Futures on Dry Ground

Anthropology and Coastal Planning

Theodore Hilton and Sheehan Moore

ABSTRACT: Around the world, governments, industry, and other actors are creating plans to save coasts from environmental crisis. Louisiana is one prominent example: levees and other measures protect oil and gas infrastructure from inundation as the wetlands buffer rapidly erodes—in large part due to that same industry. The state's primary answer to land loss is a $50 billion Coastal Master Plan. To illuminate such responses in Louisiana and globally, this article reviews emerging literature and frames an anthropology of coastal planning around three themes: (1) novel orientations toward time and space, (2) the reproduction of power and capital in the name of protection and restoration, and (3) the elision of other forms of land loss and defense by reductive above-ground/underwater planning paradigms.

KEYWORDS: adaptation, climate change, coasts, Louisiana, planning, temporality

In southern Louisiana, lines of levees protect some of the world's densest petrochemical development against inundation as the surrounding buffer of wetlands rapidly erodes. The loss of coastal land here is driven in part by this very levee system, which starves surrounding areas of river sediment deposits. These impacts, combined with rising seas, intensifying storms, and the destructive effects of fossil fuel infrastructure, have led the state to lose over 2,000 square miles of land in less than a hundred years (Couvillion et al. 2017). Following the devastation of Hurricane Katrina in 2005, lawmakers consolidated Louisiana's historically scattered government response to coastal land loss in the newly established Coastal Protection and Restoration Authority (CPRA), charged with creating and updating the state's fifty-year, $50 billion Coastal Master Plan. While Louisiana's planning efforts remain a high-profile case of state mobilization against coastal land loss, they are far from the only ones: around the world, alliances of governments, NGOs, corporate philanthropy, environmental scientists, and communities are drawing up plans for the future of their coasts.

This article takes coastal Louisiana as one starting point for understanding the global emergence of projects to define, manage, and plan coastal areas. Our ethnographic fieldwork in the region has meant engaging with the long and complicated histories of such endeavors locally, leading us to consider, too, the burgeoning attention around the world to coasts over the last five decades. Louisiana's coastal land loss is frequently depicted in local and national media accounts as a forerunner to impending widespread national and planetary environmental catastrophe. But these representations often gloss over the legacies of exclusion and extraction that expose some coastal communities, including Black and Indigenous ones, to place-loss through the

double perils of planned dispossession and passive neglect. Here we follow Françoise Vergès, who urges a consideration of global warming and its responses "outside of the limits of 'climate change' and in the context of the inequalities produced by racial capital" (2017: 74). We take her framework for a "racial capitalocene" as, in part, an analytic re-centering of the complexities of place elided by the dominant "material and symbolic politics of global environmental change" (Moore 2019: 143).

Along the lower Mississippi River, the history of coastal zone flood control has long been the story of colonial, plantation, and industrial capital demanding state investment in protection (Maldonado 2018; O'Neill 2006; Theriot 2014). As with fiscal policies designed to support white planters that fostered a twentieth-century petrochemical boom (Luke and Heynen 2020; Woods 2017b), this logic of shifting responsibility for risk mitigation from property owners to the state extends through contemporary coastal management interventions that protect coastal industrial sites and distribution channels (Randolph 2018). Flood control in the United States was elevated to the federal government most notably with the Flood Control Act of 1928, which made protection the purview of the US Army Corps of Engineers (USACE). This conjuncture of state, capital, and water offers an entry for thinking through coastal planning and the spatial expansion of capitalism, especially as USACE expanded logistics infrastructures and environmental management projects globally throughout the twentieth century (Khalili 2018). While our focus in this article is primarily on planning endeavors led by formal government bodies, our intention is not to treat state authority as totalizing or a given,[1] but to highlight some commonalities and tendencies in these activities. In doing so, we suggest some throughlines in the situations facing coastal residents around the world, as well as in the emerging literature that engages these issues.

Modern coastal management plans[2] began to emerge across Europe and the United States during the 1970s, heralded in the latter by the Coastal Zone Management Act of 1972 and Jimmy Carter's 1980 proclamation of the "Year of the Coast." These new plans—including in Greece, France, and the United Kingdom—together with international undertakings by the UN, NATO, and the OECD, responded to the rise of environmental movements and the intensification of petrochemical and port-centered capital in coastal zones during this period (Camhis and Coccossis 1982). The postwar expansion in the United States of a privatized and land-intensive white leisure culture had the middle classes heading to the shore in droves to swim, boat, and fish, further straining fragile ecosystems (Zile 1974). In this sense, coastal planning has, from the outset, existed squarely within—and aimed to mediate between—the apparently contradictory forces of conservation and development (see Abram and Weszkalnys 2013: 5). Yet time and again, these forces have served only to legitimate each other further, at the expense of any meaningful, place-based efforts at socioecological repair. Amelia Moore (2019) and Paige West (2016) capture this dynamic incisively in their ethnographic studies of, respectively, touristic marketing strategies in the Bahamas and racial narratives of conservation, tourism, and extraction in Papua New Guinea.

On a transnational level, the 2015 United Nations' Sustainable Development Goals (UNSDG) framework in part tasks national governments, corporations, and NGOs with sharing responsibility for ensuring the productive capacity of coastal regions, specifically in the face of climate change (United Nations 2015). A related call for multilateral ocean governance through the UNSDG foregoes prior representations of the ocean as a collective resource and object of state governance in favor of partnerships between government, industry, and civil society to manage anthropogenic environmental change (Spalding and de Ycaza 2020). Most recently, the UN has declared the Decade of Ecosystem Restoration, reflecting a trend in environmental paradigms whereby "sustainability" gives way to "restoration" (Usher 2022). Across these global policy

initiatives, coasts are widely regarded for their productive capacities and development potential, and the impetus to protect or restore them often derives explicitly or implicitly from their centrality to production and distribution. The shift to expand the scope of coastal and ocean management and the actors involved reflects broadly observed tendencies in global capitalism toward further dispersing risk (Chernilo 2021), obscuring capital's centrality in state planning (Riles 2018) and securing corporate accumulation opportunities against the specter of disaster (Klein 2007).

Despite this remarkable confluence of political mobilization, capital, land, and nature, a cohesive critical anthropological literature on coastal planning has, until recently, been absent. To date, the only broad assessment of the discipline's attention to coastal planning comes in Bob Pokrant and Laura Stocker's review, which envisions anthropologists "assisting coastal populations to adapt to the impacts of [climate change]" (2011: 179) and critiques planning's risk calculations as "linear, reductionist, and focused on physical threats to buildings and infrastructure, less commonly on threats to ecosystems, and rarely on threats to human experience of the coast and the meaning that gives to people's lives" (2011: 186). In this way, Pokrant and Stocker join a tradition of criticism targeting modernist urban planning epistemologies (e.g., Holston 1998) and the construction of environmental disaster (see Barrios 2017; Oliver-Smith and Hoffman 2002). However, they stop short of assessing coastal planning and management as emerging, far-reaching systems of governing people and land or as claims about and representations of environmental futures. Political ecological studies, meanwhile, have long drawn links between land, property, power, and environmental degradation (Andersson et al. 2011; Blaikie and Brookfield 1987; Peluso 1992). We attempt to pull these threads together as we consider how scholars are approaching the complex knot of coastal land loss and state planning. Our review highlights and thematizes an innovative and still largely recent literature that draws on this critical planning and political ecological work while urgently responding to the present moment.

In what follows, we advance three interrelated lines of critique that emerge from this literature and that we consider vital for an anthropology of coastal planning. First, the study of coastal planning can productively draw from critical work on urban and regional planning, but also involves notably different orientations to space and time. Coastal planning plans against a future full of potential threats and reinforces divisions between the natural and social through specific constructions of the coastal zone as a space. Second, for all its novelty and talk of crisis, coastal planning and restoration infrastructures are inseparable from—and often reproduce—the arrangements of power in part responsible for land loss. And finally, planning imperatives constrain the meanings that adhere to "land," eliding long histories of dispossession as well as present-day movements for land defense. These themes emerge from our time spent living and conducting research in Louisiana, but we see their recurrence across diverse coastal geographies where similar planning efforts are underway.

The Space and Time of Coastal Planning

> We'll never get to the point where we're done with it. Restoration's going to be a way of life for us.
>
> —National Audubon Society representative at a public coastal planning meeting in the Lower Ninth Ward of New Orleans, February 2020

Coastal planning is a spatial and temporal project—one that can become a "way of life" organized against future threats to a place called the coast. Simone Abram and Gina Weszkalnys (2013) observe that anthropologists have taken up planning infrequently, preferring broader

studies of politics or the state, and that when they have, the focus has been decidedly Foucauldian and spatial (e.g., Ferguson 1994; Scott 1999). The risk they identify in these approaches is a tendency to take state plans as totalizing and successful, while remaining analytically disconnected from the human and nonhuman objects of planning. Though Abram and Weszkalnys's survey of historical and contemporary anthropological texts highlights important contributions to urban and regional development planning—including in colonial, post-colonial, and Soviet contexts—engagement with the environmental dimensions of contemporary planning remains mostly absent from these. Urban planning has long aimed to domesticate or rationalize messy environmental conditions, though, especially as it concerns the management of water (as Bremner [2020] discusses in Chennai, India). While this planned rationalization of space has largely dominated critiques, a renewed attention in the social sciences to temporality offers one avenue by which to expand our understanding of planning. This corpus includes incisive work around the temporal dimensions of crisis (Masco 2017; Roitman 2013), environment and disaster (Adam 2005; Nixon 2011), resources and waste (Ferry and Limbert 2008; Hecht 2018), infrastructure (Carse and Kneas 2019; Gupta 2018), and colonialism (Davis and Todd 2017; Rifkin 2017; Whyte 2018). Planning, as an explicitly forward-looking attempt to manage "the passage into the future" (Abram and Weszkalnys 2013: 2), is a clear site for these theoretical interventions. While critical work on planning makes rich contributions, in this section we contend that coastal planning introduces novel considerations—around time, space, and the role of nature across these—that are not entirely reducible to a literature dominated by attention to urban or regional development with rationalization and progress as its aim.[3]

Across planning settings, the strategies that planners adopt depend in part on their ability to correctly anticipate threats. If urban planning implies a kind of optimism around the promise of an improvable future and managed unknowns (Abbott 2005), in coastal planning this sense of linear, progressive development is frequently displaced by the scale of climate uncertainties and even pessimism about what is to come. Environmental and political unpredictability pervades climate adaptation planning, and social science research has been particularly attentive to the interface of expertise and uncertainty (Barnes 2016; Hallegatte 2009; Hastrup 2012; Petryna 2022). Vincanne Adams, Michelle Murphy, and Adele Clarke (2009) offer insight into the affective and political valences of this uncertainty in their elaboration of *anticipation*. Increasingly, they argue, hand-in-hand with the expansion of forecasting technologies, "anticipation is intensifying into a hegemonic formation" (2009: 248), warranting study as a feature of political economy and as a mode—and mood—of governance. Anticipation here relies on an ambiguity whereby the future "is always uncertain and yet is necessarily coming and so therefore always demanding a response" (2009: 249): we may not be sure what tomorrow brings, but we know we must act. Formulated in this way, anticipation appears a productive lens through which to consider coastal planning, especially as it captures attempts by planners and scientists to predict the future and the political imperatives that accompany this uncertainty. In his account of coastal infrastructure in Singapore, Jerome Whitington (2016) shows how urban climate adaptation planners flatten uncertainty into predictive forecasting models and, in doing so, reveal something of "the political stakes of climate change itself" for governments preoccupied with managing threats to population security (2016: 419; see also Mayer 2012). In Louisiana, frequently portrayed as "the place on the edge of a temporal cliff" (Barra 2023: 2), coastal planners make no secret of their uncertainty. The Coastal Master Plan abounds with it, and with demands for immediate action: "Although our restoration and risk reduction efforts must be based on sound and robust science," the plan's authors write, "we must also acknowledge that substantial uncertainties remain, especially in regard to climate change. . . . We do know, however, that dramatic land loss will continue unless we act boldly" (CPRA 2017: 48).

For Partha Chatterjee (1993), development planning depends on "the state as a planning authority" transforming its subjects into "a single body of knowledge" (1993: 207)—but also involves a kind of self-deception that imagines planning's objects as external, knowable, and manageable by experts. From this view, uncertainty might appear as a series of blanks to be filled in by planners' predictive models, incorporating ever-higher resolutions of data in the hopes of pinning down the most accurate representation of what is to come. Eric Nost (2022) offers a critique of Louisiana's coastal modeling in this vein, demonstrating how these data—and thus the picture that planners advance of possible or foreclosed futures—are inseparable from local politics, institutions, and austerity regimes. In Jahn Petter Johnsen and Bjørn Hersoug's (2014) analysis, complex coastal systems are reduced to a set of stable, measurable "governance objects," understood through shared language, perceptions of responsibility, and spatial representations. To the extent that coastal planning and its attendant modes of environmental governance rely on predictive modeling, anthropologists are well-equipped to consider the production and translation of the diverse data guiding the decisions of planners and policymakers. But, following Adams, Murphy, and Clark (2009), we might also approach uncertainty as potentially foundational to anticipatory state planning—asking not only how planners attempt to resolve uncertainty, but also about the kinds of politics animated by a planning apparatus that, in Louisiana, disavows its capacity "to provide any guarantees about the future" (CPRA 2017: 29).

This uncertainty may also undermine the authoritative expertise that has driven planning historically (see Mitchell 2002). As planning paradigms increasingly guide the identification and management of environmental problems, scientists with backgrounds in environmental and physical fields are tasked with more applied, project-based planning work, and with adjudicating urgent priorities and the scope of possible remediation. To this end, the make-up of coastal planning departments also warrants attention, as do the specific understandings of nature and related concepts that scientists import from their fields. These scientists often occupy precarious, contingent positions within institutions with increasingly ambitious agendas—work cultures and planning practices that alike reflect an ethos of "resilience," binding scientists in a position of "accept[ing] unconditionally the conditions of the present, even as [they] plan for a radically open future" (Özden-Schilling 2022: 74)

Temporally uncertain coastal interventions also produce new spaces for planning, invoking regional spatial categories that draw together ecological and human processes—and their governance—in novel ways. Reflecting on coastal management trends, Marios Camhis and Harry Coccossis recognized a then-nascent development in planning: "The 1970s witnessed the birth of a new object of enquiry: the coastal zone. The strip of land and sea that has been the spatial setting of the modern world system, has only recently been identified by planners and scientists as a spatial area that which requires special study and treatment" (1982: 92). They attribute this emergence both to changes in the concentration of (especially petrochemical) industrial capital and to the rise of an environmental movement responding to human impacts on coastal ecosystems.[4] If for Abram and Weszkalnys (2013), planning efforts emerge to mediate capitalism's contradictions, then on the coast specifically we see plans as attempts to control spatially the kinds of economic crisis and environmental degradation that Camhis and Coccossis describe—what Michael Ekers and Scott Prudham (2015) term "socio-ecological fixes" (see also Carton 2019). Accordingly, early attempts at the management of coastal resources and zoning helped define the geographic ground for the planning interventions that soon followed.

This ground is never a given. Rather, coastal planning and governance produce "the coast" or "the coastal zone" as shifting places, often with a "definitional ambiguity and conceptual insufficiency" (Leyshon 2018: 151). Jessica Cattelino contends that managing water means that "movement through space, not only scale, becomes the focus of governance" (2015: 246), challenging

settler states' concepts of sovereignty rooted in territorial fixity. Caterina Scaramelli (2021) centers this shifting and material fluidity in Turkey's Kızılırmak River delta as she critiques efforts to manage its continued productivity. Her ethnographic work with farmers demonstrates how the concept of "delta" that geographers and environmental scientists deploy fails to account for its constitution "within national and transnational flows and processes, from the movement of the river's sediments to global markets, national development subsidies, and transnational population exchanges and migration" (2021: 174). Coasts, in other words, are not simply the line where dry meets wet. They are tangles of urban, semi-urban, rural, and industrial lands—firm, muddy, or entirely submerged—always with their own specific histories. To some residents past and present, they may be home, an escape, a "sportsman's paradise," or a place where you are stuck. To planners, permitting agencies, and industry, the coast may appear further subdivided into *offshore*, *nearshore*, or *fastlands*, each with implications for property and usage rights (see Camhis and Coccossis 1982: 92; Chitra [2021] discusses similar divisions through dumping practices in Mumbai). At times, it seems, the space conjured by coastal plans may be less "the coast" and more an archipelago of coastal capital demanding protection.

Following Scaramelli (2021), residents' understandings of this space as they move through it or stay put—informed by material and historical forces that include displacement, enslavement, and gentrification, but also kinship, tidal flows, and nonhuman animal life—can further shape or challenge the dominant geographies of states and planners. In Ryan Anderson's (2022) study of coastal California, affluent owners of high-value properties rejected a "managed retreat" from the coast, arguing that real estate value should be the object of coastal stabilization interventions. In other US cases, Liz Koslov (2016) has argued that many for whom community-led retreat may represent a difficult yet desirable climate adaptation strategy are stymied by planning officials who "dismiss [retreat] as a useful threat to encourage alternate courses of action" like behavior change or levee construction (2016: 361). Against a simple "restore or retreat" binary, Monica Patrice Barra turns to Black and Indigenous ecological practices as a starting point for imagining "alternative restorations" grounded in "the possibility, desire, and aspiration to 'be here' into unforeseen futures" (2023: 15). Of course, what "here" looks like is never a settled matter, either, as coastal planning reconfigures existing spatial categories for habitation, including rural–urban divides. For instance, some of Louisiana's cornerstone restoration projects are set on terrain that is far from urban and often remote to any population center—but the state's planners intend them to protect "the coast" broadly, including people and fixed capital in small fishing or agricultural communities and along oil and gas corridors, in addition to cities like Houma, Lafayette, New Orleans, and Baton Rouge. Planning for these cities' futures may thus mean restoring a barrier island or diverting sediment many miles downstream. Such interventions extend and transform the geography of planning for urban protection and improvement, "rework[ing] its periphery" (Lewis and Ernstson 2019: 4) while reshaping water, land, and sediment.

Inextricable from these spatial transformations are the particular notions of nature that constructing the coast depends on and deploys. But as Fernando Coronil cautions, "nature is so deeply associated with space and geography that these categories often stand as metaphors for each other" (1997: 23), leaving nature as a kind of place that planning scrambles to return us to through restoration. Thus a key intervention of political ecology, and the anthropology of coastal planning specifically, is to historicize and temporalize nature. Laura Ogden (2008) traces how the "politics of nature," operating through heterogeneous state bureaucracies, produce "the ecosystem" as an object (and the spatial terrain) for water management policy in the Everglades. Globally, coastal planners have adapted strategies that purport to "work with nature" (see Gesing 2016) in ways that risk both erasing long histories of human environmental management

and naturalizing the drivers of coastal land loss (Barra 2023; Colten 2021). Restoring "natural" processes and "living with water" (Waggoner and Ball n.d.) are the order of the day, often positioned against "hard" structural interventions supposedly aimed at taming or dominating nature and rooted in "command and control" management approaches (Holling and Meffe 1996).[5] Sarah Vaughn argues that the use of mangroves in Guyanese sea defense in turn reconfigures "who or what should count as expert in the Anthropocene" (2017: 261). In Louisiana, meanwhile, a central paradox of state-led efforts is the Coastal Master Plan's repeated invocation of an idyllic ecological coast full of "natural capital" and, simultaneously, of a "working coast" that provides the labor needed to extract that capital (CPRA 2017: ES-10). Restoration of a prior romantic nature, and protection from a threatening one in the future, demands action to secure the viability of "what Louisiana's coast provides the region and country through its ports, natural habitat for birds and other wildlife, and protection for oil and gas infrastructure" (CPRA 2017: ES-10)—as well as the income the state derives from mineral revenues.[6] In short, as we explore in the following section, the "natural" coast and the planning required to save it are often inseparable from the protection they offer to the industry largely responsible for its endangerment. Understanding how officials put Nature to work conceptually—and how this concept is territorialized, contested, and historicized—is central to an analysis of coastal planning. Just as similar rhetoric is leveraged toward greenwashed accumulation and development (Checker 2020; Fairhead et al. 2012; Katz 1998), planning's categorical divisions between natural and human causes may naturalize the impacts of extraction and reproduce a Nature whose defense demands unquestioning action.

What Planning Protects

> Crisis talk today seeks to stabilize an institution, practice, or reality rather than interrogate the historical conditions of possibility for that endangerment to occur.
>
> —Joseph Masco, "The Crisis in Crisis"[7]

Much of the coastal planning we encounter suffers from constraints on all sides. Overwhelmingly well-intentioned planners are attempting desperate measures to save important ecosystems and minimize threats to humans, but the apparatus within which they operate tends to inherit the worst of both traditional planning bureaucracy and NGO conservationism. Decisions are often tied to political appointments, tethered to shifting government priorities, and dependent on mercurial windfall funding opportunities like appropriations bills or the whims of philanthropic foundations—all evaluated through success metrics often imported from totally unrelated contexts. At the same time, a sense of urgency pervades the work, rooted in threats to coastal populations but also to the arrangements of power and capital from which state planning efforts emerge. Below, we explore the role of planning in the reproduction of these arrangements, primarily through work grounded in Louisiana and the surrounding region. We suggest that literature on infrastructure offers anthropologists one avenue for understanding these dynamics more broadly.

To date, one of the most rigorous studies of the "historical conditions of possibility" in planning remains Clyde Woods's ([1998] 2017a) analysis of the Lower Mississippi Delta Development Commission, its place in a long line of capital fixes for local crises that reproduce the plantocracy, and the counter-emergence of a blues epistemology to sustain Black life.[8] On the coast, Diane Austin (2006) considers contemporary land loss within the much longer history of landholding and property regimes in southeast Louisiana. This includes the consolidation

of land first by plantation owners who oversaw the construction of navigation canals and flood control structures, then by the timber and oil industries that secured rights from local landowners and took over public leases.[9] For centuries, mobilization by Southern planters and other landowners for government management of flood protections like levees has led to the prioritization of these shorter-term defenses—often destructive in the long term—over wetlands protection (O'Neill 2006). The nascent environmentalism around wetlands destruction in the 1920s, for instance, was quickly quashed in the wake of the catastrophic 1927 Mississippi River flood as the federal government moved instead to channelize the entire river (Austin 2006: 676).

Because of the 1927 flood and others, the early twentieth century saw expansions in Louisiana's levee system and flood protection infrastructure—notably in New Orleans with the construction of a complex system of pumps and canals to lower the water table, enabling drastic urban expansion into what was until then swampland (Maldonado 2018). For many, water management infrastructure affirmed municipal and state government power over unruly nature (Colten 2005). This environmental management regime from the outset required constant modification and expansion in response to a series of disasters and the demands of capital: river channelization and spillways built on the previous centuries' efforts to mitigate floods while improving navigation, taller and more fortified levees followed Hurricane Betsy in 1965 and Katrina in 2005. Today, there is a general recognition among Louisianans that such structural modifications exacerbated the problem of coastal land loss, largely by restricting sediment flows into wetlands (Gagliano et al. 1981).

The rise of consolidated efforts to plan state responses similarly has its roots in protecting investment and development. The Louisiana State and Local Coastal Resources Management Act of 1978, for instance, created the Office of Coastal Management as a subsidiary of the state's Department of Natural Resources (DNR)—the same department responsible for issuing oil and gas leases. DNR also oversaw early coastal plans backed by the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) of 1990, which marked the beginning of sustained federal investment in planning coastal restoration. Internationally, the 1990s saw UN-sponsored coastal programs begin to merge top-down development visions with a sense of existential urgency in the face of anthropogenic climate change (Moore 2010). Like UN and other global efforts, CWPPRA and ensuing partnerships in Louisiana mobilized a development-oriented rationale for coastal projects, envisioning an environment best positioned to support doing business into the future. Here, where much of the nation's petroleum products pass through processing and export facilities, "business" means oil and gas—the same industry responsible for dredging over 10,000 miles of destructive canals through wetlands (Turner and McClenachan 2018). While it may seem counterintuitive for Louisiana to invest so extensively in projects that protect environmentally detrimental coastal economic activity, the windfall from these activities is also a major source of funding for restoration efforts. These funds come primarily in the form of state mineral revenues from extraction, as well as from BP's record-shattering settlements following the 2010 Deepwater Horizon oil rig blowout in the Gulf of Mexico. Ian Gray (2021) refers to this paradox as a "treadmill of protection" and notes that a less obvious goal of planning is to assuage industry anxieties around coastal risk. Thus, as the scale of land loss becomes apparent, endeavors like coastal master plans are also "complex market signaling devices" (Gray 2021: 205) that shore up regions against capital flight.

With this in mind, critical work examining the distribution of responsibility for coasts across heterogeneous state institutions and the private sector contribute important insights about the organization of governance and the interests informing coastal planning priorities. Already four decades ago, Camhis and Coccossis warned of "the multiplicity and fragmentation of responsibilities of the authorities involved in coastal areas" (1982: 96). In their fieldwork in Austra-

lia, Elissa Waters and Jon Barnett found that, for all the valorization of "local [government] autonomy," wide-scale devolution of coastal planning contributed to inequitable distribution of effective response due to "inconsistencies in policies, decisions, funding, legal liabilities and temporalities" (2018: 711). Crucially, Waters and Barnett also interrogate the contingent, mutable nature of "the public" conjured by environmental planning discourses, joining critiques of public participation processes broadly and in coast-specific contexts (Few et al. 2007; Staeheli et al. 2009; Treby and Clark 2010). Jacob Lipsman (2020) investigates the sizable but largely ineffectual opposition to Louisiana sediment diversions by considering the kinds of dissent excluded from state planning decisions, including through these very mechanisms of participation that profess to ensure their inclusion.

But even as planning processes illuminate these existing dynamics between governments, industry, and people, we might take up Karen O'Neill's observation that "infrastructure builds the state" (2006: 3) to ask how coastal restoration projects also transform these relationships. In this sense, historic and ongoing contests over structural measures to reduce coastal environmental risk can be considered through broader anthropological studies of infrastructure, which emphasizes the productive temporal, social, and political power of planning and development (Anand et al. 2018; Hetherington 2019). Proposed solutions like sediment diversions, barrier island creation, and marsh restoration—invoked as the end product of coastal planning—merit the kinds of critical reading afforded to the more traditional transportation, energy, and water infrastructure (see A. Barry 2013; Harvey and Knox 2015; von Schnitzler 2017). This requires specific attention to the ways infrastructure aids in reproducing and shaping particular political orders—including racial regimes, as Rosa Ficek (2018) observes in Puerto Rico the wake of Hurricane Maria. Anne Spice's (2018) analysis of the criminalization of Indigenous land defense through industry-backed critical infrastructure legislation leads her to a more expansive counter-notion of what truly critical infrastructure might include. By demonstrating how infrastructure can transform state power through its weaponization against Indigenous people and territory in British Columbia, Spice offers ways to consider, in turn, what it means to sustain life and place—whose life? whose place?—on the colonized coast. As we show in the next section, planning too often flattens these questions through a binary calculus of land lost or saved.

Abstracting "Land"

> The Drive to Build Land: . . . People who enjoy coastal Louisiana's birding, hunting, and boating want those activities to remain vital parts of their lives. Such desires show a deep appreciation for the landscape and a recognition that the coast's value goes beyond simple utility. This recognition is at the heart of our experience as coastal Louisianans, and it is this value we are called to sustain.
>
> —Coastal Protection and Restoration Authority of Louisiana[10]

In Louisiana, planning literature invokes the coast as an idyllic commons and the shared heritage of Louisianans.[11] Public-facing documents, billboards, and advertisements extol the collective social benefits of coastal stabilization. Yet for all its language of responsiveness to communities and symbiosis with nature, coastal planning here remains fundamentally preoccupied with protecting land in a much narrower sense—that is, the projects proposed by state agencies do not address what it means to inhabit and thrive on the land, but rather aim simply to keep it dry and mitigate flood risk (see Barra 2023). On this land, across southern Louisiana, refineries, pipelines, ports, and other infrastructure associated with oil and gas threaten residents with carcinogenic air pollution, deadly accidents, and massive spills of oil and other pollutants (Hemmerling

et al. 2021)—often from release events during hurricanes that the industry has little incentive to minimize (Yoder and Moore 2022). The legacy of wetlands dredging is a direct cause of land loss today, and the climate impacts of extracting and burning fossil fuels contributes to the sea level rise and storm intensity that further erodes land. The cumulative impacts of colonial expropriation and forced migration of Indigenous nations, together with the plantation system and entrenched white supremacy, set southern Louisiana up to be an "energy sacrifice zone" (Maldonado 2018) disproportionately affecting these communities. They are also the communities leading the defense of land against fossil fuel development and climate change.[12]

By using a restrictive conception of land, the benefits of coastal plans are presented as scalable, portable across contexts, and in terms of areas and volumes abstracted from any specificity of place. For example, an annual update to the Master Plan boasts "23 dredging projects slated for construction totaling 86.8 million cubic yards of sediment to create or nourish more than 16,308 acres" (CPRA 2022). Coastal residents and environmental justice groups have critiqued these kinds of projections for obscuring the actual uneven impacts of coastal management projects on their communities' ability to access place and on the endurance of the ecosystems they rely on (Domingue 2022). "Land" is thus consistently abstracted out to the benefit of large-scale restoration projects that both hide their negative consequences and forestall critiques by claiming a broader social mandate for action.

Industry is a key "stakeholder" in Louisiana planning consultations, along with other entities that control the most land in terms of acreage and economic output, including ports, corporate enterprises, and municipal governments. A reductive above-water/underwater conception of land loss works to their advantage. It is also a conception that stems naturally from technocratic, adaptation science risk modeling and flows into policy through state and philanthropic institutions. Mitigation banking, for instance, facilitates companies' access to coastal development permits by selling credits to compensate for wetlands destruction—often on sites far from the affected area (Hammer 2020), as if land in one part of the coastal zone is interchangeable with any other. This paradigm also works to invalidate claims for protection of place lodged especially by Black, Indigenous, and poor communities excluded from planning decisions, whose relationships to coastal places are often characterized by more transitory habitation (Verdin 2020), collective ownership (R. Fleming et al. 2016), and/or subsistence practices (Ferguson-Bohnee 2015; Lowitt 2014)—all while technological advancements allow coastal stakeholder status to extend to outside parties ever further from the land in question (McKinley et al. 2021). Disproportionate impacts of coastal change are at times leveraged to universalize and signal new opportunities—for example, the place of vulnerability discourse in producing new "scientific, political, and touristic realities" for small island states facing sea level rise (Moore 2010: 128)—or to invalidate the perspectives of communities facing climate-related dispossession by casting such groups as existing in a prior nature and culture (West 2016).

Generic, reductive representations advanced in planning can further constrain the terms through which coastal communities and landscapes figure as worth protecting. Community practices are frequently depicted as picturesque or as leisure activities in an effort to ensure broad appeal, aimed at tourism-focused decision-makers and incorporated into coastal plans at the expense of protecting actual livability. In Costa Verde, Peru, for example, affluent surfers effectively protested an infrastructure project that they saw as disturbing the "natural beauty" of the coast, replicating the language of tourism boosters and reproducing racist and anti-poor urban spatial arrangements (Viatori and Scheuring 2020). Surfing, sport fishing, and other forms of recreation and ecotourism serve as ideal images of coastal land, appearing, for example, in restoration and planning contexts in Australia (Lazarow 2007) and Brazil (Arroyo et al. 2019). These same images can have devastating effects on coastal communities and ecosys-

tems in places reliant on tourism, as exemplified in Puerto Rico following Hurricane Maria (García-Quijano and Lloréns 2022).

Linked to the construction of coastal land as a touristic landscape is its figuration as resilient. Debates concerning resilience encapsulate some ambiguities of environmental precarity and planning. Emerging from such disparate fields as psychology, ecology, and engineering, "resilience" became a buzzword in the early 2000s, with popular literature extolling the importance of "emotional resilience" and "business resilience." In the wake of Hurricane Katrina, "community resilience" became a shorthand for hazard preparedness and anticipation (Colten et al. 2008). Adaptive infrastructures were marketed as "promoting resilience" and then later as "resilient infrastructures" (J. Brown et al. 2018). By 2012, "resilience" was as frequently attributed to landscapes, regions, and adaptive interventions (Flood and Schechtman 2014). In some ways, resilience's mainstream applications reflect its origins in physics and ecology. Yet its use in environmental planning discourse can obscure the uneven topographies of social and ecological vulnerability upon which interventions take place (Barrios 2016; K. Brown 2014). A growing coastal planning literature addresses some elements of these critiques by elaborating a collaborative or "coproduction" approach to coastal planning (Tubridy et al. 2022). Others offer something like a "nested approach" linking "bottom up" and "top down" planning at several scales (Diggon et al. 2021). One challenge with these interventions is that they presuppose state entities are invested in extending equitable protection rather than attending to the contexts and power relations surrounding them (see Walsh 2019).

Recent work has addressed these layers of exclusion in the coastal context by reintroducing a specificity of land and place. R. Dean Hardy, Richard Milligan, and Nik Heynen (2017) offer "coastal racial formation" as a concept for recognizing the racialized production of uneven coastal climate impacts. Their framework, centering Black residents of Georgia's Sapelo Island, connects the "deep history" of exclusionary institutions, uneven racial development, and present-day barriers to Black participation engagement in reciprocal patterns that shape the fields of climate science and planning policy. Barra employs a similar frame to elaborate the "entwined histories of regional racial formations and coastal science in southeast Louisiana" (2021: 269). In her analysis, environmental engineering on the Mississippi River delta has always reflected and re-entrenched racialized hierarchies and exclusions, trends that inform present-day interventions as well as community experiences of them: enslaved laborers built the first levees (J. Barry 1997); Black, migrant, and incarcerated low-wage workers expanded the federal levee system in the early 1920s (Woods [1998] 2017a); and river overflow spillways were routed through poor communities of color, rationalized by appeals to broader social and environmental benefits. Mullenite's (2019) work on Guyanese flood control connects historic racially exclusionary policies to inequitable climate adaptation and the rise of authoritarianism.

In the United States, control over land and space—including the abstracting of land as property—always occurs in the context of the settler state and the history of colonization. Nathan Jessee (2022) offers "decontextualization" as one way that state-backed adaptation and mitigation projects transform coasts into settler colonial frontiers, naming the process by which state planning priorities strip the contributions and specificity of Indigenous experiences of coastal change. This is paradigmatically reflected in the resettlement efforts of the Isle de Jean Charles Band of Biloxi-Chitimacha-Choctaw Tribe. In 2016, a long-standing and inclusive tribal planning process was sidelined when the state of Louisiana secured a $48 million HUD National Disaster Resilience Competition grant.[13] Tribal leaders' perspectives and buy-in, required for Louisiana's application for the funds, were subsequently erased by "state efforts to transform the resettlement from what Tribal leaders viewed as 'an act of cultural survival' to a scalable model for managed retreat policy" (Jessee 2022: 277).[14] Borrowing Spice's (2018) terminology,

the state may have purported to incorporate Indigenous perspectives in defining "critical infrastructures," but it assigned the designation only to things "that are not alive," thereby eschewing "a world of relations, flows, and circulations that the settler state has attempted to destroy and supplant" (2018: 42, 49). Lazrus and colleagues call attention to this tendency and make the case for decolonial, intercultural partnerships around climate preparation (2022: 2). Taken together, the ethnographic attention these authors bring to coastal belonging and political life offers a counterweight to land measured in acres and cubic yards. By historicizing the present crisis in specifically racial and colonial terms, these texts recast seemingly neutral techno-fixes and illuminate possibilities beyond them.

Countertopographies for Future Coasts

While our center of gravity throughout this review has been coastal Louisiana where we work, the thematic lines we see emerging in the literature suggest translocal resonance for the study of coastal planning around the world. We draw inspiration from the work of Cindi Katz, whose notion of countertopographies imagines contour lines connecting disparate localities through their relationships to social processes like dispossession, displacement, and toxic exposure, while enabling new solidarities and comparative analysis (Katz 2004). Weaving always-imperfect theoretical frameworks around place-based social relations, these "renegade cartographies . . . struggle to name a different spatiality and chart the politics to produce it" (Katz 1996).

Global efforts under the heading of coastal planning are marshaling new spatial and temporal orientations while seeking to protect land in only the most reductive senses; a countertopographic approach to the threats posed by climate change and destructive development would insist on the specificity of place and the materiality of coastal infrastructure. Across coastal ecosystems, communities' experiences of management, adaptation, and even relocation tell us something about the "sediments" of "people, place, and power" through histories of displacement and underdevelopment (Faria 2017: 584). This is especially important at a moment when planning rhetoric has shifted decidedly away from development optimism toward the language of a resigned and uncertain non-mastery in the face of ecological crisis. A translocal comparative analysis of planning and its sediments can keep in focus the aspects of planning that remain essentially dispossessive and hierarchical despite these discursive moves, all without losing sight of the ever-changing relationships between states, land, people, and coastal environments. Like the contour lines on a map, analytic lines between places—and plans—can tell us something about where we stand in relation to terrain both nearby and further afield. They help us understand what is ahead and what to expect, giving us clues about how just coastal futures could unfold.

ACKNOWLEDGMENTS

Many thanks to the editorial team of *Environment and Society*, including Chilton Tippin and Gregorio Ortiz, as well as to the anonymous reviewers for their valuable feedback and suggestions. Our work benefited enormously from conversations with participants on the Anthropology of Coastal Planning panels at the 2022 AAA annual meeting. Research for this article was supported in part by the Fonds de recherche du Québec – Société et culture, a CUNY Graduate Center Dissertation Writing Fellowship, and by the New Orleans Center for the Gulf South.

THEODORE HILTON is a Visiting Assistant Professor of Environmental Studies at Tulane University. He has a PhD and MA in Anthropology from Tulane and a BA in Sustainable Development from Columbia University. His dissertation, "Reconstructing the Future: Race, Heritage, and Coastal Management in Southeast Louisiana," explores resident interventions on exclusionary historic preservation and environmental policies. His broader research interests include engaged methodologies, environmental social movements, and the politics of recognition. Email: thilton1@tulane.edu. ORCID: 0000-0003-2250-2880

SHEEHAN MOORE is a PhD candidate in Anthropology at the CUNY Graduate Center studying environmental crisis and state power on the US Gulf coast. His dissertation research examines responses to land loss in southern Louisiana, with attention to planning, extraction, and shifting technologies of land governance. He has an MA and MPhil in Anthropology from the CUNY Graduate Center and a BA in Anthropology from McGill University. Email: smoore@gradcenter.cuny.edu. ORCID: 0000-0001-6830-4906

NOTES

1. To the contrary, coastal planning and water management offer generative sites to study political contestation and internal differentiation within state institutions (see Ogden 2008).
2. We refer to both coastal planning and coastal management throughout this review. In practice, these terms are often used interchangeably. On its own, "management" tends to be associated with conservation, resources, and development, with "planning" referring to its explicitly future-oriented dimension—eventually including climate adaptation planning.
3. See Barbara Adam (2005: 108) for the challenges that environmental hazards pose to liberal democratic attempts to quantify and plan.
4. Zigurds Zile's (1974) legislative history of the Coastal Zone Management Act traces similar conservationist and industrial forces in the United States.
5. Alex Arnall (2022), however, argues for more careful ethnographic examination of hard coastal protection measures. While these are readily assimilated into critiques of modernist attempts to stabilize boundaries (between water and land, nature and the human), stopping there risks "underplay[ing] the significance of sea defences to the making and unmaking of individual lives in coastal communities" (Arnall 2022: 2).
6. Fernando Coronil's (1997) study of extraction in Venezuela offers a rich and relevant theorization of the relationship between land, ground rent, and the territorialization of the state.
7. Masco 2017: S73.
8. See Alex Moulton and Inge Salo's (2022) survey of Black geographies and ecologies for a thorough review of Black spatial critique.
9. Brian Walter (2022) draws on this history to show coastal protection efforts around historic sites in Charleston are "plantation infrastructures" that "attempt to stabilize landscapes in order to extract value from the landscape and its inhabitants."
10. CPRA 2017: Appendix B, 17.
11. Notably, 80 percent of Louisiana's coast is privately owned. Under Louisiana law, submerged land reverts to the state, including mineral rights (Sneath 2020).
12. To name only a few such groups: Rise St. James, The Vessel Project, Imagine Water Works, Another Gulf Is Possible, The Descendants Project, Inclusive Louisiana, Justice and Beyond, and the L'Eau Est La Vie Camp.
13. See Fleming's (2019) evaluation of environmental design competition models that pit communities against each other for resources.

14. As Kyle Whyte observes in his critique of settler "crisis epistemologies," forced resettlement of Indigenous people has "served to further entrench the territorial power of the U.S. in Indigenous homelands. The reality that the U.S. has been in the resettlement business for generations is lost in discourses about climate change" (2020: 55).

REFERENCES

Abbott, John. 2005. "Understanding and Managing the Unknown: The Nature of Uncertainty in Planning." *Journal of Planning Education and Research* 24 (3): 237–251.

Abram, Simone, and Gina Weszkalnys. 2013. "An Introduction." In *Elusive Promises: Planning in the Contemporary World*, ed. Simone Abram and Gina Weszkalnys, 1–33. New York: Berghahn.

Adam, Barbara. 2005. *Timescapes of Modernity: The Environment and Invisible Hazards*. London: Taylor and Francis.

Adams, Vincanne, Michelle Murphy, and Adele E Clarke. 2009. "Anticipation: Technoscience, Life, Affect, Temporality." *Subjectivity* 28 (1): 246–265.

Anand, Nikhil, Akhil Gupta, and Hannah Appel. 2018. *The Promise of Infrastructure*. Durham, NC: Duke University Press.

Anderson, Ryan B. 2022. "The Taboo of Retreat: The Politics of Sea Level Rise, Managed Retreat, and Coastal Property Values in California." *Economic Anthropology* 9 (2): 284–296.

Andersson, Elina, Sara Brogaard, and Lennart Olsson. 2011. "The Political Ecology of Land Degradation." *Annual Review of Environment and Resources* 36: 295–319.

Arnall, Alex. 2022. "Where Land Meets Sea: Islands, Erosion and the Thing-Power of Hard Coastal Protection Structures." *Environment and Planning E: Nature and Space* 6 (1): 69–86.

Arroyo, Mara, Arielle Levine, and Ileana Espejel. 2019. "A Transdisciplinary Framework Proposal for Surf Break Conservation and Management: Bahía de Todos Santos World Surfing Reserve." *Ocean & Coastal Management* 168 (February): 197–211.

Austin, Diane E. 2006. "Coastal Exploitation, Land Loss, and Hurricanes: A Recipe for Disaster." *American Anthropologist* 108 (4): 671–691.

Barnes, Jessica. 2016. "Uncertainty in the Signal: Modelling Egypt's Water Futures." *Journal of the Royal Anthropological Institute* 22 (S1): 46–66.

Barra, Monica Patrice. 2021. "Good Sediment: Race and Restoration in Coastal Louisiana." *Annals of the American Association of Geographers* 111 (1): 266–282.

Barra, Monica Patrice. 2023. "Restoration Otherwise: Towards Alternative Coastal Ecologies." *Environment and Planning D: Society and Space*. https://doi.org/10.1177/02637758221146179.

Barrios, Roberto. 2016. "Resilience: A Commentary from the Vantage Point of Anthropology." *Annals of Anthropological Practice* 40 (1): 28–38.

Barrios, Roberto. 2017. *Governing Affect: Neoliberalism and Disaster Reconstruction*. Lincoln: University of Nebraska Press.

Barry, Andrew. 2013. *Material Politics: Disputes Along the Pipeline*. Hoboken, NJ: Wiley-Blackwell Publishers.

Barry, John M. 1997. *Rising Tide: The Great Mississippi Flood of 1927 and How it Changed America*. New York: Simon and Schuster.

Blaikie, Piers, and Harold Brookfield, eds. 1987. *Land Degradation and Society*. Abingdon: Routledge.

Bremner, Lindsay. 2020. "Planning the 2015 Chennai Floods." *Environment and Planning E: Nature and Space* 3 (3): 732–760.

Brown, Katrina. 2014. "Global Environmental Change I: A Social Turn for Resilience?" *Progress in Human Geography* 38 (1): 107–117.

Brown, Jennifer M., Karyn Morrissey, Philip Knight, Thomas D. Prime, Luis Pedro Almeida, Gerd Masselink, Cai O. Bird, Douglas Dodds, and Andrew J. Plater. 2018. "A Coastal Vulnerability Assessment for Planning Climate Resilient Infrastructure." *Ocean & Coastal Management* 163 (September): 101–112.

Cattelino, Jessica R. 2015. "The Cultural Politics of Water in the Everglades and Beyond: Transcript of the Lewis Henry Morgan Lecture given on October 14, 2015." *HAU: Journal of Ethnographic Theory* 5 (3): 235–250.

Camhis, Marios, and Harry Coccossis. 1982. "Coastal Planning and Management Perspectives." *Ekistics* 49 (293): 92–97.

Carse, Ashley, and David Kneas. 2019. "Unbuilt and Unfinished: The Temporalities of Infrastructure." *Environment and Society* 10 (1): 9–28.

Carton, Wim. 2019. "'Fixing' Climate Change by Mortgaging the Future: Negative Emissions, Spatiotemporal Fixes, and the Political Economy of Delay." *Antipode* 51 (3): 750–769.

Chatterjee, Partha. 1993. *The Nation and Its Fragments: Colonial and Postcolonial Histories*. Princeton, NJ: Princeton University Press.

Checker, Melissa. 2020. *The Sustainability Myth: Environmental Gentrification and the Politics of Justice*. *The Sustainability Myth*. New York: New York University Press.

Chernilo, Daniel. 2021. "One Globalisation or Many? Risk Society in the Age of the Anthropocene." *Journal of Sociology* 57 (1): 12–26.

Chitra, V. 2021. "Waste's Translations: Estuaries, Marine Life, and the Chemistry of Mumbai's Dumping Grounds." *American Ethnologist* 48 (4): 337–356.

Coastal Protection and Restoration Authority of Louisiana (CPRA). 2017. "Louisiana's Comprehensive Master Plan for a Sustainable Coast." State of Louisiana.

Coastal Protection and Restoration Authority of Louisiana (CPRA). 2022. "Fiscal Year 2023 Annual Plan." State of Louisiana.

Colten, Craig. 2005. *An Unnatural Metropolis: Wresting New Orleans from Nature*. Baton Rouge: Louisiana State University Press.

Colten, Craig. 2021. *State of Disaster: A Historical Geography of Louisiana's Land Loss Crisis*. Baton Rouge: Louisiana State University Press.

Colten, Craig E., Robert W. Kates, and Shirley B. Laska. 2008. "Three Years after Katrina: Lessons for Community Resilience." *Environment: Science and Policy for Sustainable Development* 50 (5): 36–47.

Coronil, Fernando. 1997. *The Magical State: Nature, Money, and Modernity in Venezuela*. Chicago: University of Chicago Press.

Couvillion, Brady R., Holly Beck, Donald Schoolmaster, and Michelle Fischer. 2017. "Land Area Change in Coastal Louisiana (1932 to 2016)." *Scientific Investigations Map 3381*. U.S. Geological Survey, https://doi.org/10.3133/sim3381.

Davis, Heather, and Zoe Todd. 2017. "On the Importance of a Date, or Decolonizing the Anthropocene." *ACME* 16 (4): 761–780.

Diggon, Steve, Caroline Butler, Aaron Heidt, John Bones, Russ Jones, and Craig Outhet. 2021. "The Marine Plan Partnership: Indigenous Community-Based Marine Spatial Planning." *Marine Policy* 132: 103510.

Domingue, Simone. 2022. "The (In)Dispensability of Environmental Justice Communities: A Case Study of Climate Adaptation Injustices in Coastal Louisiana and Narratives of Resistance." *Environmental Justice* 15 (4): 271–278.

Ekers, Michael, and Scott Prudham. 2015. "Towards the Socio-Ecological Fix." *Environment and Planning A* 47 (12): 2438–2445.

Fairhead, James, Melissa Leach, and Ian Scoones. 2012. "Green Grabbing: A New Appropriation of Nature?" *Journal of Peasant Studies* 39 (2): 237–261.

Faria, Caroline. 2017. "Unsettling the Sediments of Violence." *Environment and Planning D: Society and Space* 35 (4): 584–588.

Ferguson, James. 1994. *The Anti-Politics Machine: Development, Depoliticization, and Bureaucratic Power in Lesotho*. Minneapolis: University of Minnesota Press.

Ferguson-Bohnee, Patty. 2015. "The Impacts of Coastal Erosion on Tribal Cultural Heritage." *Forum Journal* 29 (4): 58–66.

Ferry, Elizabeth Emma, and Mandana E. Limbert. 2008. *Timely Assets: The Politics of Resources and Their Temporalities*. Santa Fe: School for Advanced Research Press.

Few, Roger, Katrina Brown, and Emma L. Tompkins. 2007. "Public Participation and Climate Change Adaptation: Avoiding the Illusion of Inclusion." *Climate Policy* 7 (1): 46–59.

Ficek, Rosa E. 2018. Infrastructure and Colonial Difference in Puerto Rico after Hurricane María. *Transforming Anthropology* 26 (2): 102–117.

Fleming, Billy. 2019. "Design and the Green New Deal." *Places*, April. https://placesjournal.org/article/design-and-the-green-new-deal/.

Fleming, Rory, Jack Williams, Rebecca Neubauer, and Lisa Schiavinato. 2016. *Splitting Heirs: The Challenges Posed by Heirs' Property Ownership to Coastal Resilience Planning*. A report for the North Carolina Coastal Resources Law, Planning, and Policy Center. https://ncseagrant.ncsu.edu/ncseagrant_docs/coastallaw/pubs/heirs_property.pdf.

Flood, Stephen, and Judd Schechtman. 2014. "The Rise of Resilience: Evolution of a New Concept in Coastal Planning in Ireland and the US." *Ocean & Coastal Management* 102 (December): 19–31.

Gagliano, Sherwood M., Klaus J. Meyer-Arendt, and Karen M. Wicker. 1981. "Land Loss in the Mississippi River Deltaic Plain." *Gulf Coast Association of Geological Societies Transactions* 31: 295–300.

García-Quijano, Carlos G., and Hilda Lloréns. 2022. "Coastal Gentrification in Puerto Rico Is Displacing People and Damaging Mangroves and Wetlands." *The Conversation*. http://theconversation.com/coastal-gentrification-in-puerto-rico-is-displacing-people-and-damaging-mangroves-and-wetlands-184214.

Gesing, Friederike. 2016. *Working with Nature in Aotearoa New Zealand: An Ethnography of Coastal Protection*. Bielefeld: transcript Verlag.

Gray, Ian. 2021. "The Treadmill of Protection: How Public Finance Constrains Climate Adaptation." *The Anthropocene Review* 8 (2): 196–218.

Gupta, Akhil. 2018. "The Future in Ruins: Thoughts on the Temporality of Infrastructure." In *The Promise of Infrastructure*, ed. Nikhil Anand, Akhil Gupta, and Hannah Appel, 62–79. Durham, NC: Duke University Press.

Hallegatte, Stéphane. 2009. "Strategies to Adapt to an Uncertain Climate Change." *Global Environmental Change* 19: 240–247.

Hammer, David. 2020. "In Louisiana Coastal Restoration, a Mitigation Banker Says Rules Are Undermined." *WWL-TV/nola.com*, 12 November. https://www.nola.com/news/environment/in-louisiana-coastal-restoration-a-mitigation-banker-says-rules-are-undermined/article_e43c7600-2556-11eb-acf7-f79d89e0ad6b.html.

Hardy, R. Dean, Richard Milligan, and Nik Heynen. 2017. "Racial Coastal Formation: The Environmental Injustice of Colorblind Adaptation Planning for Sea-Level Rise," *Geoforum* 87: 62–82.

Harvey, Penny, and Hannah Knox. 2015. *Roads: An Anthropology of Infrastructure and Expertise*. Ithaca, NY: Cornell University Press.

Hastrup, Kristen. 2012. "Anticipating Nature: The Productive Uncertainty of Climate Models." In *The Social Life of Climate Change Models: Anticipating Nature*, ed. Kirsten Hastrup, and Martin Skrydstrup, 1–29. New York: Routledge.

Hecht, Gabrielle. 2018. "Interscalar Vehicles for an African Anthropocene: On Waste, Temporality, and Violence." *Cultural Anthropology* 33 (1): 109–141.

Hemmerling, Scott A., Christine A. DeMyers, and Jessica Parfait. 2021. "Tracing the Flow of Oil and Gas: A Spatial and Temporal Analysis of Environmental Justice in Coastal Louisiana from 1980 to 2010." *Environmental Justice* 14 (2): 134–145.

Hetherington, Kregg, ed. 2019. *Infrastructure, Environment, and Life in the Anthropocene*. Durham, NC: Duke University Press.

Holling, C.S., and Gary K. Meffe. 1996. "Command and Control and the Pathology of Natural Resource Management." *Conservation Biology* 10 (2): 328–337.

Holston, James. 1998. "Spaces of Insurgent Citizenship." *Making the Invisible Visible: A Multicultural Planning History*, ed. Leonie Sandercock, 37–56. Berkeley: University of California Press.

Jessee, Nathan. 2022. "Reshaping Louisiana's Coastal Frontier: Managed Retreat as Colonial Decontextualization." *Journal of Political Ecology* 29 (1): 277–301.

Johnsen, Jahn Petter, and Bjørn Hersoug. 2014. "Local Empowerment through the Creation of Coastal Space?" *Ecology and Society* 19 (2): 60.
Katz, Cindi. 1996. "Towards Minor Theory." *Environment and Planning D: Society and Space* 14 (4): 487–499.
Katz, Cindi. 1998. "Whose Nature, Whose Culture?: Private Productions of Space and the 'Preservation' of Nature." In *Remaking Reality: Nature at the Millennium*, ed. Bruce Braun and Noel Castree, 46–63. London: Routledge.
Katz, Cindi. 2004. *Growing Up Global: Economic Restructuring and Children's Everyday Lives*. Minneapolis: University of Minnesota Press.
Khalili, Laleh. 2018. "The Infrastructural Power of the Military: The Geoeconomic Role of the US Army Corps of Engineers in the Arabian Peninsula." *European Journal of International Relations* 24 (4): 911–933.
Klein, Naomi. 2007. *The Shock Doctrine: The Rise of Disaster Capitalism*. New York: Macmillan.
Koslov, Liz. 2016. "The Case for Retreat." *Public Culture* 28 (2): 359–387.
Lazarow, Neil. 2007. "The Value of Coastal Recreational Resources: A Case Study Approach to Examine the Value of Recreational Surfing to Specific Locales." *Journal of Coastal Research* Special Issue 50: 12–20.
Lazrus, Heather, Julie Maldonado, Paulette Blanchard, M. Kalani Souza, Bill Thomas, and Danial Wildcat. 2022. "Culture Change to Address Climate Change: Collaborations with Indigenous and Earth Sciences for More Just, Equitable, and Sustainable Responses to Our Climate Crisis." *PLOS Climate* 1 (2): e0000005.
Lewis, Joshua A., and Henrik Ernstson. 2019. "Contesting the Coast: Ecosystems as Infrastructure in the Mississippi River Delta." *Progress in Planning* 129: 1–30.
Leyshon, Catherine. 2018. "Finding the Coast: Environmental Governance and the Characterisation of Land and Sea." *Area* 50 (2): 150–158.
Lipsman, Jacob E. 2020. "Non-Decision Power and Political Opportunity: Exposing Structural Barriers to Mobilization in Louisiana's Coastal Restoration Conflict." *Social Currents* 7 (6): 508–525.
Lowitt, Kristen. 2014. "A Coastal Foodscape: Examining the Relationship between Changing Fisheries and Community Food Security on the West Coast of Newfoundland." *Ecology and Society* 19 (3): 48.
Luke, Nikki, and Heynen, Nik. 2020. "Community Solar as Energy Reparations: Abolishing Petro-racial Capitalism in New Orleans." *American Quarterly* 72 (3): 603–625.
Maldonado, Julie K. 2018. *Seeking Justice in an Energy Sacrifice Zone: Standing on Vanishing Land in Coastal Louisiana*. New York: Routledge.
Masco, Joseph. 2017. "The Crisis in Crisis." *Current Anthropology* 58 (S15): S65–76.
Mayer, Maximillian. 2012. "Chaotic Climate Change and Security." *International Political Sociology* 6 (2): 165–185.
McKinley, E., P. R. Crowe, F. Stori, R. Ballinger, T. C. Brew, L. Blacklaw-Jones, A. Cameron-Smith et al. 2021. "'Going Digital'—Lessons for Future Coastal Community Engagement and Climate Change Adaptation." *Ocean & Coastal Management* 208: 105629.
Mitchell, Timothy. 2002. *Rule of Experts: Egypt, Techno-Politics, Modernity*. Berkeley: University of California Press.
Moore, Amelia. 2010. "Climate Changing Small Islands: Considering Social Science and the Production of Island Vulnerability and Opportunity." *Environment and Society* 1 (1): 116–131.
Moore, Amelia. 2019. *Destination Anthropocene: Science and Tourism in the Bahamas*. Berkeley: University of California Press.
Moulton, Alex A., and Inge Salo. 2022. "Black Geographies and Black Ecologies as Insurgent Ecocriticism." *Environment and Society* 13 (1): 156–174.
Mullenite, Joshua. 2019. "Infrastructure and Authoritarianism in the Land of Waters: A Genealogy of Flood Control in Guyana." *Annals of the American Association of Geographers* 109 (2): 502–510.
Nixon, Rob. 2011. *Slow Violence and the Environmentalism of the Poor*. Cambridge, MA: Harvard University Press.

Nost, Eric. 2022. "Infrastructuring 'Data-Driven' Environmental Governance in Louisiana's Coastal Restoration Plan." *Environment and Planning E: Nature and Space* 5 (1): 104–124.
Ogden, Laura. 2008. "The Everglades ecosystem and the politics of nature." *American Anthropologist* 110 (1): 21–32.
Oliver-Smith, Anthony, and Susanna M. Hoffman. 2002. "Introduction: Why Anthropologists Should Study Disasters." In *Catastrophe and Culture: The Anthropology of Disaster*, ed. Susanna Hoffman and Anthony Oliver-Smith, 3–22. Santa Fe: School of American Research Press.
O'Neill, Karen M. 2006. *Rivers by Design: State Power and the Origins of US Flood Control*. Durham, NC: Duke University Press.
Özden-Schilling, Tom. 2022. "Promising Resilience: Systems and Survival after Forestry's Ends." *American Anthropologist* 124 (1): 64–76.
Peluso, Nancy. 1992. "The Political Ecology of Extraction and Extractive Reserves in East Kalimantan, Indonesia." *Development and Change* 23 (4): 49–74.
Petryna, Adriana. 2022. *Horizon Work: At the Edges of Knowledge in an Age of Runaway Climate Change*. Princeton, NJ: Princeton University Press.
Pokrant, Bob, and Laura Stocker. 2011. "Anthropology, Climate Change and Coastal Planning." In *Environmental Anthropology Today*. London: Routledge.
Randolph, Ned. 2018. "License to Extract: How Louisiana's Master Plan for a Sustainable Coast Is Sinking It." *Lateral* 7 (2), https://doi.org/10.25158/L7.2.8.
Rifkin, Mark. 2017. *Beyond Settler Time: Temporal Sovereignty and Indigenous Self-Determination*. Durham, NC: Duke University Press.
Riles, Annelise. 2018. *Financial Citizenship: Experts, Publics, and the Politics of Central Banking*. Ithaca, NY: Cornell University Press.
Roitman, Janet. 2013. *Anti-Crisis*. Durham, NC: Duke University Press.
Scaramelli, Caterina 2021. *How to Make a Wetland: Water and Moral Ecology in Turkey*. Redwood City, CA: Stanford University Press.
Scott, James C. 1999. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale University Press.
Sneath, Sara. 2020. "A Conundrum: Who Owns Louisiana Land after It Washes Away?" *NOLA.com*, 4 February 4. https://www.nola.com/news/environment/article_a9c4d222-4381-11ea-ac9a-ff8b99383e6e.html.
Spalding, Ana K., and Ricardo de Ycaza. 2020. "Navigating Shifting Regimes of Ocean Governance: From UNCLOS to Sustainable Development Goal 14." *Environment and Society* 11 (1): 5–26.
Spice, Anne. 2018. "Fighting Invasive Infrastructures: Indigenous Relations against Pipelines." *Environment and Society* 9 (1): 40–56.
Staeheli, Lynn A., Don Mitchell, and Caroline R. Nagel. 2009. "Making Publics: Immigrants, Regimes of Publicity and Entry to 'The Public.'" *Environment and Planning D: Society and Space* 27 (4): 633–648.
Theriot, Jason P. 2014. *American Energy, Imperiled Coast: Oil and Gas Development in Louisiana's Wetlands*. Baton Rouge: Louisiana State University Press.
Treby, Emma J., and Michael J. Clark. 2010. "Refining a Practical Approach to Participatory Decision Making: An Example from Coastal Zone Management." *Coastal Management* 32 (4): 353–372.
Tubridy, Fiadh, Mick Lennon, and Mark Scott. 2022. "Managed Retreat and Coastal Climate Change Adaptation: The Environmental Justice Implications and Value of a Coproduction Approach." *Land Use Policy* 114: 105960.
Turner, R. Eugene, and Giovanna McClenachan. 2018. "Reversing Wetland Death from 35,000 Cuts: Opportunities to Restore Louisiana's Dredged Canals." *PLoS ONE* 13 (12): e0207717.
United Nations. 2015. *Transforming Our World: The 2030 Agenda for Sustainable Development A/RES/70/1*, adopted 25 September. https://sdgs.un.org/2030agenda.
Usher, Mark. 2022. "Restoration as World-Making and Repair: A Pragmatist Agenda." *Environment and Planning E: Nature and Space* 6 (2): 1252–1277.

Vaughn, Sarah E. 2017. "Disappearing Mangroves: The Epistemic Politics of Climate Adaptation in Guyana." *Cultural Anthropology* 32 (2): 242–268.
Verdin, Monique. 2020. *Return to Yakni Chitto: Houma Migrations*. New Orleans: University of New Orleans Press.
Vergès, Françoise. 2017. "Racial Capitalocene." In *Futures of Black Radicalism*, ed. Gaye Theresa Johnson and Alex Lubin, 72–82. London: Verso.
Viatori, Maximilian, and Brandon Scheuring. 2020. "Saving the Costa Verde's Waves: Surfing and Discourses of Race–Class in the Enactment of Lima's Coastal Infrastructure." *The Journal of Latin American and Caribbean Anthropology* 25 (1): 84–103.
von Schnitzler, Antina. 2017. *Democracy's Infrastructure: Techno-Politics and Protest after Apartheid*. Princeton, NJ: Princeton University Press.
Waggoner & Ball. n.d. "Living with Water." https://wbae.com/living-with-water-2/ (accessed 26 July 2023).
Walsh, Cormac. 2019. "Integration of Expertise or Collaborative Practice?: Coastal Management and Climate Adaptation at the Wadden Sea." *Ocean & Coastal Management* 167: 78–86.
Walter, Brian. 2022. "Perimeter Protection: The Resiliency of Plantation Infrastructures in the South Carolina Lowcountry." *Engagement*. The Anthropology and Environment Society. 19 May. https://aesengagement.wordpress.com/2022/05/19/perimeter-protection-the-resiliency-of-plantation-infrastructures-in-the-south-carolina-lowcountry/.
Waters, Elissa, and Jon Barnett. 2018. "Spatial Imaginaries of Adaptation Governance: A Public Perspective." *Environment and Planning C: Politics and Space* 36 (4): 708–725.
West, Paige, 2016. *Dispossession and the Environment: Rhetoric and Inequality in Papua New Guinea*. New York: Columbia University Press.
Whitington, Jerome. 2016. "Modernist Infrastructure and the Vital Systems Security of Water: Singapore's Pluripotent Climate Futures." *Public Culture* 28 (2 (79)): 415–441.
Whyte, Kyle P. 2018. "Indigenous Science (Fiction) for the Anthropocene: Ancestral Dystopias and Fantasies of Climate Change Crises." *Environment and Planning E: Nature and Space* 1 (1–2): 224–242.
Whyte, Kyle P. 2020. "Against Crisis Epistemology." In *Routledge Handbook of Critical Indigenous Studies*, ed. Brendan Hokowhitu, Aileen Moreton-Robinson, Linda Tuhiwai-Smith, Chris Andersen, and Steve Larkin, 52–64. London: Routledge.
Woods, Clyde. (1998) 2017a. *Development Arrested: The Blues and Plantation Power in the Mississippi Delta*. New York: Verso Books.
Woods, Clyde. 2017b. *Development Drowned and Reborn: The Blues and Bourbon Restorations in Post-Katrina New Orleans*. Athens: University of Georgia Press.
Yoder, Naomi, and Sheehan Moore. 2022. *Murky Waters: An Analysis of Hurricane Ida Pollution Reports*. Report prepared for Healthy Gulf, New Orleans. https://healthygulf.org/wp-content/uploads/2022/06/Hurricane-Ida-Pollution-Report-Final.pdf.
Zile, Zigurds L. 1974. "A Legislative-political History of the Coastal Zone Management Act of 1972." *Coastal Zone Management Journal* 1 (3): 235–274.