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RIVERS & BORDERS



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INTRODUCTION

INTRODUCTION TO ISSUE 25 | RIVERS AND BORDERS

By Laurie Moberg, Editor

On a map, the defined line of a river makes a compelling case for becoming a border. The line crisply delineates one space from another, dividing lands and creating distinctions between peoples, cultures, economies, and more. Certainly, these bodies of water have been adopted as borders with some frequency. A recent study published in *Water Policy* determined that

rivers currently make up 23 percent of international borders, not to mention creating borders at provincial, state, and local levels as well (Popelka and Smith 2020).

Yet on the ground, rivers defy this seemingly easy classification; in reality, they serve as fluid arteries of connection as often as they define rigid



The Mekong River winds through six countries, across 2,700 miles (about 4,350 kilometers) from the mountains to the sea. Image via Unsplash by Parker Hilton.

lines of separation. More than terrestrial borders, rivers complicate the fixity of borders. Rivers are routes of travel and trade and sociality, spaces of shared ecologies and cultures, and opportunities for mobility and change. Further, rivers transgress borders, demonstrating the permeability and even arbitrariness of these demarcations. Despite this, rivers as borders have real effects on the people and environments they divide.

The articles in this issue grapple with the complexity of rivers and borders in myriad ways. They draw attention to the harm these borders perpetuate, but also to the threads of connection they enable. The articles speak of historic conceptions, contemporary conditions, and future imaginings. They push for social awareness, reconfiguration of policy, and transformative engagements with place.

Some articles in this issue challenge the implications of long-standing political borders. Tim Hannigan explains how travel writers produce and reproduce a sense of absolute difference in their depictions of crossing the River Tamar, the historic boundary between Cornwall and England. Hannigan troubles these narratives, highlighting the ways that these framings do not align with lived experiences and histories. Similarly, Geoffrey Habron and John Roper demonstrate the ways that political borders obscure the experiences and needs of people in Bucksport, South Carolina. Situated between two rivers and subject to intensifying climate-related disasters, Bucksport residents navigate mismatches between their needs and the local, state, and national resources and policies that affect them. Julia Oswald Tilton traces several similar kinds of climate-related disasters across the U.S. in her review of Jake Bittle's *The Great Displacement: Climate Change and the Next American Migration*. Oswald Tilton explains that migration across borders—riverine or otherwise—is likely to increase with ongoing climate change and reminds us that we are all living into this unknown future together.

In the present, the intersection of rivers and borders can also spark contestation. In their photo essay along the Salween River, a river that creates part of the border between Thailand and Myanmar (Burma), Zali Fung and Vanessa Lamb show that this river-border is not fixed; instead, its fluidity and ambiguity allow the border to be both contested and constituted anew in everyday practices and in large-scale political agendas. Focusing on the Mekong River, another major riverway in Southeast Asia that crosses multiple borders and creates others, Stefan Lovgren explains the contentious prospect of determining the value of the river in monetary terms. Lovgren outlines both the difficulties of this endeavor, but also the potential importance for leveraging policy and action.

Policies and actions on borders and river-borders also have real effects on people's lives. For Isaac Espósto, the consequences of the border are physical and embodied. In their Perspectives column, Espósto details the ways that the history, practices, and policy along the U.S.-Mexico border inflict violence on human bodies and put strains on social and environmental connections. The effects intensify as climate change makes water even more scarce and the Sonoran Desert even less hospitable. Further east on the U.S.-Mexico border, Melinda J. Menzer demonstrates that the Rio Grande need not be understood as a border creating division, but as "a path across." She contextualizes her swim across the Rio Grande at the Amistad Reservoir as a way to draw attention to damaging and inhumane outcomes that can arise from these fluid borders and as a way to see borders differently.

The impetus to see river-borders differently reminds us that rivers are often arteries of gathering and connection, even across borders. Michael O. Johnston traces a series of transitions along the Upper Mississippi that ultimately led to the development of two interstate festivals that put the river-border at the center. In their Teaching and Practice column, Stephanie Januchowski-Hartley, Ioanna (Daphne) Giannoulatou, and

Merryn Thomas walk us through a series of activities they led to help people connect with rivers more broadly. They offer us a toolkit of resources for cultivating relationships with rivers through poetry and art.

The articles gathered in this issue demonstrate a variety of different relationships with rivers, carrying us to, along, and across many river-borders. Collectively, the articles here compel us to recognize both the real effects of borders and

also the unfounded assumptions, to respect the trauma these borders may inflict and the hope they may evoke, and to appreciate the political and social consequence of these lines as well as the potential for permeability and change. As we cross these borders like rivers, these articles ask us to consider: how do rivers and borders come together to shape our world and how could they do so differently into the future?

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About the Author

Laurie Moberg is the editor for *Open Rivers: Rethinking Water, Place & Community*, a digital journal of public scholarship published at the University of Minnesota (UMN) by the Institute for Advanced Study and UMN Libraries Publishing. She earned her Ph.D. in anthropology from UMN in 2018. Her doctoral research investigates recurrent episodes of flooding on rivers in Thailand and queries how the ecological, social, and cosmological entanglements between people and the material world are reimagined and reconfigured in the aftermath of disasters. In her current work, she approaches public scholarship as a critical strategy for expanding whose stories are heard, for shaping our public conversations, and for forming solutions for our shared ecological challenges.

FEATURE (PEER REVIEW)

SOCIO-ECOLOGICAL SYSTEM OF FLOODING IN BUCKSPORT, SOUTH CAROLINA

By Geoffrey Habron and John Roper

Editor's note: This feature article has been peer reviewed.

Introduction

There is growing awareness that climate change has the potential to deepen inequalities, especially regarding the threat of riverine flooding. For example, the United States published its Fifth National Climate Assessment in 2023 and for the first time dedicated an entire chapter to Social Systems and Justice (Marino et al. 2023). But just as importantly, how we decide to respond to climate change also runs the risk of having disproportionate and differentiated impacts (Petersen & Ducros 2022). We must ask

ourselves: Resilience and adaptation for whom? How will we ensure that our communities are not broken apart by our pursuit of adapting to climate change? It is important, therefore, to understand the intersecting socio-environmental dynamics at play across various scales of time and place that affect past, current, and future conditions in vulnerable communities such as the African American community of Bucksport, South Carolina.



Historical Grace Chapel Church at the intersection of Big Bull Landing Road and Bucksport Road, entering Bucksport community. Image courtesy of Geoffrey Habron.

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Located in the floodplain between the Pee Dee and Waccamaw rivers, the Bucksport community has experienced a sudden onset of catastrophic flooding events since 2015 that exceeded the previous flood frequency record which has led to property damage and loss of population. Due to historical ramifications, many residents lack current legal property deeds and so are unable to receive previous disaster funding from the Federal Emergency Management Agency (FEMA). Community members feel a sense of loss and powerlessness with respect to the larger governance structures across county, state, and federal scales. These conditions represent an example of interacting socio-ecological forces across nested scales that have both led to the

flooding, but also that explain the disparate responses to flooding that affect the resilience and vulnerability of the system. Socially, Bucksport's racial and ethnic history represents slow changing cultural variables that intersect with fast moving variables of larger population growth and economic development driven by tourism in the surrounding county and coast. Changes in the hydrological system occur at a much larger scale, both in terms of direct precipitation patterns on Bucksport as well as precipitation and increased development upstream. Those ecological patterns can be driven by much larger processes such as climate change that have regional, national and global dimensions.



Bucksport landing for Waccamaw River. Image courtesy of Geoffrey Habron.

Background and Context

Bucksport, South Carolina is an unincorporated community in Horry County in the northeast part of South Carolina, 28 miles west of Myrtle Beach and 14 miles south of the county seat of Conway (Figure 1). It comprises a population of 745 people, 89 percent African American, with a median income of \$47,695 and 82 percent home ownership; 81 percent of homes are valued at less than \$100,000 with 25 percent valued less than \$50,000 including 50 percent living in mobile or pre-manufactured homes (U.S. Census 2020). Residents hold a strong Gullah Geechee cultural heritage. Bucksport was initially a sawmill community that transitioned to a farming community after the sawmill industry died (Carson & Owens 2012). Henry Buck established the first sawmill in the Bucksport area and acquired 300 slaves before the Civil War (Carson & Owens 2012). He established Bucksville as well as Bucksport (Carson & Owens 2012). After the Civil War, Henry Buck gave his former slaves land so that they could build their homes, and many black families grew up in this area known as Bucksport

(Carson & Owens 2012). Many of the residents still live on the farmland that their ancestors lived on since the 1700s (Carson & Owens 2012). Therefore, the current residents emanate from the rich history of Bucksport as a sawmill, shipping, and shipbuilding town where agriculture took place by many emancipated slaves after the Civil War. This has resulted in a rich Gullah-Geechee heritage that has drawn the attention of the Gullah Geechee Chamber of Commerce as well as Coastal Carolina University Joyner Institute for Gullah and African Diaspora Studies.

Bucksport is located within the floodplains between the Pee Dee River to the west and Waccamaw River to the east and is situated just north of the Atlantic Ocean and the intracoastal waterway (Figure 1). Bucksport is also subject to tidal influence. The Pee Dee River is the culmination of the 7,200 square mile Yadkin-Pee Dee River basin with headwaters in Blowing Rock, North Carolina in the Blue Ridge Mountains to the northwest and entering the Atlantic Ocean



Figure 1. Location of Bucksport, South Carolina. Pee Dee River is located west of Bucksport. Waccamaw River is located east of Bucksport. Image via ESRI ARCGIS.

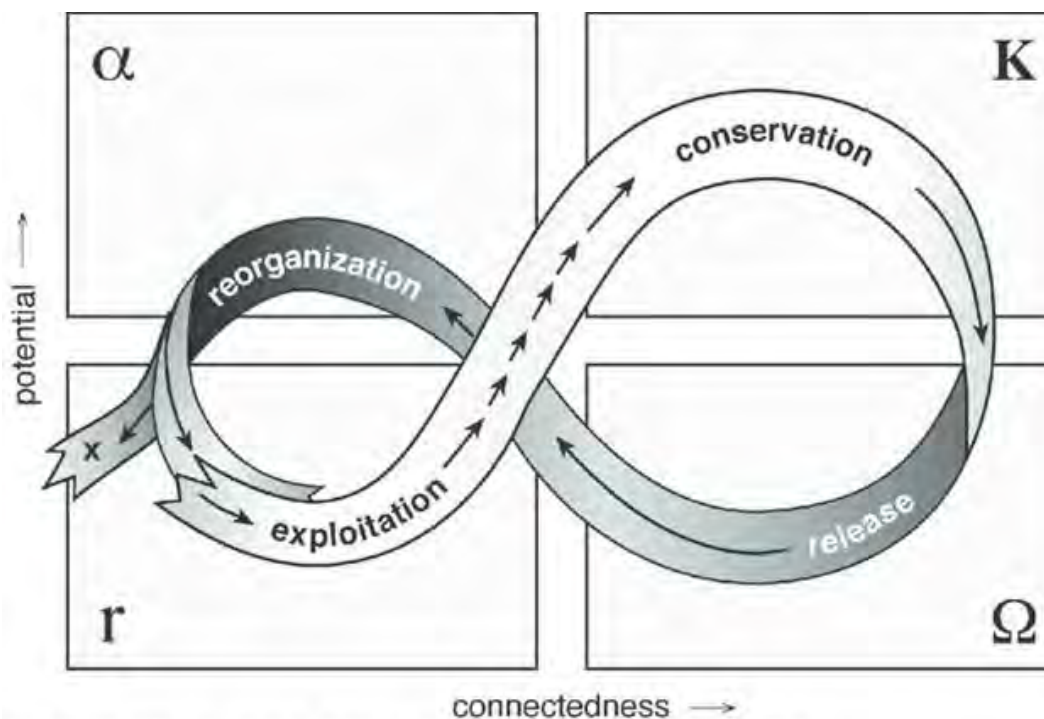
at Winyah Bay (American Rivers 2024). Its 230 miles in North Carolina includes several reservoirs and hydroelectric dams while the 230 miles in South Carolina are free flowing. While the 140 mile long Waccamaw River also originates in North Carolina and empties into Winyah Bay, it is much smaller, encompassing 1,640 square miles along the coastal plain (Winyah Rivers Alliance

2024). The 29,000-acre Waccamaw National Wildlife Refuge formed in 1997 includes both rivers, envelopes Bucksport to the west, south, and northeast, and shares a history of former rice plantations (South Carolina Department of Natural Resources 2020; United States Fish & Wildlife Service n.d.).

Socio-Ecological Systems and Resilience

Based on its location and physical geography, Bucksport is part of a complex socio-ecological system. Recognizing this allows us to engage with the unique interplay among the ecological subsystem of the river, floodplains, and land cover with the social subsystem of the residents, economy, and governance structures and processes (Resilience Alliance 2010). Some key features

to properly understand the interplay among the systems include the role of a range of slow-moving and fast-moving variables that respond within the system at different rates across spatial and temporal scales (Resilience Alliance 2010). Slow-changing ecological variables include soils and landforms such as floodplains, while slow-moving social variables include culture and governance



The adaptive cycle (from Panarchy, edited by Lance H. Gunderson and C.S. Holling: Figure 2-1 (page 34). Copyright © 2002 Island Press.

Figure 2. Illustration of adaptive cycles that indicates the dynamic rise and fall of socio-ecological systems in term of responses to disturbances or disruptions that lead to release and reorganization of a system after a period of buildup and then stagnation/stability. Adapted from Panarchy by Lance Gunderson and C.S. Holling. Copyright © 2002 Island Press. Reproduced by permission of Island Press, Washington, D.C.

and institutional structures such as land rights and jurisdictional boundaries. Fast-moving ecological variables would include stream flows, nutrient cycling, and photosynthesis, while fast-moving social variables include commuting patterns, health responses, and income change. Some of these change at small spatial scales such as the cell, the individual or the family, while others change at larger spatial scales such as whole river basins or the globe (e.g., greenhouse gas loading). The difference in the speed of change among variables across scales is important to recognize when we examine the feedback and effects of a range of disturbances such as floods, wildfire, or hurricanes. Some disturbances

are predictable, such as the daily tide rise and fall. Some are uncertain but fall into regular probabilities such as hurricane seasons. Some arrive suddenly and leave rather quickly in pulses (e.g., hurricanes), while others arise gradually and consistently as press events (e.g., sea-level rise, global temperatures).

Lastly, these socio-ecological systems can engage and respond to feedback and conditions through an adaptive cycle (Gunderson et al. 1995; Gunderson et al. 2022; Resilience Alliance 2010; Figure 2). An adaptive cycle is when a long-established system has built up a consistent and long-lasting set of resources or patterns such as

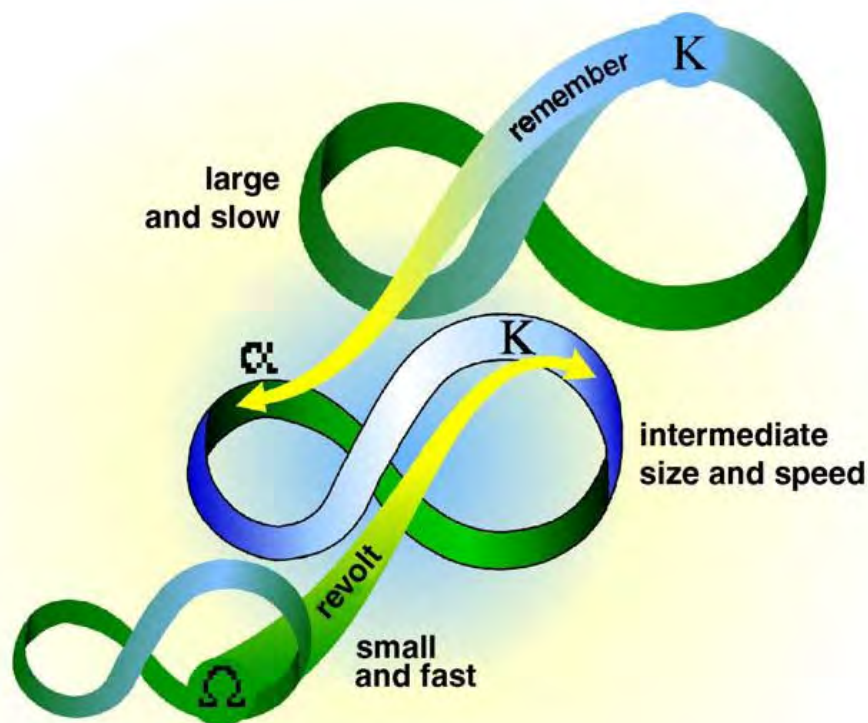


Figure 3. Graphical representation of nested adaptive cycles that reflect fast and slow process at small scales that can affect larger scales and larger scales that can affect smaller scales. Adapted from *Panarchy* by Lance Gunderson and C.S. Holling. Copyright © 2002 Island Press. Reproduced by permission of Island Press, Washington, D.C.

an old growth forest or an established company that reaches a kind of carrying capacity that represents conservation (K phase). The old growth forest or company can then experience a large disturbance such as a hurricane, forest fire, global pandemic, or economic recession that causes a collapse and release of resources (omega phase). For a forest, this release of resources could mean seeds that are released through pinecones. For a company, the release of resources could comprise insurance payments or new investors. This then requires the system to start over by accessing new resources (r phase) and reorganizing (alpha phase). For a forest, reorganization could include germination of new plants or different species that were hindered by the shade of the previous trees that blocked sunlight, water, and other resources. In the company setting, that might

include new equipment or a new governing board or product lines. Once reorganized, the system can stabilize and begin to head toward the conservation phase over a longer time period. A key piece of complexity is recognizing that these adaptive cycles can exist within subsystems and interact across scales (Figure 3), such as the regular patterns with an animal or plant body in terms of fast variables on a daily basis combined with slow variables and changes such as weather patterns, seasons, generations, or evolution (Gunderson et al. 1995; Gunderson et al. 2022; Resilience Alliance 2010). A key problem arises when management solutions are proposed that don't recognize such dynamism by addressing solutions at inappropriate spatial or temporal scales within or across socio-ecological systems (Cumming et al. 2006).

Application: Bucksport as a Socio-Ecological System and Adaptive Cycles

The current situation in Bucksport illustrates the intersecting socio-environmental dynamics at play across various scales of time and place that affect past, current, and future conditions in vulnerable communities. Given the long history of Bucksport (time scale), residents have only recently experienced catastrophic flooding which illustrates the K phase of an adaptive cycle (Figure 2). Prior to 2015, neither the Pee Dee nor the Waccamaw rivers exhibited extreme flooding (Figure 4 and Figure 5). However, between 2015 and 2021 nine flooding events occurred leading to stream heights greater than 20 feet, while none existed from 2008–2014. This series of floods indicates a rapid series of nested cycles (Figure 3). Two of those resulted from Hurricanes Matthew in 2016 and Florence in 2018. The sudden increased frequency represents disturbance events that lead to the release phase in the adaptive

cycle (Figure 2). While both of these occurred during a typical hurricane season, it is unusual to have two large hurricanes hit an area in three years. This enables less time for the system to recover in terms of reorganization (Figure 2) both socially and ecologically which diminishes system resilience (Resilience Alliance 2010). Further, while one storm mainly caused localized flooding, the other storm resulted mainly from precipitation that occurred from inland areas and farther upstream in North Carolina which reflects cross-border effects indicative of river systems. A third major flood event occurred in February 2021 not associated with a tropical event and outside of the normal bounds of the summer season which affects resilience in terms of lack of preparedness. In fact, of the nine events, only five occurred during the typical hurricane season.



Figure 4. Hydrograph of stream gage height of Waccamaw River at Bucksport, South Carolina October 2007–January 2023. U.S. Geological Survey station 02110802. The red line indicates the operational limit of the monitoring station. (https://waterdata.usgs.gov/nwis/inventory/?site_no=02110802).

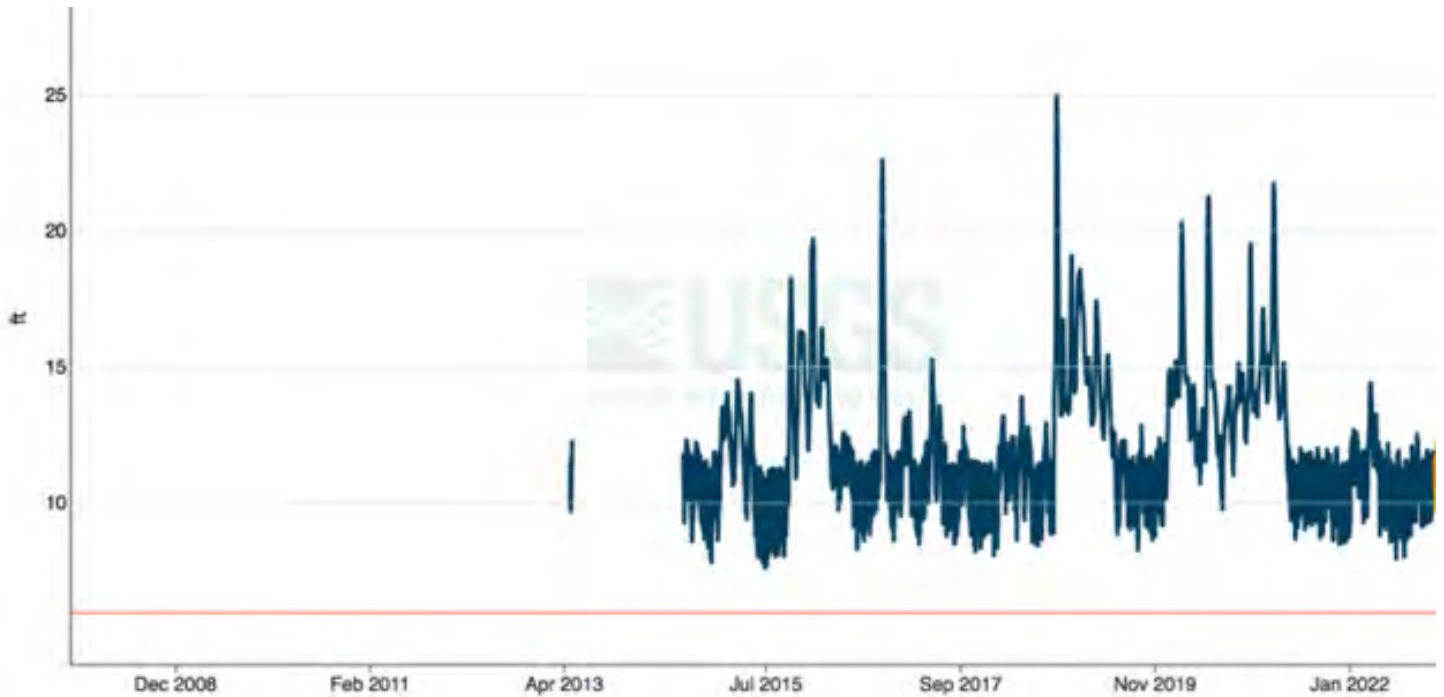


Figure 5. Hydrograph of stream gage height of Pee Dee River at Highway 701 Bucksport, South Carolina October 2007–January 2023. U.S. Geological Survey station 02135200. The red line indicates the operational limit of the monitoring station. (<https://waterdata.usgs.gov/monitoring-location/02135200>).

Hydrological Impacts on Social Systems

The series of floods has negatively impacted Bucksport residents in a number of ways. The major flooding both damaged homes and trapped residents either in their homes or prevented them from accessing their homes from hours to days (Naik 2018; Watson 2021; Williams 2021). While the community of Bucksport always resided between the two rivers and even utilized the hydrological cycle for rice production (Carson and Owens 2012), the current residents had not experienced this kind of flooding in their own lifetimes. Lifelong resident Jennifer Hunt stated, “We’re encountering flood, after flood, after flood. We never had this when I was growing up!” (Williams, 2021). Another resident, Gary Gause, observed that “I was born here in 1959 and up until about eight years ago, it never flooded. Something is taking effect” (Williams 2021). Further, each subsequent storm caused greater and different damage and alternated between the two rivers as sources of major flooding (Naik 2018). As indicated by one resident, “Bucksport

is on a continuous cycle of flooding unlike we’ve ever seen before” (Watson 2021). While some residents were able to move back into their homes within days, others took years, and some were never able to return to their homes due to the damage. While the home damage was relatively immediate, the response and recovery took months to years and was complicated by other external and institutional factors.

Bucksport residents’ lack of experience and threat recognition is explained by floodplain maps that indicated many residents did not reside in the 100-year or 1 percent annual chance of flooding areas as designated by FEMA (Figure 6). For example, a week after Hurricane Matthew passed through the area in 2016, residents expressed surprise and disbelief that the area could flood, especially because North Carolina and areas to the north experienced the bulk of the storm. When asked to evacuate one resident stated, “They’re telling us to get out so we’ll go ahead and get out. I was kinda surprised about it because

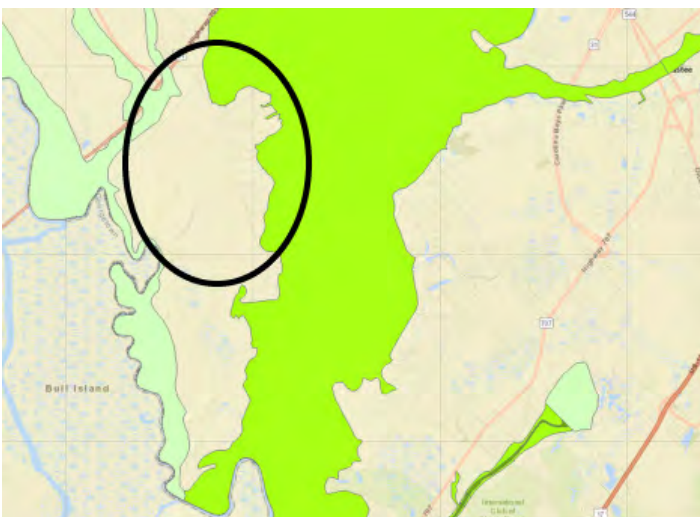


Figure 6. FEMA one percent flood hazard designations in Bucksport as delineated in 1999. Note that the majority of Bucksport is outside the flood hazard area.
Horry County GIS.

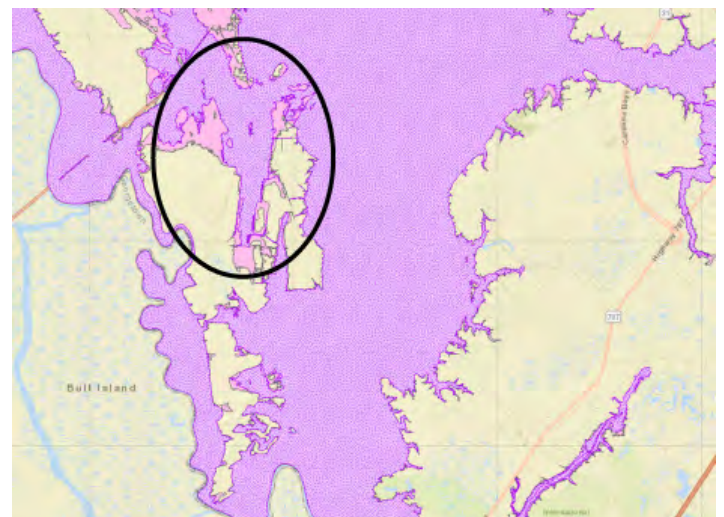


Figure 7. FEMA one percent flood hazard designations in Bucksport as delineated in 2022. Note that the majority of Bucksport is inside the flood hazard area.
Horry County GIS.

you know usually this area doesn't flood. If they'd have given me the option to stay, I'd have stayed. I know some people might say that's crazy, but I would have stayed. I don't think it's gonna be that bad" (Parris 2016). Five years later, residents understand. These flood maps are updated infrequently and did not align with rapid change in flood frequency and risk that emerged since 2015. FEMA began the process of revising the flood maps in 2016, but encountered resistance from a range of entities including residents who contested the changes (Roberson 2016; James 2021). However, when the maps were finally updated in 2021 (Figure 7–8), the updates led to residents needing flood insurance for the first time or being required to pay higher insurance rates (James 2021).

While the flooding caused damages to homes and mental health, further damage was caused when

the federal response system did not align with the community structures and norms. Due to its long history of occupation and roots in slavery and disenfranchisement, many residents simply passed down their property to each generation without having a proper legal deed for the property (known as heirs' property). As long as someone paid taxes to the county and state they could continue to occupy the property (Roberts 2021). However, the Federal Emergency Management Agency requires evidence of ownership by residents before they can receive financial and other compensation for storm damage. Having a clearly designated deed with current residents' names is crucial for aid acquisition. Therefore, many residents were unable to properly recover financially as one Bucksport resident regretted about their siblings' outcomes: "They been having so much problems, it's unbelievable. Because when the water comes, they have to get out of

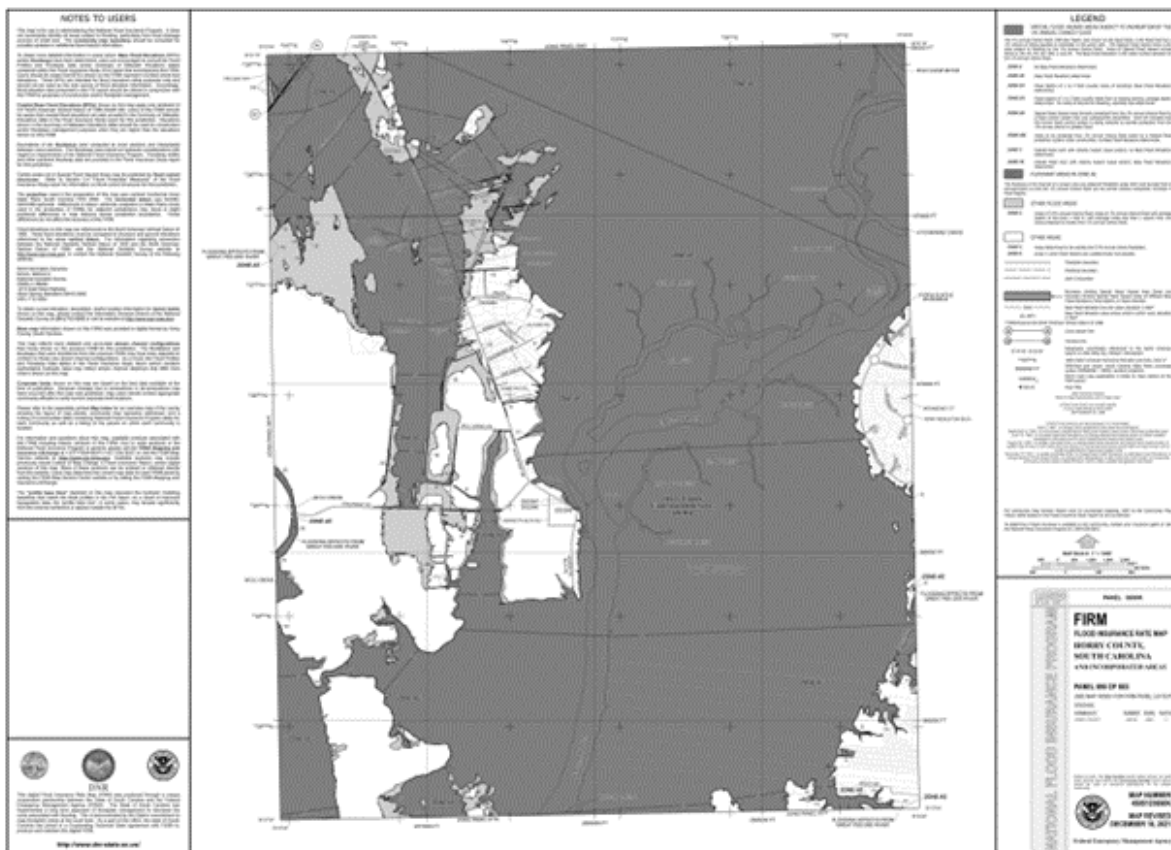


Figure 8. This Flood Insurance Rate Map for Bucksport, revised December 16, 2021 (FEMA National Flood Hazard Layer), indicates the extent of area within one percent annual flood probability (Zone AE). Bucksport Road runs north to south.

Social System Response

The rise in flooding elicited two major intersecting responses from those involved at different scales: Horry County and the Bucksport community. In February 2020, the chair of Horry County Council tasked its Infrastructure and Regulation Committee to launch a subcommittee solely focused on Flooding (Montgomery 2020). The chair selected the members to represent a range of elected officials (city, county, and state) and residents representing builders, roads, and activists. The subcommittee convened meetings, commissioned studies, and received briefings

from county staff as they solicited state and federal funding. They summarized the planned projects in October 2022, including a plan to mitigate flooding in Bucksport through a two-pronged project to elevate a major road in the community called Big Bull Landing Road (Figure 7), as well as develop a flood bypass channel for the Cowford Swamp (MyHorryNews 2020; Horry County 2022b, 2022c) that flows into Bucksport under Big Bull Landing Road and into the Waccamaw River. The county responded to the revised FEMA flood maps by communicating to residents about



*Cowford Swamp on Highway 701, just upstream of Bucksport community.
Image courtesy of Geoffrey Habron.*

new insurance requirements. David Gilreath, the county's assistant administrator over infrastructure and regulation, explained the importance of residents applying for insurance prior to the acceptance of the flood maps on December 16, 2021:

We're doing everything we can to make sure that the people that are going into the flood zone have every opportunity to purchase flood insurance before that date. Because if they get it before the date, it's cheaper. If they maintain flood insurance after that date, it will rise...Within a few years, they're going to be at the normal rate. But if they get it before Dec. 16, they can get a discount for a number of years before they get to that maximum. (Perry 2021)

For the longer-term approach to reducing flood vulnerability, the county approved its Flood Resilience Master Plan in September 2022 funded by the FEMA Hazard Mitigation Plan Grant

Program which highlighted the vulnerability of Bucksport among three communities of most concern (Horry County 2022a).

The residents of Bucksport responded to the increased flooding by mobilizing at two levels. First, they formed a resident organization, The Association for the Betterment of Bucksport. The organization mobilized residents and spoke out to the media and to Horry County Council about their needs and the lack of voice in the flood response (Roberts 2021b) as well as concerns with the designated mitigation approaches in terms of elevating Big Bull Landing Road (Klein 2022). The Association also organized community education efforts such as heirs' property workshops led by the Center for Heirs Property Preservation. The second approach involved catalyzing a collaborative of local and regional nongovernmental organizations and academic institutions called the Bucksport Community Partnership; it is led by American Rivers to support the Bucksport community through advocacy, capacity building,



Big Bull Landing Road west of the main Bucksport Road and residential community. Image courtesy of Geoffrey Habron.

and technical assistance (Cail & Davis 2022). The collaboration assisted the Association for the Betterment of Bucksport in acquiring grants through the federal American Rescue Plan Act in 2022 (Benson 2022); a pilot sustainable development assessment through Coastal Carolina University in 2021 (Laguerre 2021); rain gardens through American Rivers, Clemson University Extension, Coastal Conservation League, Furman University, and Carolina Wetlands Association in 2022 (Laguerre 2022); and cultural heritage conservation through Coastal Carolina University in 2022 (South Carolina Humanities n.d.). While the county worked to address large scale issues and apply for funding from federal and state programs, residents in Bucksport wanted smaller scale approaches, such as cleaning and maintaining the local ditches in the community (Roberts 2021b). However, that encountered difficulty as well both due to heirs' property issues and lack of trust when landowner permission was required to transect private property to access the ditches that crossed property boundaries.

The abrupt rise in flooding of the Pee Dee (Figure 5) and Waccamaw (Figure 4) rivers in Bucksport

represents a dynamic socio-ecological system (Resilience Alliance 2010) reflective of a series of adaptive cycles (Figure 3) across nested scales (Gunderson et al. 1995; Gunderson et al. 2022; Figure 4). This dynamic reveals a lack of fit and scale mismatch between and among the social and ecological components (Cumming et al. 2006). This mismatch illustrates how entanglements of rivers and borders shape our relationships with water. Bucksport's main socio-ecological features are the land, the rivers, and the human residents at one geographic scale that have changed their interactions over a range of time scales and therefore have generated a unique cultural identity and sense of place, particularly important for threatened African American communities in the U.S. South (Schumann et al. 2022). While built on historic interactions (Carson and Owens 2012), due to climate change, precipitation and flooding patterns have changed faster than the infrastructure, culture, and governing institutions can respond.

The governing institutions also reflect varying scales and borders with an emphasis on the structures, processes, and responses of Horry



Looking southwest down Big Bull Landing Road at the intersection of Bucksport Road entering Bucksport community. Image courtesy of Geoffrey Habron.

County and the federal government in the form of FEMA. As stated by the National Climate Assessment, “conditions that create the disaster impacts described above occur over decades or centuries, while governance responses to these impacts are asked to be created in far less time in order to be effective” (Marino et al. 2023).

Adding to the complexity lies the larger demographic and economic forces occurring in Horry County with rapid development and population change challenging county governance and structures in terms of infrastructure and development codes and standards. This confluence affects individual resident’s ability to prepare, respond, and recover from flooding (individual adaptive cycle, see Figure 2), which also affects and is affected by the Bucksport community scale ability to prepare, respond, and recover (community adaptive cycle). Both individuals and community dynamics are then affected by the larger Horry County governance and institutions adaptive cycle and timing (local governance adaptive cycle) that is also affected by FEMA’s adaptive cycle in terms of resources and policies (federal governance adaptive cycle). Of course, all of this is brought about by the change in river and flooding behavior (river adaptive cycle) elicited by climate change that alters the frequency, duration, and timing of large precipitation events both locally, but also upstream in North Carolina.

The river, land, and people interact through flooding impacts and responses. There are policy level implications of flooding as well, such as FEMA designation of flood zones and how that has changed over time and whether people fall into the flood zones and the ramification of that designation. The time span of the social system changes regarding FEMA flood zones from 2016 to approval in 2021 failed to align with the sudden frequency of flooding in the natural system that would have better protected and compensated Bucksport residents. The policy also then affects whether people can get insurance, how much it costs, as well as similar

questions related to flood damage compensation. This arrangement then interacts with the lack of property deeds and affects eligibility for FEMA compensation. One can also see this pattern in national processes and outputs such as the National Risk Index (Department of Homeland Security). The National Risk Index compiles data on a location’s risk to hurricanes, flooding, wildfire, and earthquakes and compares that to social vulnerability, such as the income level and education of the residents. This index is used frequently as an indicator of eligibility or priority for receiving federal funds. The risk index score is determined by collecting data within U.S. Census tracts. While other data collected at the scale of Bucksport indicate social vulnerability, Bucksport exists within a larger census tract with more wealthy residents. Because Bucksport’s borders exist within a larger census tract, this scale of analysis can have negative implications for efforts to secure federal assistance for Bucksport to address the flooding issues, such as through the federal Justice40 initiative launched in 2022 (The White House 2022). The Justice40 initiative seeks to designate 40 percent of federal funds to overburdened and underserved communities. The current draft of the Climate and Economic Justice Screening Tool fails to identify Bucksport as a designated disadvantaged community due to this census tract scale issue (Council on Environmental Quality n.d.). Again, this illustrates the lack of fit between the scale of river flooding, the communities impacted, and the policy tool used to identify risk that would generate resources to aid in recovery and reorganization within an adaptive cycle (Cumming et al. 2006; Figure 3).

This census designated place is then affected by external forces and scales such as the larger context of Horry County. This context has implications for economic and demographic fluxes such as population growth, tourism, need and plans for roads, and rise in housing costs that create pressures on Bucksport itself. Also at play is the timescale of governance, such as

representation on county council. For example, the 2022 elections changed Bucksport's county council representative who also served as chair of the Horry County Flood subcommittee and who advocated on behalf of Bucksport. Bucksport's denotation as a designated place also has implications for categorization of disaster declarations, such as needing to receive disaster designation by county instead of by census designated place and approaches to the federal American Rescue Program Act, Community Development Block Grant, or FEMA funding. The land development across the county can also affect hydrology, flood vulnerability, and impacts due to runoff and impervious surfaces as well as change in tree

cover (Horry County 2022a). Cleaning of ditches also falls into this category in terms of county maintenance and jurisdiction as well as efficacy that exists beyond the borders of Bucksport and the immediate one-percent flood zones of the Pee Dee and Waccamaw rivers.

For each of these dimensions there are processes and patterns that vary in scale that can have implications from the bottom up, as well as top down in terms of mismatch in the scale of ecological processes and the corresponding institutions and processes responsible for managing or responding to such ecological processes (Cumming et al. 2006). These processes intersect in ways



*Grand Strand Water and Sewer gated access to the Eddy Lake Cemetery site.
Image courtesy of Geoffrey Habron.*

such that even the same amount of precipitation over time can cause more flooding due to changes in land use. Changes in land use and development patterns could also cause more economic damage due to increases in homes, increases in homes in flood zones, or increases in the value of homes that puts pressure on Bucksport residents and the community. Other factors, such as crime (Harris 2021) in Bucksport, could add cumulative effects that would cause the same level of flooding to lead to more displacement as it adds a critical tipping point for certain individuals that leads them to leave. As with flooding, this also implicates change over the time dimension, this time from a social system dimension as demonstrated in the words of a long time Bucksport resident: “The

community is not the same anymore. Something has got to be done. I’ve never seen it like this. I wish my neighborhood could go back to how it was in the ’60s. There was better communication, people loved each other, and nobody hurt each other” (Harris 2021). Alternatively, the increase in the precipitation-flooding dynamic can create more change, even when holding all other parameters the same. There are also scenarios where a confluence of events can lead to a potential regime shift whereby Bucksport will not look like it has, leading to changes in demographics in terms of number, race, ethnicity, and value of homes that mirrors larger concerns in other communities that result from “a confluence of heightened hazards exposure, rising land values,



*Historical cemetery behind fence with view of cement blocks used as grave markers.
Image courtesy of Geoffrey Habron.*

unaffordable flood insurance premiums, and crumbling neighborhood infrastructure induced by historic public disinvestment” (Schumann et al. 2022, 316).

These conditions and strains point to the critical importance of understanding the dynamics and impacts of this socio-ecological river system and the cross-scale interactions across borders with implications for resilient remembering that represents how African American communities can “create and maintain heritage sites over the long term specifically to remember narratives of past resilience or repurpose sites to pursue power and liberation (i.e., resistance) in the present” (Schumann et al. 2022, 306). Resilient remembering describes how,

amid ongoing adversity, Southern BIPOC [Black, Indigenous, People of Color] communities have consistently adapted and survived by transforming their social vulnerabilities into ‘inherent resilience’ by linking collective efficacy, creativity, and community action with a

Conclusion

A key to applying an equitable approach to improving a community’s entanglements with rivers (resilience and adaptation for whom?) then becomes understanding these socio-ecological dynamics. Understanding how the various scales and dimensions interact can encourage opportunities to foster adaptive capacity and resilience as illustrated by efforts by the Association for the Betterment of Bucksport and the Bucksport Community Partnership collaboration. Any proposed approach to improve community resilience with rivers can then be run through this socio-economic adaptive cycle lens to assess its efficacy. For example, we can use this lens to assess the equitable community impacts of flood adaptation strategies like elevating Big Bull Landing Road; installing rain gardens;

sense of community, place, and narrative. (Schumann et al. 2022, 306)

For example, the community identified a historic African American cemetery that had been hidden and forgotten due to overgrowth of vegetation; it is located on private property owned by the Grand Strand Water and Sewer Authority, which is the largest landowner in the community (Bell 2020, Klein 2020). The community engaged in its own research and garnered the cooperation of the landowner and local government to fence in the area and erect a sign. The project emerged in response to plans to expand and upgrade roads in the community which threatened the existence of, and access to, the cemetery. The previous loss and recent recovery of the cemetery exemplifies the multiple changes in the community that threaten erasure of community history by those in more powerful positions. The dynamics in Bucksport illustrate the compounding destabilizing forces around climate disruptions that can threaten African American communities through social disruption and loss, conditions and experiences that will remake places and people (Schumann et al. 2022).

supporting the Association for the Betterment of Bucksport; increasing jobs, education, or entrepreneurship in the community; changing FEMA flood designation; enacting the Horry County Flood Resilience Plan; or changing development codes. From a cross-scale perspective, the sudden appearance of multiple disturbances in a short time frame (local scale, short time period) produced by climate change (global scale, longer time period) since 2016 can have stronger effects on Bucksport (small scale) than Horry County (medium scale) as a whole. Adaptive cycles can operate on different trajectories, such as the role of re-setting and/or renewal phases (reorganization, exploitation, conservation, release). While river flooding and floodplain wetland ecosystems in general represent well-studied processes of

conservation, reorganization, and renewal from an ecological perspective, they have different effects on the social system, especially when not part of the longer-term history.

Some parts of Horry County might (a) build back and (b) build back better due to larger and more powerful political and economic forces of tourism and in-migration; Bucksport might not experience either of these practices in the same way. The call to build back better emphasizes a need to not just address what is lost or damaged with disturbances by returning to pre-disturbance normal, but to improve the situation, such as by addressing root causes, improving equity and

inclusion, reducing risks to future disturbance, and increasing resilience while rebuilding (Hamann 2020). It is important to consider that different visions of “build back better” can exist (Hamann 2020) regarding what and how to rebuild, which may not yield beneficial results for all those involved. An example of the need to implement a “build back better” approach can be viewed in terms of a new Bucksport marina and industrial development supported by the Myrtle Beach Regional Development Corporation and the local water and wastewater utility (Vazquez-Juarbe 2022). Building a commercial marina may generate certain large and new benefits, but what those benefits will be and how they will



*April 2022 Rain Garden Information and Planning Event.
Image courtesy of Geoffrey Habron.*

impact the Bucksport community system remains unclear. The new marina adjusts to the changing river dynamics and rising county population and development better than the slower moving variables of fixed homes and culture of Bucksport. The same might be said for elevating Big Bull Landing Road. If it does reduce flooding, will that benefit Bucksport or lead to its quicker demise and change due to increased property values and gentrification? The Horry County Council might view this as better due to increased tax revenues and reduction in high value flood damage (fiscally and physically better), but residents may not share that assessment (not equitable or inclusively better). Climate change has the potential to

deepen inequalities and so does how we decide to respond to it. We must ask ourselves “resilience and adaptation for whom?” How will we ensure that our communities are not broken apart by our pursuit of adapting to climate change?

Bucksport provides a specific example of larger issues confronting other communities and their entanglements with rivers in terms of encountering the deleterious effects of a rapidly changing climate. Further, it illustrates how entanglements of rivers and borders shape our relationships with water. We must work with communities to ensure that proposed approaches to reduce or adapt to river flooding align with community benefits



Bucksport residents and Bucksport Partnership members after completion of the first pilot rain garden at Frazier Community Center in June 2022. Image courtesy of Geoffrey Habron.

and don't lead to their demise. Resources must be provided, and collaboration must occur to make sure that no one is left behind. As noted in the U.S. National Climate Assessment, we must acknowledge the key governance issues that undergird and affect climate social justice (Marino et al. 2023). Therefore, Horry County needs to improve its community engagement process to acknowledge and incorporate how "people's histories, educations, cultures, and ethics determine how they understand and experience climate change" and explicitly "include community perspectives and multiple forms of knowledge in climate discussions and decision-making" in order to build clear objectives and benchmarks for what it means to build back, and build back better in an equitable and just way (Marino et al. 2023). Including community perspectives and recognizing adaptive cycles could ensure economic, engineering, and environmental approaches account for, and align with, the temporal social processes and conditions of the past, current, and future through resilient remembering (Shumann et al. 2022). The hope is to address the root causes of both environmental and social disparities such as racism, neighborhood disinvestment, political disenfranchisement, and low social capital (Adger 2003; Fang et al. 2022; Yuen et al. 2017). As such, any approaches to addressing the flooding risk of similarly situated communities should engage the multiple dimensions of equity: procedural, distributional, and structural (Yuen et al. 2017). Procedural equity addresses the processes of information sharing and decision making that are transparent and fair with opportunity for everyone to have a voice. Distributional equity addresses the proportional spatial and social impacts of implemented strategies in terms of benefits and risks. Structural equity resolves past and current institutional harms, conditions and processes that oftentimes lead to unintended and uneven consequences.

As identified in the Steps to Resilience toolkit approach established by the U.S. National Oceanic and Atmospheric Administration's

Climate Program Office, an equitable approach incorporates a full continuum of community engagement (Fang et al. 2022; Yuen et al. 2017). This engagement moves beyond just informing community members of proposed approaches (as occurred in Bucksport), and instead moves toward shared leadership and community-driven efforts where community ideas are considered and modeled to assess the impacts of a range of alternatives especially in the face of dynamic river systems with multiple possible effects, scales, and disturbance regimes. Efforts for meaningful community engagement should exist across the timespan of project development, from project initiation through plan development, implementation, monitoring, and evaluation in a way that is fully transparent so community members can see and understand the modeling efforts that are applied.

An equitable approach that recognizes cross-scale adaptive cycles also requires anticipation of unintended consequences and plans for prevention and mitigation to build capacity to withstand and recover from disturbances. For example, implementing green (or other) infrastructure to reduce the kinds of flooding experienced in Bucksport should recognize the potential to elevate property values and taxes that could lead to community displacement and gentrification (Marino et al. 2023). A recommendation would be to develop a plan for tax abatement. A similar approach would also recognize the implications of updated FEMA flood maps and impacts on insurance needs which could involve collective negotiation with individual insurers or a group of insurers. Another recommendation involves incorporating other more timely flood models either derived from onsite hydrological models or use of other options such as the Risk Factor models developed by First Street Foundation that incorporate models of future climate—and not just past flooding—behavior.

From a structural and spatial perspective, an equitable approach recognizes that development

patterns in areas of the county upstream from Bucksport, or other similarly at-risk communities, could have disproportionate cumulative impacts downstream on communities like Bucksport which are least positioned to address those impacts. Therefore, development plans, regulations, and zoning should be adjusted accordingly and not reviewed purely on a site-based or neighborhood-impact dimension. That would involve incorporating data such as the federal Climate and Economic Justice Screening

Tool that addresses co-occurring risks and vulnerabilities (Fang et al. 2022; Yuen et al. 2017) but adapted to the census designated place scale for county decision making and planning. It is even more important to recognize the time delay in implementing such changes adds to the disproportionate impact. In this case, the frameworks and tools exist to address such scale mismatches but require the awareness and commitment from those with decision-making authority to implement the frameworks and tools.

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FEATURE (PEER REVIEW)

A FLUID BORDER: THE RIVER TAMAR AND CONSTRUCTED DIFFERENCE IN TRAVEL WRITING OF CORNWALL

By Tim Hannigan

Editor's note: This feature article has been peer reviewed.



*The main Tamar crossing at Saltash, engraved from a painting by
J. M. W. Turner around 1830.*

The Tamar is a relatively modest river. With a length of just 61 miles, and an average discharge at the upper tidal limit of just 807 cubic feet per second, it is dwarfed by other British rivers such as the Severn and the Thames. But despite its small scale, the Tamar has a heightened cultural significance: for more than a thousand years it has served as the border between the bulk of England to the east and Cornwall—a region with some distinct quasi-national characteristics—to the west. Nineteenth- and twentieth-century travel writers’ accounts of crossing this border have tended to construct the Tamar as a site of absolute transition from familiarity to otherness—a construction which has at times intersected with (and arguably informed) the emergence of modern identities of difference from *within* Cornwall.

Rivers are a long-established subject for the travel genre. However, attention has tended to focus on narratives of journeys *along*, rather than *across*, rivers (see Burroughs 2019) despite the emphasis elsewhere on the general significance of border crossings in travel writing. Tim Youngs, for example, notes that travel writing is “frequently populated with the representation of borders between the known and the unknown, the civilized and the savage, the domestic and the wild,” and that the travel genre is also replete with symbolic and metaphorical borders, not least those “between the past and the present which give travel texts their (often problematic) temporal texture” (2019, 25). Elsewhere, Churnjeet Mahn points out that “travel has a long association with subjects crossing conventional borders and boundaries, and the margin and periphery are



The main crossing point on the Tamar for nineteenth-century travel writers, between Plymouth and Saltash, is now spanned by twin rail and road bridges. Image “Cornwall: The River Tamar” by Lewis Clarke. CC BY-SA 2.0 DEED.

travel writing staples” (2016, 47). The Tamar, then, provides a significant case study of the border function of rivers and of the complexities and ambiguities that close inspection of such a function may reveal. It is also an unusual example of a river which has frequently featured in travel books specifically as a border to be crossed rather than a watercourse to be journeyed along.

This article begins with a brief overview of the historical contexts of the Tamar as a border. It then goes on to focus on three specific aspects of perceived Cornish difference, emphasized at the moment of crossing the river by the travel writers Walter White, Alphonse Esquiros, Wilkie Collins, and Ithel Colquhoun. The article also briefly considers the way the Tamar has

provided an imaginative Rubicon for internal Cornish identities to flow back against. Finally, in keeping with what Manfred Pfister identifies as an emergent postmodernist tendency for travel writers to “not only cross but criss-cross borders,” the article outlines the ambiguous—and indeed fluid—actualities encountered when exploring the upper reaches of the Tamar (2016, 293).

Before proceeding to outline the essential historical and cultural context of Cornwall and its border, a clear statement of positionality is required here: I am from Cornwall; I was born there, and generally identify myself as “Cornish.” Thus, my own approach to the River Tamar generally goes directly against the flow of the travel writing I will discuss here.

Cornwall and the Tamar: A Very Brief History

Administratively, Cornwall is—and has long been—simply the westernmost county in England (a county being the first administrative subdivision of territory below the level of country in the United Kingdom). It is a tapering peninsula, stretching roughly 70 miles into the Atlantic from the border with the neighboring county, Devon. But calling Cornwall a “county” and referring to it as part of “England” is likely to generate complaint from some Cornish people today—an indication of Cornwall’s unusual historical and imaginative status in the wider nation to which it notionally belongs.

The peninsula now known as Cornwall lay at least partly outside the Roman military and infrastructural network in Britain between the first and fifth centuries C.E. Later, it was largely beyond the westernmost limits of the Anglo-Saxon settlement—though it was technically within the emerging Anglo-Saxon state from a relatively early stage. Thus, on the eve of the Norman Conquest in the eleventh century, Cornwall was a part of the English realm still largely occupied by people who were not themselves English: they

were Britons, who spoke their own Brythonic (or P-Celtic) language. In this, it was markedly *unlike* most of the rest of England and much more closely akin to Wales. Indeed, the second syllable of the name “*Cornwall*” shares an etymology with “Wales”: *wēalas*, an Old English word often translated as “strangers” or “foreigners,” but perhaps better understood as, specifically, “not English.”^[1] Something of this distinction endured post-Norman Conquest, and the Latin formula “*Anglia et Cornubia*” (“England and Cornwall”) was sometimes used in official documents into the medieval period (Payton 2004, 71).

However, the most obvious marker of Cornish distinction from England—its entirely separate language—gradually eroded. Cornish had probably ceased to be the main community language in the border areas *before* the Norman Conquest of 1066, and it retreated westwards in the following centuries. By the beginning of the nineteenth century, it had fallen entirely out of use as an authentic community language and had no more native speakers (though, of course, many words

of Cornish origin survived in the local Cornish-English dialect and as placenames, and a version of Cornish was revived in the early twentieth century).

By the mid-nineteenth century, Cornwall was a heavily industrialized tin- and copper-producing region, with a Methodist-majority population and a rapidly developing emigration culture. The general view amongst Cornish people themselves at this point appears to have been that their homeland was an English county, albeit one with some unique characteristics (Deacon 2018, 241), and Cornish writers of the period tended to refer to their homeland explicitly as “England” (Hannigan 2023, 304). But at the same time, literary narratives written by outsiders were constructing Cornwall as a decidedly exotic—and indeed un-English—land.

Wilkie Collins claimed that “a man speaks of himself as Cornish in much the same spirit as a Welshman speaks of himself as Welsh” (1851, 94) and Robert Louis Stevenson declared of Cornish emigrants encountered in America that “Not even a Red Indian seems more foreign in my eyes” (1892, 61–62). This tendency emerged, in part, from a popular fascination with the so-called “Celts” which had developed in the previous century (Cunliffe 1999, 11–12), with Cornwall identified as part of the so-called “Celtic Fringe.” It also emerged from a more general hankering for a pastoral escape hatch from the rapidly industrializing and globalizing realities of the day, with Cornwall suitably distant from the metropolis to serve that purpose (Deacon 2007, 180–181).

This essentially imaginative construction of Cornwall may, however, have had a foundation in a residual sense of actual difference which had clung to the place down the centuries, aided by its peninsular geography and the fact that, from the tenth century onwards, Cornwall’s eastern edge was firmly demarcated by an official border: the River Tamar.

The Tamar rises close to the north coast of Cornwall near Bude. But it then turns southwards, flowing across the peninsula to emerge into the English Channel at Plymouth, leaving Cornwall almost entirely surrounded by water, salt and fresh. The river is believed to have been fixed as a border by the early English king Athelstan in 936. The reasons for Athelstan’s action are unclear, for Cornwall seems to have already been under some kind of English overlordship for at least a century at this point. But nonetheless, in the tenth century the river did delimit two blocks of territory, the majority of whose populations were ethnically distinct: Old-English-speaking Anglo-Saxons to the east, and Old-Cornish-speaking Britons to the west. This makes the Tamar one of the oldest quasi-national borders in Europe, and perhaps the world, still in existence today.

By the mid-nineteenth century, any clear ethnic and cultural distinction between “Cornwall” and “England” had largely dissipated, but this did not stop visiting writers from making great imaginative use of the Tamar as a geographic, ethnic, and atmospheric frontier.

A Stern and Unfinished Aspect: The Tamar as a Geographical Border

Landscape has long featured prominently in literary depictions of Cornwall. Today, those landscape depictions are overwhelmingly positive, and a modern author might write admiringly of “the fantasy of Cornwall—the blinding sand, the subtropical plants, the Atlantic storms” (Woodcock 2019, 13) or of their “vivid impressions of surf, sand and sky” (Barkham 2015, 149). But this has not always been the case, and past topographic depictions have at times been openly hostile.

For William Gilpin, great popularizer of “the picturesque” as an aesthetic ideal in the late

eighteenth century, Cornwall was a “coarse naked country, and in all respects as uninteresting as can well be conceived” (1808, 192). Its landscape was “undisciplined,” he wrote, “heavy, unbroken, and unaccommodating” and “without a single beauty to recommend it” (Gilpin 1808, 196–198). Gilpin’s mentee in matters of the picturesque, Richard Warner, had a similar view, emphasizing what he saw as “the deformity of [Cornwall’s] exterior” (1809, 346). Such attitudes gradually changed, to become broadly appreciative of rugged topography by the end of the nineteenth century. But a Gilpinesque revulsion periodically resurfaces in the twentieth century and beyond.



The middle section of the Tamar as depicted—with a certain amount of hyperbole—in an 1830s illustration. By Thomas Allom; license in ‘The Morwell Rocks, on the River Tamar, Devon & Cornwall’ from ‘Devonshire Illustrated.’

Having visited the coast near Land's End in the 1900s, Walter de la Mere, for example, was convinced that there was “a brooding of evil in that rock-scene” (Stanley 1958, 120–121), and the poet John Heath-Stubbs described nearby Zennor in the 1950s as “a hideous and a wicked country” (1988, 311).

However, it is important to note that these responses are all specifically to the landscapes of Cornwall's central spine of granite moorland and its exposed northern and western coasts, and *not* to the area around the River Tamar. Nonetheless, some nineteenth-century travel writers sought to convey a sense of abrupt and absolute landscape change right beside the river. Walter White, writing in *A Londoner's Walk to the Land's End* (1855), describes a crossing from Plymouth to Torpoint:

Here, for the first time, I set foot in the venerable Duchy—Cornwall. A few minutes take you clear of the houses, and then at once you are struck with the difference between the county you are in and the one you have left. It is obvious. The generally soft features of Devonshire are exchanged for a landscape of a stern and unfinished aspect. Trees are few; and you see a prominent characteristic of Cornwall—a surface heaved into long, rolling swells, brown and bare, not unlike what we should fancy of waves from the adjoining ocean solidified, cut up into squares by thick stone fences. (White 1855, 111)

In the following decade, the French travel writer, Alphonse Esquiros, took a very similar line. Having crossed the Tamar from Plymouth, he claimed to have immediately detected “a great change in the style of the landscape” writing, “There is a perfect contrast between the two counties [Devon and Cornwall]. The soft features of a fertile district are succeeded by a stern country, especially distinguished by the rudeness and grandeur of its lines” (1865, 6).

To be clear, these accounts of the countryside immediately alongside the lower reaches of the

Tamar are *not* an accurate representation of any actuality. The areas that might reasonably be characterized as “stern and unfinished,” “brown and bare,” and divided by “thick stone fences” (generally known as “hedges” in Cornwall) are the aforementioned moorland spine and northern and western coastal strip—a considerable distance from the Tamar Valley. (It is also worth noting that Devon itself contains a large area that could be similarly characterized, Dartmoor, also some distance from the river.) The actual landscapes immediately east and west of the Tamar are broadly indistinguishable—a mixture of rich pasture, tidal mudflats, and woodland, as well as, in the mid-nineteenth century, an area of extensive tin- and copper-mining on both sides of the middle section of the river around Gunnislake.

A peculiar phenomenon is at play here: writers crossing the river from east to west are describing a stark and immediate physical difference *which does not actually exist*. There are two probable explanations. White's and Esquiros' books were obviously written *after* their journeys; they may, then, have retrospectively ascribed in their memory and in their text the characteristics of the most strikingly *other* parts of Cornwall to the entire place. In doing so, they accepted the idea of the Tamar as an absolute border, and created a homogenous vision of Cornwall's geographical difference, beginning and ending abruptly at the river. The other possibility is that they actually *did* see (nonexistent) geographical difference the moment they crossed the Tamar, having been primed in advance by other writers. If they had read Gilpin and Warner, they would naturally have expected a rugged and perhaps repulsive Cornish landscape, and so, knowing that they had arrived in Cornwall, that is precisely what they saw. This is what Edward Said identifies as a tendency for travelers to “fall back on a text,” to defer to the antecedent authority of the books they have read in advance of a journey, giving the text precedence over their own experience of the actuality (1978, 93).

Are We Still in England? The Tamar as an Ethnic Divide

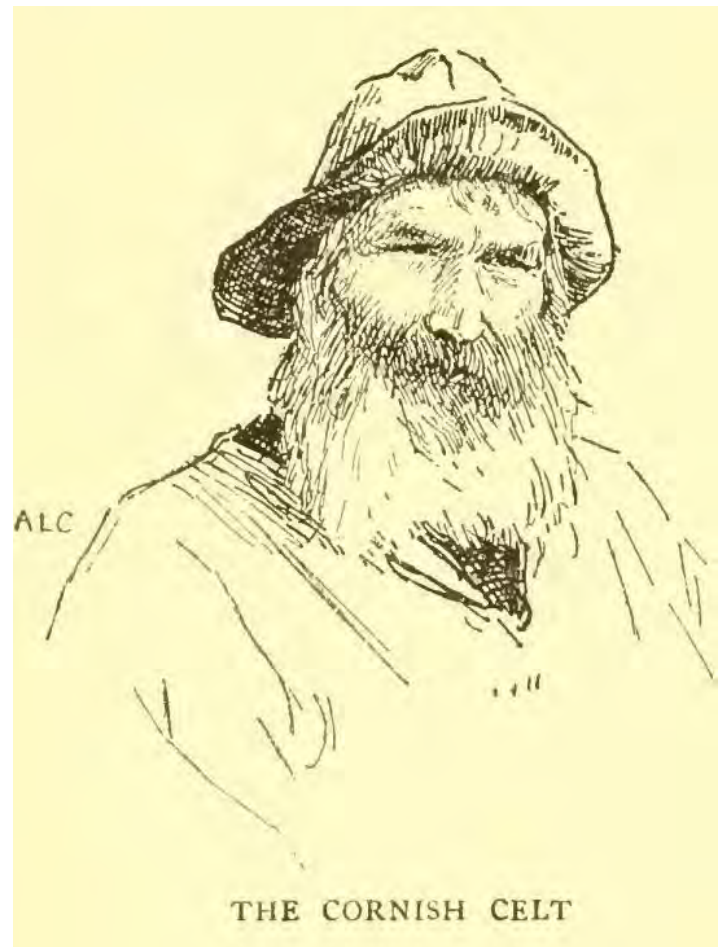
Having already identified a (nonexistent) “great change in the style of the landscape” right at the Tamar, Alphonse Esquiros also seeks to establish the Devon-Cornwall border as an absolute ethnic frontier:

You have scarce crossed the border of Devon and entered Cornwall, ere you are struck by a change in the human physiognomy. On the roads, in the inns, in the wagons, you continually notice oval faces with elongated features, black hair, grey eyes, prominent noses, large mouths—in a word the Celtic type. Are we still in England? We might doubt the fact. (Esquiros 1865, 100)

The concept of “the Celts” is fraught and much debated (see Chapman 1992), but suffice to say that there is no evidence that the term was ever actually used to refer to the peoples of Britain during the Iron Age or Roman period, and the modern identification of Britain’s northern and western regions as “Celtic” lands is the product of what Barry Cunliffe (1999) has termed the “Celtomania” which swept Europe in the eighteenth and nineteenth centuries: a heady brew of legitimate linguistic scholarship, forgery of ancient texts, literary romance, misinterpretation of archaeology, scientific racism, and inflections from contemporary colonial encounters with otherness. As Philip Payton notes, the idea that there is or ever was an identifiable “Celtic type” is patently absurd—not to mention wildly inconsistent (the alleged archetype ranges from redheaded and burly to dark and diminutive) (2004, 36).

Even allowing for the possibility that Celts exist as an actual ethnic group with recognizable common characteristics, and that some of them might be found in Cornwall, Esquiros’ contention that you would be able to spot them when “You have scarce crossed the border of Devon”

strains credibility. Again, we might conclude that Esquiros is seeing abrupt difference on the banks of the river, simply because he has been primed for it by the texts he has read: Esquiros clearly “knows” that Cornwall is a “Celtic” region, therefore he “sees” Celts the moment he crosses the Tamar. (Walter White similarly detects a common Celtic “eye, feature and expression” in Cornwall, though he doesn’t explicitly mention it until Truro, some distance west of the Tamar (1855, 201–202).)



One of the “Celts” purportedly found west of the Tamar, as depicted in a 1908 travel book, “The Land’s End,” by W. H. Hudson.

A Borderline Less Palpable: A Change of Atmosphere

Less concrete than geography or ethnicity, “atmosphere” is the third component which travel writers imagined changing abruptly at the Tamar.

Wilkie Collins’ *Rambles Beyond Railways* (1851), probably the best-known nineteenth-century travel book about Cornwall, provides a particularly pronounced example of this atmospheric change in crossing the Tamar. The book begins

as Collins and his travelling companion, the artist Henry Brandling (who was collecting sketches to develop as prints for the planned book about the journey) cross the Tamar from Plymouth to Saltash. They are conveyed across the water at dusk by a “a fine, strong, swarthy fellow, with luxuriant black hair and whiskers” (Collins 1851, 9). As he rows them westwards, the buildings of the modern port from which they have departed



The Royal Albert Bridge, spanning the Tamar at the traditional crossing point from Plymouth to Saltash, under construction in the 1850s.

turn “pale and indistinct,” and the scene takes on an intensely gothic atmosphere:

As the twilight gloom drew on—as the impressive tranquillity of the whole scene deepened and deepened gradually, until not even the distant barking of a dog was now heard from the land, or the shrill cry of a sea bird from the sky—the pale massy hulls of the old war-ships around and beyond us, assumed gradually a spectral and mysterious appearance, until they looked more like water-monsters in repose than the structures of mortal hands, and the black heights behind them seemed like lairs from which they had issued under cover of the night! (Collins 1851, 12)

Collins extends his account of the crossing over five pages in much the same style—a gothic extravaganza beginning in daylight on the eastern bank and ending in total darkness on the western shore. By the point of disembarkation, readers can be in little doubt about what has happened: the travelers have crossed an absolute frontier; they have moved between the civilised, domestic, and present, to the unknown, savage, wild, and past; they set off from one distinct place and have arrived somewhere else entirely via the threshold provided by the Tamar.

Explaining the motivation for his journey as a travel writer to Cornwall, Collins makes a perceived otherness explicit, declaring that “Even the railway stops short at Plymouth, and shrinks from penetrating to the savage regions beyond!” (1851, 7-8).^[2] By the time of Esquiros’ journey the following decade, Cornwall had been directly connected to the national rail network via the Royal Albert Bridge opened in 1859. But Esquiros instructed his readers that “Old Cornwall should be approached by steamer.” His own reasoning is that “by railway the view of the Tamar is to a great extent lost” (1865, 4), but the phrase “Old Cornwall” is telling: he is placing the land on the western side of the Tamar in a rhetorical past, deploying what Johannes Fabian terms the “denial

of coevalness” common to colonial ethnographers and travel writers, in which a destination (and its inhabitants) are placed on a separate, less advanced temporal and civilizational plane (2014, 35).

It is important to note a slippery suggestion of irony in some such depictions of Cornwall and the Tamar crossing, in particular *Rambles Beyond Railways*. While Paul Young takes Collins’ talk of “savage regions” at face value and regards it as a construction of Cornwall as a “gothic location” of “embodied, anachronistic time and space, set apart from the mechanism of modernity” (2011, 55), Erika Behrisch Elce detects an ironic register—one so pronounced that it “actually consistently pushes against this trope [of a savage, anachronistic Cornwall]” (2017). This modern scholarly disagreement is itself indicative of a significant ambiguity: even if Collins is writing ironically, some readers will always miss the point, and he *does*, then, contribute to the gothic, savage, anachronistic construction of Cornwall, even if inadvertently.

That construction was certainly fully established and multiply reiterated a century after Wilkie Collins in the 1950s, when the surrealist artist and travel writer Ithell Colquhoun crossed the Tamar and declared that “a change of atmosphere is perceptible” even from the train as it rattles across the Royal Albert Bridge: “The hoar lichen on apple branches, more twisted than they would be in Devon, or a glassy paleness of sky gleaming between torn clouds may hint that one has passed a borderline less palpable than that of the river” (2016, 65). This less palpable, imaginative borderline is arguably itself the product of a Tamar-crossing trope already very well established by writers, including those previously discussed here, long before Colquhoun made her own first trip to Cornwall.

One of the very few counternarratives to all this comes from another mid-twentieth-century writer, like Colquhoun resident in but not originally from Cornwall: Daphne du Maurier.

Given that she probably did more than any other twentieth-century writer to emphasize a gothic otherness in Cornwall in popular novels such as *Jamaica Inn* (1936), it is perhaps surprising that du Maurier resists the trope of absolute difference at the Tamar. Nonetheless, she subtly ironizes it, recalling her own first childhood trip across the river in her travel book, *Vanishing Cornwall* (1967). Having crossed the same rail bridge that carried Colquhoun—and that Esquiros eschewed—she finds herself staring out, disenchanted:

For what was different about this? The country was just the same. There were houses on a hill, and another smaller station,

A Fluid Actuality

The depictions of the Tamar discussed above belong to a centuries-old literary discourse produced by writers from without, in which Cornwall itself is constructed as other (possibly at times ironically). But a similar—and perhaps even symbiotic—process of difference-construction has emerged from within Cornwall over the last century. After centuries of apparent assimilation, a “cultural revival” which properly began in the 1920s has produced for Cornwall the trappings of modern nationhood: a flag, a costume (in the form of a tartan invented in the mid-twentieth century), quasi-national institutions (most notably the Gorsedh, a cultural organization with stylized annual ceremonies, based on an earlier Welsh model), historical narratives emphasizing separateness, and a renewed insistence that Cornwall is *not* a part of England (and also that it should always be referred to as a “duchy” rather than a “county”). In this, naturally enough, the Tamar recovers its original status as a quasi-national frontier between distinct peoples, rather than a mere county boundary. Exoticizing travelogues by outsiders in which everything changes at the Tamar may, then, align with the way some

even people and porters on the platform. What had I expected? ...

Something tremendous was supposed to have happened, by passing from Devonshire into Cornwall.

Greatly deceived, I went on staring out of the window. There must be a mistake. Somewhere there awaited the hidden land. It was not this. (1967, 5)

There is an implication here: the “hidden land” that begins abruptly on the shores of the Tamar in the books of White, Esquiros, Collins, and Colquhoun is no actual locale; it is a strictly imaginative—and perhaps imaginary—realm.

modern Cornish people see themselves and their place.

In modern Cornish discourse, the key crossings on the Tamar (in particular, the Royal Albert Bridge, which still carries the main train line between Cornwall and London) attain iconic status as entry points. Cookworthy Knapp, a small spinney of beech trees beside the main westbound highway a few miles east of the Tamar, has gained fame in recent years as the “Nearly Home Trees” (even for people like me who have a further two hours to drive beyond the Tamar before reaching their actual home), featuring in artworks, countless social media posts, and even a 2022 film, *Long Way Back*. The Cornish language—the original and most pronounced marker of genuine Cornish difference, and which likely vanished from the Tamar area a thousand years ago or more—now has a renewed presence on the border in dual-language signage: “Welcome to Cornwall/*Kernow A’gas Dynnergh*.” A close inspection of the actuality of the river and its banks, then, may do more than simply reveal an artifice in the work of visiting travel writers; it may also pose an uncomfortable challenge to

personal conceptions of identity and “home” for Cornish people like me. For in truth, there is little absolute about the Tamar as a border.

As Mike Parker points out (of the rivers that form sections of the England/Wales border), the frequent use of watercourses as administrative boundaries teaches us to consider a border river as a natural divide when in fact “the opposite is true: it is the unifying factor in any topography, the tendrils of its watershed reaching up into the hills and gathering its flock with natural insistence” (2023, 55). The Tamar then, is not a natural division, but the central spine of a single zone, stretching from the watershed of Bodmin Moor in the west to that of Dartmoor thirty miles to the east, and fanning out across a wide area centered on the Devon town of Holsworthy north of the moors. And it is surely reasonable to assume that historically this zone had a cultural as well as geographic commonality, for as Parker

further notes, making a river into a border “ends up dividing otherwise natural brethren, pitching citizens of essentially the same city, plain or valley against each other” (2023, 55).

Evidence that this is indeed the effect of the construction of the Tamar as a border can be found in the area of Cornwall abutting the northern stretch of the river, between its source and the confluence of the smaller River Ottery near Launceston. Throughout this area, which extends to the coast at Bude, the most obvious marker of actual historical Cornish difference is entirely absent. While Cornish-language placenames are overwhelmingly dominant across the peninsula—around 80 percent of all Cornwall’s placenames, and close to 100 percent in the far west—in this northern border region, the opposite is true. The standard Anglo-Saxon placename elements—stow, ham, cott, worthy—cover the map, as elsewhere in England, and Cornish-language



The source of the Tamar as depicted by J. M. W. Turner in the early nineteenth century.

toponyms—tre, bos, pen, pol and so on—are totally absent. The reasons for this are unclear, but certainly at some very early stage, quite possibly *before* Athelstan fixed the Tamar border, this region was either actively settled by Anglo-Saxons, or so thoroughly anglicized by contact from the east, that local language, lifeways, and identities shifted from British to proto-English. No traveler would *ever* have encountered abrupt ethnic difference on crossing the Tamar hereabouts.

Naturally, the mythical geographical difference is also wholly absent around the banks of the Tamar here, and the fact that the river itself is small, meandering, and joined by many other streams makes identifying which administrative territory a particular wood or hillside belongs to too difficult for a traveler moving through the

landscape. This is a characteristic emphasized by the twentieth-century poet Charles Causley (2000) (whose own ancestry spanned the Tamar, and who spent most of his life very close to the river) in his poem “On the Border”:

By the window-drizzling leaves,
Underneath the rain’s shadow,
“What is that land,” you said, “beyond
Where the river bends the meadow?”

“Is it Cornwall? Is it Devon?
Those promised fields, blue as the vine,
Wavering under new-grown hills;
Are they yours or mine?”

But there is a further ambiguity, for in this northern Tamarside region the river and the administrative border are *not* contiguous. At North



The actual source of the Tamar in the twenty-first century: a concrete cattle trough fed by a small spring at a remote spot north of Bude. Image courtesy of Tim Hannigan.

Tamerton a block of Cornish territory extends east of the river, deep into what ought, it seems, to be Devon. A little further north, meanwhile, a large chunk of what “should” be Cornwall is in the Devon parish of Bridgerule, home to “the only pub west of the Tamar but still in Devon.” And there is a further tiny chunk of Devon-west-of-the-Tamar close to the South Tamar Lake. These are the products of nineteenth-century attempts at rationalization by the government boundary commission, which decided that a parish spanning a county border was an unconscionable anomaly. A subsequent boundary commission attempt to return the border to the river in Bridgerule failed when the residents objected to the prospect of becoming Cornish. Further south, meanwhile, the large parish of Werrington is entirely on the western bank of the Tamar, but it has only been part of Cornwall since further boundary commission rationalizations in 1966. Prior to that it had been part of Devon, via a link to the Abbey of Tavistock, for 900 years.

This raises awkward questions: if a traveler like Walter White or Alphonse Esquiros were to have crossed the Tamar into Werrington via the crossing point at Druyton Bridge in 1965, would they have detected no particular change? And

if they returned the following year and crossed the same bridge, would they have instantly been greeted by a starkly contrasting landscape, an air of mysterious otherness, and local parishioners transformed overnight into obviously identifiable and decidedly un-English Celts—in their own self-perception as much as under the gaze of the travel writer? It seems unlikely. But when it comes to a border river like the Tamar, it is sometimes necessary to be reminded of this fact. As Carter et al note, a place is a “space to which meaning has been ascribed” (1993, xxi). And in the placeness of Cornwall, much meaning has certainly been ascribed. But a border—as the edge of a place, the point at which it runs up against *another* place—is equally a matter of ascription, and when a border function is given to something as tangibly actual as a river, we may end up assuming that it is the border itself that has the concrete and natural physicality. But in truth, the river—in its riveriness—is entirely independent of any territorial, political or administrative function. Indeed, it is magnificently indifferent to such things. As in the case of the Tamar, it may be the border, rather than the river, which is fluid, ambiguous, and shifting.

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Footnotes

[1] The modern Cornish word for Cornwall is Kernow; the Welsh word for Wales is Cymru.

[2] There were, in fact, railways and tramlines *within* Cornwall by the time Collins arrived, mainly built to service the burgeoning mining industry, and the world's first steam-powered automobile had been created and test-driven in Cornwall in 1801. However, there was no railway *across* the Tamar.

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FEATURE (PEER REVIEW)

THE BACKBONE OF AMERICA: A NEW RIVER WITH THE SAME OL' BONES

By Michael O. Johnston

Editor's note: This feature article has been peer reviewed.

The Mississippi River, among many names, is known as “The Backbone of America,” and has played a major role in shaping the lives of the Indigenous people, European colonizers, and others throughout the rest of the nation and the world. The river flows approximately 2,340 miles beginning at its source at Lake Itasca in

Clearwater County, Minnesota through the center of the continental United States to 100 miles downstream of New Orleans, Louisiana in the Gulf of Mexico. Its tributaries (e.g., the Arkansas River, the Illinois River, the Missouri River, the Ohio River, and the Red River) reach from east and west across much of the United States of



The Quad Cities in 2013 taken from an airplane as it took off from Quad City International Airport. In the foreground is Milan, Illinois, Rock Island, Illinois is in the center and Davenport, Iowa is in the back. Image by Farragutful via Wikimedia. (CC BY-SA 3.0 DEED)

America. Prior to the emergence of trains in the late nineteenth century, the Mississippi River served as a major thoroughway to transport cargo and passengers destined for both domestic

destinations and for larger ships where captains would continue their voyage out to ocean and into ports located in other parts of the world.

The Quad Cities of Iowa and Illinois: Bettendorf, Davenport, Moline, and Rock Island

The Quad Cities region in southeastern Iowa and northwestern Illinois began as a place where the confluence of rivers attracted Indigenous peoples who settled along the waterways and riverbanks for thousands of years. The Sauk and Fox Tribes of the Meskwaki Nation settled in the Quad Cities region of the Mississippi River and used it as their principal trading place (Meskwaki Nation, n.d.). Europeans later came to the region and saw it as an ideal place for boat travel and settlement. By World War I, the towns of Davenport, Rock Island, and Moline had begun to style

themselves as tri-cities. During the 1930s, the term “Quad Cities” came into vogue when Rock Island County began to see population growth that spread across the river to Bettendorf, Iowa. Between 1946 and 1951 the National Basketball Association had a franchise in Moline that was known as the “Tri-Cities Blackhawks.” The concept of tri-cities, however, never caught on and the region is still known as The Quad Cities today.

The residents of the Quad Cities saw the Mississippi River as a promising source to



This map shows the Quad Cities and their relationships to each other. Image via Wikimedia.

generate water-based power and as a place for transportation during the Industrial Revolution. In 1848, John Deere moved his plow business to Moline, Illinois. The business was incorporated in 1868 as Deere and Company (“John Deere,” 2024). The Quad Cities served as an attractive place for entrepreneurs like Deere and continues to appeal to many as a place for ongoing development.

During the postindustrial era, leisure and recreation became the dominant market for the Upper Mississippi River. This interest has led to a new vision for the Quad Cities’ region of the Mississippi River with a focus on tourism, a vision that appeals to the residents. This article explores two tourist attractions in the form of

interstate festivals: the Great River Tug Festival and Floatzilla. Offering a brief overview of industrial history of the river through the Quad Cities region, this article then focuses on how these interstate festivals were created and used to revitalize the economies of four cities along the Upper Mississippi River. The Great River Tug Festival is an annual event with a friendly competition of tug-of-war between LeClaire, Iowa and Port Byron, Illinois. Floatzilla is an annual canoeing and kayaking event where people use blueways (marked water trails) to cross the Upper Mississippi River at Davenport, Iowa and Rock Island, Illinois. These two festivals are also ways to unite people from both Iowa and Illinois in a positive activity.

The Upper Mississippi River: More Than an Agricultural Freeway

During the 1800s, steamboats were particularly crucial for cities and towns along the Upper Mississippi River that were experiencing growth in both economy and population. Steamboats were used to transport people from the East Coast and immigrants from abroad who were often fleeing famine, political unrest, or other challenges. During the 1830s, the first regional cooperative tourist package was established, combining steamboats with trains, which allowed tourists to see historical sites by both water and rail (Tweet, 1975). By 1854, tourists could take to the rails from the East Coast to Rock Island, Illinois. The Grand Excursion was a rail and steamboat trip from Chicago to St. Paul (Roseman and Roseman 2004). The first leg of the trip traveled by rail from Chicago to Rock Island. The second leg of the trip was traveled by steamboat with passengers going north to Saint Paul, Minnesota Territory to complete the Grand Excursion.

The increase in tourism resulted in the modification of the social and physical development of cities and towns along the river (Gilbert and Hancock, 2006). The tourists who purchased

tickets for the spacious upper deck of steamboats began to outnumber the immigrants who were packed in the lower deck. The Mississippi River cruises included luxurious packages for parties and organizations, dances, and a venue for New Orleans jazz music. These cruises served as a major source of revenue for the boat companies and the local businesses in the cities where they made port. Most of the steamboats that traveled the Mississippi River have since been decommissioned and some of them have been placed in museums where they are now attractions that people pay to see.

The early 1900s were a bleak time for the Upper Mississippi River as a transportation route, and it had to become more than just a throughway to transport agricultural goods. Business remained uncertain as navigation interests pushed for better shipping lanes while the conservationists warned that the river was dying, its ecosystem nearing collapse (Anfinson, 2003). Trains also started to gain popularity as a means of transportation across the Upper Mississippi River. The 1920s and 1930s saw less than 10 percent of produce from the grain industry (e.g.,

wheat, corn, and soybeans) shipped along the Mississippi River. During the 1930s, the US Army Corps of Engineers attempted to revitalize the Upper Mississippi River as a means of transportation by developing a lock and dam system.

The 1940s saw a decidedly different Mississippi River due to the lock and dam system that had been created only a decade earlier. The physical and ecological character of the Upper Mississippi River was no longer that of a natural river; it was at the mercy of the people who controlled it. During this time, 2.4 million tons of goods were transported on the river; lumber mills were being

replaced with flour and grain mills and machine sheds and the river regained some of its prestige as a transportation corridor for produce. Other industries like pearl-button factories, fishing, ice production, and quarrying also expanded along the river. Steamboats no longer monopolized the Upper Mississippi River; instead, it became a place where people could see barges and towboats on the water. By 1958, the grain industry made up 14 percent of the annual commerce shipped on the Upper Mississippi River (Anfinson, 2003). The river as a transportation corridor started to slowly gain traction.

The Rise of the Road and a Transitioning River

In 1966, the Interstate 80 bridge was completed, which made it easier for people to cross the Mississippi River at LeClaire, Iowa and Rapid City, Illinois by automobile in a fraction of the time that it once took ferrymen to pole their crafts across the river. The expansion of the interstate system also meant that goods could be manufactured and shipped more efficiently and moving products by interstate took less time than it did to transport goods by rail and water. Agricultural goods were no longer primarily shipped along the river, and this devastated the economies and populations of small towns dependent on that traffic along the river. The townspeople instead increasingly relied on the romantic images of having been company towns where the Upper Mississippi River was a working river; tourists could see old mills and shop at local boutiques in the towns' business districts.

In 1970, the grain industry hit its peak with a total of 54 million tons of grain shipped on the Upper Mississippi River. Between 1986 and 1995 that amount of grain declined by 42.9 million tons annually (Anfinson, 2003). During this same time, the Upper Mississippi River had an

average of 9.8 million tons of coal, 9.2 million tons of petroleum, 7.2 million tons of nonmetallic minerals, 3.8 million tons of metals, and 3.8 million tons of agricultural chemicals transported by barge (Anfinson, 2003). The primary crops that are transported along the Upper Mississippi River today are corn and soybeans, though in numbers far below the historic peak.

Economic conditions during the late 1970s caused major industrial restrictions and they disrupted the basis of the region's economy. There were major companies, including agricultural manufacturers, that were forced to cease or scale back operations in the Quad Cities region, leading to the closure of International Harvester (Navistar) in Rock Island and Case IH in Bettendorf. The Moline-based John Deere plant also cut its labor force by half. During the 1980s, Caterpillar Inc. closed their factories at Mount Joy and Bettendorf, Iowa. Since the 1990s, the Quad Cities' governments, businesses, nonprofits, and residents have worked together to redevelop the region. They came together to embrace the idea of becoming a place of culture, heritage, and tourism.

Re-Emergence of Tourism

During the 1980s, the farm crisis resulted in this region, and the river at its center, being abandoned, beaten, and broken. The cities and towns along the Mississippi River needed help if townspeople wanted the river to remain a vital part of their heritage and identity. They were forced to respond by finding a new economy or risk becoming ghost towns. The Interstate Highway System had transformed large tracts of farmland and reshaped community waterfronts. Towns that were once separated by water were now connected by highways. The economy of the Upper Mississippi River, like the towns along its banks, also changed with the times. Some of the towns along the river turned toward the Mississippi and created recreational and leisure activities on their waterfront.

The 1990s saw a second emergence of leisure, mass consumption, and identity politics. During the late 1990s, some towns along the Upper Mississippi River saw an opportunity to rebrand

themselves by using heritage tourism as a centerpiece. The consumption of experiential and material culture became a way for people to shape their individual identities. The cities along the river were forced to detach themselves “from the visual and aural mores and norms of the industrial era when smokestacks, rail yards, refuse heaps, factory drainage, and open sewers were ‘naturalized’ as part of the working landscape” (Moline and Mahaffey, 2004, p. 208). A Mississippi River that was once lined with steamboat traffic during industrial times became a space used for recreational activities, and today the riverbanks are lined with boutiques where tourists go to buy products associated with the identity of the city in which they are sold. Places are created and recreated through the activities and experiences that consumers purchase. During the postindustrial era, public places along the river focus on the visual, the aesthetic, and the experiences that people have (Moline and Mahaffey, 2004).

The River as a Border That Separates and Brings Together

The purpose of the Upper Mississippi River is continually constructed and reconstructed by the people who use it and is contested as a space known by many different constituents and used for many different things. These uses include the Upper Mississippi River as a natural barrier and political border that divides two states, creating a distinct political divide, an economic environment, and a cultural environment. Though the river has a complicated way of separating people, it is still the “Backbone of America” that has a vast and storied past that brings people together. The stories that residents and visitors share about the river are often contested, conflicted, and traumatic. Yet the river is inextricably a part of the stories that people share about their communities.

During the 1990s, there were several blocks of abandoned warehouses in the Quad Cities region that were converted to multi-use buildings and preserved for the use of museums, restaurants, and retail establishments. The warehouses were once industrial buildings located along the river to do work and transport goods and were places where recreational activities on the river would have been considered a hazard to people’s safety and thus forbidden. The abandoned warehouses were converted for new activities that attracted crowds of people, both residents and tourists. This redevelopment also created livelier downtowns in the Quad Cities region and helped them draw new residents. Both LeClaire and Port Byron used the river, its banks, and the historical buildings as part of their strategy to rebrand as

places for heritage tourism. During the summer months the banks of the river come alive as people hike, walk, and bicycle on the trails, fish along the riverbank, and enjoy the river itself in canoes, kayaks, boats, and jet skis.

A Small-Town Tug-of-War

In 1987, Scott VerBeckmon of Port Byron, Illinois brought the idea of having a festival with a game of tug-of-war back to Port Byron after witnessing a similar event in a different place while he was on vacation. Officials in both Port Byron and LeClaire, Iowa across the river endorsed the idea of having a single day in which people have a tug-of-war across the Mississippi River and the Great River Tug Festival was born. Both towns now have their own festival surrounding the tug-of-war and each have designed a website for their festival.

See the video Tug Fest on YouTube.

The towns of LeClaire and Port Byron would no longer thrive without the positive memories and experiences they make for their communities and each other. The Great River Tug Festival is an event that furnishes attendees with a sense of community and connection to other people and helps residents and visitors become familiarized with the history and backdrop of LeClaire and Port Byron. Experiences of place socialize people to feel both part of a local community and the larger society.

Since the first Great River Tug Festival in 1987, the event has been held in these two communities every year. The Great River Tug Festival involves the use of a 2,700-foot-long rope that weighs 750 pounds and spans all the way across the river. This event is one of few that require the United States Coast Guard to shut down the river to commercial traffic for three consecutive hours. The tug-of-war now serves as a dynamic festival

The river towns now have celebrations and festivals, including Floatzilla and The Great River Tug Festival, where the townspeople share a common sense of emotional connection with each other and the Mississippi River that is filled with great affection, familiarity, and human warmth.

that is a vital piece of the culture and economy for both LeClaire and Port Byron.

See the video TUG FEST - Tug of War across the Mississippi River.

With 11 teams on each side of the river, the scene of Great River Tug Festival is reminiscent of a synchronized dance routine performed in tug pits located on the gritty, hard, and sandy banks of the Upper Mississippi River. Athletes must use a combination of strength, stamina, technique, and timing to negotiate their way through a grueling three-minute matchup. This activity is viewed by participants as an extreme sport and was also once held as an Olympic event (Olympic Games n.d.). Pulling a 750-pound rope against the flow of the Upper Mississippi River can result in serious injury. The teams must work together as a simple failure to stop the rope pull at the same time may result in athletes tumbling to the ground and potentially suffering injury. In one tug-of-war, three men failed to stop at the same time and the action was caught in a photo. This resulted in two men in the sand brushing off their battle wounds and another man hanging over the rope. The results of this incident could have been much worse. Thankfully, no one was sent to the hospital.

The river current has long served as a source of conflict in the festival. Prior to the 2023 Great River Tug Festival, residents of LeClaire proposed the idea that the teams switch sides after each match. The planners on the Port Byron side refused this proposal. A second proposal was made by residents of LeClaire to hold the 2023

Great River Tug Festival completely on dry land. The 2023 Great River Tug Festival was almost canceled due to this impasse, but the representatives of LeClaire and Port Byron eventually agreed upon having the rope lifted above water and hanging across a barge and crane before the start of the pull.

See the video Tugfest between Port Byron and LeClaire.

This conflict and the ensuing cooperation demonstrate the difficulty of organizing and preparing for the festival, which is increasing in size each year and requires staff to work more hours each year to organize. The effort is worth it as the meaning of this festival is embodied in the people who participate. The festival simultaneously serves as an entertaining experience and a message that communicates the core values of the communities of LeClaire and Port Byron (Gotham, 2005; Leal, 2016; Ritzer, 2003). The tourists who visit LeClaire and Port Byron for the festival are not simply onlookers but are active participants in making the event successful and meaningful. The festival provides a safe stage and a receptive audience for people to perform and

Up a River Without a Paddle

See the video Destination Illinois: Floatzilla.

In 1983, three members of the Junior League in Davenport were tasked by the local government to organize a celebration for the Upper Mississippi River. They organized an event that is known today as Connected Rivers which ultimately led to the creation of River Action, Incorporated. River Action's mission is to

reaffirm their individual and collective identities (Duffy and Waitt, 2011).

The core pursuit of Great River Tug Festival is one of leisure that is centered on meeting a natural test of human strength against gravity and the motion of water. The flow of the Upper Mississippi River and the design of the landscape are continuously changing. The reputation of the river is also continuously being reshaped by the narratives created by people who are invested in it. The role of the athlete is to “try to read, predict, and adapt to [nature] in order to successfully meet a challenge” while spectators watching the event are entertained (Davidson and Stebbins, 2011, p. 6). The talent among athletes who participate in the Great River Tug Festival ranges from newcomers to professional athletes. Those who dabble in tug-of-war at the Great River Tug Festival begin as newcomers who often become enthusiasts wanting to learn more about the game (Stebbins, 2015). The festival is also about the experiences the community members have while in attendance. The identity of community attendees relies on the meanings they produce through their experiences and exchanges with others.

improve the Mississippi River by making a more accessible riverfront, expanding the riverfront recreation trails, protecting endangered habitats, and cleaning up the river. In 2009, River Action held its inaugural floating event, Floatzilla, in the region.

Floatzilla is an annual summertime event that involves paddlers coming together for a full day of

canoeing and kayaking on the Upper Mississippi River. Paddlers come together and launch from one of five sites across the region (mostly on the Iowa side) to paddle across the Mississippi River on one of five assigned blueways. A blueway is a marked route on navigable waterways that provides people access to recreation trails. The Upper Mississippi River blueways were established by paddlers who envisioned paths along the river that they could paddle with infrastructure built for them to launch and dock their boats. The different locations for launching and docking were then mapped along with other relevant details (e.g., portage tips, distances, outfitters, campgrounds, parking areas, and attractions) that canoers and kayakers may

want to know about while paddling the Upper Mississippi River. Celebrating these blueways, Floatzilla culminates with paddlers from several states assembling to create a colorful amoeba-like organism in the middle of Sunset Park's Lake Potter in Rock Island for a picture.

Since Floatzilla requires the United States Coast Guard to close the Upper Mississippi River to commercial barge traffic for three consecutive hours during the festival, the event may be considered a contestation of the river as its identity is being negotiated as either a place of industry, where productivity is key, or as a river used for entertainment, which can be temporarily closed for celebrations. This contestation is captured in



Paddlers follow various blueways on the Mississippi River near the Quad Cities as part of Floatzilla. During Floatzilla, a stretch of the Upper Mississippi is closed to commercial barge traffic. Image courtesy of River Action. All Rights Reserved. Used with permission.

one critical example. The Coast Guard Auxiliary helps manage the river traffic for the event. Jack Tumbleson, a member of the Coast Guard Auxiliary team that works the Rock Island region of the Mississippi River and a longtime resident of the region, tells a story of a kayaker who

strayed from the channels designated for paddlers and repeatedly cut in front of a large yacht during Floatzilla. Tumbleson shared that this action was dangerous for all parties involved, but also demonstrates how participants sometimes contest the use of the Mississippi River.

Conclusion

The Upper Mississippi River history as a working river began in the nineteenth century and continues to this day. Over time, however, the meaning and purpose of the river has been shaped and reshaped. Each year the river and the cities along its banks respond to environmental and social

changes, including recently in the 1980s and 1990s when the river communities embraced their changing river by creating celebrations and festivals such as the Great River Tug Festival and Floatzilla.



To close Floatzilla each year, paddlers gather in an amoeba-like assembly for a photo at Sunset Park's Lake Potter in Rock Island, Illinois. Image courtesy of River Action. All Rights Reserved. Used with permission.

Vital to the vibrancy of the Upper Mississippi River has been the commitment of residents and visitors who live in and frequent communities along the banks of the river. Tourism is increasingly one of the most successful industries on the entire river and tourist organizations along the river have taken the lead on initiatives such as creating bicycle paths, river cleanups, and similar events. The future of the Upper Mississippi River is in the hands of the people and organizations like River Action, Incorporated who serve as stewards for the river as it changes and adapts with the flow of water, industry, and people.



Rock Island Mayor Mike Thoms welcomes people to Floatzilla in August, 2023. Image courtesy of River Action. All Rights Reserved. Used with permission.

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FEATURE (PEER REVIEW)

NOT A BORDER, BUT A PATH: SWIMMING ACROSS THE RIO GRANDE

By Melinda J. Menzer

Editor's note: This feature article has been peer reviewed.

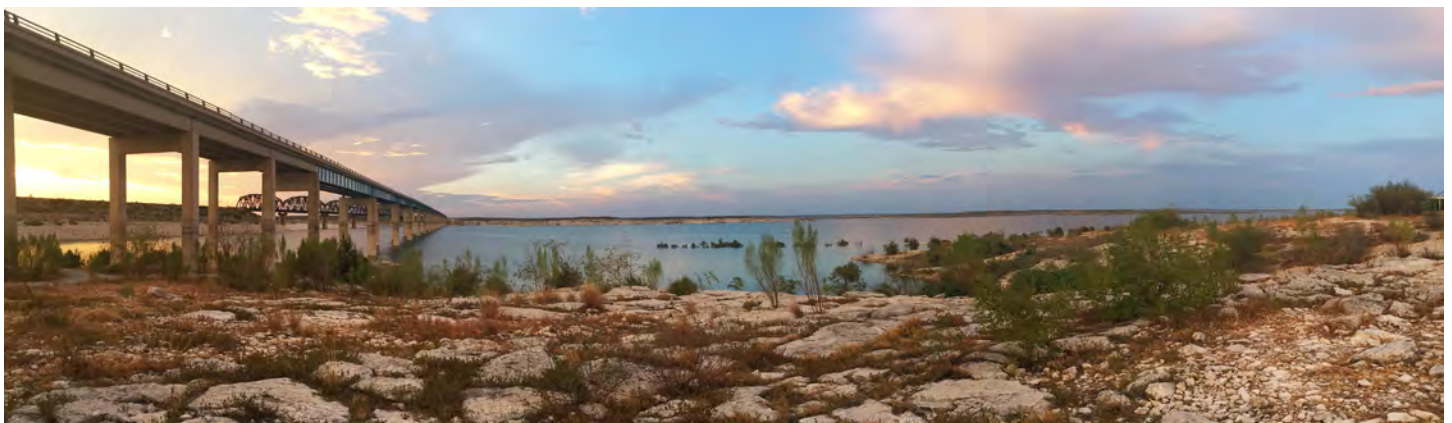
On a cool November day, I floated in the middle of Amistad Reservoir, a lake formed by a dam on the Rio Grande. I was swimming from the United States to Mexico and back, a ten-mile round trip. From the middle, I could see two of the widely spaced buoys that mark the path of the river under the reservoir, one on either side of me; up on the dam, I could see two flags

waving in the wind, one for each country. But in the water itself, there was no way to tell if I was in the United States or Mexico, no line to mark the boundary between the two nations. My body floated in both countries and in neither. There was no border; there were only the water and the sky.

The Plan

I conceived of the plan to swim across the border six months before while reading an article in the *New Yorker* titled, “A Voyage Along Trump’s Wall.” It told the story of a group of people from [American Rivers](#), an organization advocating for this country’s endangered rivers, and juxtaposed their experience paddling the Rio Grande with the political rhetoric about building a wall to keep out immigrants (Paumgarten

2018). I thought about my grandfather’s immigration story, how his survival meant crossing borders and navigating arbitrary restrictions. I thought about the open-water swimmers I knew who swam for various causes. And then I looked at the [photos and video](#) of the American Rivers trip and thought, “If it can be paddled, it can be swum.”



Sunset at Governor’s Landing overlooking Amistad Reservoir. Image by Seth Dodd/NPS.

I have been swimming long-distance open-water swims for almost twenty years now. Growing up, I was a swim-team kid in Dallas, my mother and I spending weekends at various swim meets, often with younger sisters in tow. In the summers, I went to Girl Scout camp on Lake Texoma, also formed by a dam on a river. I was terrible at canoeing and sailing—I have a memory of weeping from frustration and sunburn in a canoe—but I could swim forever. Every year, I would dutifully pack one pair of jeans, one long-sleeved shirt, and an extra pair of sneakers for the safety test. Wearing these clothes, which were otherwise too warm for a Texas summer, each girl would jump in the cold green lake and tread water for 10 minutes. I always passed easily. But as people do, I stopped swimming in adulthood. Many years later, at a difficult time in my life, when my husband said to me, “Melinda, you have to start doing things that make you happy,” I remembered that I loved to swim. I went back to the pool. Then I went back to the lake—this time one of the lakes of South Carolina—and over the next two decades, I became the kind of person who swam marathons and then ultramarathons. I am buoyant, built for distance, not for speed. A ten-mile swim is my sweet spot, long enough to feel like I’ve gone somewhere.

My swim across Amistad Reservoir was designed to raise funds and awareness for [HIAS](#), the Jewish-American refugee relief agency. HIAS is a nonprofit organization with offices in the United States and around the world. Founded in 1881, HIAS originally served Jewish immigrants escaping from Russia (hence the organization’s original name, Hebrew Immigrant Aid Society); they estimate that one in three Jewish Americans has at least one ancestor who received help from HIAS. Today HIAS works with people from all over the world and from all religious backgrounds and focuses specifically on refugees and asylum seekers, legal categories of migrants that did not exist back in the nineteenth century when the organization was first formed (HIAS 2023).

But the swim was more than a fundraiser to me. Through the experience, I was also hoping to make visible, to embody, the reality of the border—that it is fluid and permeable, like the river itself. My idol, the person I most wanted to emulate in my swim, was Lynne Cox, an open-water swimmer who specializes in cold water. On August 7, 1987, Cox swam 2.7 miles in the icy water of the Bering Strait, from Little Diomed Island to Big Diomed Island, breaking through the Iron Curtain between the United States and the Soviet Union. Cox made real with her body the fiction of borders. A few months later, when President Gorbachev of the USSR met with President Reagan in the United States to sign a historic nuclear weapons treaty, the two of them toasted the swimmer; Gorbachev said, “She proved by her courage how close to each other our peoples live” (Cox 2004: 305).

Another extraordinary athlete, Yusra Mardini, a member of the Syrian national swim team, swam across a border to save her own life and the lives of others. She and her sister Sarah fled Damascus in August of 2015 after their home was destroyed in the ongoing war. The sisters traveled by land to Lebanon and then Turkey before boarding a boat to Greece. When the motor on the overloaded vessel died, Yusra and Sarah jumped into the water and pushed the boat for three and a half hours across the Aegean Sea, crossing the border to safety. After further travel, the sisters made it to Germany, where Yusra resumed her training, in the end representing the Refugee Olympic Team at the 2016 Rio Olympics (Domonoske 2016). In 2017, she became the youngest ambassador for the [UNHCR](#), the UN Refugee Agency (UNHCR n.d.); her story is told in her book, *Butterfly* (2018), and in a 2022 Netflix film, *The Swimmers* (El Hosaini 2022).

But as I considered a swim across the United States-Mexico border, I thought most about the people who never make it across. In June 2019, Oscar Martinez and his 23-month-old daughter

Valeria drowned in the Rio Grande trying to reach safety in the United States. They had made it to the border all the way from El Salvador, a 1000-mile journey. As *The Washington Post* explained:

Once in the United States, they planned to ask for asylum, for refuge from the violence that drives many Central American migrants from their home countries every day. But the farthest the family got was an international bridge in Matamoros, Mexico.

On Sunday, they were told the bridge was closed and that they should return Monday. Aid workers told *The Post* the line to get across the bridge was hundreds long.

The young family was desperate. Standing on the Mexican side of the Rio Grande, America looked within reach. [Oscar] Martínez and Valeria waded in. But before they all made it to the other side, to Brownsville, Tex., the river waters pulled the 25-year-old and his daughter under and swept them away. (Thebault, Velarde, and Hauslohner 2019)

The news report includes a photo of the bodies of the two of them lying face down on the bank of the river, Valeria tucked into her father's shirt (Thebault, Velarde, and Hauslohner 2019). Sadly, they are just two of many migrants who have died in the Rio Grande. Recently, in September 2022, the bodies of nine people drowned in the river were found near Eagle Pass, Texas, approximately sixty miles south of Amistad. Those nine bodies can be added to the more than 200 found in the U.S. Border Patrol Del Rio Sector between October 2021 and July 2022 ("Officials" 2022).

In planning a border swim, I needed to find a swimmable stretch of the river. As I researched, I found Amistad Reservoir, a 100-square-mile lake northwest of Del Rio, Texas. Amistad Reservoir seemed to come from another world, one in which the border was a place of cooperation

between countries. Created in a partnership between the United States and Mexico to provide flood control and water storage for both nations, the Amistad Dam is under the authority of the International Boundary and Water Commission. When I read on [their website](#) that Amistad Dam was dedicated in 1969 by then presidents Richard Nixon of the United States and Diaz Ordaz of Mexico, it seemed fated that I should swim there: the lake and I are the same age, and the Texas Archive of the Moving Image's [film footage](#) from the early days of the reservoir has the same feel as my family's home movies. The name, "Amistad," is Spanish for "friendship," which seemed to be the opposite of what the border signifies today.

Nonetheless, after I decided Amistad Reservoir was the place, everyone I talked to told me that it was far too dangerous to swim across the border. Friends and acquaintances insisted that every day people were murdered by drug gangs in border lakes. Surely, I would be shot and killed by a stray bullet. In contrast, no one has ever warned me that I might be shot dead in a local lake, and yet in 2022 Lake Keowee, a South Carolina lake I have swum in many times, became internationally known after a man was shot and killed there. BBC News reported, "Lake Keowee is an extremely dangerous man-made reservoir which has seen a number of fatalities over the past 30 years" ("Lake Keowee" 2022). I looked, but I could find no record of anyone being murdered in Amistad Reservoir. In popular imagination, the border is a site of lawlessness and criminality, a perception based on racist preconceptions of the violent Other, but in reality, Amistad Reservoir is a [National Recreation Area](#), administered on the American side by the National Parks Service. It hosts a lot of bass fishing tournaments. It is not a dangerous place; at least, it is not any more dangerous than the lakes near my home.

In preparation for the swim, I scoured fishing websites, looking for information about water temperature in the lake. Fall seemed promising; historically, the conditions in summer were too hot for a long swim. I watched YouTube

videos—primarily videos of people fishing—and zoomed in on Google Maps’ images of the lake, determining where the swim could begin and end. Amistad Reservoir is not that wide; if I could have jumped in anywhere, the swim could have been miles shorter. But I needed safe public access to the water on the American side and a reasonable place to head for on the Mexican side. I found a good starting place, the Diablo East boat ramp, but the area on the other side was undeveloped; I would have to wait till I swam there to determine where exactly I could touch land and turn around. The route I sketched out would be ten miles, my favorite distance.

Once I had a date and a route, I contacted the National Parks Service. They clearly did not know what to do with me, sending me a form designed for other kinds of events, like company picnics and those bass fishing tournaments. I filled it out as best I could and returned it with \$50 for a day permit. The NPS assured me that as long as I wasn’t fishing, I didn’t need to get any permits from the Mexican authorities.

I researched the legality of the swim as well. US Customs and Border Protection told me that, as an American citizen, I was free to swim across to the Mexican side and return. They noted, however, that if I fully exited the water on the Mexican side, the law required that I present myself at the immigration office in Del Rio on my return to re-enter the United States legally. If I remained in the water the whole time, on the other hand, I was not required to go through the re-entry process. This regulation seemed arbitrary. If the border was in the middle of the lake, wasn’t I in Mexican territory as soon as I swam across? And what difference did it make whether I stood in a few inches of water or on dry land? But borders and the laws that enforce them are arbitrary too, and I guess you can’t make every bass fisherman go through immigration. So, I planned to stand at the water’s edge on the Mexican side, my feet in the water, and take a photo before turning around and entering the United States lawfully.

As I considered the options for my border crossing, I thought about my grandfather’s much more difficult journey to the United States almost 100 years ago. For some time, my family and I weren’t sure whether he had entered the country legally or not; when my father began to research our family’s history and found his father’s birth certificate, the birthplace on the certificate didn’t match up with the story he had told his sons about his life. It wouldn’t have been unusual for a Jewish person coming from Eastern Europe in the 1920s to have entered the United States with fake documents. As Libby Garland explains in her book, *After They Closed the Gates: Jewish Illegal Immigration to the United States, 1921–1965* (2014), the Immigration Act of 1924 (also called the Johnson-Reed Act) established quotas based on national origin, with large quotas permitted from Western European countries and much smaller ones permitted from Eastern European countries. The quotas were based on pseudo-scientific racist beliefs about the inherent superiority of Western Europeans, intertwined with bigotry against the Jews and Roman Catholics who predominated in those supposedly inferior Eastern European populations. The Immigration Act of 1924 followed the Chinese Exclusion Act of 1882, which prohibited Chinese immigration altogether, justified by racist beliefs about the inferiority of people from Asia. These new laws created illegal immigration; people who would have been permitted to come to the U.S. before now turned to smugglers and fake-document sellers in their quest to reach the land of opportunity.

Some of those migrants came to the United States over the Rio Grande. In her second chapter, “American Law, Jewish Solidarity,” Garland recounts the experience of Rabbi Martin Zielonka, rabbi at Temple Mount Sinai in El Paso. In January 1921, four Eastern European immigrants appeared in Rabbi Zielonka’s study, having entered the country illegally. Rabbi Zielonka was torn between his sympathy for these Jews, who came to him for help after escaping violence in

Europe, and his commitment to American law. His correspondence with other rabbis, asking for their advice, forms the basis of Garland's account (Garland 2014: 43, 53–67).

My grandfather did not have to sneak across a border, and it turns out that he did not buy or forge a birth certificate either. His story is more complicated, but it also involves a river. My grandfather was born on the south side of the Neman River in what was then the German

province of East Prussia; it is now known as the Kaliningrad oblast, an exclave of Russia. Shortly after he was born, he and his parents moved across the river to Jurbarkas, a Lithuanian town, where his siblings were born. Despite having grown up in a Jewish Lithuanian (Litvak) family, my grandfather had a birth certificate which identified him as a German because of his place of birth, and when he applied to come to the United States under the quota system of the 1920s, he was able to enter the United States as a German.

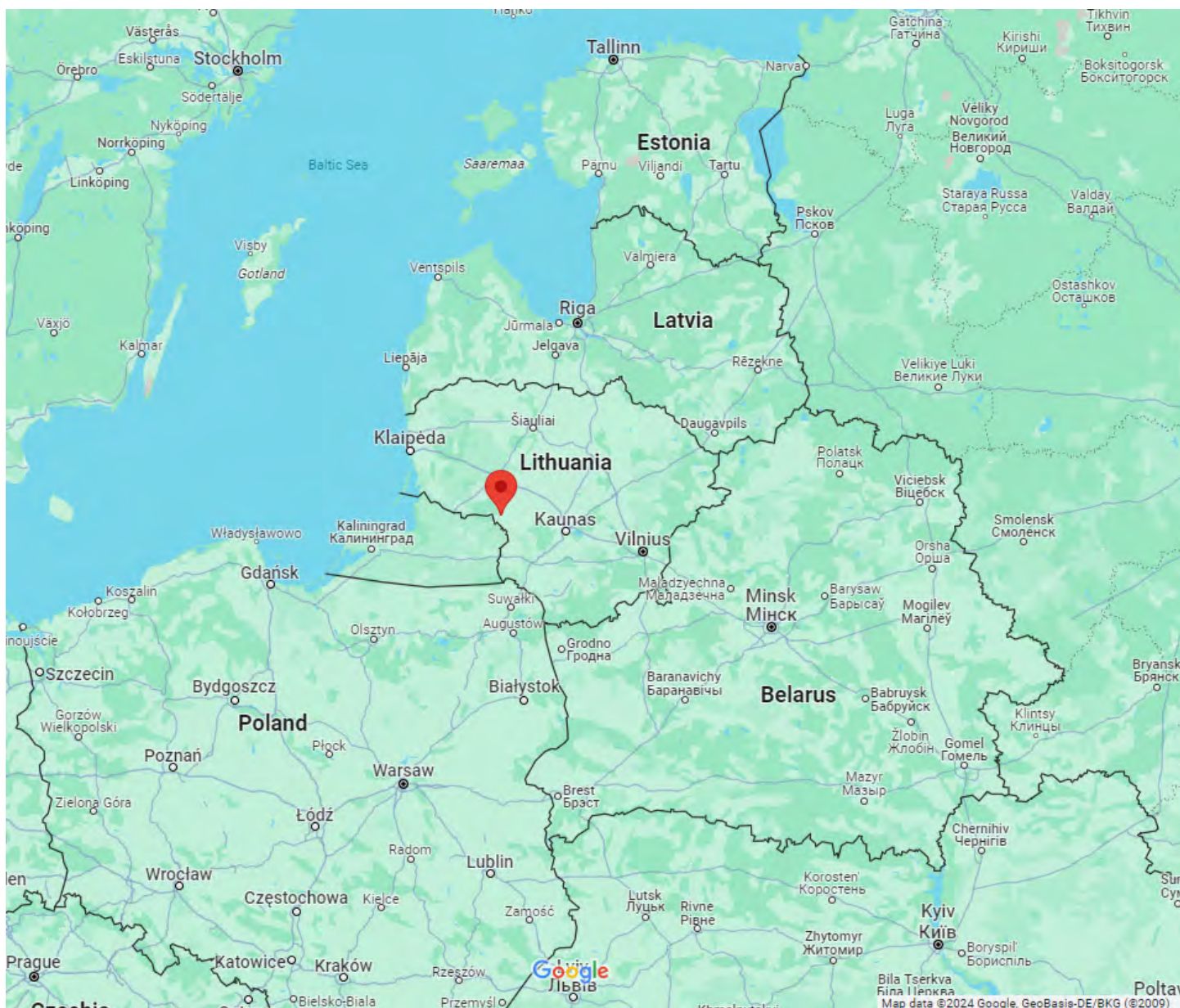


*Lithuania is shown here in red on this map of Europe.
Image via Wikimedia Commons. (CC BY-SA 3.0 DEED)*

At that time, America admitted a large quota of immigrants from Germany, a predominantly Protestant country. My grandfather was not a Protestant, and he grew up in Jurbarkas, Lithuania, but he had the paperwork that said he was German. That saved his life.

In 1939, when my grandfather had been living in the U.S. for over a decade, the Soviets took control of Lithuania. At the same time, the Germans invaded Poland, and Polish refugees, many Jewish, flooded into Lithuania. Although

everyone realized that the Nazis would soon invade Lithuania as well, there were few avenues of escape. While the Soviet authorities would have been happy to let Jews go, no one could leave without a visa to enter another country. And it was next to impossible to get a visa to go anywhere.[1] When the German army invaded in 1941, my grandfather's hometown, so close to the East Prussian border, was among the first locations hit. Between June and the end of September, the members of Einsatzgruppe A, one of the SS paramilitary death squads, and their



The red marker indicates the location of Jurbarkas in Lithuania. Image via Google Maps.

Lithuanian collaborators murdered the 2,000 Jewish residents of Jurbarkas. On October 6, 1941, the mayor of the town, who had collaborated with the invading Germans, wrote the records office in Kaunas, Lithuania, to say that all the Jews of Jurbarkas were dead. My grandfather's mother, his siblings, their children, were tortured and murdered, their bodies left in mass graves. An arbitrary regulation about borders, based on the idea that people born on one side of a river were more likely to become good Americans, saved my grandfather, but left his family in danger.

In comparison to my family's experience, any dangers in my life—or this swim—were miniscule. Still, I needed to plan for a safe swim across the border. For any distance over five miles or so, swimmers require support on the water. At the distances I most commonly swim, a swimmer is accompanied by a kayaker, also called a pilot. Your pilot is a server, a traveling companion, and a bodyguard all in one. Your kayaker feeds you, throwing you a bottle of a fancy sports drink designed to be easy on the stomach every 30 minutes or so. If you like, they can hand you real food too; as Lynne Cox notes in her *Open Water Swimming Manual*, soft oatmeal raisin cookies float, which is helpful if you drop one in a lake (Cox 2013: 71). Kayakers also make you visible to motorboats and jet skis, which are usually operated by people who aren't looking for a swimmer in the water. They are your interface between the world of land and the world of water—maps and GPS in their hands, emergency whistles at the ready, and a sensible perspective when you've lost yours.

Your pilot is key to helping you navigate as well. In open-water swim races, organizers place race buoys to mark a course, but even then, it is hard for a swimmer to see the finish, and kayakers are out in the water herding wayward people in the right direction. In a swim like my Amistad Reservoir swim, we would be making our own course, navigating off landmarks as well as the buoys marking the path of the Rio Grande. I

would depend on my kayakers to help me find my way across the lake and back.

It's not that a swimmer can't see at all while swimming. In fact, one of the great joys of open-water swimming is experiencing a beautiful place from the water. But when you're swimming, you see differently. Much of that difference is due to stroke technique, the position of your head in the water when you are swimming freestyle. Most open-water swimmers swim freestyle—also known as front crawl—because it is the most efficient way of traveling long distances. Historically, freestyle is the stroke of the Americas and of Africa, while breaststroke is the stroke of Europe. In 1844, a group of Ojibwe Indians were brought to the UK to be exhibited to a public eager to see the “noble savages” in person. During their stay in London, the British Swimming Society sponsored a race for the visitors at the High Holborn baths.[2] The *London Times* sports reporter described their stroke technique: “Their style of swimming is totally un-European. They lash the water violently with their arms, like the sails of a windmill, and beat downwards with their feet, blowing with force, and forming grotesque antics” (Sherr 2013: 67).

Similarly, fifteenth-century European travelers in Africa were surprised by the strange-but-efficient front crawl of African swimmers. For example, in 1455 the Venetian traveler Alvise da Cadamosto described the overarm stroke and flutter kick of swimmers on the Atlantic coast by the mouth of the Senegal River. After seeing two swimmers take a letter to a ship three miles offshore and then return with a reply, Alvise wrote, “This to me was a marvelous action, and I concluded that these coast negroes are indeed the finest swimmers in the world.” (quoted in Dawson 2018: 15). It seems sadly ironic that while 500 years ago European travelers were greatly impressed by African swimmers, American segregation of pools and beaches in the twentieth century led to today's widespread racist myth that Black people cannot swim.



As the sun sets, the author is greeted back at Diablo East Boat Ramp by her mother and husband carrying towels, and the rest of her team. Image courtesy of Diego Fernandez.

In spite of being aware of the front crawl, Europeans continued to swim breaststroke as the sport of open-water swimming developed. The first recorded person to swim the English Channel was a man named Captain Matthew Webb; he swam it in 1875 fueled by warm brandy and tea, and he swam it breaststroke. But fifty years later in 1926, Gertrude Ederle, the first woman (the sixth person) to swim the English Channel, swam the distance freestyle, breaking all previous records by crossing from England to France two hours faster than anyone else up to that point (Sherr 2012: 32-33; Bernstein 2003). The “grotesque” front crawl was clearly the best option for distance swims.

The key to successful freestyle, however, is that the swimmer keeps their head down while swimming, turning their face to the side to inhale, returning it to water to exhale. That motion, that negotiation between air and water, keeps the swimmer oxygenated and level at the surface. As result, crawl swimmers aren't looking ahead as they swim: they look down. That's why every competition pool has black or blue lines on the pool floor running the length of each lane; the swimmers are following those lines, and when they get to the end, where there is a cross, they know they are about to reach the wall and can prepare to stop or turn.

When you are swimming in open water, on the other hand, you have no lines to follow. If you're swimming along the shore, you can sight off the land when you turn to the side to breathe, but when you're swimming straight across water, it's easiest to sight off a kayaker who is travelling to the side of you. The saying among open-water swimmers is, “The pilot sets the course; the swimmer sets the pace.” The swimmer is looking down and to the side; the kayaker is looking ahead.

I needed a crew, both kayakers to guide me in the water and helpers to coordinate on land. I put out a call for help. Two friends offered to kayak. My mother offered to drive down from Dallas. My

older child was attending college in San Antonio, and a friend of theirs had a car. These relatives and friends could be my land crew. We had a plan, then; my spouse, younger child, and I would fly to San Antonio, spend the night, and then meet up with the crew and drive out to Del Rio.

On an unusually cold morning, we left San Antonio. The air temperature had dropped below freezing in the night, and I spent the drive worrying about the temperature in the water. Conditions are key in open-water swimming, and I had trained for a water temperature in the low 70s. It seemed unlikely that the water would be over 70 the next morning. As I worried, we drove west on US 90. The biggest town we passed through was named Uvalde; from the road it was mostly dollar stores and fast-food restaurants, though we also got a brief glimpse of a cute old Texas town square. We didn't know that less than three years later the people of Uvalde would gather in that town square to remember their children, murdered in school by a young man from their own community.

In Del Rio, we visited the [Val Verde Humanitarian Border Coalition](#) (VVHBC), an NGO which works to help immigrants released from federal detention in Del Rio connect with their families in the United States. One of the meeting rooms in the center was decorated with flags of the many countries these migrants come from, not just from Mexico and Central America, but from South America and Africa. We saw their storerooms of donated clothes, shoes, and diapers and learned about the many ways they help people. Often people are picked up by the border patrol in one place and taken somewhere else for processing; they may have relatives waiting for them in El Paso, for example, while they are being held and then released in Del Rio, hundreds of miles away. Families traveling together are separated at the border, men and women processed separately, so that husbands lose track of wives and mothers lose track of adult or teenage sons. The VVHBC not only provides clothes and food for people who need it, the organization also

helps them find their families and make their way to their final destinations. And the VVHBC helped us too; one volunteer promised to lend us a kayak for the swim, and a writer from the *Del Rio News Herald* met us there, promising to be at the start the next day as well.

After visiting the VVHBC, we made plans for the next day's swim. I went to the Diablo East boat

ramp, a public access point within the National Recreation Area, and made sure that it was a safe place to start. Then I reviewed the weather report for the next day. It was still cold, and the wind was predicted for the morning. I decided to adjust the swim plan: rather than begin in the morning, when the temperature was coldest and the strongest winds were predicted, we would start out around noon.



The author starts her swim from the Diablo East Boat Ramp in Amistad National Recreation Area flanked by her kayakers, November 2, 2019. Image courtesy of Miles Rogers.

The Swim

My whole team, which now included the VVHBC volunteer with the extra kayak and the reporter from the *Del Rio News-Herald*, gathered at Diablo East the next morning. As forecast, the wind was up, but it was supposed to die down as we moved into the afternoon. At noon, my kayakers and I started out, heading directly into the wind. It was not an easy swim. I knew I had a kayaker on either side of me, but I only saw them in quick glimpses between waves. Somewhere in the middle, we looked around us and tried to figure out exactly where the border was. There were widely spaced buoys and a dam to the left of us, but, honestly, I saw only water. I thought of Lynne Cox's triumphant crossing of the international date line, with Claire Richardson, her crew member yelling, "What day is it, Lynne?" and Cox's answer, "It's tomorrow! It's tomorrow!" (Cox 2004: 290). For me, however, there was no such moment of clarity; there was just a lot of water, and I was in the middle of it. We carried on.

See a video in which the author starts her swim from the Diablo East Boat Ramp in Amistad National Recreation Area flanked by her kayakers, November 2, 2019. Video courtesy of Miles Rogers.

Early in my planning for the swim, I was very taken with the idea this border river had two names. North of the river, it is called the Rio Grande; south of the river, it is Rio Bravo—the big river or the fierce river, two Spanish names, depending on which side you are standing on. But now, we were not standing anywhere; we were in the middle of it, and we were heading for an area on the map marked Playa Tlaloc, or Tlaloc Beach. Playa Tlaloc is named for Tlaloc, a Mesoamerican rain deity (Olivier 2001). His companion is Chalchiuhtlicue, the goddess of

freshwater rivers and lakes and of childbirth (Arnold 2001); if anyone was in charge of this swim, it was her. There are many Mesoamerican names for the river. Speakers of different Pueblo languages call it the big river or the place of great waters—the Keresan *mets'ichi chena*, the Tewa *posoge*, the northern Tiwa *paslápaane*, and the Towa *hañapakwa*. The Navajo name is *tó ba ade*, the female river; as Carroll Riley explains, "In Navajo cosmology, femaleness is identified with the south, and the section of the Rio Grande known best to the Navajos flows almost directly to the south" (Riley 1995: 9–10). The river does not neatly divide the world in two with a name on either side; the name of the river depends on where you are, and there are many places to be.

The first four miles of the swim were choppy and confusing, but as we approached land, the wind died down considerably. It was good timing—we needed to find a reasonable place to stop. We had made a couple banners for a photo opportunity, and I needed to take a photo of my feet. But the land closest to us was undeveloped with no man-made structures; we had started out at a boat ramp, but now we needed to pick a spot and land there. The most dangerous parts of any swim are getting in and out of the water. Even in ideal circumstances, moving from a horizontal position to a vertical position is tricky, and the circumstances are never ideal. The first year I swam Swim the Suck, a ten-mile river swim in Chattanooga, Tennessee, a friend of mine had a perfectly good swim, without injury or incident, until he got out of the water at the end where he broke his toe on the dock. Here in Lake Amistad, there wasn't any dock or ramp or other obvious spot to land.

As we swam closer to the shore, I could see the outlines of tree branches beneath me. With the

water level being controlled by the dam, the shoreline can vary quite a lot, with some areas being submerged some of the time and dry at others. I was looking at land underneath me while my kayakers were looking at land in front of them. That, too, is part of how a swimmer sees differently: a person on a boat or on land looks ahead, but a swimmer looks down, into another dimension. I had learned how different the perspectives of a swimmer and a kayaker can be during a training swim with a friend before I came to the border. We were in Lake Jocassee, a shockingly clear lake. On that particular day, we were heading across a cove in the cold water, and I was looking down, observing the lake bottom as it slowly rose beneath me, watching fish dart among the rocks. When it got shallow enough to stand, I stopped. My friend said with relief, “Oh good! I was worried. I was afraid you were going to run into the rocks.” I was surprised. I had not meant to worry him; I had been looking at the rocks, trying to find a place to stand. And it was impossible for me to run into the rocks; they were underneath me. Now, in Amistad Reservoir, again I could see land below me, tree branches rising beneath me, not in front of me.

There’s no hard border where the water meets the land and nothing to run into; there are only the shifting proportions of earth and water and sky. As I swam above the trees, the idea that there was an important legal difference between floating in the water and standing on dry land seemed even more absurd.

We found a place to stand, our feet still in the water, and documented our arrival in Mexico.

See video of the author and her one of kayakers, Kevin Hicks, standing in the water on the Mexican side of Amistad Reservoir, holding

two banners, one for HIAS and the other for the North Texas Dream Team. Video courtesy of Susan Schorn.

The swim back was calm, almost another lake. I congratulated myself on making the right choice by starting the swim later in the day. This was an open, beautiful place, with a huge sky above us and a huge expanse of water around us, seemingly endless, seemingly unbroken. When we returned to the line of buoys marking the path of the river, I floated for a moment. To the right of me, I could see the dam, a shed in the middle with two flags, one on either side. They must have been the Mexican and American flags, but from the water I couldn’t identify them; they were just fabric in the wind. All around me stretched smooth water.

And yet we were supposed to believe there was a border there, that human beings could draw lines and divide water. When I was a child, I learned about the segregation of pools, but I was an adult before I realized that white Americans had the hubris to segregate natural water too. The Chicago Race Riots of 1919 began because of that segregation; when a black youth swam too close to an imaginary line dividing the black beach from the white beach in Lake Michigan, white people threw stones at him, drowning him. The incident led to seven days of violence, “an orgy of shootings, arsons, and beatings that resulted in the deaths of 15 whites and 23 blacks with an additional 537 injured (342 black, 195 white)” (“Race Riots” 2005).

In the middle of Lake Amistad, the idea that we could divide up the water seemed unreal. The buoys marking the path of the Rio Grande and the flags on the dam were tiny dots compared to the vastness of the water and the sky.



The author and one of her kayakers, Kevin Hicks, standing in the water on the Mexican side of Amistad Reservoir holding two banners, one for HIAS and the other for the North Texas Dream Team. Image courtesy of Susan Schorn.

The Path Home

The way across the river to Mexico was difficult because of the wind. The way back was difficult because I was tired. I was not surprised that I was tired. This is the truth about open-water swimming: you can't swim ten miles without getting tired. And open-water swimming is not like playing football or basketball; you can't send someone else in while you take a breather. Many years ago, I was ten or twelve hours into labor with my first child when I felt I was at the end of my rope, and I said, "I am tired. I don't want to have a baby anymore." But you can't take a

breather when you're having a baby, and in the same way you can't stop swimming in the middle of a river. I think long-distance, open-water swimming is a lot like childbirth, at least in my experiences of them: both are exhausting and painful and at times brutal, but both are also beautiful and meaningful and occasionally transcendent.

I felt no excitement as I crossed the border into Mexico, no sense that I had had crossed into tomorrow. But as I was swimming back across



The author swimming back across the lake with the Governor's Landing Bridge in the distance. Image courtesy of Susan Schorn.

that endless, smooth water, as tired as I was while giving birth, I had one of those moments of transcendence that only come through prolonged labor. Maybe it was a gift from Chalchiuhtlicue. For a moment, I could see myself suspended between water and air, river and sky, a small being in a huge world. And I realized that the only real border is that plane, the water holding me up, the air filling my lungs. All other borders are imaginary. We exist on the plane between water and air, the planet Earth and the space above, and we are very small. I thought of the book *Flatland*, by Edwin Abbott (1884), where a square, who lives in a world of two dimensions, is lifted above his plane of existence into a third dimension by a

sphere and sees his world in a new way, one that he can never explain to the other inhabitants of Flatland. I was the square, and at every breath, I looked up into the sky and then down into the river; those are the dimensions that matter, and the lines we draw on our Earth are not just imaginary, but irrelevant.

The most enduring story of swimming across a body of water in the Western tradition is the myth of Hero and Leander. The two lovers are separated by the Hellespont, today known as the Bosphorus, the body of water that forms the border between Greece and Turkey, Europe and Asia. Hero is locked in a tower in Sestos on



*The author swimming, with her kayaker, Susan Schorn, behind her.
Image courtesy of Kevin Hicks.*

the European side, and Leander, living on the Asian side in Abydos, swims across the water in the dark to be with her. Swimming back in the morning, he then repeats his journey over and over through the summer. But as the weather cools, Leander is not sensible about observing the conditions, and the love affair ends in his death; for navigation, he depends on sighting off a lamp lit by Hero, and the lamp blows out in winter winds. In the same water that Yusra and Sarah Mardini crossed to sanctuary, Leander loses his way and drowns.

On one hand, we can think of the story of Hero and Leander as a story about the dangers of water (or perhaps about the importance of monitoring weather conditions). But at its core, it is a story about crossing borders for love, and the water is not a barrier to their love but the path to their togetherness. When I returned to the Diablo East boat ramp, the people I love were waiting for me. My mother was there, holding a towel for me in a gesture I remembered from so many childhood swim meets. I had swum away, but I had swum back, and we had found each other again.

In July of 1807, about a century before my grandfather's birth, two of the most powerful people

in Europe met near Tilsit on the Neman River. Tilsit is called Sovetsk today, a town on the south side of the Neman in the Kaliningrad oblast, now Russian territory, not all that far from where my grandfather was born. There, Emperor Napoleon I and Czar Alexander I of Russia met, not in the town itself, but on a specially constructed raft floating in the middle of the river. The setting was striking enough that multiple engravings were made of the summit, the two men standing on a raft, embracing, with men in boats from each side moored alongside looking on (Fondation Napoléon 2023a, 2023b).

The raft was temporary and so was the peace treaty they signed. But the idea of the river as a neutral space outside of national constructs endures. My swim across Amistad—Friendship—Reservoir embodies the same idea. When a person stands beside a body of water or looks at it on a map, it appears to form a clear boundary; here the earth itself is making a division between this country and that, these people and those. But when you are in a river, when you are swimming in it, you recognize that a river is not a line that divides but a body that connects. It is the opposite of a border: it is a path across.

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Footnotes

[1] One of the heroes of this period was Chiune Sugihara, a Japanese diplomat in Kaunas, Lithuania. In defiance of direct instructions from his government, Sugihara wrote between 2,100 and 3,500 transit visas for Jews trying to escape the country. He was recalled to Japan, and it is said that he was still issuing visas at the train station as he left. Sugihara saved thousands of lives. He has been honored at Yad Vashem as "Righteous Among the Nations" ("Chiune Sempo Sugihara" 2003), and his house in Kaunas has been made into a museum.

[2] A [photograph of the Ojibwe swimmers](#) can be found at Brave Brother Native Art Photography's blog. It just so happens that when I'm in London, I swim at the High Holborn baths, now known as the [Oasis Sports Centre](#).

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GEOGRAPHIES

WHEN THE BORDER IS A RIVER: A JOURNEY ALONG THE SALWEEN RIVER-BORDER

By Zali Fung and Vanessa Lamb

Rivers might appear to be a natural or even an expedient way to demarcate political borders. Yet rivers are always in flux as flows of water, sediments, and fish and aquatics shift with the rains and tides. For rivers to serve as borders, individuals, communities, and governments engage in a range of efforts, such as erecting walls, fences, or signs, underlining the reality that borders are actively constructed through contested sociopolitical processes and in everyday life.

The transboundary Salween River is shared by China, Myanmar (Burma), and Thailand.

It also serves as the political border between Mae Hong Song Province, Thailand and Karen State, Myanmar for 120 kilometers. The border continues along the Moei River, a tributary of the Salween, for another 386 kilometers, past Mae Sot (Thailand) and Myawaddy (Myanmar), which has long been a key migration point. At present, Thailand does not recognize this border as officially delimited, and various entities have positioned hydropower development as a way to “clarify the border” (Lamb 2014, 4). The river-border and surrounding borderlands are sites of migration, mobility, security, tension,



Detail of boats on the Salween river-border with Thai flags. Image courtesy of Zali Fung.

and contested political authority; these areas also sustain the livelihoods, culture, and everyday practices of the residents, most of whom identify as Karen, Shan, or Thai.

We, two geographers, took the photographs presented here in March 2022 during a research trip to and along the Salween River-border. We share them to illustrate that the border, particularly when the border is a river, is not fixed, rather it is lived and experienced, and shaped through nature, infrastructure, and everyday life. The first author (Zali) has been conducting research in northern Thailand since 2015 and in the Salween basin since 2021. The second author (Vanessa) has been visiting the Thai-Myanmar borderlands



Photo 1. A man makes fresh flatbread on a charcoal stove. Image courtesy of Zali Fung.

and the basin since 2006. Both authors are committed to conducting collaborative research with Salween residents and civil society actors, and plan to continue working in the region.

The first photograph is from our first stop on the journey. It is of a small tea shop in one river-border community. A middle-aged man and woman served samosas and spiced chai while preparing fresh flatbread on a charcoal stove. The dishes illustrate the diversity and range of food cultures along the river-border, the long history of trade in the region, and the connections between northern Thailand, Myanmar, and India.



Photo 2. Chai tea, samosas, and flatbread served in a small shop in a Salween river-border community. Image courtesy of Zali Fung.

At the river-border, boats are available to transport people and goods upstream and downstream, highlighting the importance of mobility and trade via the river and border. Many of the boats are fitted with Thai flags, which is notable given the marginalization of the border area and residents by the Thai state.



Photo 3. Boats on the Salween river-border with Thai flags. Image courtesy of Zali Fung.

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Across the river-border in Karen State, a large sign recently erected reads “Welcome to Kawthoolei” (Photo 5). Kawthoolei refers to the Karen State that Karen people have sought to establish since Myanmar’s independence in 1948 and the commencement of conflict between ethnic groups, including the Karen and the Myanmar military. This sign and the conflict have changed over the years; in Vanessa’s previous visits, even as recently as 2019, this sign read “Welcome to Myanmar” attesting to the contested political authority of the border and borderlands. On February 1, 2021, the Myanmar military staged a coup which intensified state violence, human rights abuses, and conflict in Karen State and across Myanmar. The coup has also



Photo 4. Boats on the Salween river-border. Image courtesy of Zali Fung.



Photo 5. "Welcome to Kawthoolei" sign across the river-border in Karen State, Myanmar (Burma). Image courtesy of Vanessa Lamb.

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restricted and (re)shaped longstanding cross-border environmental organizing along the Salween River (Roney et al. 2021; see also Fung and Lamb 2023).

Upstream, we visited a riverside village on the Thai side of the border (Photo 6). In the image, you can see a Thai flag fluttering in the wind outside. On the edge of the village, there is a concrete marker installed by the Electricity Generating Authority of Thailand showing the anticipated rise in water levels if a proposed hydropower dam is constructed (Photo 7). These signs speak to a long history of proposed infrastructure development in which a series of dams and transboundary water diversions have



Photo 6. View of a border village from the Salween River. Image courtesy of Vanessa Lamb.



Photo 7. A concrete marker installed by Thailand's Electricity Generating Authority shows the anticipated rising water levels if a proposed hydropower dam is constructed. Image courtesy of Vanessa Lamb.

been proposed by the Thai and Myanmar governments since the late 1970s. These developments would directly impact riverside communities, the river, and the border. Following the coup, rumours emerged that Myanmar's military junta may pursue hydropower development along the Salween (Roney et al. 2021), however, any such plans are yet to be confirmed. Photo 8 shows the view from the village of the river during the dry season, and this looks vastly different during the rainy season when the river swells.

The bright flowers and awning are situated outside two of the main sites of activity in this village: the church and the office of a local



*Photo 8. View of the Salween River during the dry season from a river-border village.
Image courtesy of Vanessa Lamb.*

nongovernmental organization (NGO) focusing on education. Many people who live on or along this river-border have experienced conflict—either nearby fighting or direct involvement. For decades, Karen residents have fled state violence and conflict between the Myanmar military and ethnic armed organizations, resettling in this village and elsewhere along the border, and further into Thailand. The work of residents to invest in the village is key to understanding the myriad ways that people and everyday life also matter to the variegated geographies of borders.

Efforts to fix the river-border in place entail a range of efforts by governments, consultants, NGOs, and residents; this includes mapping the river-border and erecting signs and fences. And, while this river-border may appear as a solid line on a map, we show some of the ways in which the flows and fluxes of the river-border—and how residents and others manage these dynamics—are a key part of daily life.



Photo 9. Bright flowers outside the church and NGO office at the river-border village. Image courtesy of Vanessa Lamb.

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Vanessa Lamb is an associate professor in the Department of Social Science at York University. As a geographer, she studies social, political, and environmental change with a longstanding focus on rivers and water governance in the fields of political ecology and political geography. Before moving to her current role at York University, she also held positions at the University of Toronto and University of Melbourne (she maintains an Honorary Senior Research Fellow position at Melbourne). In 2014, she completed her dissertation, *Ecologies of Rule and Resistance*, focused on the politics of ecological knowledge and development of the Salween River at York University’s Department of Geography. In addition to academic work, her professional experiences include policy analysis and research into the social dimensions of environmental and climate change with Oxfam, International Rivers, TERRA, and UN Women.

IN REVIEW

THE GREAT DISPLACEMENT: CLIMATE CHANGE AND THE NEXT AMERICAN MIGRATION BY JAKE BITTLE

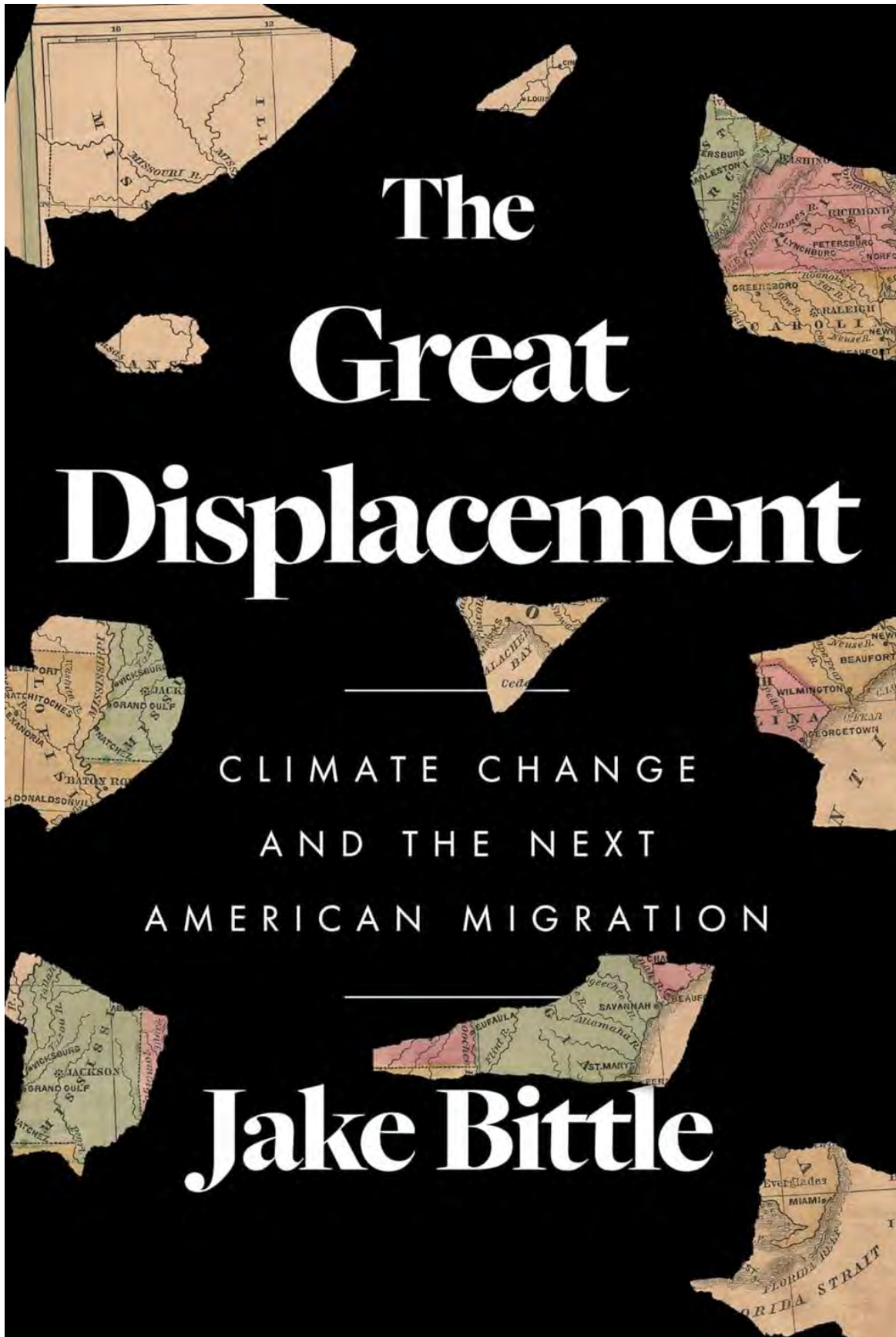
By Julia Oschwald Tilton

Abandoned homes with boarded up windows. Mold growing up the walls of houses flooded under five feet of water. The charred remnants of entire neighborhoods turned to ash. Fields of white cotton turned brown, the soil below

choked with drought. In his new book, *The Great Displacement: Climate Change and the Next American Migration*, Jake Bittle paints a startling picture of the havoc climate change is wreaking upon various regions of our country.



Remains of a neighborhood destroyed by Hurricane Irma in Big Pine Key, Florida on Wednesday, September 20, 2017. Photo by J.T. Blatty / FEMA.



'The Great Displacement, Climate Change and the Next American Migration' by Jake Bittle.

But more stark than the images of the landscapes destroyed are the stories of the humans who call these places home.

With vivid storytelling and compassionate reporting, Bittle uses a wide range of histories and communities to introduce the reader to the human geography of climate change in this collection. The author crafts intimate portraits of the real lives and losses of people from the bayous of Louisiana, the deserts of Arizona, and the coastal wetlands of Texas, Florida, and North Carolina. As he takes readers across the country, his reporting paints an ever-expanding picture of the devastating realities of climate change unfolding in the lives of Americans today.

Bittle breaks the beginning of the book into sections that represent the three major forces that he identifies as creating climate displacement: weather disasters, government policy, and the private housing market. The ways in which these three forces interact differ as we journey through various states and stories, but all three are important to consider while taking in both the destruction that climate change has already ravaged upon many American communities, as well as how our society hopes to react in the face of such damage and uncertainty.

In some ways, these stories are nothing new. We are inundated with broadcasts about intensifying hurricanes, unstoppable wildfires, and disastrous flooding. Climate change hitting our country is no newsflash. Yet story after story, these snapshots of real Americans already acutely affected by climate change had a cumulative effect. By the end of the book, I found it difficult to read, to continue to bear witness to the destruction without any solution in sight. I waited for answers from Bittle to the major questions he was posing: What will happen to the millions displaced by climate change? What do we owe to those in our society who will lose their homes and communities to these disasters in the decades to come? Can we continue to afford to bail people out of disasters? Can we afford to relocate all the people who will

ultimately need to move? What should we be doing to prepare for this next great migration?

Bittle addresses some of these questions at the end of the book, but the painful reality seems to be that good answers may not yet exist to many of them. We can study the trends of climate migration so far, but the true influx of climate refugees in this country has yet to happen, and the short-term movement patterns of those who have been displaced due to climate change have been chaotic and unpredictable. The answer to the question of whether or not we can continue to afford to bail people out of climate disasters is becoming clear as we watch insurance companies pull out of fire-prone areas, and as we witness the stories of the many families in this book who received little to no help after their homes were flooded or burned. The government can only do so much to support communities affected by climate change, and continuing to rebuild in areas that are unsafe to live is not a sustainable strategy. The harsh truth is that millions of people all over the country will be forced to leave their homes within the next century.

Bittle's reporting serves as a prescient warning of the imminent danger imposed by decades of human hubris. The United States has consistently valued growth and profit over all else, as demonstrated by developers finding ways to gerrymander flood maps to continue expanding cities beyond the lines of sensible safety precautions; lenient laws about risk disclosure from home sellers leaving buyers uninformed and at great risk; and endless development of fossil fuel infrastructure literally erasing historic communities on the coastline. All of these instances of prioritizing the desires of a greedy consumption machine are happening in an already unequal society, and as is too often the case, the brunt of the burden of these choices is being borne by the marginalized members of our society. The less affluent have fewer options when it comes to relocation after disaster, and as Bittle illustrates again and again in this book, rural and poor communities are

often less likely to receive sufficient federal aid and protection.

In fact, two of the major examples he highlights are communities of color that were erased in “managed retreat” efforts (43). One of these places is Lincoln City, a historic Black neighborhood in Kinston, North Carolina. Lincoln City was a small, tight-knit community, made up of eight hundred working class families. Members of the community spoke fondly of their home—the three big churches, childhood bike rides down Lincoln Street, and teenagers sneaking off to the “sand hole” by the banks of the Neuse River (36). In

1999, Hurricane Floyd caused major flooding in eastern North Carolina, which swelled the Neuse River and drowned Lincoln City under five feet of water. In its aftermath, the Federal Emergency Management Agency (FEMA) decided to buy out the community entirely, writing each homeowner a check for their home if they, in turn, agreed to move. This shuttering of an entire community was the government’s first experiment in what Bittle calls “coordinated climate migration” (37).

Managed retreat through government buyouts is a tactic that is still in use, enacted when the government determines the cost of rebuilding



Pactolus, just northeast of Kinston, is accessible only by boat after Hurricane Floyd caused the flood-swollen Tar River to overflow its banks. Image via NCPedia.

and protecting certain communities outweighs their value. This calculation, of course, favors communities with higher land value and property tax revenue, meaning the first places to have been erased by managed retreat and buyout efforts have often been poor communities of color. Despite this inequitable outcome, the writing is on the wall: some wealthier and more privileged communities have been given the means to stay for now, but continuing to build and remain in areas that are so deeply threatened by the crises of climate change is a fool's errand. There is only so much money can do to protect homes from historic flooding and wildfires.

What Bittle accomplishes in this book is giving the reader a glimpse into the lived experiences of people who live in areas that are so obviously

vulnerable to the devastation of climate change. I have often found myself boggled by the number of people who continue to purchase property in high climate-risk areas. Bittle explains that, of course, people choose to live somewhere for many reasons: history, culture, family, jobs, cost of living, and more. It is no easier to leave your history behind and move away from your familiar community when it's in a floodplain than it is when your home is anywhere else. People want to stay in their homes for obvious reasons that are human and relatable. But Bittle also explains that, counterintuitively, folks who have experienced major climate disasters are often *more* likely to stay put than to leave, thinking that if they survived one calamitous hurricane, another one that severe is unlikely to happen anytime soon. The cruelty of climate change is



*Remains of Hurricane Irma's damage in Marathon, Florida on Sunday, September 17, 2017.
Photo by J.T. Blatty/FEMA.*

that weather events that used to occur once every hundred years are now happening with such great frequency that this logic no longer stands. Bittle highlights this point by sharing the commitments of people who returned to small islands in Key West, Florida after Hurricane Irma devastated the region in 2017. They attempted to rebuild their homes and lives despite the certainty of constant flooding in the decades to come due to sea-level rise and the increasing frequency of tropical storms. The precarity of these islands is so severe in the face of climate change, that Bittle describes the archipelago as “doomed” (26). Yet, after each disaster, people return.

What all of these regions and stories have in common is water—its scarcity or abundance. The ways in which the lack of water or its inevitable rising are changing landscapes and lives are harrowing. What does it mean for those of us who live in places like Minnesota, the land of 10,000 lakes, as we watch others in our nation at the

mercy of drying rivers, unyielding droughts, and entire homes and lives washed away in floods? In more temperate climates, it can be easier to minimize the threat of climate change compared to regions where destructive weather disasters are increasingly commonplace. While it’s certainly true that there are areas of the country where the threats of climate change loom much larger, Bittle’s message is clear: climate change is coming for all of us.

Bittle tells us that aside from all the horrifying weather disasters that are threatening people’s homes, the largest factor that will drive climate migration in decades to come is heat. “The moderate temperate zone that scientists call ‘human climate niche’, which in the United States now stretches from South Dakota to the Sunbelt, will shift northward so that by 2070 its northern edge reaches into Canada and its southern edge ends around Kentucky” (267). These drastic changes in temperature will cause large areas of the country



Aerial image capturing the Duluth Aerial Lift Bridge, Canal Park, and downtown Duluth. Taken over Lake Superior in June 2021.

to become more and more difficult and dangerous to inhabit. Those who live in the northern regions of the country will watch their communities radically change as the numbers of climate refugees grow in the coming decades. What is being done in these more climate-friendly regions to prepare for these changes?

In some areas, this change is already becoming apparent. While Bittle argues that the true migration of climate refugees has yet to begin in earnest, he explains that most people who have left disaster-prone cities already have chosen to move to comparable nearby cities, such as moving from New Orleans, Louisiana to Dallas, Texas or Mobile, Alabama to Atlanta, Georgia. Despite this trend, some have already begun to make further moves, like the families from California and Colorado who are now calling Minnesota home, in the city Tulane professor Jesse Keenan dubbed “climate-proof Duluth” (quoted in Kamin 2023). When wealthy climate refugees arrive in

small Midwestern cities with the sale money from their coastal real estate, it is only a matter of time before housing prices are driven up, in what is being called “climate gentrification.” What happens to the members of these communities as they get priced out of the housing market? The shortage of affordable housing is a problem everywhere, and the influx of climate refugees will only continue to worsen this problem in places where these waves of people are expected to land. Whether you live in an area from which climate refugees need to escape or into which they’ll need to move, it’s clear displacement on this scale will have ripple effects across our entire nation.

The Great Displacement left me with more questions than answers, which seems fitting of a book utilizing contemporary climate disasters as parables for what is to come. The answers haven’t arrived yet. What is clear, though, is that we will all be living into them together.

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PERSPECTIVES

A SMALL BUT ULTIMATE PRESENCE

By Isaac Espósto

This year the heat of the desert grew, and the absence of water only became more stark against that rapidly rising contrast. Tucson, my home, set a new record of 11 consecutive days of temperatures exceeding 111 degrees Fahrenheit by the middle of July, 2023. In other areas of the state where I travel, such as the community of Ajo, we have experienced even hotter temperatures with multiple days' highs hitting 114 degrees Fahrenheit. Even the saguaro/Ha:sañ, forever existing in this place, began to curl in on

themselves in a concave dehydrated bow.^[1] In Southern Arizona, where we write of the dry river beds and the wall corralling (some in, some out), it might appear paradoxical to highlight water—this small but ultimate presence—as the center of things. However, the story of water in the Sonoran Desert is a story of the body, of bodies, their movements and health and management and survival. Only so much can be told in academic questioning, but the rest is left meandering and subterranean. What we are left



*This sunset view of the Sonoran Desert shows the distinctive form of saguaro cacti.
Image courtesy of Isaac Esposto.*

with is a sort of unworded rage that quiets the cattle and landlocks the eastern winds.

I've been thinking for a while about what to say towards this issue on the politics of water, mobility, the body, and where to even start. Where there is hope and where there is theft. There is so much to understand about water in the desert. It's been gathering for years. As people often do when stuck with too much, I turned to someone who knows more precisely. Tohono O'odham

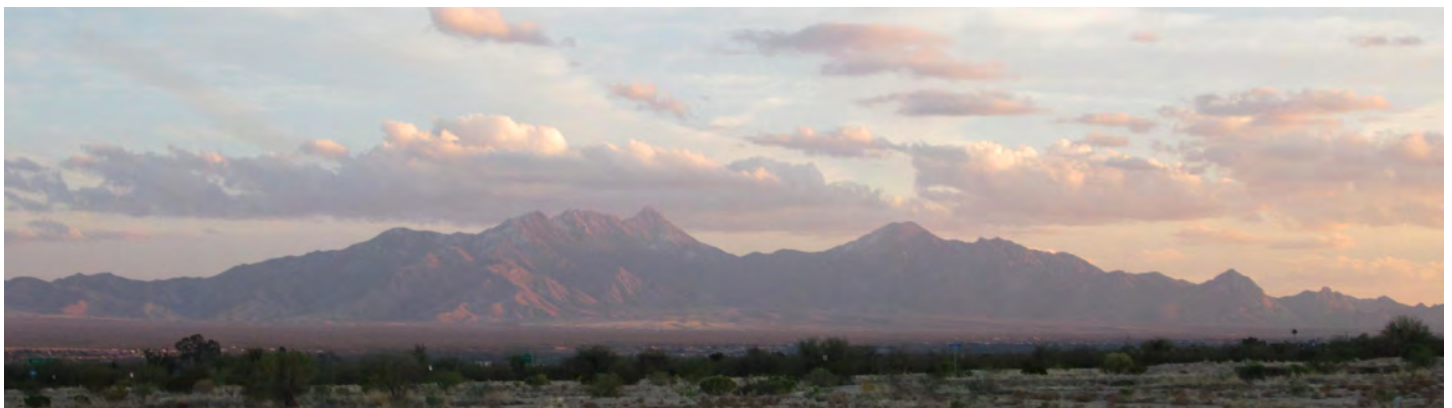
scholar Ofelia Zepeda, in her poem "Pulling Down the Clouds," stories the moment women pull down the monsoon rains with hooks offering us a moment where "the change in the molecules is sudden, / they enter the nasal cavity."^[2] Its scent, even in dreams, is something I hope this piece considers down to the level of the unseeable. Water in the desert is bodied, is embodied. Sitting across the table from me, from you.

Incomplete History of Water, of Blood: New Spain's Expansion into the Sonoran Desert

Years ago, when my father ended up having to move, he ended up next to a mine—a tall beige one with boxy edges. You can see the tailing ponds' aquamarine glimmer from many of the long mountain ranges in the area (aptly known as Sky Islands) if you're up high enough, looking from the Santa Ritas to the East, the Sierritas to the West. I spent days worried about his drinking water, his air quality, his residence in the long genealogy of communities rendered disposable for extraction's sake, led towards sacrifice by the tumefied god of profit. I woke up at night wondering where this tunnel, carved by the logic of digging at all costs, would lead us.

The mine, now his neighbor, is a copper mine—often considered singular in its ability to disturb land and produce astronomical amounts

of waste byproducts. The dry and windy seasons of the desert mean it is easy for the mine's tailing to travel farther. These finely ground particles, almost like baking flour, spread into air into soil, into water, and into the body at a great speed. As many scientific studies have shown, the risks of living in proximity of copper mines is no small calculation as sulfide-ore copper is known to release six of the top ten environmental toxins—mercury, lead, arsenic, particulate air pollution, asbestos, and cadmium—in addition to specific sulfates that fuel a chemical process that turns mercury into a more toxic form called methyl mercury.^[3] In 2012, an Earthworks study tracked modern copper mining in the United States and found that 100 percent of all mining operations active for five or more years had polluted groundwater and aquifers.^[4]



View of the Santa Rita Mountains from Sahuarita, Arizona, at sunset.

Years later, after my father's cancer diagnosis, I'm left with questions and the lack of a clear answer on how we got here. Or, to be more honest, not necessarily the how but the why and the slippery when. With certainty, the visceral and tangible present of a place is central to questions of violence and harm in the borderlands today. As Ruth Wilson Gilmore writes there is always a geographical imperative that brings together geography, justice, and the body, as "justice is... always spatial, which is to say, part of a process of making a place."^[5] There is also a need to look beyond this moment, looking back towards the first ruptures of harm both in terms of violence against the ecosystem and violence against the body in the Sonoran Desert. This insistence on an attention to time is sparked for me by conceptions of slow violence building up over time, or rather defined as "a violence that occurs gradually and out of sight, a violence of delayed destruction dispersed across time and space, an attritional violence that is typically not viewed as violence at all."^[6] What does unspectacular, actuated, or unseen violence mean when it has been left to accumulate for hundreds of years? Possibly dripping away beneath our feet? For that question hanging above the entrance to the phantasmal and haunting past, I've turned to archives and stories. Although colonial records should be held at an arm's distance and interpreted with care, I hope to start here with the interwoven history of Spain's mining forays into the Sonoran desert

in order to better understand how contemporary inequality and dispossession operate as the vestiges of the colonial state's relation to resources, specifically water. We can only understand what has been made today through an awareness of what was unmade in the process.

Copper wasn't where it started; first it was silver and gold. Starting in the sixteenth century, Spanish colonialism inaugurated a violent process of land theft, dispossession, resource hoarding, and extractive material practices here in the Sonoran Desert. We'll start with just a sliver: the author of this text excerpt above, Baltasar de Obregón, was born in Mexico City in January 1544. Inheriting his father's *encomienda*^[7] but ultimately unsatisfied and desiring more fame and wealth among other things, Obregón aspired to produce historical chronicles that would gain the attention of King Philip II in order to win him a governorship. During this time of Spain's violent imperial expansion in what is currently known as México, Obregón enlisted as a soldier at the age of 19. Shortly afterward, he joined Francisco de Ibarra with whom he served until 1566; he returned to México after that. Obregón was hardly alone in this thirst for conquest; Francisco de Ibarra himself is a prominent character of note. After having traveled from his place of birth in Spain, and with the financial and political backing of his uncle Diego de Ibarra, a conquistador turned mine owner, Francisco

Care with drinking water; provisions; wars for salt

In this valley and among these nations are found the largest number of poisonous trees. In using them to cause harm, they are more skilful than the natives already seen. Likewise they [the Christians] should bring drinking water, for if the natives happen to throw branches of the poisonous tree in the water, it will kill those who drink it. The water should be blessed and drawn from wells and springs dug during the night in secreted places and covered during the daytime. They are feared and

Excerpt from Baltasar de Obregón's 'History of 16th Century Explorations in Western America, 1584' translated by George Peter Hammond and Agapito Rey, 1928.[9]

was appointed head of an expedition to explore territories northwest of Zacatecas for precious metals.[8] The layers of colonial violence intrinsic to these campaigns and these quests for wealth can not be untangled from the disastrous consequences they held for Indigenous peoples' relations to land and future communities in the Sonoran Desert.

Reaching what is today known as the Sonoran Desert, Obregón described the logistical burden of their campaign, specifically how heavily their expeditions relied on being able to maintain large numbers of healthy troops along with a standing calvary. In addition to their lack of

preparation and inexperience in this dynamic desert landscape, colonizers' plans were upended by Indigenous communities who, having already successfully expelled the Coronado expedition, destabilized colonizers' pre-planned routes through the area. In response to Spanish soldiers' violence against Indigenous communities, such as the sexual assault against Indigenous women, one Indigenous nation, the Opata, strategically undermined the colonizers' attempt to set up permanent settlements along their path.[9]

This form of resistance further highlights the enmeshed relationship between body, land, and violence. As Cutcha Risling Baldy and Melanie



*This view of the Sonoran Desert shows the typical rugged terrain of the region.
Image courtesy of Isaac Esposto.*

Yazzie demonstrate, Indigenous feminist studies understand today that the “interconnectedness between Indigenous women’s bodies and the lands that women caretaker constitutes one of the primary axes of relationality.”^[10] Other scholars have also shown that many Indigenous communities on Turtle Island^[11] were (and continue to be) matrilineal and matrilocal; women often led and continue to lead decision-making processes on issues such as land use, agricultural practices, governance, and housing with gender roles taking on a nuanced, egalitarian structure.^[12] It is therefore irresponsible to isolate the well-being of Indigenous communities and relations to land from the well-being, agency, and bodily autonomy of Indigenous women. As Hilary Weaver argues, colonial violence legitimized by the empire or nation-state is totalizing in its attempts to disempower and eradicate Indigenous lifeways, education, kinship networks, and sovereignty on a structural level.^[13] As a result, we must not decouple the logics of colonial territorial destruction from the dismantling of Indigenous traditional societal organization; both work as an extensions of the same logics that perpetuate

sexual violence against Indigenous women. The body remains central to resistance and refusal in the desert.

Turning back to the excerpt above that was first written in the desert, we see the use of a plant recorded in Baltasar de Obregón’s journal; the plant is today known by many names, including *Sebastiania bilocularis* or Arrow Poison Plant, or yerba de la flecha. Obregón’s chronicle describes the Opata contesting Spanish military expansion by poisoning their water sources with this plant, ultimately forcing these campaigns to continue north instead. Recognizing this extreme vulnerability of the colonizers, this defiance of colonial expansion by Indigenous communities sparked new Spanish military strategies of guarding, hoarding, hauling, and hiding water sources as colonizers expanded incursions toward territorial control into what is currently known as Arizona. Water thus became an integral component to Spain’s successful occupation and future genocidal campaigns, ultimately shaping future strategies of the United States’ incursion into the Sonoran Desert as well.

And You, Longest of Months: Contemporary Settler Colonial Weaponization of Water

The story of the Opata’s defiance of Francisco de Ibarra’s campaign might strike as tangential, as the long before, as the moth-chewed-through question swinging in the closet of “what does this have to do with today?” I seek to highlight this failed attempt at colonial expansion in the sixteenth century as a critical juncture in history’s relation to water here in the Sonoran Desert—in particular, the Spanish military forces’ reckoning with their extreme vulnerability and heightened risk of dehydration and death. I think it is important to recognize how the endoskeleton of the past provides the ossified foundation for the exoskeleton of contemporary border violence we move through today. Or, as Katherine McKittrick

writes in “Plantation Futures,” our “past colonial encounters created material and imaginative geographies that reified global segregations through ‘damning’ the spaces long occupied by Man’s human others.”^[14] This was just the beginning of one of the many wars over water in the desert—the beginning of the damning. The story since then has been a snarled exchange furthered by biopolitical management of Indigenous communities and others living within the wake of settler colonial violence, imperial state formation, enslavement of Black people, and control over racialized labor. This story is so much longer than the source or mouth of a river.

The settler colonial neoliberal state has weaponized water as a critical infrastructure and site of extraction that literally cements its own ongoing materialization into existence. When water is considered a resource that is to be controlled, exploited, bartered over, contained, withheld, or sacrificed, that is the moment we see the harsh clap of contemporary violence as well as its echoes. Instead, as many Indigenous communities and scholars have actively argued, water is a relative which is crucial to our ongoingness. Indigenous-led decolonization struggles firmly center the importance of this relationship where “water is seen as an ancestor and as a relative with agency within this network of life, one who deserves respect, care, and protection.”^[15]

Quitobaquito Springs, one of the few freshwater springs in the desert year-round, lives as a sacred site of relation for the Hia C-eḍ O’odham. Since time immemorial, the spring has been a place of ongoing relation, kin, burial, and ceremony until,

as elder Lorraine Eiler shares, in the mid-1900s these communities were pushed from the land by the National Park Service in order to clear the way for the creation of the Organ Pipe National Monument.^[16] This purposeful removal of Indigenous presence, projecting the colonial fantasy of an empty wild space, was undergirded by the 1964 Wilderness Act’s insistence on preserving a space “where the earth is...untrammelled by man, where man himself is a visitor who does not remain.”^[17] This project made the land open for use (both recreational and militarized), but in need of constant monitoring to prevent specific people from traveling through unimpeded. Legislation such as the Wilderness Act attempted to fracture the relations and caretaking traditions that O’odham communities have maintained in this area of the Sonoran Desert for thousands of years, erasing intricate land stewardship practices in attempts to empty the historical consciousness of Indigenous presence. Decades later, this removal process cleared the literal way for further



Quitobaquito Springs, shown here before the damage done by the construction of the wall, is one of the few reliable above-ground water sources in Organ Pipe Cactus National Monument. Image via National Park Service.

development of the nation-state for the sake of “security” in the form of the border wall. Settler colonial states suture together appropriated federal lands for conservation and security as tangential functions of dispossessing Indigenous communities of land.

The bulldozers came for the spring. In 2020, the federal government contracted construction companies to continue this border-wall-building tour de force. This spring, sitting a little over two hundred yards from the U.S.-Mexico border, became the staging ground for multiple contractors who were hired by the Department of Homeland Security to start construction on a 30-foot-tall border wall across almost 30 miles, intersecting the spring and its fault. One of the few natural water sources around, Quitobaquito “has been the life, for plants, animals, all desert

life and Hia C-eḍ O’odham people. It’s how our people survived...even drilling anywhere near Quitobaquito springs, it is a desecration to us, as Hia C-eḍ O’odham people and to the land,” explained Nellie Jo David of O’odham Anti-Border Collective.[18] This infrastructural expansion and development necessitates the digging of trenches, a widening of roads for equipment to access the area, and maybe most insidiously, the pumping of the spring’s groundwater to mix the concrete which will provide the walls’ foundation.

The calling for this wall was set many years before water met cement, though. In 1994, the U.S. policy titled Prevention Through Deterrence was put into motion through United States Customs and Border Protection (CBP).[19] By closing frequented ports of entry within urban areas along the border, in addition to heavily



The Sonoran Desert is both remote and rugged. Image courtesy of Isaac Esposto.

expanding militarized infrastructure in more remote expanses to force people to travel through rugged terrain, the CBP believed that people making this journey would be deterred at the possibility of finding themselves “in mortal danger” when attempting to enter the U.S. autonomously.[20] Along with these policies’ facade of passive language and deflection of blame came the intentional funneling of migrating[21] people, who have been constructed into the category of “migrant,” into more and more dangerous terrain along the southern border. Here, the dry land is to be utilized as an enemy, a landscape wielded as a nationalist weapon. In the past year alone, 853 people died traveling across the U.S.-Mexico border—the majority of them from Central American Indigenous and mestizo communities. [22]

This is a story that is both local and global. In our contemporary moment, the crisis of water in the desert is ongoing, not only as a consideration of the local but also a crisis with a global scope, particularly in regards to the restriction, destruction, and doling out of access to water unequally. This year, the Climate Central’s [Climate Shift Index](#) published research that shows the significant impact of global climate change on desert temperatures in the Southwest, reporting that extreme temperatures are now five times more likely to occur.[23] These rising temperatures and prolonged droughts not only affect the communities who reside long term in the desert, but also the thousands of people making autonomous journey’s through the area every year. Humanitarian aid organizations in the Sonoran Desert, such as No More Deaths, People Helping People, and Humane Borders (among many others), grapple with the thin line between presence or absences of water in the desert. The consequences of this reality can be deadly for the people who have been intentionally funneled into remote areas by immigration policy, such as Prevention Through Deterrence and its localized strategies like Operation Gatekeeper.

These policies of access and expulsion do not simply exist written into the appendix of a quiet book of law, but instead erupt as columns from the earth, scarring their way through the everyday reality of people living and moving through the U.S.-Mexico border. With the implementation of Operation Gatekeeper and Prevention Through Deterrence in 1994 under the Clinton administration, border communities witnessed an exponential growth in border enforcement, funds, and personnel. the intention was to control the Southwest Border by increasing the risks associated with “unauthorized” entry, such as exposure, dehydration, and hyperthermia.[24] These border policies emerged out of a political landscape which needed to ensure the U.S.’s position by constructing the “illegal other” as a danger to its social, cultural, and political stability within the context of globalization. Geographer Joseph Nevins argues that for this process to be naturalized, it required new ways of seeing that are “inextricably tied to evolving hierarchical notions and practices regarding race, class, gender, and geographic origins” particularly as they privileged hegemonic experiences and identity, often endowed to whiteness, masculinity, and ciss-ness. [25] These policies’ goals mean that certain people, certain bodies rendered less than in the mind’s eye of the nation-state, were never intended to make it across the border in the first place; Operation Gatekeeper and Prevention Through Deterrence are, at their core, a weaponization of Indigenous land through the proliferation of colonial technologies of surveillance and carceral architectures in order to assert its unquestionable sovereignty.

Without an immediate end to colonial land theft and unceasing extraction practices, our planetary ecological devastation is only going to get worse—the washes drier and the sun more acute. We are just waiting to learn how much and how suddenly. Turning to the research, not much has been published on how rising temperatures driven by climate change are going to impact people attempting to move through the border’s desert.

However, a study published in the 2021 issue of the journal *Science* examined how this global heating process will end up resulting in dramatically higher numbers of migrant deaths along the U.S.-Mexico border in the years to come.[26] For those communities living and working in the desert, it is assumed that it is already physically impossible to carry the amount of water needed for the roughly eighty mile journey by foot.

This research concluded that as a result of rising temperature the typical amount of water people are able to carry with them, between one to two gallons, will be wholly inadequate to survive off of in this desert terrain.[27] By the year 2050, the models contend that with the estimated spikes in temperature in the region, an individual will need at least a third more water to stay alive during this journey through the Sonoran Desert. That number is an average though. For pregnant people the number of gallons needed rises to 3.6.

But the story of a gallon placed, a gallon carried, a gallon needed, is also a story of a gallon destroyed. As water becomes an exponentially valuable source of life in the desert with these rising temperatures, the viciousness of state sanctioned violence at the border will only continue to grow as well, often in the form of water. In 2018, Dr. Scott Warren, a long term volunteer with the humanitarian aid group No More Deaths/No Más Muertes (NMD), was arrested by Border Patrol in Ajo, Arizona. Many people believe this was retaliation against NMD for having published evidence of Border Patrol agents purposely destroying gallons of water placed in the desert for people suffering from dehydration.[28] This destruction of literally life-saving access to water appeared to most as visual evidence of the ongoing state-sanctioned murder of people migrating through the Sonoran Desert.

See footage of Border Patrol vandalism of humanitarian aid.

Once Thought Cathedrals & Those Imagined: Future Infrastructure

“Settler colonialism will always define the issues with a solution that reentrenches its own power.” — Leanne Betasamosake Simpson, *As We Have Always Done: Indigenous Freedom through Radical Resistance*[29]

The desert is running out of water. The aquifers, the rivers, the clouds, and their cycles are pushed to the edge(s) by settler colonial, capitalist-driven, extractive policies and practices. In order to maintain a pervasive, unquestioned grip on the border’s political, social, and economic systems, the nation-state must find its next evolution to serve its agenda. I argue that we can see this in the joint hands of global corporate capital coming together with the aspiration of the settler state. As Winona LaDuke and Deborah Cohen argue in *Beyond Wwindigo Infrastructure*, we can see

how new developments of critical infrastructure are touted “as a magical means to get desperately needed sustainable infrastructure built to enable a prosperous future.”[30] But who is the intended recipient of that prosperous future?

The state of Arizona began planning to build a pipeline, not for oil, but water. In late 2022, state legislators voted to advance a \$5.5 billion plan which would “build a water desalination plant in Mexico, as well as a 200-mile pipeline and associated infrastructure.” Hired to head the construction is Israeli company IDE Technologies, who first pitched the plan to the Water Infrastructure Finance Authority (WIFA) with its proposed route ripping once again through land sacred to the Hia C-eḍ O’odham.[31] As of 2023, the plans for this desalination plant and pipeline have been halted; Sonoran officials issued a statement

through the government’s official Twitter account that highlighted their lack of consent in the process and ultimately criticized IDE Technologies for a “lack of ethics.”[32]

The prospects of this pipeline arise from the declining water supply typically pulled from the Colorado River. The Colorado itself travels through one of the largest infrastructure projects imagined and carried through to existence. The Central Arizona Project pulls water out of the Colorado River and moves it 336 miles and up over 2,450 feet.[33] In the perpetual cycle of water scarcity and re-entrenchment of political power, the desert is always running out of water. It’s running out of water when industries mine groundwater and move on, leaving the previous wells dry and the once lush perennial streams desiccated. It’s running out of water when the deep and reliable water resources are continuously contaminated. Plumes of the contaminants TCE, PCE, and 1,4-dioxane stretch for miles

through the underbelly of Tucson’s ancient aquifer, emanating like a stain from the sources of Raytheon: the airport, and the military bases. In the borderlands of Southern Arizona, mouth-pieces of the state clasp tightly around the words “the desert is running out of water” yet refuse to acknowledge their complicit policies are central to manifesting this reality.

But the desert is not running out of water. Before the United States existed, and after it ceases to be, the dynamic seasons of living in the Sonoran Desert came and will continue to come with the ebb and flow of water. After it pours in with the monsoon rains or gently creeps along a winter front, the water will always seep slowly through the interstitial space, flowing slowly and deeply back to the aquifers, bringing us all back once again into relation. In the meantime, we continue to care for each other, one cupped handful of water at a time.



The proposed desalination plant in Mexico would pipe fresh water 200 miles to Arizona. Water Infrastructure Finance Authority of Arizona/ENR Southwest. (CC BY-ND)

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[21] I pause to look back before moving too far ahead. How do we refuse the colonizer’s language while managing its horrendous contradictions? In a conversation with Dr. Diyah Larasati, she reminded me to push beyond the camouflaged rhetoric of the state. English words such as “crossing” and “migrant” imply agreement with the legitimacy of this settler-colonial border, a hand I do not wish to shake; refusing the border is both linguistic and material.

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PRIMARY SOURCES

HOW MUCH IS THE WORLD'S MOST PRODUCTIVE RIVER WORTH?

By Stefan Lovgren

How much is the world's most productive river worth? Here's how experts estimate the value of nature

Southeast Asia's Mekong may be the most important river in the world. Known as the "mother of waters," it is home to the world's largest inland fishery, and the huge amounts of sediments it transports feed some of the planet's

most fertile farmlands. Tens of millions of people depend on it for their livelihoods.

But how valuable is it in monetary terms? Is it possible to put a dollar value on the multitude of



Establishing the financial worth of a river's fish is complicated when many people don't sell the fish they catch. Image via Unsplash, by Jandira Sonnendeck.

ecosystem services it provides, to help keep those services healthy into the future?

That’s what my research colleagues and I are trying to figure out, focusing on two countries that hold the river’s most productive areas for fishing and farming: Cambodia and Vietnam.

Understanding the value of a river is essential for good management and decision-making, such as where to develop infrastructure and where to protect nature. This is particularly true of the Mekong, which has come under enormous pressure in recent years from overfishing, dam building and climate change, and where decisions about development projects often do not take environmental costs into account.

“Rivers such as the Mekong function as life-support systems for entire regions,” said Rafael Schmitt, lead scientist at the Natural Capital Project at Stanford University, who has studied the Mekong system for many years. “Understanding their values, in monetary terms, can be critical to fairly judge the impacts that infrastructure development will have on these functions.”

Calculating that value isn’t simple, though. Most of the natural benefits that a river brings are, naturally, under water, and thus hidden from direct observation. Ecosystem services may be hard to track because rivers often flow over large distances and sometimes across national borders.



The Mekong River winds through six countries, across 2,700 miles (about 4,350 kilometers) from the mountains to the sea. Image via Unsplash by Parker Hilton.

Enter natural capital accounting

The theory of natural capital suggests that ecosystem services provided by nature – such as water filtration, flood control and raw materials – have economic value that should be taken into account when making decisions that affect these systems.

Some people argue that it's morally wrong to put a financial price on nature, and that doing so undermines people's intrinsic motivation to value and protect nature. Critics say valuations often do not capture the whole worth of a natural service.

Proponents maintain that natural capital accounting puts a spotlight on natural systems' value when weighed against commercial pressures. They say it brings visibility to natural benefits that are otherwise hidden, using language that policymakers can better understand and utilize.

Several countries have incorporated natural capital accounting in recent years, including Costa Rica, Canada and Botswana. Often, that has led to better protection of natural resources, such as mangrove forests that protect fragile coastlines. The U.S. government also announced a strategy in 2023 to start developing metrics to account for the value of underlying natural assets, such as critical minerals, forests and rivers.

However, natural capital studies have largely focused on terrestrial ecosystems, where the trade-offs between human interventions and conservation are easier to see.

When valuing rivers, the challenges run much deeper. “If you cut down a forest, the impact is directly visible,” Schmitt points out. “A river might look pristine, but its functioning may be profoundly altered by a faraway dam.”



More than a million people live on or around Tonle Sap, a lake in northwest Cambodia and the world's largest inland fishery. Climate change and dams can affect its water level and fish stocks. Image via Unsplash by Siborey Sean.

Accounting for hydropower

Hydropower provides one example of the challenges in making decisions about a river without understanding its full value. It's often much easier to calculate the value of a hydropower dam than the value of the river's fish, or sediment that eventually becomes fertile farmland.

The rivers of the Mekong Basin have been widely exploited for power production in recent decades, with a proliferation of dams in China, Laos and elsewhere. The Mekong Dam Monitor, run by the nonprofit Stimson Center, monitors dams and their environmental impacts in the Mekong Basin in near-real time.

While hydropower is clearly an economic benefit – powering homes and businesses, and contributing to a country's GDP – dams also alter river flows and block both fish migration and sediment delivery.



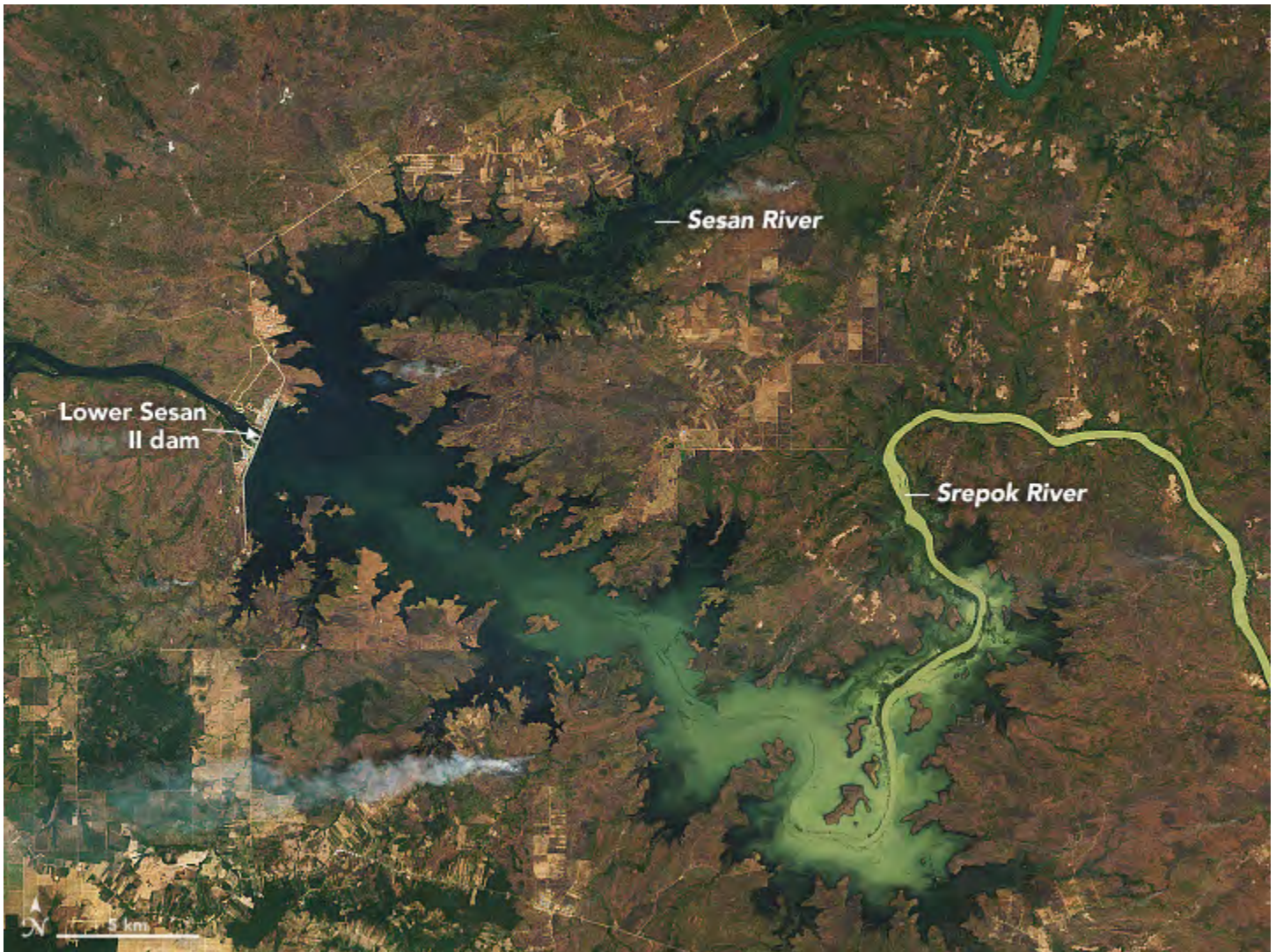
The Mekong River basin. Image via Wikimedia Commons.

Droughts in the Mekong in recent years, linked to El Niño and exacerbated by climate change, were made worse by dam operators holding back water. That caused water levels to drop to historical low levels, with devastating consequences for fisheries. In the Tonlé Sap Lake, Southeast Asia's largest lake and the heart of the Mekong fishery, thousands of fishers were forced to abandon their occupation, and many commercial fisheries had to close.



Hydropower dams like the one in this photo in Cambodia can disrupt a river's natural services. The Sesan River (Tonlé San) and Srepok River are tributaries of the Mekong. Note the differences between this image from 2017 compared to the one from 2018 on the next page. Image via NASA Earth Observatory.

One project under scrutiny now in the Mekong Basin is a small dam being constructed on the Sekong River, a tributary, in Laos near the Cambodian border. While the dam is expected to generate a very small amount of electricity, preliminary studies show it will have a dramatically negative impact on many migratory fish populations in the Sekong, which remains the last major free-flowing tributary in the Mekong River Basin.



Note the differences between this image from 2018 compared to the one from 2017 on the previous page. Image via NASA Earth Observatory.

Valuing the ‘lifeblood of the region’

The Mekong River originates in the Tibetan highlands and runs for 2,700 miles (about 4,350 kilometers) through six countries before emptying into the South China Sea.

Its ecological and biological riches are clearly considerable. The river system is home to over 1,000 species of fish, and the annual fish catch in just the lower basin, below China, is estimated at more than 2 million metric tons.

“The river has been the lifeblood of the region for centuries,” says Zeb Hogan, a biologist at the University of Nevada, Reno, who leads the USAID-funded Wonders of the Mekong research

project, which I work on. “It is the ultimate renewable resource – if it is allowed to function properly.”

Establishing the financial worth of fish is more complicated than it appears, though. Many people in the Mekong region are subsistence fishers for whom fish have little to no market value but are crucial to their survival.

The river is also home to some of the largest freshwater fish in the world, like giant stingray and catfish and critically endangered species. “How do you value a species’ right to exist?” asks Hogan.



*The Mekong delta in Vietnam is essential to transportation, food, and culture.
Image via Unsplash by Jack Young.*

Sediment, which fertilizes floodplains and builds up the Mekong Delta, has been relatively easy to quantify, says Schmitt, the Stanford scientist. According to his analysis, the Mekong, in its natural state, delivers 160 million tons of sediment each year.

However, dams let through only about 50 million tons, while sand mining in Cambodia

and Vietnam extracts 90 million, meaning more sediment is blocked or removed from the river than is delivered to its natural destination. As a result, the Mekong Delta, which naturally would receive much of the sediment, has suffered tremendous river erosion, with thousands of homes being swept away.

A potential ‘World Heritage Site’ designation

A river’s natural services may also include cultural and social benefits that can be difficult to place monetary values on.

A new proposal seeks to designate a bio-rich stretch of the Mekong River in northern Cambodia as a UNESCO World Heritage Site. If successful, such a designation may bring with it

a certain amount of prestige that is hard to put in numbers.

The complexities of the Mekong River make our project a challenging undertaking. At the same time, it is the rich diversity of natural benefits that the Mekong provides that make this work important, so that future decisions can be made based on true costs.

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Disclosure Statement

Stefan Lovgren works as a research scientist on the Wonders of the Mekong project, which is funded by USAID, at the University of Nevada, Reno.

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TEACHING AND PRACTICE

CREATIVE CONNECTIONS WITH RIVERS: A TOOLKIT FOR LEARNING AND COLLABORATION

By Stephanie Januchowski-Hartley, Ioanna (Daphne)
Giannoulatou, and Merryn Thomas

We are three people who draw on research and practice to create arts-based learning, engagement materials, and interventions with and for diverse audiences. We purposefully

integrate and apply different artistic methods in non-artistic disciplines, such as ecology and environmental conservation, physics, climate science, and human health. We came to know each other



Detail of a mixed-media haiku created by Benjamin at the Metamorffosis Festival, Bangor, UK.

and work together through a four-year project that was awarded to the lead author and focused on rivers in a fragmented world. Our project had local and global foci on rivers, and many of the activities, including those shared in this article, were designed with and for people in the United Kingdom but with a view that the ideas could be adapted and applied in other contexts.

Below is a “creative connections with rivers” toolkit detailing three arts-based activities, providing associated prompts, and offering worked examples and reflections on the impact of the activities from our own practices. The activities in the toolkit were designed with our own acknowledgement that rivers are often unseen, unseeable, and modified (Januchowski-Hartley et al. 2020), and that artistic methods and creative practices can offer ways for people to know, make visible, and share about hidden spaces and connections (Giannoulatou et al. 2023; Antona 2019) and hard-to-communicate ecological processes (Thomas et al. 2021). With inspiration from other scholars and creators, including [Eric Magrane](#), [Madhur Anand](#), and [Linda Barry](#), as well as our own creative practices, we integrated different artistic methods in each activity. The integration of methods in the activities was purposeful and aimed to make the activities flexible and accessible to different audiences and settings, to encourage collaboration where possible, and promote more entangled ways of communicating about rivers and relationships with them.

Activity 1: Our River Words and Stories

This activity is focused on surfacing and sharing river words and stories either on your own or with a group. The goal with this activity is for each person to share about a river experience. Access to rivers is highly variable depending on where you live. In many urban environments waterways are hidden underground or culverted under roads and entire city blocks, and access to rivers is often constrained by accessibility to

transportation or distance. Therefore, this first activity aims to stimulate your imagination, using visual prompts as inspiration to help you surface river words and stories. You can either use the prompts that we provide or generate your own prompts depending on how you use this activity and the accompanying resources. We implemented this activity as part of a public exhibition that ran for two months in Swansea, UK in 2022.

Step One: Find River Words

You can find river words in your mind using the prompt cards we have provided from our Underwater Haiku initiative, or by coming up with your own way of finding river words such as using an online search, taking a walk along a river, or talking about a river with a friend. Once

you find words make sure you can see or access them easily. You could hold the words in your mind, make a circle around the words or highlight them, or write them down. You will use the words you selected to do some creative writing about rivers.

ripple flicker gobies flow rocks tumbling along en rios submarinos
between rivers] braids, stones, turbid churn. churn. churn. churn.
half-lit citadels vivid reflecting ripples reflux a pinky mouth swallow
the ebb] stickle toiled the ice jam downstream soft water river moss
float weeds on rust-red rocks black tadpoles start transforming
pebbles hide stone, scattered sands stone, trickling roll, stir carp
hiding in river revisited. revisited. revisited. revisited. dive, cold,
sound, wave, flood like a curls catching treasure lies below entwined
among dancing reeds my whispering wrecks; the mersey what lies
hidden in the flash weir stone nutrient lurk water is murky my feet
fumble light fast flowing waters water splashes, life erupts imagina-
tion brown in underwater running deep magnificent light refracts
through the riffles waters underwater thoroughfare to be blenny or
goby sunlight pebbles the heart submerged in a blue white wash
sudden trauma swim below shifting depths distil life flowing
seawards deep, dark life aesthetically cool storm roam, nomad
home land life to forests sway in flecked blue green shimmer
shallows surge dark the river's beds ambulance white stands pleas-
ant summertime gently forcing could be knotted rainbow surprise
calm and dappled light pebbles are liquid slime hides river flows
safe again, see fronds and never the human waste what there is,
what there easy. easy. easy. easy. stone loach and minnow to my
confinement paused weeds twisting with the current mottleflash
flicktail rush weed shadow the inner elbow sliding in the sly ether
murky weeds beneath our vision damaged reefs debris fish, stran-
gled by at on life daughter rounding rock pebbles invite a visit to
fades as pressure grows dreaming, i breathe amid reeds rolling of
feathers stone soft in the set of stone silver fish skittering among

winged fish takes flight. takes flight. just see how she flies the hybrid.
the hybrid. this lake-water lacks oxygen for gulping gills. gulping
gills. i must and wing and fin a flash of flying silver brief fish ladders?
fish ladders? salmon in the sky, above the flowing river, light follow
that tide home to shimmer dance one last above the water, below
the yellowing sun. yellowing sun. swift flash of waters dream up high.
up high. carp-like, part machine steers with rear forth? rear forth?
perpetuum mobile--engine in my butt. my butt. bamboo leaves
rustling. leaves rustling. translucent sun speckled droplets wings
iridescent deep-sea reflections a salmon's eyes time shed no more
salt tears. salt tears. sally swims solo. swims solo. tail still. tail still.
escaping right now, flying fish looking for life, away dreams, takes
wing, soars, tastes the high life. salmon plans likewise. plans likewise.
look into the fisherman's lure. fisherman's lure. the spread of his
wings take to wing. to wing. river obstruction. river obstruction.
meets sally's adaptation. sally's adaptation. who needs from sugar
to salt. to salt. see-through wings afloat on-air scales reflecting i
swim and fly home to enable creation to reproduce from danger.
from danger. gurgling, bugged longing to return to my birth fiery sea
on me i always welcome him. welcome him. salmon? mayfly?
salmon? mayfly? sheen of a rainbow in the arc of her back. her back.
four laced wings in flight where is my river? my river? scale swishing
wildly around. wildly around. frothing the water. the water. sally
gasping air spreads place, gravel origin. gravel origin. the mighty
dragon. mighty dragon. flying, twirling, hunting, feeding. hunting.
feeding. the mighty salmon. mighty salmon. angler's fly lures fish.
lures fish. ambiguity — freedom. — freedom. underwater. in pools we
all become birds. become birds. what pushes me moment in time

Words from the Underwater Haiku Collaborative Collection were used as prompts in a public exhibition about rivers that was held at Oriel Science, Swansea, UK.

Read prompts in PDF format.

Step Two: Create a River Sentence, Poem, or Sketch

Now you will transform your river words into a sentence, poem, sketch, or other creative piece of writing. You can include thoughts, feelings, sights, sounds, textures, smells, or other expressions you associate with rivers and the words you found. Our team implemented this step by

placing large sheets of paper on the walls of the exhibition space. These sheets of paper shared words as prompts. Next to them, we placed empty sheets of paper, inviting visitors to share words, sentences, poems, drawings, or other forms of expression about rivers.

Step Three: Collage River Words and Stories

The goal in this step is for a group to create a work of art that is a sum of all the words or drawings shared about rivers. For this step of the activity, we propose creating a collage, which can be formed of words or drawings. Collage is an artistic method originating from the French word *collé*—meaning glued. Collage can accommodate multiple people’s experiences and understandings by binding different media together (Giannoulatou et al. 2023). Other materials and media could also be brought into the collage to further contextualize the words and stories shared by people engaged in the activity. We used digital collage and poetry to create a video about rivers and fish migration in the UK based on what was present and absent from writings and drawings shared in the public exhibition. If you undertake this activity alone, the words and stories that you write could be brought together to create a single piece of creative writing or other art form.

See video Present and Absent.

Words and drawings that were present and absent from people’s offerings during the public exhibition at Oriol Science, Swansea, UK were the basis for this digital story our team created. The video is about rivers and fish migration

in the UK. The poetic narratives for the three fishes in the story include words that people contributed.

For us, the activity provided ways for people to share through different media what they know and feel about rivers, which some adults said they never thought about or had not been asked to consider before. When we delivered this activity at Oriol Science in Swansea, UK, we were able to observe people’s impressions and expressions because someone from our team was present each day. We observed that people who engaged in the activity expressed wonder and delight at the opportunity to contribute their experiences and feelings to something bigger. People shared stories with us about rivers, lakes, or seas, sometimes as they created on the page, but more frequently before and after their engagement with the activity. Visitors also expressed disbelief that we were interested in having their creations be part of a larger artwork. Several people made return visits, bringing larger groups of friends and family to engage with the activity and the broader exhibition space.

The video we created with people’s responses to the activity illuminated both what people know and have experienced, and what they might think

or know less about when it comes to rivers in the UK and beyond. Our use of digital collage and creating the video was an intentional effort to go beyond disseminating information in a pleasant-to-the-eye way; it was an effort to listen, include, cultivate a culture of scientific literacy, and positively impact our local place. Through

screenings of the video, we observed that the combination of discursive and nondiscursive forms of communication in the video created a bridge between science, art, and people, and made scientific concepts presented in the video relatable to broad audiences, including children ages seven and below.



People finding words, writing, and drawing on large sheets of paper hung on walls (left), and examples of drawings and writings that people contributed (right), during a public exhibition at Oriel Science, Swansea, UK.

Activity 2: A Creative Journey with Rivers

This activity takes you on a creative journey with rivers. The goal of this activity is to share information about a river that you are familiar with and to collaborate with others in guiding those rivers you know on a journey through creative expression. You will share about rivers through writing, creating mixed-media pieces, dressing up, and improvising. We implemented this activity with a small group outdoors in a park for Metamorfosis Festival, Bangor, UK, but you could bring it indoors and simulate a local river environment with sounds and sights.



The outdoor space where the journey with rivers activity was delivered in Bangor, UK.



A mixed-media haiku created by Benjamin at the Metamorffosis Festival, Bangor, UK.

Step One: Create a Mixed-Media River Haiku

Begin in a comfortable place and position, and then think about a river. It might be a river you have never seen but that you have read about or imagined. Maybe that river is hidden in some way, culverted under your street or city. Gather your thoughts and feelings about that river in your mind. Then write down or draw your thoughts and feelings about the river and organize those roughly into a written haiku, which is a Japanese poetic form that when written in English translates to lines of five, seven, and five syllables. You can create a mixed-media haiku by representing each word with a physical item. For example, the line, “one silver fish jumps” would be represented with four items, where a stick could represent “one,” a piece of foil could represent “silver,” and so on.

Step Two: Create a River Story

If you are in a group, come together to share your mixed-media haiku. Each person can take a turn to share their haiku. As a person shares, others observe and work to identify commonalities across the haiku. Once everyone has shared, work together to create a story about your rivers in the present day. The story will ideally include a beginning, middle, and end that seems to cover what is emerging from the haiku. The duration of this step will vary based on the size of the group, time available, and the detail that people want to invest in developing their story.



Anna reads her haiku at the Metamorffosis Festival, Bangor, UK.

Step Three: Dress Up as Rivers

As a group, find items and materials to use as props and costumes to promote action and communicate the setting of your story. You can return to and repurpose the materials you prepared for your mixed-media haiku. The goal with finding and using props and making costumes is to help you move the story you have prepared about a river in the present day to a potential future with that river. The props should augment your story narration and performance in the next step. When we delivered this activity, we provided materials for people to use and tried to avoid disrupting the local environment. People also used their own clothing and personal items.



Costumes and props being prepared at the Metamorffosis Festival, Bangor, UK.

Step Four: Improvise Your River Story

Improvisation is a theatrical activity that is considered to have transformative power both for the performer and the viewer through interrogation of social, political, and ethical considerations of a story or problem (Olsen 2022). With your props and costumes prepared, perform your group's story about a river in the present day and then shift that story from the present day to an imagined future with the river. The goal here is not to practice, but to spontaneously enact the river story, moving from present day to potential future. You can guide a discussion and reflection about the creative journey with rivers to think

and share about what the activities surfaced for people about rivers today and in potential futures.

When we delivered this activity at the Metamorffosis Festival, we worked with a small group of people who had varied levels of experience and confidence with the different artistic methods involved. We asked people to reflect and write in response to a few prompts before and after we facilitated this activity. Everyone who participated in this activity expressed having some connection with rivers and noted



River improvisation at the Metamorffosis Festival, Bangor, UK.

having visited one daily, a few days earlier, or some months ago. For example, Benjamin said, “In my daily walking ritual, I connect to the five elements (earth, air, fire, water, spirit) and with the water element connect to the cycle of cloud, rain, stream, river, sea. So, every day I flow with the river.”

While people had identified existing connections with rivers, they also believed that the activity got them thinking differently about rivers. For example, Sarah noted, “I liked focusing on rivers in such a specific way—I guess I take the rivers for granted, that they might always be there. But our performance spontaneously brought up anxiety about climate change and what will happen in the future. An imagined apocalypse.”

People also felt that the activity could be a catalyst for encouraging people to have more active

engagement with rivers and awareness raising. For example, Anna said, “The activities were very energising and stimulated the imagination around rivers—the sense of anxiety and the imagery of choking and dying; the activities could work as a catalyst for more active engagement in river awareness and some kind of action following on from this.”

From our perspective as facilitators of the activity, we did not anticipate the level of energy and performance that spontaneously emerged through the improvisation. We believe the activity created a safe space for all participants to freely explore their feelings about rivers and helped them strengthen their abilities to observe, think, listen, and communicate discursively and in nondiscursive ways about the challenges that riverine ecosystems face.

Activity 3: Sharing Weir-d River Experiences

This activity focuses on engaging in and sharing about weir-d river experiences with others. The goal of this activity is to collaborate with others to create mixed-media creations that communicate the feelings that different people had during a weir-d river visit. While any experience can be a weir-d one, a key part of this activity is to visit a river with others to engage with it and share how

the experience makes you feel. We came up with the idea of a weir-d experience when we were invited to visit an underwater viewing gallery that is built alongside a weir in the River Severn, UK. Inside the gallery there is an underwater viewing window that makes the underwater environment of the fish pass visible to guests and scientists.

Step One: Prepare Prompts and Write About Your Weir-d Experiences

This activity requires some planning ahead to organize the weir-d experience and the creative writing that you will do before, during, and after your visit. We provide the questions we used as prompts when we implemented this activity, but if you want to create your own questions it can be good to do so well in advance of your weir-d experience. The prompts could help situate

the forthcoming weir-d experience and draw connections to other experiences. Jo Bell and Jane Commane (2017) suggest that prompts can also inspire us to write unexpected things, which could be particularly interesting and revealing in relation to the planned weir-d experience. Once you have your prompts ready, decide how you will do your writing in relation to the planned

experience, and determine any materials you might need to have with you. Then get started by writing in response to the prepared prompts. When you finish this step, you will have notes and drafts in response to each of the prompts from

before, during, and after your weir-d experience. You could end this activity at this step if you want to keep your writing for yourself. If you choose to share your writing, you will continue by creating collectively inspired poems.

Embracing Weir-D Experiences

Before: think and write about past and planned experiences

Example prompts:

Have you visited a similar place? If so, what emotions or sensations came up for you?
If not, what comes to mind from any other nature experience you have had?
What will the place be like? How might you feel there? What could you encounter?
Consider sights, sounds, smells, textures...

During: write about the experience you are having and reflect

Example prompts:

Why did you come to this place? What emotions or sensations are you experiencing?
How is this experience similar or different to those you had before?
What is one unexpected thing that you observe in this place?

After: think and write about what you are left with from the experience

Example prompts:

What thoughts, emotions, or sensations are you left with after your visit?
How was the experience similar or different to ones you had before?
What words or images do you hold in your mind from the recent experience?

Example prompts to inspire writing before, during, and after a weir-d river experience.

Read prompts in PDF format.

Step Two: Create Weir-d Poems

The goal of this step is to explore your memories and those of other people who shared the weir-d experience with you, and to express thoughts, feelings, and sensations from the experience. To

do this, you could craft poems or other creative forms of expression. Each person doing this step of the activity can choose how they will further explore their writing. For example, when we

Three Ways to write Weir-D Poems



- Write experiences shared by more than one person into a single voice.
- Attend to non-humans and happenings above and below water.
- Consider sensations and emotions about being above or below water.
- Set aside, return to edit after a few days.



- Identify memories or reflections shared by different people from their experiences.
- Write ideas into a loose poetic form.
- Push the story forward by using pauses and abstract thoughts and imagery.
- Set aside, return to edit after a few days.



- Take one hour to write your own experience.
- Pull words from prompt responses and add additional feelings from your experience.
- Write notes into a loose poetic form.
- Return a couple of hours later to edit.

Three approaches to creative writing about a weir-d river experience.

Read approaches in PDF format.

Three Weir-D Poems

Imagine

We're in an underwater chamber.
How do fish encounter us? Stood still.
They observe, we aren't swimming.

It's damp, smells like the river. Eutrophic,
earthy and fishy. Pressure-held, we breathe
without struggle, without gills.
Around us, the river seeks to come in, join in
the underwater world. We're feeling alien,
like sturgeon returned to the River Severn.

Prehistoric wonders and modern mystery,
they cruise waters not taking notice of us
humans. We never swam with dinosaurs.
Return to the chamber. Concrete, a view in?
Below murky surface to fish passing. Silent.
Will we feel calm under pressure?

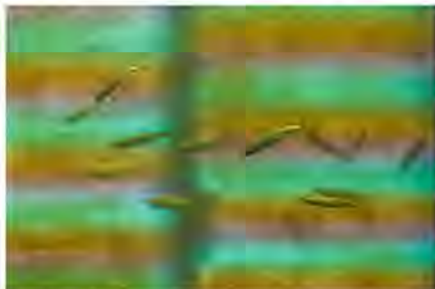
Cautious, we imagine things differently.
Size, materials, quality of light. But silence,
silence we agree on. Until the river's on,
through a speaker that fills us with water.
Gurgles fill the dry silence, flowing freely,
beyond our ears or gaze, moving instream.

Now below water. Anything can emerge
from the depths, reminiscent of snorkelling
floating leaves drift by the windows.

It's rather gloomy, like an empty theatre
until words fill, float around the space.
We're surrounded. Turbid, tannin colours.

Was it a Sea Lamprey? We ask, intrigued.
Like dreams remembered, fragments of life
we peep through a keyhole to their journey.
We surface. Some wanted to stay.
Fishes walking, our memories top-up.
Saturated by raindrops. Curtains draw,

in shadow and soft light, the window,
the portal to another way of living,
where dancing fish lead with careful steps, we respect.



Watching a Window

All my memories are visual,
graceful manta rays gliding overhead and smiling with their strange mouths.
Interactions, and displays to connect people to the underwater.
A sense of wonder and sadness.

Quieter, murkier, damper places
purposefully illuminated.

I look up from below.
I see them but stay dry.
Breathing, reminds me I'm a mammal,
but my skin is soaked in the memory of swimming.

The feeling of pressure and the sounds of the deep.
So much potential.

The temperature changes and gravity is no more.
Blissfully lost in daydreaming, about my past and future.
I see the Barbel.
A sense of home.

Silhouetted people, watching a window to another way of living,
And I am there, wondering, surrounded by water.

This Place

This is not an aquarium.
There is no clamour of sound.

There are no children running,
No riot of colour and banners.
I will not rush to the next exhibit
To see manta rays with smiling mouths.
I have no map of the things I will see
- or my money back.

This,
Is a window.
It is a portal to another place.
I am a guest in the fishes' silent realm.

Temperate, murky and raw.

In a bunker beneath the surface,
This art installation in the riverbank,
All is concrete and grey.

Through thick glass, the water lies unknown.
A grainy picture of the river beyond.

Passionate others look on in suspense, lingering.
Light on their faces, waiting,
As leaves dance by in playful Autumn.

Then the barbel, inching upstream, enters stage right.
A connection, my friend, we observe each other.
This,
Is your world.



Three weir-d poems based on thoughts, feelings, and experiences had by the three authors before, during, and after a visit to Diglis Weir underwater viewing gallery, Severn River, UK.

Read poems in PDF format.

implemented this step for the weir-d experience at the viewing gallery in the Severn River, we each used a different approach to write a poem. Some of us wrote only about our own individual experiences while others brought different voices

together. With your poems drafted you are ready to decide how best to share your poems with each other and how to share your writing with broader audiences.

Step Three: Share Weir-d Poems

When we implemented this activity, we first read our poems aloud to one another and then agreed to use a common approach to move our poems into three unique audiovisual creations. Each audiovisual piece paired a still image representative of the poem, a reading of the poem, and English subtitles. We shared the three audiovisual pieces on YouTube. The goal with this step is to be creative and have fun with finding ways to make your weir-d experiences available to others and to encourage others to share their stories too.

The prompts helped us to capture a range of meanings held for the viewing gallery and associated spaces and objects, such as the river, weir, fish pass, and even aquariums. We each documented our embodied experiences before, during, and after the viewing gallery, and doing so provided us inspiration and content to broaden our dialogue in the next phases of our practice. The process of writing poems also helped us to (re)discover relations between self and other. We not only recollected fragments related to our experiences in the viewing gallery when writing,

but assessed and integrated feelings about places and memories. Our writing also promoted compassion, helping us to better understand how different lived experiences influence how each of us relates to humans and nonhumans. The activity helped us to better understand the perspectives of each team member in relation to different underwater environments, sparking discussions on how each of us perceives our shared research interest based on lived experiences. We learned together through the activity and began to develop a stronger sense of community and team with one another.

We hope that this “creative connections with rivers” toolkit inspires readers to explore these activities as ways to connect with rivers and other environments around us. It is our hope that the flexibility built into the activities and the reflections that we shared from our own and others’ experiences with these activities, inspires others to pick them up, to explore new places alone or with others, and to be playful when implementing the activities in new spaces.

All images, PDFs, and videos, are courtesy of the authors.

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About the Author

Stephanie takes a multidisciplinary approach to problem solving and learning and likes working at the interface of arts and sciences. She is particularly inspired to design interactive activities with people of all ages, particularly children and teachers, to engage with their local places and outdoor environments.

Daphne is a creative science communicator and researcher. Her current practice and focus are on research engagement and communication of findings from all STEAM disciplines through arts-based methods. She is particularly interested in discovering creative and engaging ways to address both expert and non-expert audiences of all ages for educational and enrichment purposes.

Merryn’s interdisciplinary research draws on geography, psychology, and social science, and she has a longstanding interest in using creative and innovative methods to engage diverse publics with environmental issues. She is particularly interested in intergenerational research and the potential of creative methods to help people connect with nature and articulate intangible relationships with their environments.