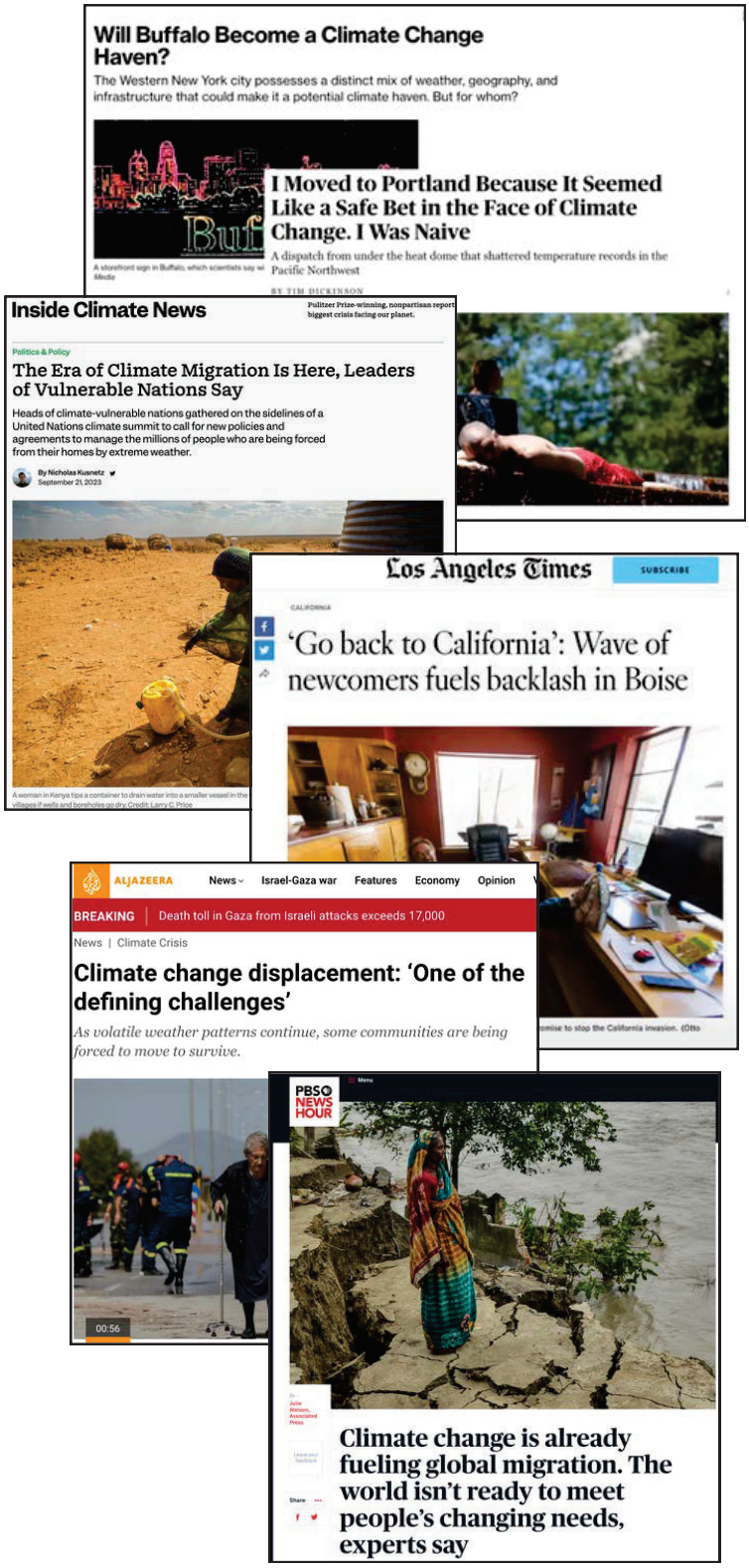
> ***"We need to get meaningful participation [in planning] from historically marginalized groups."***
>
> *—Alice Kaswan*

Source: Alice Kaswan

Key Insights (*continued*)

- **Migration "systems-perspectives" are one way to predict receiving communities.** Migration systems—a network of all the places that are connected via migration flows—is an approach that allows researchers to visualize where people have historically moved. This perspective can help researchers predict receiving communities. For example, overlaying coastal hazards with current migration networks of coastal California may help researchers predict impacted migration destinations. However, major shocks can change a migration system, so historic systems may not remain stable in the face of climate change.

- **Plan for climate migration in the same way that we plan for population growth.** Today's fastest-growing regions face challenges such as increasing housing costs, insufficient housing stock, rural development, and traffic. Future receiving communities will face similar challenges that can be addressed through existing strategies for social and climate resilience that benefit newcomers and existing residents alike. Strategies include building climate-wise infrastructure for current and future needs, planning for uncertainty, offering equitable social and financial support for relocation, retrofitting suburbs, and building local capacity through local champions.



Panel 2.3 — Decision-making and when and why people move

Susanne Moser, PhD, Susanne Moser Research & Consulting
A.R. Siders, PhD, JD, University of Delaware
Joe Árvai, PhD, University of Southern California
Kelly Leilani Main, MA, Buy-In Community Planning

Key Insights

- **Relocation is rarely, if ever, solely climate-driven**. Climate-related factors can induce and influence other factors in decision-making processes. For example, climate hazards can lead to long-term shifts in economic and real estate trends by changing employment opportunities, investments, and home prices.

- **Some factors limit choice**. Individuals interested in relocation may, for various reasons, be unable to or limited in their choices. Choice-limiting factors include redlining, Superfund sites, renting, economic status, having a disability, being elderly, and place attachment (especially for Indigenous and ethnic communities). While wealthier groups can consider many options, low- and middle-income households have far fewer options. Choice-limiting factors currently are evident, as the rate of mobility in the U.S. has declined due to increased housing prices, housing-related debt, and the Great Recession.

- **The market informs decision-making.** Climate hazards can lead to long-term shifts in economic and real estate trends by changing employment opportunities, investments, and home prices. Both quick-onset events (e.g., a storm) and slow-onset events (e.g., extreme heat) can impact the market via relocation at short timescales (disaster evacuation) or long timescales (managed retreat). In quick onset events, those who can cover damages can sell their homes for a fair price, but those who cannot either abandon their homes or live in states of disrepair. In slow-onset events, homeowners are better positioned to receive fair value for their homes, but only if they have access to risk information. In this case, however, new buyers face the same risk. Furthermore, even when individuals consider natural hazards in their moving decisions, almost half of new housing is being developed in the Wildland Urban Interface. Consequently, there may be substantial real estate and mobility shifts in some of the riskiest areas of the country.

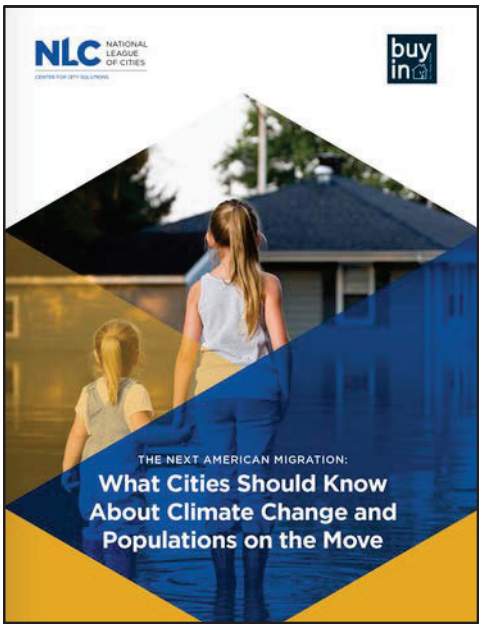
> ***"There are a lot of people who would like to move and will want to move who do not have access to the resources that they need."***
>
> *—Kelly Leilani Main*

Key Insights (*continued*)

Psychology plays a critical and complex role in deciding to relocate. While research on psychology in relocation decision-making is limited, researchers working on decision-making in environmental contexts have identified important psychological factors at play. Community members and risk managers alike often use mental shortcuts (heuristic methods) rather than logical models for decision-making in environmental contexts because of the large amount of uncertainty and challenging tradeoffs. Internal factors include loss aversion, availability and salience of problem information, pattern-matching, perception of urgency and frequency, and emotional triggers like fear and dread. External factors that influence behavior include infrastructure migration and relationships between those who deliver and receive information. Other important factors that can positively influence an individual's willingness to move are a greater understanding of climate change, political identity, and critical reasoning ability. All these factors interact with each other in complex and sometimes unpredictable ways, warranting further investigation.

Facilitation is key in decision-making. Given the substantial economic, social, and emotional shifts associated with relocation, communities will require substantial and committed facilitation to navigate change. The following four-step framework is an example of how to facilitate these processes:

1. Recognize that there are places to which one will not be able to adapt;
2. Recognize viable pathways to move somewhere else;
3. Receive personal, consistent support through planning; and
4. Receive support through moving and resettling.



"When you think about what might drive people to make decisions about relocation or movement, it's going to be a rather messy and complex and fuzzy space."

—Joe Árvai

Key Insights *(continued)*

Psychology plays a critical role for facilitators. Personal, internal reflection by facilitators is critical for the close, committed facilitation central to relocation decision-making processes. The following prompts may guide this reflection:

- Know yourself: Know your feelings around loss, judgments, and your need to be needed;
- Know the audience: Understand the preferred language, culture, demographics, economics, positionality, various attitudes (e.g. toward government, climate change, researchers, etc.), and social relations of a community; and
- Know the situation: Be familiar with local geography, social, physical, and ecological vulnerability, history of place, experience with hazards, climate change impacts, adaptation work to date, and trauma-aware communication.

Community values should guide decision-making processes. To ensure that outcomes meet community needs, communities should guide decision-making processes. A community may, for example, consider who participates in decision-making, how to navigate disagreement, how to weigh short- and long-term interests, how to weigh uncertain costs or benefits, and what to value.

Rehousing is one strategy for equitable relocation. Housing, and especially affordable housing, remains a central concern in relocation. Focusing on rehousing rather than market value and place-based incentives alone may help people secure "appropriate, desirable, and equivalent" housing in a new location. Rehousing also provides opportunities to align redressing historical housing discrimination (e.g., through reparations) with relocation.

> ***"This is messy…Is relocation a harm or a benefit? Both. And environmental justice theory doesn't have a lot to say when something is both a harm and a benefit at the same time to the same people."***
>
> *—AR Siders*

Needs Identification

In this section, we summarize the RESEARCH, POLICY, COMMUNICATION, and COALITION AND RELATIONSHIP BUILDING needs identified during the workshop.

RESEARCH NEEDS:

1. **Develop and deliver locally relevant science and tools.** Although concerns about data scalability emerged, participants expressed a need for researchers and journalists to apply locally relevant science, data, and tools for addressing climate mobility.

2. **Assess cascading impacts of climate change related to human habitation, well-being, and infrastructure.** These are critical to understanding the linkages between climate change and mobility/immobility and the factors that support relocation versus factors that cause some to 'get stuck.'

3. **Understand and define "migrant community," "receiving community," and terms in academia, law, and policy.** Communities should be allowed to self-define and one should consider pre-existing social networks, social capital, underlying burdens, non-climate drivers, and socioeconomic dynamics, as well as pre-existing concerns (e.g., housing, employment, environmental safety, education). Formalizing the legal definition for a "climate migrant" may allow access to resources and funding but also generate negative perceptions.

4. **Predict receiving community suitability.** Questions remain of how "suitable" a receiving community might be—one method for quantifying this could be to rank metrics such as climate hazard risk, existing infrastructure, and social networks.

5. **Understand receiving communities' and migrants' perceptions of each other.** New research should consider factors such as type of hazard, intensity of natural event, and political or economic context to better inform how receiving communities address economic, social, and racial tensions between newcomers and existing residents (e.g., "Welcoming Cities" initiative). Further, research can investigate how "climate haven" branding may impact the number, demographics, and integration of migrants.

6. **Develop methods for evaluating tradeoffs and losses.** Relocation often entails costs and benefits, so research is needed to develop cost-benefit analysis frameworks that consider differing priorities and values (e.g., economic, social, etc.) for people of various backgrounds.

7. **Understand decision-making processes in relocation.** More research is needed into the social, psychological, and environmental tradeoffs involved in the decision-making process for climate-induced human mobility, considering factors such as social ties, transportation, insurance, employment, identity, ideology, place attachment, and risk perception and how their importance changes with the severity of a climate event.

8. **Conduct economic evaluations.** Economic studies should assess to what degree home price changes can be quantitatively attributed to new migrants or other factors (e.g., developers), helping analyze critical narratives about migrants. Property is the main avenue through which Americans build wealth; research can explore the implications of relocation on economic outcomes across multiple demographics for those who relocate versus stay, as well as downstream economic impacts such as decreasing tax bases and the role of the private and public sectors in financing these changes.

9. **Understand and define relocation success**. Several panelists advocated for defining "relocation success" as integration into a new community—future research may identify which cities are more successful at integration and why and consider social outcomes such as changes in social networks, economic and educational opportunity, adaptive capacity, and access to recreation.

10. **Prioritize environmental justice.** Future applied research for environmental justice may include identifying "missing" (underserved) communities, community-based participatory research, development of student and faculty training on environmental studies, training culturally competent staff, and historical mapping of discrimination.

11. **Evaluate links between mobility and mental health.** Further research, especially in the fields of social science and humanities, can illuminate how certain relocation policies impact mental health and how practitioners can provide appropriate support.

12. **Evaluate impacts of mobility on individuals with physical disabilities.** The impacts of climate change on individuals with restricted physical mobility will likely result in variable outcomes of mobility (and immobility) compared to those without physical disabilities.

13. **Consider the unique needs of deindustrialized communities.** While communities with aging infrastructure will likely need substantial investments for regeneration rather than simply retrofitting abandoned buildings, it was unclear to participants to what extent such efforts (e.g., infrastructure audits) are currently occurring and if climate change is being considered.

POLICY NEEDS

1. **Integrate science into policy**. There is continued need to integrate science into policy decisions on climate-induced human mobility.

2. **Increase funding opportunities for policy research**. A severe lack of funding in many local governments makes policy research financially unfeasible; one possible solution is EPIC-N, a university-based program that brings graduate students to particular communities to undertake policy research in exchange for credit.

3. **Re-evaluate state & federal hazard mitigation policy**. Current state and federal policy (e.g., Federal Emergency Management Agency (FEMA) National Flood Insurance Program) often supports rebuilding and recovery in hazard areas; however, as hazard risks increase, policies may explore relocation as a hazard mitigation and adaptation strategy that reduces overall community risk more effectively than recovery alone.

4. **Address limitations of federal buyouts**. Federal buyouts often occur at the household scale and tend to be received by dense, wealthy communities that can meet the cost-share requirements; future policies should adequately address economic inequities and strive for community-level resilience, perhaps through community-level relocation programs.

5. **Use buyouts to address historical grievances.** Research is needed to understand how the goals of landback measures, reparations, and managed retreat may align (e.g., in the case of Bruce's Beach in Manhattan Beach, California) rather than result in maladaptation; policies could offer above-market-rate buyouts to historically disadvantaged communities or give back enough land to include space for accommodating shoreline retreat.

6. **Create affordable housing while limiting gentrification.** Increasing housing stock can result in gentrification, as evinced by market-rate housing development outpacing affordable housing development in many parts of the country; existing collaborative efforts strive to address this (e.g., Daniel Aldana Cohen's Green New Deal for Housing, California YIMBY, and Abundant Housing LA) and may serve as starting points to balance gentrification and development.

7. **Ensure equitable disaster planning for renters and homeowners.** Currently, many disaster response and recovery policies limit coverage to people who rent, live informally (e.g., off-the-books rentals), or have divided tenure (e.g., mobile home parks); future policy should equitably consider all types of housing situations.

8. **Consider dispossession and land rights.** Relocation policies should be more clearly defined, with consideration of the community's vision and equity of eminent domain, land policies following relocation, including future land use type, how long these land policies will last, and if relocated communities will have opportunities to connect with vacated land (particularly for Indigenous communities).

9. **Consider a shift from the American homeownership model.** Research is needed on how to facilitate such cultural re-envisioning and on pilot policy solutions (e.g., public buybacks) that navigate the conflicting systems of land use planning policies for climate-wise infrastructure (i.e., high-density, affordable housing with reliable public transportation) and the prevalent single-family home ownership model in the U.S.

> ***"[We need] to ask ourselves how this moment is fundamentally reshaping our definition of what home is? How might we collectively reimagine what home can become in the future?"***
>
> *—Elizabeth Rush*

COMMUNICATION NEEDS

1. **Empower communities to tell their stories.** Create opportunities/forums for communities considering relocation to share experiences living in hazard zones, especially before disasters; the Anthropocene Alliance may be a model/resource for this work.

2. **Co-produce knowledge.** Researchers, practitioners, journalists, and community members can better address climate change impacts when they engage in a shared learning process that acknowledges communities' unique, valuable lived experiences of local issues.

3. **Balance urgency with agency in storytelling.** Social science research and best practices in journalism may inform storytelling that empowers individuals to act by balancing urgency and agency, keeping readers engaged, and including risk and adaptation in storytelling.

4. **Communicate risk inclusively.** Some communities, like the San Joaquin Valley in California, are at high risk of inland flooding with climate change, but because these communities are so far inland and historically underserved, it is less likely that they are aware of the risks that they face.

5. **Produce relatable, accessible content for communicating complex topics**. Participants advocated for using highly personal, lived experiences of individuals in communicating climate change impacts, even in academic settings, and science communication products with visuals, limited acronyms, multiple language translations, and interactive, accessible workshops.

6. **Communicate resources.** Individuals impacted by climate hazards are often aware of risks but remain in place because of a resource deficit rather than an information deficit; improving communication of resources such as funding and technical assistance may empower individuals to decide where they live.

7. **Leverage existing information pathways.** Participants emphasized that local, trusted sources (e.g., friends, family, religious leaders, community leaders, local newspapers, and local radio stations) are far more effective at disseminating information than outside, unfamiliar sources.

8. **Foster interdisciplinary communication.** Interdisciplinary communication, especially between the fields of social sciences, physical sciences, and communications, may be improved by academic researchers and reporters collaborating on and exchanging articles and reports, cross-training different disciplines, researchers, and practitioners sharing policy briefs, and Sea Grant Programs continuing to host interdisciplinary collaborative events.

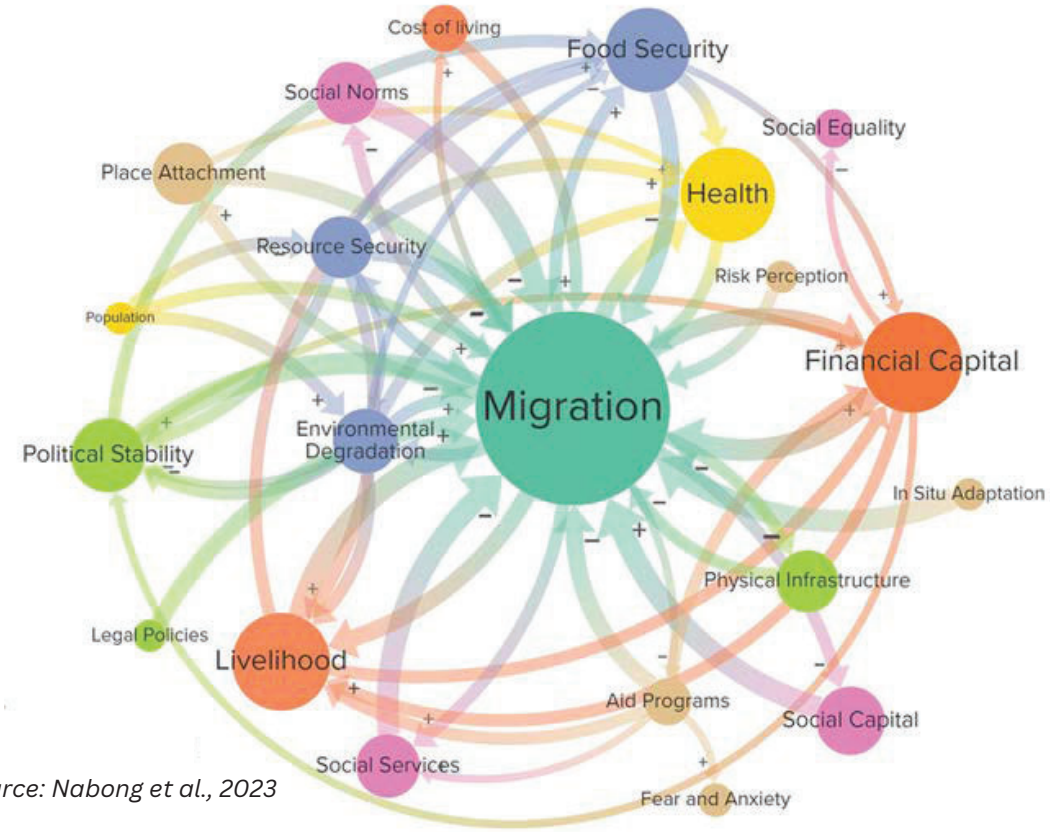
> ***"The science is important, and we need to understand it, but what we really need to understand are the people who are affected. And the people who are affected by the people who are affected."***
>
> *—Phyllis Grifman*

COALITION AND RELATIONSHIP BUILDING NEEDS:

1. **Foster relationships with communities.** Because most migrant-support work is conducted by community-based organizations, academic research and state and federal decision-making are often disconnected from community needs; community support may be better integrated through accessibility improvements (i.e., timing, location, language, and trusted messengers).

2. **Prevent community fragmentation.** Although relocation practices (e.g., U.S. Department of Housing and Urban Development's National Disaster Resilience Competition) often result in community fragmentation, practices could prioritize maintaining or rebuilding community cohesion for overall greater community resilience.

3. **Foster interdisciplinary collaboration.** Interdisciplinary collaboration is needed to engage researchers, advocacy groups, policymakers, and government agencies, especially for assessing the economic impacts of climate-induced mobility, developing creative adaptation solutions, and collaborative storytelling; boundary organizations such as Sea Grant programs are well-positioned to continue facilitating interaction between these groups.



Source: Nabong et al., 2023

Conclusion

Relocation is rarely, if ever, solely climate-driven.

Beyond the physical factors in California and the rest of the U.S. Southwest—rising tides, groundwater intrusion, increased flooding, drought, and wildfire—we have to understand how these factors interact with socioeconomics, environmental justice, housing, infrastructure, community networks, and even the emotions of complex-decision making that involves both losses and gains. This workshop facilitated complex discussions that need to continue and identified crucial needs to better understand and address climate-induced human mobility. We hope this list of needs—divided by research, policy, communication, and coalition building—can be used as a tool to guide future research, funding, partnerships, and policy-making.

There are great challenges ahead for California and the rest of the Southwestern U.S., but there are also many examples of successful adaptation, creative solutions, and community-driven processes. Let's keep *listening* and help each other find hope in the challenging times ahead.

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