

Methodologies for Anticipating Climate In-Migration in New York State: Policy Summary



AMERICAN SOCIETY OF
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In July 2020, the New York Times declared that the “great climate migration has begun.” Indeed, forecasts for this century suggest hundreds of millions of people will migrate because of climate impacts and up to three billion people could reside outside the human climate niche. As communities, ecosystems, and economies are pummeled by worsening climate disasters, governments across the world are preparing for this migration, yet significant gaps in the planning processes remain unfilled. Most government plans focus on areas from which migrants originate, where climate impacts are projected to be greatest. However, climate migration destinations require data, methodologies, and models to support plans and policies that promote socially just and environmentally sound population growth in climate receiving regions.

New York State offers a unique case for studying climate migration destinations. The state includes major population centers with high climate vulnerability, significant variation in urbanity, areas that are well-positioned to be climate destinations, and a wealth of climate information for future planning. Any climate migration insights for New York State, given its diversity, provide important analogs for understanding climate migration in other areas as well.

To this end, the New York State Energy Research and Development Authority (NYSERDA) and the American Society of Adaptation Professionals (ASAP) embarked on a unique project to kickstart climate migration research in New York - The New York State Climate Migration Methodology Accelerator. ASAP and NYSERDA selected three multidisciplinary teams to develop data, methodologies, and models for predicting climate-induced migration to, and throughout, New York State at a variety of scales. Two of the teams focused on New York. The third broadened their analysis to include the entire Great Lakes Region through a partnership with climatologists from Great Lakes Integrated Scientific Assessments (GLISA).

After twelve months of work, all three teams produced unique and insightful analyses about climate migration.

- **Temperature Related Migration and the Great Lakes Region (Matt Hauer, B.J. Baule, and Kim Channel):** This project used a classic OLS analysis to examine the association between temperature thresholds and human migration into/out of the broader Great Lakes region.
- **Pushed, Pulled, or Stranded? Housing (im)Mobility in Long Island Buyout Programs after Hurricane Sandy (Kelly Leilani Main and Osamu Kumaska):** This project used GIS analysis to examine the equity of home buyouts in New York, the affordability of local moves, and the potential for *stranded* individuals and households or those who would like to move but might be unable to afford to do so.
- **Identifying Potential Climate Destinations in New York State using the lessons from COVID-Induced Migration (Isaac Gendler and Ross Plattel):** This project used change-of-address data to glean lessons from the COVID pandemic migration to identify emerging climate destinations.

These analyses revealed the following policy implications:

1. **Governments seeking to understand how climate change may impact migration should seek information about how both “pulse-events” (ie rapid-onset environmental events such**

as wildfires or tropical cyclones) and press events (ie slower-onset environmental events such as drought or extreme heat) affect migration patterns. Climate migration literature often focuses on the pulse events likely to displace people because they tend to have a significant and detectable cause-and-effect relationship with migration making them ideal for study. But focusing on such specific environmental events can obscure the potential linkages between more press-events. For example, as shown in Hauer, Baule, and Channel's project, more northerly regions of the US warm, a shift in distribution of extreme cold temperatures could provide a 'protective' migration effect that could be associated with more people *staying* in the Great Lakes region as opposed to migrating away.

2. **It is important for states and local jurisdictions to understand the potential opportunities and challenges associated with buyout programs, particularly around housing.** Main and Kumaska's analysis highlighted that the fair market value or median sales prices calculation for households may seem *equal*, but is not *equitable* for low-income neighborhoods or areas where home values are lower than surrounding areas. This *inequality in home values* can lead to deep *inequities* in home buyout program outcomes for vulnerable households. Buyout program managers should take relative purchasing power into account to assist homeowners who may want to relocate but who may be experiencing strandedness due to limited financial ability to find comparable replacement housing outside of their existing communities. Designing more equitable supplemental assistance programs would be one way to mitigate against potential strandedness. Additionally, if states are interested in supporting equitable assisted relocation initiatives, they should support the maintenance and development of affordable housing in areas that are not vulnerable to climate impacts such as flooding.
3. **If cities hope to capture incoming climate migrants or to position their cities as Climate Havens, they should improve their local amenities and social infrastructure.** Gendler and Platell's analysis illustrated that, when pushed to move, people often relocate near amenities such as high walkability, regional rail access, shopping, easily accessible municipal support, and arts and culture.

Overall, all three pilot projects took unique approaches to examining climate migration and found distinctly important findings. Policymakers looking to identify cities with a high likelihood of climate in-migration could benefit from replicating these analyses on a local scale.

Key Findings: Temperature Related Migration and the Great Lakes Region

Matt Hauer, B.J. Baule, and Kim Channel

Many municipalities are looking to capitalize on the potential of climate change to drive population growth in their areas. This project examined the association between temperature and migration into and out of the Great Lakes region. Results show that temperature has a statistically significant association with in- and out-migration for the Great Lakes. The analysis reveals several important findings.

1. Regarding out-migration from the Great Lakes, extreme cold temperatures (days under 20 and under 0 degrees) are positively associated with out-migration from days under 32 degrees are

negatively associated with out-migration. As the more northerly regions of the US warm, we could expect fewer days under 20 degrees and more days under 32 degrees. This shift in the distribution could provide a 'protective' migration effect that could be associated with more people *staying* in the Great Lakes region as opposed to migrating away.

2. When people do move out of the Great Lakes Region, they tend to move to places that are warm, but not hot, as evidenced by the positive relationship between destination days over 90 but a negative relationship with days over 95. The common refrain that northern migrants are moving to sunbelt cities in Arizona and Florida might not necessarily be true. Rather, Great Lakes out-migrants are moving to more temperate climates rather than hotter climates.
3. Migration into the Great Lakes region tends to come from areas of extreme heat (days over 100 degrees). As the US continues to warm and heat-dome like effects are felt in a variety of regions, the Great Lakes might remain as an attractive destination for those looking to escape extreme heat. It's possible that a reverse sunbelt migration could occur, given the findings here, with the Great Lakes region poised to capture this potential northerly migration.

Key Findings: Pushed, Pulled, or Stranded? Housing (im)Mobility in Long Island Buyout Programs after Hurricane Sandy

Kelly Main and Osamu Kumasaka

This project looked at housing mobility in New York State to examine those who may be pushed, pulled or stranded. Climate-induced migration ranges from mobility as a proactive adaptation strategy to forced displacement due to a disaster event. In the United States, the primary way by which the federal government helps households relocate away from vulnerable areas is through buyouts, a form of voluntary property acquisition in which the government compensates households for their property and converts the land to open space.

As the likelihood of extreme weather and buyout programs both increase, it is important for states and local jurisdictions to understand the potential opportunities and challenges associated with buyout programs, particularly around housing. Currently, most buyout programs do not track the reasons why households do or do not take a buyout offer. They also do not track where people relocate to after they accept a buyout. Both of these data limitations make it nearly impossible to understand the differential outcomes of different buyout programs. Thus, due to a lack of data, this research does not provide any conclusive evidence for predicting the relationship between buyout participation and median home values after Hurricane Sandy in Long Island. However, the methodology seeks to make the point that replacement housing costs are likely to influence homeowner participation in buyout programs by revealing the relative purchasing power of buyouts that were offered in two zip codes after Hurricane Sandy.

For households with elderly or disabled residents, or for those living on fixed incomes, it may be impossible for them to secure a mortgage on a new home, or they may not find housing that is suitable for their needs. This is why supply is also critically important - in many communities, the sheer lack of availability of housing within a fixed price range compounds the challenges associated with housing. Thus, buyout programs are inextricably linked to the affordable and available housing crisis that affects nearly every corner of the country. As a result, if states are interested in supporting equitable assisted relocation initiatives, they would be well suited to support the maintenance and development of affordable housing in areas that are not vulnerable to climate impacts such as flooding. Without creating enabling environments to move, the most vulnerable people are likely to remain stranded in place, waiting for the next disaster to occur.

Key Findings: Identifying Potential Climate Destinations in New York State using the lessons from COVID-Induced Migration

Isaac Gendler and Ross Plattel

The COVID pandemic has shown how disasters of any kind can have drastic impacts on human migration patterns, with a wide swath of people moving to new locations in search of safety¹⁷. The push for remote working has made these movements easier for many white-collared workers, allowing them never-before-seen freedom in where to live¹⁸. This COVID-induced migration provides an important analog¹⁹ of how climate migration might play out in the future.

The final accelerator project looked at identifying potential climate destinations in New York State using lessons from COVID-induced migration. The team used Marandi and Main's (2021) typology for domestic migration. According to this typology, cities into three different climate migration typologies: (1) vulnerable cities - cities that will suffer voluminous losses in both population and tax revenue; (2) recipient cities - cities that will unwillingly become host to "receiving communities" due to sudden-onset disasters; and (3) climate destinations - cities that will adopt an identity of being "climate havens" and welcome displaced communities through equity-focused planning and preparation. Results show that people moving to "zoom towns"²⁸ provide important information about the future of climate migrants. It is important to note that the reasons why people move out of one area and into another are multifaceted (Black, 2011), involving not just the environmental but also the economic, social, etc.

Areas that gained population during the COVID pandemic tended to have several features in common. Their climate risks were relatively low, and their local amenities were relatively high. If cities hope to capture incoming climate migrants or to position their cities as Climate Havens, it would be wise to improve their local social capital and remake their cities as generally attractive places. Otherwise, the long-range plans for many rust-belt cities to revitalize themselves with climate migrants might remain just that: unfulfilled plans.