

Culture on the Move: Towards an Inclusive Framework for Cultural Heritage Considerations in Climate-Related Migration, Displacement and Relocation Policies

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Introduction

2016 was the hottest year on record globally (NOAA 2017), and 2017 is poised to break that ominous milestone (Thompson 2017). The effects of this warming, from flooding to droughts, are already threatening the world's diverse set of local cultures, heritages and histories that have defined people and places for centuries. Communities are equipped with the vision and multi-generational knowledge to adapt to the effects of climate change; however, they are working against time to do so. Cultural landscapes, ethnographic resources, archaeological sites, historic buildings and traditions often cannot change as quickly as is required to keep up with the rate of the changing environment around them. In the United States alone, 96 per cent of Americans live in counties that have been hit by major weather disasters between 2010 and 2015, causing billions of dollars in damages and irreplaceable cultural loss (Environment America 2015). Importantly, low-income communities and 'communities of colour' are most vulnerable to these disasters because they disproportionately lack the resources to prepare for and recover from disastrous events (National Climate Assessment 2014). Those resources that are available must be allocated to adapting vital infrastructure like clean water, schools and fuel, leaving cultural resources under-supported. The

challenges climate change poses for cultural resources are only poised to worsen. Sea level rise, shoreline erosion and extreme weather events present just some of the most serious culturally disruptive consequences of climate change for coastal communities worldwide. By the year 2100, scenarios of sea level rise associated with the collapse of polar ice sheets range from a minimum of 0.3m to a maximum of 3m (NOAA 2017b).

The increase in global temperatures and sea levels depends on greenhouse gas emissions and future ocean and atmospheric heating. While the Paris Agreement was designed to put signatory powers on a path to limit global warming at two degrees Celsius, this goal is “extremely difficult to meet under the terms of the accord” (Plumer 2017). Even when the voluntary pledges submitted by countries for curbing emissions under the Paris deal are combined, the world is on pace for three degrees or more of warming (Plumer 2017). While this is unquestionably better than doing nothing, to truly put the world on a two-degree path, “wealthy nations would need to sharply accelerate their shift to a near-zero-carbon economy by 2050” (Plumer 2017). This would mean phasing out coal-fired power plants, transitioning to electric vehicles and curbing methane emissions within mere decades. Following the Trump Administration’s announcement that the United States will withdraw from its Paris commitments, it will be nearly impossible to limit global warming to the agreement’s target by the end of this century.

In the United States, the coastal land upon which communities have lived for hundreds or, sometimes, thousands of years is disappearing. Indeed, the map of the United States is already being redrawn to account for sea level rise. In the continental states, approximately 13.1 million people are at risk of inundation if sea levels rise just 1.8m, with the southern region representing nearly 70 per cent of the entire projected at-risk population (Hauera et al. 2016). According to a 2009 Government Accountability Office report, in Alaska, “climate change flooding and shoreline erosion already affects more than 180 villages, 31 of which are in ‘imminent’ danger of becoming uninhabitable” (GAO 2009). Globally, a 2010 study published in the *Philosophical Transactions of the Royal Society* estimates that up to 187 million people may be forcibly displaced by two meters of sea level rise (Gemenne 2011).

As entire populations in the United States, US Territories and Pacific Island nations like Kiribati lose their lands to climate change, we also need to consider what becomes of these places' archaeological and historic sites. When not just individuals, but communities, are displaced, how can their cultures be conserved and their traditional knowledge retained? Equally importantly, how can cultural heritage be used to facilitate the displacement of these communities? Such questions are vital to developing policies that address the needs of communities facing climate-related displacement, yet cultural and archaeological considerations have so far been largely neglected in discussions on climate relocation.

This paper offers a foundation upon which to build a better approach to integrating archaeology and cultural heritage into the policy dialogue for climate-related migration, both in the United States and internationally. Firstly, the paper surveys the three pillars of climate change policy (mitigation, adaptation and loss and damage), as well as how cultural heritage, archaeology and historic preservation are addressed within these three areas. It then delves further into the active role of the cultural heritage community in the United States and abroad to better inform climate policy and action. The paper does so in part by synthesizing the work of the Pocantico Working Group on Climate Migration and Cultural Heritage, an international network of cultural leaders, archaeologists and scholars. Finally, the paper proposes steps to effectively incorporate cultural considerations into policy and then presents legal options for addressing internal migration and relocation in the context of climate change. It is the intent of this brief piece to offer a groundwork reading of current frameworks for cultural heritage and climate change policy upon which future scholars can and should build towards finding effective ways of including heritage in climate action at the national and international levels. At its core, climate change is the modern story of the human journey. It is a story about the looming reality of losing the very things that connect us to our past and the tangible and intangible cultural heritage assets that construct the contours of our identities today.

The Three Pillars of Climate Change Policy

In order to adequately address how cultural heritage can be better integrated into planning for climate change displacement, relocation and

migration, it is firstly important to briefly paint the contours of climate change policy and the means by which cultural heritage, archaeology and historic preservation are already contributing to decision-making. At the international level, climate policy is primarily negotiated through the United Nations Framework Convention on Climate Change (UNFCCC), a global environmental treaty adopted on 9 May 1992 and entered into force in 1994 (UNFCCC 2017). The framework offers a medium through which countries can access and compare their progress in dealing with climate change and pass further treaties, protocols and agreements. Notable Conferences, or COPs, include the 1997 Kyoto meeting, which resulted in the Kyoto Protocol; the 2009 Copenhagen Conference; and the 2015 Paris Climate Change Conference, which resulted in the Paris Agreement. The Paris Agreement is an agreement wherein each country that is party to the document determines, plans and reports on its own contributions to mitigating global warming. Its stated aims are:

- (a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;
- (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production;
- (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development (Paris Agreement 2015).

On 7 August 2017, the US formally notified the UN of its intention to withdraw from the Paris Agreement (Volcovici 2017). Prior to this action, the country's Intended Nationally Determined Contribution (INDC) to the Paris Agreement was "an economy-wide target of reducing its greenhouse gas emissions by 26%–28% below its 2005 level in 2025 and to make best efforts to reduce its emissions by 28%" (UNFCCC 2015). Though the Trump Administration does not have a designated climate change mitigation policy, there are a number of states, cities, towns and businesses that

have still committed to this target. Climate change policy in the United States and the current dismantling thereof carries a complex and shifting history, and it is outside of the purview of this article to detail all of its nuances.¹ Broadly, climate change policy can be divided into three pillars: mitigation, adaptation and loss and damage caused by the impacts of climate change.

Mitigation

For the past decade, researchers and policymakers working on climate change in the United States have overwhelmingly focused on mitigation

¹ Several US laws, as well as existing and proposed regulations thereunder, are relevant to the implementation of the U.S. target, including the Clean Air Act (42 U.S.C. §7401 et seq.), the Energy Policy Act (42 U.S.C. §13201 et seq.), and the Energy Independence and Security Act (42 U.S.C. § 17001 et seq.). Since 2009, the United States has completed the following regulatory actions: under the Clean Air Act, the United States Department of Transportation and the United States Environmental Protection Agency adopted fuel economy standards for light-duty vehicles for model years 2012–2025 and for heavy-duty vehicles for model years 2014–2018; under the Energy Policy Act and the Energy Independence and Security Act, the United States Department of Energy has finalized multiple measures addressing buildings sector emissions, including energy conservation standards for 29 categories of appliances and equipment, as well as a building code determination for commercial buildings; under the Clean Air Act, the United States Environmental Protection Agency has approved the use of specific alternatives to high-GWP HFCs in certain applications through the Significant New Alternatives Policy program.

As of writing, under the Clean Air Act, the United States Environmental Protection Agency is moving to finalize regulations to cut carbon pollution from new and existing power plants; under the Clean Air Act, the United States Department of Transportation and the United States Environmental Protection Agency are moving to promulgate post-2018 fuel economy standards for heavy-duty vehicles; under the Clean Air Act, the United States Environmental Protection Agency is developing standards to address methane emissions from landfills and the oil and gas sector; under the Clean Air Act, the United States Environmental Protection Agency is moving to reduce the use and emissions of high-GWP HFCs through the Significant New Alternatives Policy program; under the Energy Policy Act and the Energy Independence and Security Act, the United States Department of Energy is continuing to reduce buildings sector emissions, including promulgating energy conservation standards for a broad range of appliances and equipment, as well as a building code determination for residential buildings.

In addition, since 2008 the United States has reduced greenhouse gas emissions from Federal Government operations by 17 per cent and, under Executive Order 13693, issued on 25 March 2015, has set a new target to reduce these emissions 40 per cent below 2005 levels by 2025. For a comprehensive overview of climate change impacts and responses in the US, please see the National Climate Assessment at <http://www.globalchange.gov>.

efforts. The United States is second only to China in its contribution to global greenhouse gas emissions, and significantly reducing America's emissions is necessary to reach the global goal of two degrees of warming. Mitigation is what is often equated with climate change policy. It refers to "an anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases" (IPCC 2001a). The Paris Agreement is primarily focused on mitigation through National Determined Contributions, which include supporting new technologies and renewable energy systems or changing land use and agricultural policies and waste management, among other changes to management practices and consumer behavior.

Adaptation

Climate adaptation is a response to the adverse and unavoidable effects of climate change to reduce the social, economic and environmental vulnerability of systems. Strategies include revising local land-use planning to avoid flooding by re-zoning building codes or augmenting natural defenses like mangroves and coastal marshland. Internationally, the Adaptation Fund was created in 2001 to support adaptation projects in developing countries (www.adaptation-fund.org). Since its establishment, the fund has financed \$358 million of mostly small-scale projects to help communities adapt to the effects of climate change we can no longer avoid (World Bank Group 2016), and developing countries have largely applauded it as a success. The fund's direct access structure allows accredited countries to manage their own projects and have a sense of ownership.

Loss and Damage

Climate mitigation and adaptation efforts only go so far in lessening permanent loss or irreparable damage caused or exacerbated by climate change. Loss and damage, the third pillar in climate policy, refers to the negative effects of climate variability and climate change that people have not been able to cope with or adapt to (United Nations Environment Programme 2014). Damage impacts operate on a continuum ranging from 'events', which are associated with variability around current climate norms, to 'processes', which are associated with future anticipated changes in climatic norms. The 2013 Warsaw International Mechanism for Loss and Damage promotes

approaches to address loss and damage, including non-economic losses like historic sites, cultural heritage, tradition and identity (UNFCCC 2016).

Identifying Next Steps from Current Climate Change Policy and Heritage Action

The heritage community is already involved in cursory efforts to include historic preservation, archaeology and cultural heritage in all three pillars of climate change action at the international level. Three examples of this work, discussed below, offer next steps for how to incorporate cultural considerations into policy and legal options for climate-induced displacement, migration and relocation.

Piloting Greenhouse Mitigation through Historic Preservation

Old buildings are not the first things that come to mind when discussing methods to reduce greenhouse gas emissions, but the greenest building is one that is already built. The heritage and, in particular, preservation community can engage in mitigation policy by making itself relevant through successfully piloting energy efficiency retrofits and implementing renewable energy systems into historic districts. Though the US is now poised to pull out of the Paris Agreement, historic preservation and cultural heritage are still emerging actors in climate mitigation at the sub-national level. The National Trust for Historic Preservation's Preservation Green Lab, founded in 2009, connects historic preservation and building reuse to sustainability through research, advocacy and planning (National Trust 2017). Reusing and retrofitting vacant and underused buildings across the US with low-carbon or carbon-neutral systems help cut greenhouse gas emissions and provide a foundation upon which other projects can be replicated and expanded as next steps for the heritage community in climate engagement.

Marrying modern, energy-efficient technology with older buildings, as defined by the National Park Service, "historic preservation is a conversation with our past about our future" (National Park Service 2017), is about more than the physical conservation of at-risk buildings, landscapes and built environments: it is also an opportunity to inform decisions about our future by learning from our past. Not only do we see the successes and shortcomings of past human construction and creativity, but

we also learn to build more resilient structures and communities today. Learning from history has always been an important component of envisioning a better future, but recognizing and applying the lessons of the past has taken on a newfound urgency in the face of climate change. When building a case for saving an endangered property from demolition, archival research offers records documenting the building's life story, which can tell us about its strengths and weaknesses in withstanding changes. Physical survey of a building's or neighborhood's unique features is another method of discovering which elements have not only withstood the test of time, but have done so in a sustainable way.

Linking Complementary Climate and Culture Efforts and Entities

Another way for the cultural heritage community to engage in climate change policy is by linking politically active cultural heritage organizations to the climate policy and governance process. For example, UNESCO, the UN organization responsible for coordinating international cooperation in education, science, culture and communication, serves on the Adaptation Fund Board as a Multilateral Implementing Entity. As a Multilateral Implementing Entity, this culture-based organization is able to serve “vulnerable countries by directly working with them to address their requests and needs, while collaborating and mobilizing the necessary resources and partners for effective local implementation on the ground” (UNESCO 2016). The use and inclusion of traditional knowledge is an additional means of adaptation being used both within the UNFCCC process and in the United States. ‘Traditional Knowledge’ is defined as a living body of information that has been developed, sustained and passed on from generation to generation. It is a set of practices and beliefs about the relationships of living beings to one another, their environment and their culture that has both everyday applications and intergenerational relevance. In climate change research, traditional and indigenous knowledge is increasingly recognized as an important component of understanding weather patterns, ocean phenomena and other ecological changes. It helps construct historical environmental baselines and provides observational evidence for modelling. It complements scientific data, filling in observation gaps and supplementing scientific findings on shifting atmospheric and oceanic systems. The National Park Service recently released *Cul-*

tural Resources Climate Change Strategy (2017), which sets out a vision and broad approach for managing impacts and learning from cultural resources, including the traditional knowledge imbued in cultural assets and living communities, throughout modern climate change. UNESCO and the National Park Service in the US are just two of many organizations involved in policymaking for cultural heritage assets. As a next step, the heritage community should expand this effort by working to connect cultural organizations at all levels to climate change policy processes.

Filling Knowledge Gaps by Offering Heritage Expertise

In the first two years of the Warsaw Mechanism, an expert group specialized in non-economic losses was established to collect data, expand knowledge and identify ways to further combat climate change. That committee met for the first time in September 2016 in Bonn, Germany, to discuss comprehensive approaches to loss. At COP22, the Executive Committee of the Warsaw Mechanism took the next step by approving a five-year work plan, to begin in 2017. This plan will guide countries in formally addressing the slow-onset impacts of climate change, climate-induced migration and non-economic losses and damage, including culture, historic sites, traditions and identity. The document that lays out the work plan:

Encourages Parties to incorporate or continue to incorporate the consideration of extreme events and slow onset events, non-economic losses, displacement, migration and human mobility, and comprehensive risk management into relevant planning and action, as appropriate, and to encourage bilateral and multilateral entities to support such efforts... (UNFCCC 2016).

In the Spring of 2016, the Executive Committee of the Warsaw International Mechanism created a public call for information related to migration, displacement and human mobility. In response to this request for more information, a group of cultural heritage professionals known as the Climate Heritage Coalition conducted studies and peer reviewed papers, case studies and letters related to cultural heritage loss and damage. It also urged the Executive Committee to incorporate cultural heritage considerations into all of its work. A number of American researchers, professionals and communities responded to this call, even though

they are not eligible to use the Warsaw Mechanism or the Adaptation Fund.² Providing expertise to the policy process while simultaneously advocating for full consideration and inclusion in the final product is an important way for the cultural heritage community to engage in climate change policymaking. Engaging in the Warsaw Mechanism process is vital for cultural heritage, but more can be done. As a next step, cultural heritage experts should share their expertise across all pillars of climate policy and advocate for positions that allow them to contribute to making decisions that ensure heritage is part of the solution.

Cultural Heritage as a Community Steps Up to the Plate

The aforementioned efforts may seem ad hoc and independent of one another, but a movement to connect the cultural heritage community to climate action is growing. In 2015, a group known as the Climate Heritage Coalition came together to consider strategies and develop an action agenda for preserving and continuing cultural heritage in a changing climate. The resulting inaugural document, *The Pocantico Call to Action on Climate Impacts and Cultural Heritage*, created a community of individuals and institutions committed to climate change and cultural heritage issues (UCSUCA 2015). From the seminal meeting in 2015, two national efforts within the US have been established to link cultural heritage and climate

² This is because the impacts of climate change on Native Americans and Alaska Natives in the United States serve as a good example of cultural heritage loss and damage due to the place-centered nature of their cultural and religious identities. Some indicators of tribal community health, like cultural cohesion and use of natural resources, are directly impacted by where the community is located. The Army Corps of Engineers concluded that moving residents from the Native Village of Shishmaref to a neighboring city, like Nome or Kotzebue, would likely destroy unique cultural aspects of the community, such as its distinct Inupiaq dialect and traditional carving and sewing practices (Tetra Tech 2004). Additionally, Alaska Native communities have long practiced subsistence hunting, both as a cultural practice and as a major contributor to local economies and food security. Residents in the Shishmaref study expressed repeated concern that moving to existing population centers such as Nome, some 125 miles away, would impair their “subsistence way of life” (Tetra Tech 2004: 143). Shishmaref residents perceived multiple risks to their identity, emanating from decreased access to both members of their community and to their traditional land if they were not to be relocated as an intact community to a new site. Comprehensive community relocation can help mitigate the potential loss of social cohesion, food security and cultural heritage in certain communities, particularly if communities can be relocated to an area that is near traditional land, including hunting and fishing grounds, but out of the hazard zone.

change at the international level: The ‘Keeping History Above Water’ (KHAW) Conference and the US/ICOMOS ‘Climate Change and Heritage Knowledge Exchange’. The first KHAW conference was an attempt to gather leaders in science, cultural heritage and preservation to share experiences, examine risks and develop practical approaches to mitigation, protective adaptation and general resilience (Historyabovewater 2017). The second annual conference, to be held in Annapolis, Maryland, in autumn 2017, seeks to expand this work by reconvening leaders in the fields of historic preservation, business, culture, tourism, economics, urban planning, environment, sustainability, design, engineering and public policy to participate in lectures, workshops, roundtables and tours that focus on practical climate change solutions and equitable community engagement.

From ‘Keeping History Above Water’, the virtual Knowledge Community on Climate Change and Heritage was born.³ A partnership developed between the Newport Restoration Foundation and US/ICOMOS, this initiative seeks to connect US preservation and cultural heritage practitioners to the international community by sourcing and sharing resources related to climate change and cultural heritage on social media and the US/ICOMOS site through blogs, Twitter and Facebook. As part of this effort, The Arctic Institute partnered with US/ICOMOS to run an event entitled ‘Culture on the Move’ at the UN Climate Change Summit in Morocco. ‘Culture on the Move’ focused on the intersection of culture, heritage and climate mobility and on what becomes of historic and sacred sites as entire populations lose their lands. Panelists addressed the use of cultural heritage to facilitate population displacement and considered what culture can be conserved and what traditional knowledge retained when entire communities are displaced. Espen Ronnenberg, the climate change advisor for the Secretariat of the Pacific Region Environment Programme, offered case studies of climate change loss and damage in the Pacific Islands, one of the geographies most vulnerable to climate change. And, on Ocean Day at COP22, UNESCO highlighted climate change as one of the biggest threats to the integrity of World Heritage Sites across our planet, pointing to the impending loss of culturally and historically important marine

³ For more information on the Knowledge Community, please see: <http://www.usicomos.org/knowledgeexchange/cultural-landscape-knowledge-community/>.

landscapes like Everglades National Park in Florida and Glacier Bay in Alaska. But, in addition to acknowledging loss, COP22 attendees also shared expertise on using cultural heritage to create risk management systems that build resiliency in vulnerable communities. During ‘World Heritage & Water After Paris: Cultural Resources, Protected Areas & the 1.5 degree C Imperative’, experts shared traditional water management lessons as a model for preserving historic landscapes and reducing climate risks. For example, Samir Bensaid discussed efforts by the International Institute for Water and Sanitation in Morocco to build climate resiliency in rural communities. The institute is combining traditional water management practices with modern nanotechnology for water disinfection to help communities withstand environmental hazards and climate shocks.

These two programmes offer examples of the heritage community actively engaging in climate policy debates and action at the grassroots level, but more can still be done to ensure that the lessons and losses of cultural heritage play an integral role in international climate change policy. At the conclusion of ‘Culture on the Move’, then-Interim Director of US/ ICOMOS Andrew Potts noted that, as cultural heritage experts and historic preservationists, “Our job is to build bridges”. Moving forward, the cultural heritage community can advance climate change policy through the work laid out in this article by, firstly, advocating the inclusion of preservation where possible and/or documenting and memorializing the tangible heritage left behind by displaced communities; secondly, providing best practices in the conservation of intangible heritage, traditional knowledge and movable heritage of displaced persons and communities; and, thirdly, facilitating the role of cultural heritage as a tool for resiliency, integration and social cohesion in new sites. Cultural heritage is not only a local history to be conserved for dislocated persons via substantial consideration in climate policy frameworks. It is also a tool that can aid in the development of strong, resilient communities post-relocation, communities capable of successfully coping with future climate stressors.

Building Bridges Between Culture and Climate Policy

At the end of each year, the National Trust for Historic Preservation publishes 10 annual preservation victories and 10 losses, a list that spotlights

the dedication of local groups that fought tirelessly to save the landmarks and landscapes they cherish most. It is filled with inspiring stories of moving lighthouses on Martha's Vineyard and turning California's Hangar One, once a docking station for the USS *Macon*, into a scientific and educational facility. The list is also a somber reminder that not every preservation fight is a win. For each important place saved and celebrated, another is lost to neglect or demolition. Although the stunning Belleview Biltmore Hotel in Belleair, Florida, and the Portland Gas & Coke Co. Building in Oregon live on in photographs and local memories, both were razed to make way for new development. The bittersweet annual tradition uses both the wins and losses to motivate preservationists to save America's historic places in the forthcoming year—an exercise that the American climate change community could learn from. For the first time in modern history, our coastlines are moving on an international scale. The combination of rising sea levels, increasingly extreme storms and exacerbated erosion and subsidence trends are impacting thousands of coastal communities. Across the world, downtown districts are flooding, farmers are facing saltwater intrusion and the structural integrity of school buildings and public infrastructure is being compromised by rising tides. We are not yet at the point of writing an annual list of 10 wins and 10 losses from climate change, but that day will come soon. Together, the cultural heritage, archaeology and historic preservation communities can support the work already being done via international processes dealing with climate change, as well as domestic, national and sub-national climate action in the US and beyond, to protect the historic and cultural assets that can help us become more resilient against the unavoidable effects of climate change.

References

- Environment America. 2015. 96 per cent of Americans live in counties recently hit by weather disaster. *Environment America*. Website: <http://www.environmentamerica.org/news/ame/96-percent-americans-live-counties-recently-hit-weather-disaster>, accessed on 6 July 2017.
- Ferris, E. 2013. Planned Relocation and Climate Change. Warner, K., Kalin, W., Keckie, S. Ferris, B., Martin, S.F. and Wrathall, D. (eds) *Changing Climate, Moving People: Framing Migration, Displacement, and Planned Relocation*. United Nations University, 31–36.
- Gemenne, F. 2011. Why the numbers don't add up: A review of estimates

- and predictions of people displaced by environmental changes. *Global Environmental Change* 21: S41–S49.
- Hauer, M.E., Evans, J.M. and Mishra, D.R. 2016. Millions projected to be at risk from sea-level rise in the continental United States. *Nature Climate Change* 6(7): 691–695.
- Melillo, J.M., Richmond, T. and Yohe, G.W. (eds). 2014. Climate Change Impacts in the United States: The Third National Climate Assessment. *US Global Change Research Program*. Website: <http://nca2014.globalchange.gov/report>, accessed on 31 October 2017.
- NOS CO- OPS 083, *Global and Regional Sea Level Rise Scenarios for the United States*. Website: https://tidesandcurrents.noaa.gov/publications/techrpt83_Global_and_Regional_SLR_Scenarios_for_the_US_final.pdf, accessed on 6 July 2017.
- National Oceanic and Atmospheric Administration. 2017a. Technical Report Plumer, B. 2017. Meeting the Paris Climate Goals Was Always Hard. Without the U.S., It Is Far Harder. *The New York Times*. Website: <http://www.latimes.com/opinion/op-ed/la-oe-0125-herrmann-climate-refugees-20160125-story.html>, accessed on 7 July 2017.
- National Oceanic and Atmospheric Administration. 2017b. 2016 marks three consecutive years of record warmth for the globe. *National Oceanic and Atmospheric Administration*. Website: <http://www.noaa.gov/stories/2016-marks-three-consecutive-years-of-record-warmth-for-globe>, accessed on 6 July 2017.
- National Parks Service. 2017. What is Historic Preservation. *US Department of the Interior*. Website: <https://www.nps.gov/subjects/historicpreservation/what-is-historic-preservation.htm>, accessed on 7 July 2017.
- National Trust. 2017. Preservation Green Lab. *National Trust for Historic Preservation*. Website: <https://savingplaces.org/preservation-green-lab#>. WYomk63My9Y, accessed on 7 July 2017.
- Rimmer, M. (ed.). 2015. *Indigenous Intellectual Property: A Handbook of Contemporary Research*. Cheltenham: Edward Elgar Publishing.
- Tetra Tech, Inc. 2004. Shishmaref Partnership Shishmaref Relocation and Collocation Study, Preliminary Costs of Alternatives. *US Army Corps of Engineers, Alaska District*. Website: https://www.commerce.alaska.gov/web/Portals/4/pub/USACE_relocation%20plan_shishmaref.pdf, accessed on 6 July 2017.
- Thompson, A. 2017. At Midway Point, 2017 is 2nd-Hottest Year on Record. *Climate Central*. Website: <http://www.climatecentral.org/news/midway-point-2017-2nd-hottest-year-21625>, accessed on 7 July 2017.
- United Nations Educational, Scientific and Cultural Organisation (UNESCO). 2016. UNESCO's Action in Support of Climate Change Adaptation. *UNESCO*. Website: http://www.unesco.org/fileadmin/MULTIMEDIA/HQ/SC/pdf/AdaptationFund_04Oct2016.pdf,

accessed on 7 July 2017.

Union of Concerned Scientists (UCSUSA). 2015. The Pocantico Call to Action on Climate Impacts and Cultural Heritage. UCSUSA. Website: <http://www.ucsusa.org/global-warming/solutions/pocantico-call-action-climate-impacts-and-cultural-heritage#.WYotxa3My9Y>, accessed on 7 July 2017.

US Government Accountability Office. 2009. *Alaska Native Villages: Limited Progress Has Been Made on Relocating Villages Threatened by Flooding and Erosion*. Washington, DC: Government Accountability Office. Website: <http://www.gao.gov/new.items/d09551.pdf>, accessed on 6 July 2017.

Volcovici, V. 2017. U.S. Submits formal notice of withdrawal from Paris climate pact. *Reuters*. Website: <https://www.reuters.com/article/us-un-climate-usa-paris-idUSKBN1AK2FM>, accessed on 8 August 2017.

White House. 2017. Statement by President Trump on the Paris Climate Accord. *Office of the Press Secretary*. Website: <https://www.whitehouse.gov/the-press-office/2017/06/01/statement-president-trump-paris-climate-accord>, accessed on 7 July 2017.

World Bank Group. 2016. Countries Affirm in Closing Hours of COP22: The Adaptation Fund Should Serve the Paris Agreement. *Adaptation Fund*. Website: www.adaptation-fund.org/wp-content/uploads/2016/11/Press-release-11222016_Countries-Affirm-in-Closing-Hours-of-COP22-The-Adaptation-Fund-Should-Serve-the-Paris-Agreement.pdf, accessed on 10 July 2017.