ADAPTATION

Alaska communities grow despite threat of future relocation

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Aerial view of Kivalina, Alaska, from the northwest. Photo by ShoreZone, courtesy of Flickr.

Communities that live on the fringes of northern Alaska are some of the most vulnerable to climate change. They're also continuing to grow, and experts worry this could create an urban crisis decades down the line.

There has been a steady trickle of migration out of Arctic Alaska in recent years, but the region's population is still swelling. Researchers from the Sustainable Futures North project, which focuses on the impact of climate change on Arctic and sub-Arctic communities, found that movement out of coastal regions is more than offset by local birth rates.

"That was an 'oh, wow' moment for us," said Philip Loring, lead scientist of the project and an assistant professor at the University of Saskatchewan's School of Environment and Sustainability. "This means that as things get worse and communities get bigger, the crisis created if a big storm comes through the region could be worse."

Loring and his colleague Lawrence Hamilton, who spoke about this phenomenon recently at the annual meeting of the American Association for the Advancement of Science in Boston, came to their conclusion based on annual birth and death rate data sets from the region. There's a general assumption among the scientific community that coastal erosion and climate change impacts are driving people out of northern Alaska, said Loring. But many of these predictions don't take into account the fact that birth rates are still high enough to

ensure continued growth. Moreover, whatever outward migration does exist doesn't seem to have anything to do directly with climate; rather, people leave to seek employment.

"When times get tough, people rely on what they know — they stay in their communities, rely on social networks, eat off the land as much as possible. But for some of these communities that aren't going to be here in 20 to 50 years, they are simply delaying the inevitable," said Loring.

Some of the impacts of climate change are already visible and are predicted to soon begin the phenomenon of "climigration." That's a term coined by Robin Bronen, executive director of the Alaska Institute for Justice — which describes communitywide relocation as a direct consequence of shifting weather patterns.

"Climate change factors that cause climigration are decreased Arctic sea ice, which is no longer providing a buffer to storms that come in, coupled with permafrost thaw as a result of radically increased temperatures," said Bronen. "The permafrost thawing is causing accelerated rates of erosion. That's happening right now."

Erosion can threaten the region's housing and infrastructure. It puts people at a higher risk of damage under extreme weather events, and some of the villages in the region will probably be abandoned within a decade, Hamilton, a professor of sociology with the University of New Hampshire, said in an email.

"Relocation or abandonment, whether planned or done in haste, will eventually be necessary," he added.

A tougher life for those left behind

People in some communities — like Kivalina, Newtok, Shishmaref and Shaktoolik — are already contemplating moving, but without adequate funds and institutional support, their chances of doing so look bleak. Many more are choosing to remain.

But as their populations continue to grow, two problems are likely to crop up in the next few decades, experts say. First, more people are vulnerable and future relocation for them will likely be more expensive. Second, the risk profile of those who remain is drastically altered.

"If some people are leaving because they can, and the ones who remain are ostensibly young mothers and young children — then five years from now, these communities are going to have a lot of young children and young mothers who don't have a number of options for employment or other resources," said Loring.

Loring and his colleagues theorize that this would mean the people who remain are less likely to be resilient to major climatic or weather events. As the demographic profile of communities changes, he said, researchers will have to start looking into their vulnerability to phenomena like major storms.

Relocation — whether now or in the future — will be far from an easy task, according to Hamilton, who said that it would require major planning and investments. This is made all the more difficult because both in the U.S. and across the world, there is no governance framework for communitywide relocation.

"Residents themselves often hold differing views about what should be done and where they might go. Several studies have tried to estimate the costs, and temporary steps such as beach reinforcement have been taken, but the costs and complexity of relocation have thus far been too daunting for governments to begin," he added.

But there are certain steps governments can take to help empower these communities, said Loring: a combination of financial help and policy changes that allow them flexibility on their own terms.

"Part of this involves recognizing the value of their traditional knowledge of how changes are playing out. They see it, they are up close to it. They need to have a continued opportunity to learn about the land as it changes, and we need to help remove whatever barriers are in the way — policies regarding hunting, fishing, land use and development, for example," he said.

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