

Creating a Diversion: Why the Mid-Barataria Sediment Diversion (MBSD) Project Is Unpopular Among Coastal Communities in Southeast Louisiana

AUTHORS

Grant S. McCall 

Center for Human-Environmental Research (CHER) and Tulane University

Russell D. Greaves 

University of New Mexico and CHER

Introduction

The United Nations Decade of Ocean Science for Sustainable Development, or “Ocean Decade,” has the motto, “The science *we* need for the ocean *we* want” (UNESCO, 2021; emphasis added). One of the great ambiguities inherent to this motto, however, is who exactly the “we” is referring to in that statement and how we can best proceed with scientific research and policy development when there are conflicting interests, values, and priorities between different stakeholders. This is especially true in situations where large-scale conservation and development projects are likely to have major impacts on coastal communities and the environments on which they depend in various cross-cutting economic, social, and social-psychological senses. Our paper explores this set of issues for one such coastal restoration project on the Gulf Coast of the United States, the Mid-Barataria Sediment Diversion (MBSD) project.

ABSTRACT

The Mid-Barataria Sediment Diversion (MBSD) project, located in Barataria Bay, Southeast Louisiana, is one of the most ambitious coastal restoration projects in U.S. history. The MBSD project is designed to convey sediment-rich water from the Mississippi River through the levee system and into the coastal marshes of the Barataria basin. The MBSD project is intended to slow, and perhaps even reverse, coastal erosion through alluvial sedimentation and the augmentation of freshwater wetland vegetation communities. In spite of the importance of the MBSD project for the U.S. Army Corps of Engineers and Coastal Protection and Restoration Authority of Louisiana, it is extremely unpopular among coastal communities along the Barataria Bay coast and beyond. Based on our ethnographic research in Lower Plaquemines Parish, we provide some insights concerning why this level of opposition exists. Above all, the MBSD project is perceived as highly threatening to key marine fish species targeted by small-scale commercial fishers, especially shrimp (*Farfantepenaeus aztecus* and *Litopenaeus setiferus*) and oysters (*Crassostrea virginica*). Small-scale fishing is crucially important to the social and economic systems involved in risk buffering and community resilience, as well as a key feature of social identity and source of profound place attachment. While planning for the MBSD project has considered impacts to coastal communities in strictly financial and environmental terms, it has failed to adequately consider its potential social and social-psychological consequences among coastal communities.

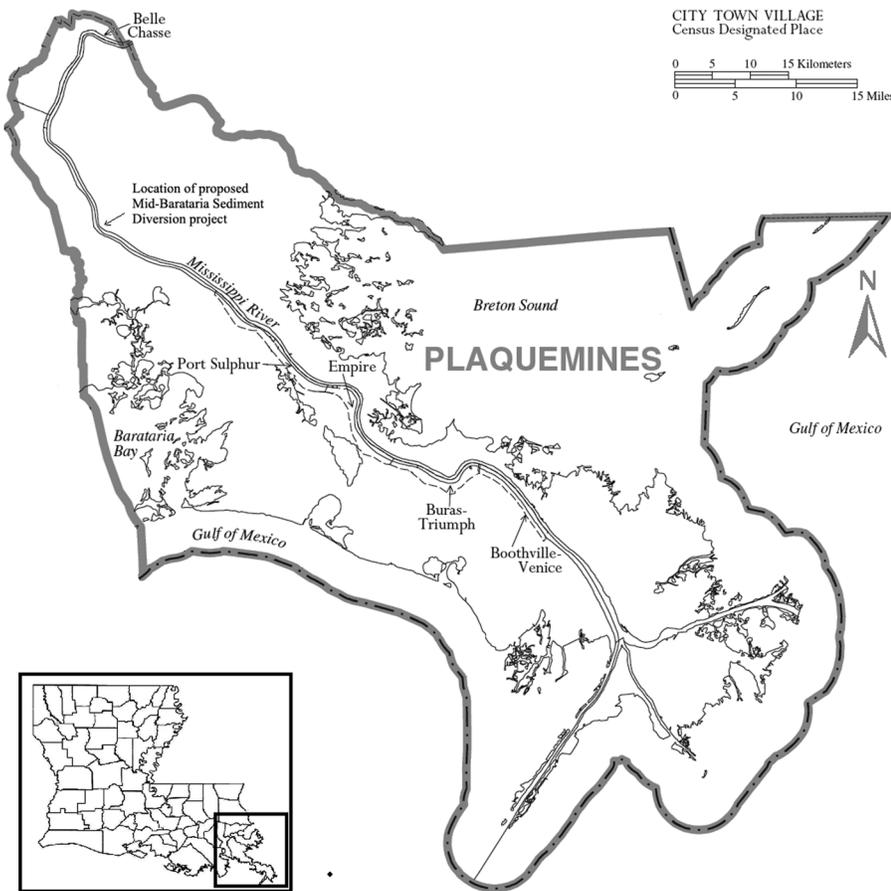
Keywords: Fishing communities, resilience, coastal restoration, Louisiana

The MBSD is a planned coastal restoration project located in Plaquemines Parish, Louisiana (Figure 1), and would be the largest and most expensive project of its kind to be seriously considered along the Gulf Coast. It is intended to convey sediment-rich water from the Mississippi River through the barriers of the federal levee system into the adjacent coastal marsh of Barataria Bay, thereby fostering the development of new land surfaces and freshwater plant com-

munities. By building new land through sedimentation and enhancing the vitality of coastal wetlands, the MBSD is intended to protect coastal populations, such as the nearby city of New Orleans, from the threats posed by tropical storms and storm surges—which are predicted to become more frequent and severe in coming decades as the result of warming global temperatures and rising seas. What is less widely acknowledged, however, is the fact that the

FIGURE 1

The location of the MBSD and research sites in Lower Plaquemines Parish, Louisiana.



planned MBSD project is generally reviled by coastal community residents across Southeast Louisiana—despite gaining unanimous approval from the Louisiana State Legislature. Although this resentment is often underplayed or ignored by marine scientists and policy makers, it is an issue in need of thorough—and immediate—analysis. This paper presents some of our ethnographic findings in relation to this pressing set of problems.

Above all, our work in Lower Plaquemines Parish emphasizes the importance of fishing, and especially small-scale commercial shrimping and oyster operations, as the basis for local social systems and as key features of social identity and place attachment. These go far beyond the

formal economic value of seafood commodities, which (at a range of scales) often complements involvement in other marine industries, such as oil and gas and marine shipping, or even larger industrial fishing operations. Small-scale fishing, and the web of reciprocal social relationships that it underwrites, is the glue that holds coastal communities together in Southeast Louisiana. Similarly, most community members hold identities that are strongly informed by place attachment and involvement in commercial fishing. In this way, the potential disruptions to the shrimp and oyster industries in Barataria Bay posed by the MBSD are highly threatening to coastal community members, even those who are not directly

involved in fishing. Added to this situation is a long history of inequality and environmental injustice at the hands of local, state, and federal officials and business leaders, as well as a sense that the well-being of coastal communities is being intentionally sacrificed in the interest of distant elites and urban populations, such as those in New Orleans and Baton Rouge. Among such coastal communities, there is a strong suspicion of outsiders and cynicism concerning the motives of coastal scientists and engineers—and, generally speaking, not without good reason.

The MBSD is a major milestone—if not a turning point—in coastal restoration efforts on the Gulf Coast and beyond. Yet, up to this point, its planning has been informed by scant social scientific or humanities research among coastal communities, and its social impacts have been considered almost entirely in formal economic terms. Based on our ethnographic research among fishing communities in Lower Plaquemines Parish, we can provide some much-needed perspective on why the MBSD is so unpopular at the local level.

Background

With a population of just over 23,000 residents in 2020, Plaquemines Parish is located immediately south of the New Orleans metropolitan area. It includes both the East Bank and West Bank of the Mississippi River and the adjacent coastline from Barataria Bay in the west to California Bay in the east, from Belle Chasse (a far-flung suburb of the New Orleans metro area) in the north to the mouth of the Mississippi River in the south (Figure 1). Our research has focused on Lower Plaquemines Parish, which has been defined to us variously but, in general, includes the portion of the

parish south of Jesuit Bend, which is more or less the southern limit of suburban development. Residents of Lower Plaquemines Parish often refer to their locale using the acronym “DTR,” which is usually understood to be short for “down the road”—a reference to the location of Lower Plaquemines Parish at the far end of Louisiana Highway 23.¹ Henceforth, we will use DTR to refer to our research area in Lower Plaquemines Parish.

Ecologically and geologically, the DTR landscape is dominated by the coastal wetlands and ecosystems created by the flow of the Mississippi River into the Gulf of Mexico (Figure 2). The resulting brackish estuaries are home to an enormous range of microorganisms, shellfish, and baitfish, which in turn support the rich marine ecosystems on which the region’s fishing activities are based. The DTR human population is also tremendously culturally and linguistically diverse, including significant Creole, Cajun, Native American, Isleños, Croatian, Vietnamese, Laotian, Chinese, Latin American, Black, and Euro-American communities.

By virtue of its geographical and ecological context, the DTR economy is based primarily on marine industries. The oil industry moved into Plaquemines Parish during an oil boom in Southeast Louisiana during the early 20th century. At the time, this was the source of tremendous wealth for parish elites and, although most oil and gas drilling has now moved offshore, it has also been a major source of employment for the parish’s population throughout most

¹“DTR” is also sometimes understood as meaning “down the river,” which maybe an older variant, referring to the region’s position at the far downstream end of the Mississippi River.

FIGURE 2

The coastal saltwater marsh in Barataria Bay, Southeast Louisiana (photo by Grant McCall).



of the last century. Today, the local economy benefits from the oil and gas industry through the servicing of offshore oil facilities and through employment at the Phillips 66 Alliance oil refinery near Belle Chasse. Next, the Plaquemines Port and Harbor Terminal District has been a major hub for shipping vessels traveling to and from the U.S. Gulf Coast. There are also several seafood processing and wholesale facilities in Plaquemines Parish, by far the largest being the Daybrook Fisheries fish processing plant in Empire, known locally as the “pogie plant.” Finally, tourism plays a significant role in the local economy, mainly in terms of recreational fishing activities but, also increasingly, ecotourism.

The other crucial marine industry in the DTR region is, of course, commercial fishing, which tends to be done at relatively small scales. Commercial fishing in Plaquemines Parish focuses especially on brown shrimp (*Farfantepenaeus aztecus*), white shrimp (*Litopenaeus setiferus*), and oysters (*Crassostrea virginica*). Virtually all harvesting of shrimp and oysters DTR is done by relatively small-scale entrepreneurial fishers. In 2019, there were 260 reported oyster-producing operations and 565 shrimp operations in

Plaquemines Parish (LSU AgCenter, 2019). This represents around 29% of oyster producers in Louisiana, who were responsible for about 44% of all oyster landings in the state, and 12% of the state’s shrimp producers, who were responsible for around 25% of all shrimp landings (LSU AgCenter, 2019). There were also 420 other commercial operations seeking other varieties of fish (LSU AgCenter, 2019). In this way, small-scale commercial fishing provides income for a sizable percentage of Lower Plaquemines Parish’s population of around 8,000 individuals, and the coastal marshes surrounding Plaquemines Parish represent one of the most productive fisheries in Louisiana—the state responsible for by far the largest production of shrimp and oysters in the United States.

In general, shrimping is conducted inshore by small-scale commercial operations using relatively small (<40-foot) fishing vessels and skimmer nets and trawling nets (Figure 3). Shrimping vessels tend to be owned by individual entrepreneurial boat captains and, depending on vessel length, engine specifications, and so forth, cost between about \$20,000 and \$100,000 (see also Marks, 2012, 2015). Oyster harvesting also tends to be done using relatively small fishing

FIGURE 3

A shrimping vessel in Barataria Bay, Southeast Louisiana (photo by Grant McCall).

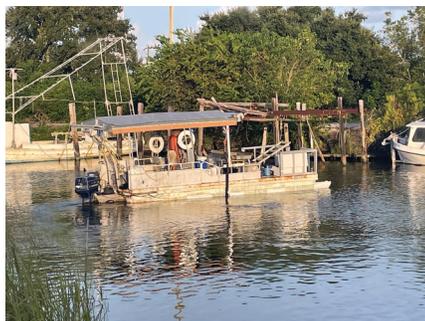


vessels and dredging equipment (Figure 4). For the most part, oyster fishers harvest within exclusive water bottom leases purchased from the Louisiana Department of Wildlife and Fisheries. Such leases, which range from a few acres to a few hundred acres, may cost thousands of dollars and grant lease owners exclusive harvesting rights over a particular area. Oyster fishers may also harvest within public oyster areas, although this is relatively uncommon in the DTR context.

There is a great deal of complementarity between economic opportunities within the broader range of marine industries in the DTR region. Fishing boat captains also frequently take work in other marine industries, such as oil and gas and shipping. For example, we spoke with one former fishing boat captain who was employed as a tugboat captain on the Mississippi River working to save money to purchase another fishing vessel and re-enter the shrimping business. Conversely, we spoke with many fishers who were considering selling their fishing vessels in order to take more stable job opportunities in other marine industries. Many individuals move flexibly between

FIGURE 4

An oyster-dredging vessel in the Empire canal system, Southeast Louisiana (photo by Grant McCall).



fishing and other marine industries according to variable contingencies having to do with external economic conditions, such as wage levels, seafood prices, the status of fisheries, etc., as well as personal economic needs. (Marks, 2012, 2015). Additionally, several informants maintain a variety of terrestrially based economic opportunities (i.e., house construction and maintenance, mechanical work, odd jobs). This situation is highly dynamic and complex, and it offers individuals manifold strategies for buffering economic risk through the inherent diversity of economic options, since there is a general skillset in terms of marine vessel operation that is fungible across a number of industries.

Research Goals and Methods

Since 2017, Greaves and McCall have been involved in ethnographic research centered on the neighboring towns of Empire and Buras (Figure 1). Our broader research goals focused on the documentation of social systems involved in community resilience. At one scale, Lower Plaquemines Parish is widely acknowledged as one of the riskiest places on Earth given its high frequency of tropical storm landfalls, as well as human-made disasters, such as the 2010 BP oil spill. As such, Lower Plaquemines Parish exhibits numerous features of what Colten et al. (2012) call “inherent resilience,” that is, community resilience that is derived autochthonously from local social systems rather than formal support provided by government programs, non-governmental organizations, or other external entities. Such inherent resilience is a key feature of communi-

ties across coastal Southeast Louisiana, which helps them endure and rebound from the many disasters that recur throughout the region, as well as the day-to-day variability in economic opportunities inherent to fishing and other marine industries. Our ethnographic research was designed to provide further insights on how inherent resilience is achieved and how it contributes to the survival of coastal communities such as those DTR.

In our study, we utilized a number of conventional ethnographic methods, as well as some more unconventional approaches necessitated by the COVID-19 pandemic. Our ethnographic methods were approved by the Center for Human-Environmental Research (CHER) Institutional Review Board (IRB), which also provided ethical oversight for our broader research activities in the region. During our ethnographic interviews, informed consent was obtained verbally through the reading of pre-prepared statement following the principles and guidelines laid out by the American Anthropological Association (2020).

Since 2018, we have made six residential trips to Lower Plaquemines Parish in which we stayed for time periods ranging between 2 and 21 days for a total of 56 days. Our stays, which were mostly based at a trailer near the Empire Fuel & Oil marina and adjacent to the Delta Marina shipyard, were mostly concentrated during the summer-fall seafood seasons of 2018 and 2019.

One of our main ethnographic methods was participant observation, which was conducted using the Spradley (2016) method. A key activity in our participant observation research was, naturally, going fishing. Although a combination of logistical, safety, and ethical issues prevented us

from participating in commercial shrimping and oyster harvesting activities, we went fishing with commercial fishers in other contexts (generally seeking finfish and/or baitfish using rod and reel and cast nets) numerous times, often using their vessel in the process. We also went fishing from the bank and frequently encountered fishing activities at the nexus of subsistence and recreation.

Our ethnographic research was also informed by interviews with fishers and other residents of Lower Plaquemines Parish. Our formal interviews began with a brief explanation of research design and potential target audiences for our results. We told potential informants that all of the information would be maintained as an anonymous database and no one would be able to link any answers with individual identities. All individuals who agreed to meet and discuss a potential interview with us agreed to perform the interview and understood the privacy protection conditions. Most interviews were conducted at individuals' homes, at their businesses, or while socializing at local restaurants or bars. All formal interviews were conducted by a researcher asking questions and writing down the informants' responses. It was determined that recording interviews might undermine confidence in the anonymity of our data collection and place a mechanical obstacle between the interviewer and informant conversations. We followed a scripted set of questions but allowed informants to direct their conversations as they felt was relevant to addressing each question. In total, we conducted 21 formal structured interviews following a questionnaire covering topics having to do with disaster impacts, re-

silience, fishing, and other economic activities. Most of these interviews were conducted in person between 2018 and 2019, although we also conducted several interviews remotely (over the phone or online) during the COVID-19 pandemic. In addition, we conducted 28 additional unstructured interviews about specific topics, such as opinions concerning the MBSD and the impacts of Hurricane Ida (a powerful and damaging Category 4 hurricane that made landfall just west of Plaquemines Parish on August 29, 2021). We also had innumerable informal conversations that were crucial in helping to identify our interests in the community's perspectives on the MBSD, economic activities, and responses to recent disaster events (i.e., Hurricanes Katrina [August 2005] and Isaac [August 2012], and the BP oil spill [April 2010]). Such informal interactions with DTR residents also provided discussions of critical background information about the community, the target disaster events we examined to address resilience, and the local economy. We also gathered other perspectives about specific events that were not covered by our structured interviews. Additionally, one researcher attended two public meetings about the MBSD project in 2018 and 2019.

Finally, as an element of our online ethnographic research, we participated in several Facebook groups, such as the "Louisiana Shrimp Industry News & Views" (~4,000 members) and "DTR News!" (~3,500 members) groups.² These activities were the source of numerous online interactions and discussion, which shed light on a wide range of activi-

²The membership of these two groups is heavily overlapping.

ties, relationships, beliefs, and concerns. Our participation in these groups on matters directly related to our ethnographic research was limited to observation, although we often "liked" and left positive comments on posts by local businesses (e.g., restaurants advertising lunch specials), civic organizations (the public library announcing new programming), and so forth, in order to both provide support and periodically remind group members of our online presence. Although the membership of these groups is open, we also discussed our online activities with the group administrators and with community leaders in both the local government and commercial fishing professional organizations.

In short, our ethnographic research was not without its challenges. Initially, our presence and our topics of interest were met with a mix of skepticism and suspicion. Much of these feelings arose from the fear that we were somehow ourselves involved in the MBSD project, either in working for the state directly or for one of the many conservation groups, environmental consulting firms, university groups, and so forth that support the project. In these and other respects, the skepticism that we faced is quite similar to that reported by Barra (2021) in her ethnographic work on the MBSD project in Plaquemines Parish. Finally, there were also some tensions based on perceived differences in terms of partisan political identity, which were often linked with issues of class, and which have been fairly typical of the urban-rural divide in the Trump- and post-Trump eras in the United States.

A salient difficulty of our research has been obtaining diversity in our

sample of interview subjects in terms of race, gender, age, and cultural background. Language barriers sometimes figured into this, particularly in our approaches to members of the Vietnamese and other Southeast Asian communities. In addition, in seeking interviews with women in the area, they frequently declined and often referred us to their husbands or male partners with an explanation such as “He would know more about that kind of thing than I do.” In contrast, we found the greatest willingness to speak with us among middle-aged and older White men (the category to which we belong), which likely relates to differential feelings of security related to positioning in terms of broader dynamics of race, gender, class, and power in the region. This is problematic, of course, and an issue that we have been seeking to address since the very beginning of our fieldwork.

Finally, much of our research took place during the COVID pandemic, which posed tremendous problems for in-person field research. COVID had a devastating local impact in Lower Plaquemines Parish, particularly during the initial outbreak in the spring of 2020 and during the winter of 2020–2021. In response, in following guidance from the American Anthropological Association and the CHER IRB, we canceled our entire 2020 field season and made only five daytrips and one three-night stay during the summer of 2021, when COVID case numbers were particularly low. During this time, our emerging relationships in the community suffered greatly and, while we attempted to arrange remote interviews via the phone or Internet, these almost never materialized. Our online ethnography took on a much

greater role during this time largely as a way of *doing something* to remain connected to the area at the height of the COVID pandemic.

Social Networks, Risk Buffering, and Resilience

Our principal finding revolves around the profound importance of fishing, and especially small-scale commercial fishing, in terms of the structuring of social relationships and networks of exchange in Lower Plaquemines Parish. In a general sense, Lower Plaquemines Parish is characterized by a very high degree of social cohesiveness and a pervasive generosity manifested through frequent informal exchanges of goods and services. These basic social features, such as the tendency of rural community members in small towns to know and have reciprocal relations with one another, have been frequently noted both in the United States and abroad (Durkheim, 1893; Erikson, 1976; Falk & Kilpatrick, 2000; Fitchen, 1981; Harvey, 1993; Hillyard, 2007; Neal & Walters, 2008; Nelson & Smith, 1999; Straub et al., 2020; Tönnies, 1940). Among coastal communities in Southeast Louisiana, there have also been numerous studies linking social cohesion and networks of reciprocal relationships to key features of community resilience—against the backdrop of a wide range of economic and environmental risks at various scales (Barra, 2021; Burley, 2010; Burley et al., 2007; Cherry et al., 2015a, 2015b, 2015c; Colten et al., 2012, 2018; Colten, 2021; Gramling & Hagelman, 2005; Hemmerling, 2018; Laska et al., 2005; Maldonado & Peterson, 2018; Marks, 2012, 2015; May, 2019, 2021; Simms,

2021). With that said, we feel that we can add some important information concerning the ways in which small-scale commercial fishing underlies such cohesive social systems and helps buffer various kinds of risk.

One aspect of the informal reciprocal exchanges that occur in the DTR region has to do with general conditions of poverty, at least in terms of limitations on cash income through wage labor or seafood sales. When talking about the major expenses involved in vessel maintenance (see also Marks, 2012, 2015), one commercial fisherman observed to us, “I’ve been poor all my life—and only partly by my own choice.” He went on to explain that there were very few well-paying career options; that those opportunities required qualifications that most people did not have; that there was little turnover and fierce competition for high-quality employment openings, such as positions in the Plaquemines Parish government; and that people with higher levels of job qualifications tended to move out of the parish (often to the West Bank suburbs of New Orleans) to find greater opportunity.

In these respects, Hemmerling (2018) argues that many coastal communities in Louisiana are characterized by high frequencies of residents living at or just above the poverty line, with the ever-present prospect of slipping below that line as the result of the next shock—either in the form of an external disaster event or some personal misfortune. As Hemmerling (2018) suggests, however, such risk dynamics that are exacerbated by poverty articulate with the economic and social importance of fishing industry in Lower Plaquemines Parish in some uniquely

salient ways. Marks (2012, 2015) argues that shrimpers have been particularly squeezed in terms of costs related to vessel purchase and maintenance (as well as fuel, nets, and other operating expenses) in combination with declining seafood prices stemming from international competition and the consequences of the many disasters that have struck the region. Our findings are in strong accord with these observations, and they shed light on several key aspects of local social systems.

One result of this economic context is the tendency of individuals to provide assistance to one another on a reciprocal basis. Sometimes, this phenomenon manifests in terms of doing favors for social relations involving specialized skills or labor. The maintenance and repair of vessels, homes, and vehicles represents a key example of this kind of activity. The maintenance of a fishing vessel or a home repair might cost thousands of dollars if paid for through a formal cash transaction. Instead, these kinds of activities are often done as favors to friends and family; sometimes in exchange for a reduced amount of cash; or often in exchange for some other economic commodity, such as an equivalent specialized service or, crucially, seafood derived from small-scale commercial fishing. We found that reciprocity is generalized, a strategy that does not require tit-for-tat exchange but represents delayed reciprocity where repaying someone with an equivalent favor occurs not when one service or commodity is offered but at some point in the future. As anthropologists, delayed reciprocity is the most common form of exchange we see among a variety of traditional rural populations where lifetime relationships are the ex-

pected arena for cooperative and sharing community support behaviors.

Social systems of reciprocity also come into play in a profoundly important way in the buffering of economic risk against the backdrop of limited cash resources. Commercial fishing is risky business, and fishers face a wide range of potential problems and expenses. Vessel parts, repairs, and nets all represent major expenses that generally cost thousands of dollars. Similarly, wage labor resources are often fairly unpredictable, and the more predictable forms of employment, such as working in the Daybrook Fisheries fish processing plant (a.k.a. “the pogie plant”), are often low-wage, alienating affairs. People frequently lose their jobs or lose access to a particular wage labor opportunity, and most jobs in the marine sector, construction industry, and so forth tend not to last longer than a few months to a few years at a time, at which point new employment must be sought. Consequently, and given the fact that extremely few individuals have significant cash savings (see also Marks, 2012, 2015, for a more detailed discussion of the household economies of shrimpers), systems of social support are critically important in buffering unexpected economic disruptions and/or expenses.

For example, one of our informants once explained that he had recently paid a friend \$200 (in 2019) to fix the brakes on his truck. His friend had been shrimping in partnership with his brother and had run into financial trouble. Although his brother owned the shrimp boat, he had invested a significant amount of his own money in vessel repairs at the beginning of the spring shrimp season. However, the vessel continued to experience mechanical problems, and

they also needed to bring it into safe harbor for a minor tropical storm, which carried both direct and opportunity costs. The spring shrimp season turned out to be very poor, so they had decided to stop fishing until the following fall shrimp season. Our informant had some extra cash on hand at that time and let his friend fix his brakes as a way of sharing money, which would help his friend make it through to the upcoming fall shrimp season. This kind of exchange is extremely common, and it provides a key vector of social support in the context of the economic risk inherent to both small-scale commercial fishing and the wage labor economy in Lower Plaquemines Parish.

Finally, these systems of social support and reciprocity are key features of collective responses to disasters, such as the BP oil spill and recent tropical storms. This phenomenon was demonstrated in terms of individual responses to Hurricane Ida, which struck Southeast Louisiana in August of 2021. Although we are still collecting information on these dynamics, our preliminary research has clearly shown the fundamental role that networks of social relationships played in helping residents return to their homes following the evacuations for the storm, in making both short-term and long-term repairs, and in buffering the economic impacts of lost work and fishing opportunities.

In the immediate aftermath of Hurricane Ida, we encountered again and again instances of DTR residents sharing supplies and coming to each other’s aid in the context of some fairly dire situations. This was crucial since there were great delays in the restoration of power and running water, and stores were closed for several

weeks. Instead, virtually all food, fuel, cleaning supplies, hardware, and so forth were brought in by residents returning from their evacuations and then shared within the communities. In some instances, community leaders used boats to reach isolated parish residents, since the major North-South roads were flooded. In this respect, we witnessed some extraordinary acts of generosity and kindness, which were also alloyed with a great deal of personal bravery and a dark sense of humor. In these contexts, networks of social connections mattered a great deal. As one community leader said on Facebook, “Money does not help you too much here right now. You need to bring all supplies down, have a network, and your head screwed on straight.” Both individual networks of social connections and broader norms of generosity, therefore, became key features of inherent resilience in the immediate aftermath of the storm.

As the process of Hurricane Ida recovery evolved, other dynamics also began to manifest the role of social networks in alternative ways. One of our key informants, a man in his 70s who often works professionally as a roofer, told us in January of 2022 that he was exhausted from doing storm-related roof repairs. Although he was generally paid cash for his work, he explained that he did not really need the money but rather felt a strong sense of social obligation to help his friends and neighbors fix their homes in a situation where roofers and raw materials were scarce and expensive. In that way, he had begun to feel burdened by such obligations but recognized his outsized importance in helping people recover from the storm. In short, he felt that he could not say “no.” We collected

comparable examples from our questioning about the aftermath of Hurricane Katrina, Hurricane Isaac, and the BP oil spill disaster.

While close-knit social networks, norms of generous behavior, and systems of generalized reciprocity have been documented across innumerable rural contexts in the United States and small-scale societies around the world, the manifestation of these phenomena in Lower Plaquemines Parish is intimately shaped by both the region’s ever-present disaster risk and the structural features of small-scale commercial fishing as an economic base. However, as we will discuss further below, this system would not operate successfully in the manner that it does without small-scale commercial fishing, since fishing provides key economic opportunities, as well as the material basis for the informal economic exchanges that are fundamental to social systems of reciprocity. In this sense, small-scale commercial fishing is worth far more to the community than simply the sum of the cash value of its catches.

Social Scales of Seafood Exchange

The seafood captured by small-scale fishing activities is exchanged at a range of scales and across a wide variety of social contexts. Of course, the sale of seafood to wholesalers represents a key source of cash income for small-scale commercial fishers and for the community at large. For the sake of brevity, this paper largely ignores the formal economics of seafood sales, although there is a great deal of complexity in the complementarity between commercial fishing and other DTR marine industries, which

is also highly pertinent to coastal restoration planning.

There are many informal exchanges of seafood between community members, which play key roles in the maintenance of broader social and economic systems and which are often characterized by a great deal of subtlety. At one end of the spectrum, seafood—and particularly shrimp—is often bartered directly for goods and services. For example, we encountered numerous examples of small-scale commercial fishers who, either partially or wholly, paid for vessel repairs with seafood, and this phenomenon was reported almost universally among our interview subjects. We also encountered the bartering of seafood for car and house repairs, yardwork, pest removal, and tax preparation. We even heard perhaps apocryphal stories of individuals buying shrimping vessels and fishing camps using bartered frozen shrimp.

From an economic perspective, the direct bartering of seafood adds value to that commodity in eliminating the handling costs involved in dealing with wholesalers or buying shrimp from stores. More importantly, bartering seafood involves an economic commodity with a great deal of social significance and symbolic value. People work hard to catch shrimp (and other seafood); providing it in exchange for other goods and services is therefore a highly symbolically meaningful form of social interaction and much more so than a cash transaction.

Beyond bartering, seafood is frequently given as gifts between social relations and in the formation of new relationships. We have seen acquaintances offer gifts of seafood during situational encounters where no immediate direct exchange of services

or food was expected. Informants stated that such generosity was an easy investment augmenting future relationships with that individual if they had a supply on hand that could meet their commercial and personal needs and fulfill a situational opportunity to earn a future debt from that person. In certain instances, this can occur in the context of special occasions, such as birthdays or holidays. Seafood is often given to people who have experienced some kind of negative life event, such as an illness or death in the family, the loss of a job, and so forth. Finally, in many cases, gifts of seafood are given for no overt reason but rather as simply a way of showing affection for friends and family or for forming new social connections. For example, on many occasions, shrimpers have given us dockside gifts of fresh shrimp ranging in size from about 2 to 5 lb (head-on). In most cases, these gifts were given by individuals whom we had not met previously. It was essentially a gesture of friendliness in meeting someone new and in forming new social ties.

In the case of our receipt of dockside gifts from shrimpers, the social value of the formation of new relationships outweighed the dollar value of this shrimp in sales to a wholesaler. With dockside prices of about \$2/lb, fishers were forgoing a cash value of about \$5–10 in order to make a new social connection. We also frequently had fishers provide us with food from their kitchens, fruit and vegetables from their gardens, soft drinks and snacks from marina stores, bait from their bycatches, and a wide range of other acts of generosity. Likewise, our own fishing activities provided us with opportunities to share seafood, and we have given

over 300 lb of fish (mostly blue catfish [*Ictalurus furcatus*], channel catfish [*Ictalurus punctatus*], and alligator gar [*Atractosteus spatula*]) to informants, friends, and others who happened to be in the area at the time.

In these ways, small-scale commercial fishing provides not only crucial cash income for fishers in the community but also a key commodity for informal exchanges including bartering and gift-giving at a range of temporal and value scales. In this respect, informal exchanges of seafood are laden with enormous social and symbolic value, and they play a profoundly important—likely irreplaceable—role in building and maintaining the social systems involved in inherent resilience discussed above. For this set of reasons, the potential loss of fishing opportunities, and particularly those in terms of small-scale shrimping and oyster harvesting activities, is threatening far beyond the loss of their formal cash economic value. The distinctive social systems and norms of generosity and reciprocity found in Lower Plaquemines Parish have a great deal of their basis in fishing activities and the exchange of seafood. Threats to fishing activities are, in this sense, essential threats to the social fabric of the region.

Place Attachment and Social Identity

The issues of identity and place attachment are frequently discussed in terms of their relevance to coastal community resilience and coastal planning (Agyeman et al., 2009; Burley, 2010; Burley et al., 2007; Cherry et al., 2015a, 2015b, 2015c; Colten et al., 2018; Dandy et al.,

2019; Lambert et al., 2021; May, 2019, 2021; Porter, 2015; Simms, 2017). As this body of scholarship attests, coastal community residents generally hold particularly strong attachments to place, which arise in concert with major senses of identity related to living on the coast, involvement in fishing, and other marine life ways. In assessing local feelings about the MBSD, we feel that we can contribute to this literature in a number of important dimensions. Unfortunately, the issue of place attachment became particularly immediate and salient in the immediate aftermath of Hurricane Ida. During this time, we spoke with many evacuated Lower Plaquemines Parish residents over the phone and communicated via social media, which provided some insights into the range of feelings experienced during those evacuations.

First, we believe that senses of place attachment derive not just from social-psychological linkages to the landscape itself (cf. Simms, 2017; Dandy et al., 2019; May, 2019, 2021; Lambert et al., 2021). Interestingly, several of our informants used exactly the same phrase in talking about this set of issues: “We’re not here for the view.” In explaining that statement further, many shared the opinion that, as one of the richest marine ecosystems and fisheries in the world, people who liked commercial fishing were attracted to Lower Plaquemines Parish. This statement is clearly manifested in the successive waves of international migration into the region, which were innately linked with fishing opportunities for immigrants and which account for the area’s ever-increasing ethnic/cultural diversity. People were and remain attracted to Lower Plaquemines Parish

by virtue of its commercial fishing opportunities (as well as other marine industries). Place attachment, in that sense, arose in a way that was substantially defined by access to particular kinds of fishing activities.

We are, of course, not alone in our linking place attachment with personal identities based on employment—in this case, commercial fishing and other marine industries. Lambert et al. (2021) explicitly make the case for the importance of Louisiana's highly productive fisheries as a source of place attachment for coastal community residents (see also Dandy et al., 2019; May, 2019, 2021), and many scholars have linked place attachment to landscape-specific forms of economic activity (Jamali & Nejat, 2016; see Lewicka, 2011, for a review). Our point is simply that coastal community members often exhibit attachment to place based on the potential economic utility of the environment and the psychologically rewarding employment that it may provide.

The richness of coastal fisheries came up numerous times during our research. One of our informants told us, "When I first moved here [in the 1970s], if you were hungry, you were just lazy. It didn't take much to catch fish, even from the bank." In providing an example of what he meant, he explained, "Even when I didn't have nothin', I could go get a little string and catch crabs [blue crabs; *Callinectes sapidus*], and sell those for a couple of bucks." Attachment to fishing and to this abundance of marine food resources, in this sense, amounts to a form of direct access to a major means of economic production, which is rare among modern industrial societies and which is particularly hard to find among the American working

class. Part of the social-psychological attachment to small-scale commercial fishing involves the converse recognition that other available economic opportunities involve far more alienating labor conditions and power dynamics.

People also frequently expressed great anxiety about the prospect of the loss of connection to their social networks. In fact, this feeling tended to come up frequently in our discussions with former Plaquemines Parish residents who had moved away, even to relatively nearby locales, such as adjacent suburbs of New Orleans. For example, a former DTR resident said on Facebook:

I am proud to call DTR my home. And I miss it with a passion.... People on the Northshore [of Lake Pontchartrain] are nowhere close to the people of DTR. We were all a family and looked out for one another. And even though most of us are scattered we still look out for one another. And they are still my family. I don't get to DTR often but when I do I feel so peaceful and love seeing my friends and family.

As this quote suggests, when we talked to DTR residents about the prospect of moving elsewhere, the greatest anxiety manifested in terms of missing their close social relations. This is not surprising, since people work hard to build and maintain their social networks, as we have discussed previously. When thought about from the perspective of social capital (*sensu*, Putnam, 2000), DTR residents are fearful of leaving behind key social resources and moving to places that, although often nearby, lack the same degree of social cohe-

siveness. Once again, the linkage of social capital to place attachment is not new (see Lewicka, 2011, for a review), although it is again a particularly strong dimension of the place attachment felt by DTR residents.

These kinds of attachment to place often manifest in an apparent paradox: on the one hand, DTR residents harbor profound feelings of place attachment and strong conceptions of identity linked to fishing and other marine industries, as well as the benefits of involvement in the region's distinctive social systems; on the other hand, people think about leaving constantly. Some of this is, no doubt, attributable to the frequent disaster events, such as recent Hurricane Ida. Not only do these events induce many residents to, in a sense, engage in short-term experiments in leaving by evacuating, they also serve as constant reminders that "the big one" may be just around the corner (see various quotes in Table 1).

This tension also likely relates to a way of thinking derived from a broader pattern of adaptive flexibility—in terms of economic opportunities, social relationships, and beyond—which is a key feature of community resilience in relation to the region's inherent risk. In this respect, Cherry and colleagues (2015b) also observed the tendency of particularly younger Plaquemines Parish residents to view disaster evacuations as opportunities to build social connections with a neighboring area with an eye to more permanent potential moves in the future. While individuals generally feel a passionate attachment to Lower Plaquemines Parish, they are frequently forced to think through the various steps involved in leaving. Whatever its bases, this paradox is responsible for a highly complex

TABLE 1

Major ethnographic themes and quotations.

Key Themes	Interview Quotes
Fishing and the environment	<p>“My family, they started off fishing, and I just grew into it with them... Nothing would make me give it up, unless there was nothing left to catch!” [Commercial fisher, ~40, Westwego, formal interview]</p> <p>“[Shrimping] has gone downhill a lot since I moved here [in the 1970s]. In the old days, people would use real small boats and trawling nets, and they’d do just fine. Now everybody’s got them big boats and big motors, and they barely make enough to get by.” [Commercial fisher, ~70, Buras, formal interview]</p> <p>“We all fish here, it’s a really important form of independence and the way people here help each other out.” [Client in a restaurant, ~50, Buras, volunteered comment]</p>
Social relationships, cohesiveness, and sharing	<p>“I’ll trade a couple pounds of shrimp to have someone come over and help fix something like a broken motor.” [Commercial fisher, ~40, Westwego, formal interview]</p> <p>“These motherfuckers all know each other: the sheriff’s deputies, the prison guards, the dudes in jail. They all went to high school together. Their families been friends for like 40–50 years.” [Criminal defense attorney, ~40, New Orleans, informal interview]</p> <p>“I’m one that after Katrina thought I needed to be somewhere else. I have looked for that place but after looking in other places, I always decide to stay DTR! Our community is awesome! Always there to help each other out if need be!” [Nonprofit employee, ~50, Buras, Facebook post]</p>
Place attachment, disaster risk, and migration	<p>“I always thought I’d have to leave because of the weather, not because of the bureaucrats.” [Ecotourism operator, ~40, Buras, participant observation]</p> <p>“All of us are a little or a lot depressed because we know if we can’t recover after a near miss like this one than we’ll never recover from another direct hit.” [Triumph resident, ~40, Facebook post]</p> <p>“You can’t ‘protect’ yourself from disaster. As country folks, we have to protect ourselves as best we can by being resilient. City folks are not resilient, meaning being self-reliant and being a ‘doer’ not a ‘taker.’” [Commercial and sport fisherman, 61, Buras formal interview]</p>
The MBSD and other sediment diversion projects	<p>“If they got rid of all of us then the feds wouldn’t have to pay folks for problems here.” [Boat captain, ~75, Buras, formal interview]</p> <p>“[I]f seafood is killed and people move away due to ‘financial losses’...could the remaining vacant land be used by politicians for new refineries & port infrastructures for the parish once civilians out of way?” [Buras resident, ~40, Facebook post]</p> <p>“That’s their plan to force people from DTR off their land... but guess what if my family own it, I will buy it before I let the parish get their dirty little fingers on it.” [Ironton resident, ~30, Facebook post]</p> <p>“The C O E [U.S. Army Corps of Engineers] flooded Parts of Plaquemines before to save New Orleans. Now I think they would sacrifice lower Plaquemines to save New Orleans.” [Buras resident, ~60, Facebook post]</p> <p>“It’s all about protecting New Orleans from hurricanes. If it wasn’t for that they could care less about Plaquemines.” [Retired government employee, ~70, Buras, Facebook post]</p>

social-psychological landscape, which can be characterized by high levels of trauma, stress, and exhaustion (see also Cherry, 2020) and which directly relates to perceived threats to the social, economic, and environmental bases of life in Lower Plaquemines Parish.

Implications for Coastal Restoration Policy

It is fairly easy to connect the dots in terms of the sources of antagonism

toward the MBSD project on the part of most DTR residents. Irrespective of how effective the MBSD may be in building new land and supporting freshwater wetland landscapes, it will certainly—and by design—negatively impact marine fisheries, especially shrimp and oysters. This is obviously threatening to small-scale commercial fishers in Lower Plaquemines Parish and other coastal communities in the Barataria basin. Commercial fishing

is a tough business characterized by narrow profit margins, enormous unpredictability, and great risk: small-scale commercial fishers have made huge investments in both the “hardware” of fishing vessels, nets, and other gear, and the “software” of relationships with deckhands, wholesalers, vessel mechanics, and so forth. In addition, many oyster fishers have held specific leases for generations and stand to lose literally everything in them by virtue of changes in salinity,

pollution, and sediment load. Such things are already known and acknowledged by the leadership of the MBSD project as sacrifices involved in an otherwise worthwhile coastal restoration project (Louisiana Coastal Protection and Restoration Authority [CPRA], 2017).

What has gone relatively unrecognized so far is the major social and social-psychological consequences of the impacts of the MBSD to small-scale commercial fishing and changes to the Barataria Bay landscape. DTR residents understand that major disruptions to the commercial fishing industry, such as those posed by the MBSD, are existential threats to the broader community. This is not just true in terms of the potential loss of cash income through fishing but more so in terms of the wide range of informal exchanges discussed in this paper and the extensive social systems that are maintained through those exchanges. With the death of small-scale commercial fishing, DTR residents fear that long-time residents will be driven out, that their social connections will diminish and lose value, that traditional social norms and values will change, that risk buffering strategies—their backup plans—will be lost, and that what will be left behind will be an economically and socially barren landscape of low-paying and alienating job opportunities accompanied by an influx of non-local wage laborers.

This set of fears is closely related to issues of place attachment and social identity: people's fears that they will no longer be able to work in the fishing industry; that the MBSD will lead to some form of ecological disaster; that they (and/or their friends and family) will be

forced to move elsewhere; and, in general, that their home and way of life will be lost. In this way, anxiety about the negative impacts of the MBSD feeds into the powerful social-psychological tension resulting from the combination of strongly felt place attachment and the anticipation of departure, which is greatly informed by a long history of disaster, trauma, and environmental degradation due to human activities. There is a widely shared angst among DTR residents that the MBSD will drive them out of the region or, at a minimum, irreparably damage the landscape to which they are attached and upon which they intimately depend.

Many DTR residents go as far as to suspect a conspiracy to drive populations on the part of the government forces responsible for planning the MBSD, including the U.S. Army Corps of Engineers and CPRA to depopulate coastal Southeast Louisiana (see Table 1). This set of beliefs clearly relates to a very real and devastating history of environmental injustice at the hands of parish, state, and federal authorities. A key example of this phenomenon was during the 1927 Mississippi River flood when state and federal authorities dynamited levees in Plaquemines Parish in order to relieve pressure on upstream levees and protect population centers like New Orleans and Baton Rouge (Barry, 2007; Gomez, 2000; Mizelle, 2014). This act resulted in the destruction of predominantly Black farming communities along the Mississippi River, as well the devastation of Isleño trappers and other coastal wetland inhabitants in what is today St. Bernard Parish.

There is a great deal of verisimilitude between the 1927 flood and the

current MBSD proposal beyond simply the intentional perforation of the Mississippi River levee system, and this similarity was brought up on a number of occasions during our interviews. In both instances, it is widely understood that policy decisions were being made with negative consequences for communities in Plaquemines Parish in order to protect the property of affluent residents of inland/upstream urban areas. In terms of planning, the MBSD—and, truth be told, most other coastal restoration programming—is aimed at building or preserving coastal wetlands primarily *as a mechanism for absorbing the impacts from tropical storms on inland population centers*. In other words, there is a strong (and probably accurate) perception that the MBSD and other projects like it derive from a policy urge to prevent another Hurricane Katrina for the city of New Orleans and other major population centers adjacent to the Gulf Coast, regardless of the impacts on coastal fishing communities (see quotes in Table 1).

Local perspectives on the policy decisions behind the MBSD are also greatly informed by more recent incidents of neglect, incompetence, and/or indifference in the responses to other more recent major disasters, including Hurricane Katrina (which made landfall in Buras on August 29, 2005), the BP oil spill, and Hurricane Ida, which made landfall 16 years to the day after Hurricane Katrina. It is far beyond the scope of this paper to cover all of these many incidents (see Colten et al., 2008, 2012), although we would mention that one of our informants showed us low points in the levees flanking the historically Black town

of Ironton³ during a fishing trip on the Mississippi River on August 21, 2021—less than 2 weeks before those very same levees failed catastrophically during Hurricane Ida, severely damaging the town.

This striking history of environmental injustice at the hands of distant political and economic elites would, in its own right, seem to provide ample justification for the conspiratorial suspicions harbored by DTR residents. We believe that this history also gives rise to a deeper paranoia, including the conspiracy theories that we heard in which the MBSD is actually secretly designed to *increase erosion* and literally wash away coastal communities to make way for further oil and gas industry development, shipping terminals, and so forth— or, in a weaker formulation, that the MBSD is designed to drive out coastal community residents by killing the commercial fishing industry. While we do not necessarily share these particular beliefs, we definitely sympathize in recognizing the historical context from which they originate.

Finally, we see a great deal of similarity in the antagonism we observed on the part of DTR residents toward the MBSD project and that described recently by Barra (2021). In approaching MBSD opposition in Lower Plaquemines Parish from the vantage point of Black and indigent communities, Barra sees con-

nections with a deep history of inequality tied to access to the coastal landscape and its economic resources, as well as the goals of the large-scale state-level interventions in the geological and environmental process of the Mississippi River and its coastal delta. This is obviously true, and it is also the case that there is a broader bitterness about the modern processes of coastal restoration represented by the MBSD and projects like it that crosscuts a wide range of racial, ethnic, linguistic, cultural, economic, class, and political identities. In fact, that is perhaps the most important feature of this widespread opposition.

Discussion and Conclusion

With a current estimated budget of around \$1.4 billion, the MBSD stands to be one of the most expensive coastal restoration projects in world history, with an environmental impact footprint likely to match its budget. In this way, the MBSD is the eye of the needle for future coastal restoration projects and large-scale government-funded conservation efforts more generally. There is an awful lot riding on the success of this project and at local, national, and international levels. Yet, irrespective of whether the MBSD works as designed in terms of building new land and freshwater wetlands through sedimentation, by far the largest threat to the success of the project comes from the overwhelming lack of local support in Lower Plaquemines Parish and among fishers elsewhere in coastal Southeast Louisiana.

A few key things are apparent to us against this backdrop: First, coastal community residents have legitimate

reasons for holding anxiety about the MBSD and other coastal restoration projects like it. We feel that individuals living in communities such as those in Lower Plaquemines Parish likely have an accurate understanding of the range of possible outcomes for commercial fishing activities resulting from changes to salinity, pollution, sediment load, vegetation, and so forth. Similarly, their concerns about the political willingness of state and federal authorities to sacrifice the well-being of coastal marine fisheries and fishing communities largely in the interest of fostering tropical storm resistance for inland population centers are well taken. Both sets of feelings about the MBSD project are based on generations of experience with the social, economic, ecosystemic, and political contexts of the region.

While the officials involved in the design and implementation of the MBSD project may perceive themselves as separate from—and even highly critical of—the historical legacy of environmental injustice at the hands of government authorities and big business that pervades coastal Louisiana (see, e.g., Barra's [2021] interviews with coastal restoration scientists), it does not necessarily appear that way to coastal community residents—and for good reason. In what Brint (1994) has called the “Age of Experts,” there is often an expectation that affected communities should simply defer to highly educated officials in making key decisions (especially) about issues such as the environmental impacts of projects and those who do not are often dismissed as a lunatic political fringe. Not only is this disposition extremely risky, it effectively closes the door to vast store of local traditional ecological

³When asked why the problems in the levee system at Ironton had not been addressed, our informant referred to a long history of racism at parish and state levels, laying blame specifically on the notorious segregationist Plaquemines Parish political boss, “Judge” Leander Perez, who held the offices of Parish District Attorney and Parish President between 1924 and 1969. Our informant said, “When they built those levees, they knew exactly what they were doing.”

and sociological knowledge that could make coastal restoration efforts far more effective.

In the last two decades, the field of risk management and risk communication has increasingly moved to a model of community partnership as a matter of best practices (Fischhoff, 1995; Leiss, 1996). Crucially, as Fischhoff (1995) observes, whatever the engineering characteristics of a particular set of risks might be, it is the dynamics of human exposure to that risk that matters fundamentally. In this case, the impacts of the MBSD project boil down to the ways in which coastal fishing communities are likely to experience its effects at various economic and social scales.

Second, very little social scientific research has been conducted in the planning of the MBSD,⁴ which has left the U.S. Army Corps of Engineers and the Louisiana CPRA ill-prepared to deal with the grassroots backlash among coastal communities. What social scientific research has been done in conjunction with the planning of the MBSD project has maintained a tunnel-visioned focus on its direct formal economic impacts, which obviously ignores the vastness of the informal exchanges, social networks and social capital, and elements of place attachment, all of which are highly valued by coastal community residents. In accordance with state and federal regulation, the public has been invited to comment on formal environmental impact statements related to the MBSD project prepared by the U.S. Army Corps of Engineers

⁴Although see Colten and Hemmerling (2014), which is a methodological proposal for studying the impacts of coastal restoration activities involved in the MBSD project funded by CPRA and then largely ignored by it.

and CPRA, and there has been a seemingly endless sequence of public meetings about the project. However, there are grave mechanical difficulties for coastal community members in submitting formal comments, and as one of our informants joked, attending the public meetings can itself seem like a full-time job.

The planning for the MBSD project has generally assumed that coastal communities would share the premise that decreasing salinity, increasing sedimentation, and emerging freshwater wetland ecosystems are *good things*, when that is obviously not accurate, and those outcomes tend to trigger anxieties related to the loss of social identities tied to marine commercial fishing, the alterations of landscape to which people hold place attachment, and community-level impacts that pose existential threats to the social systems that residents value so greatly. For a fraction of 1% of the total budget of the MBSD project—Colten and Hemmerling (2014) estimate ~\$560k, which is less than 1/1,000th of a percent—these social scientific facts could have been discovered, recognized, and addressed early on, thus avoiding the serious threats to the project now posed by such strong local opposition.

In these respects, we should make it clear that we found almost universal support for *some form(s)* of major intervention to address issues of coastal erosion and environmental degradation—just not the kind represented by the MBSD project. Everyone agrees that the coastal marsh is disappearing and that that is deeply problematic for the endurance and survival of coastal communities, as well as the abundance and diversity of the marine ecosystems upon which commercial fishing depends. We are left to wonder: is the

MBSD an optimal strategy for utilizing \$1.4 billion dollars given the inherent complexity of both the ecological and social systems along Gulf Coast of the Mississippi River Delta?

There are enormous overlaps between the goals of coastal restoration projects meant to buffer the impacts of tropical storms through the enhancement of coastal wetlands, such as the MBSD, and fishing communities who depend on the profound biological productivity of coastal wetlands as the basis for their fisheries. It is worth considering whether a more effective and cost-efficient strategy might be achieved through a dispersed network of coastal restoration projects informed by local traditions of ecological knowledge as well as designed to build structure and support the coastal marsh ecosystems upon which commercial fisheries depend. Oyster reefs are themselves structure, and the shrimp targeted by inshore small-scale commercial fishers depend on the vegetation and microorganisms supported by coastal marsh landscapes and vegetation. From the perspective of complex adaptive systems thinking (Lansing, 2003; Levin, 1998), it seems likely that a diversified program of ecological, economic, and social interventions applied to system leverage points, which could be identified using local traditional knowledge, might offer a less risky and potentially more effective strategy for dealing with coastal erosion and storm surge threats. After all, above all else, and as we have established in this paper, coastal communities know an awful lot about dealing with risk.

More broadly, as the United Nations Ocean Decade progresses, it is worth pausing to consider the many voices subsumed by the notion of the “ocean

we want” (UNESCO, 2021; emphasis added). Not only are deep ethical and moral issues involved, as we have shown, the success of our scientific research and policy planning depends on it on many fundamental practical levels.

Acknowledgments

We would like to thank the residents of Lower Plaquemines Parish for their assistance, their kindness, and their profound patience in dealing with our questions. There is a unique kind of gentleness and kindness that we have encountered in Louisiana’s coastal communities, and we are enormously grateful for our experiences of that. We would also like to thank the editor and two anonymous referees for constructive suggestions for our manuscript. All funding for this project came from the Center for Human-Environmental Research.

Corresponding Author:

Grant S. McCall
Center for Human-Environmental
Research (CHER) and
Tulane University
Email: mccall@cherscience.org

References

- Agyeman, J., Devine-Wright, P., & Prange, J. 2009. Close to the edge, down by the river? Joining up managed retreat and place attachment in a climate changed world. *Environ Plann A*. 41(3):509–13. <https://doi.org/10.1068/a41301>.
- American Anthropological Association. 2020. Ethics committee briefing paper on informed consent. <https://www.americananthro.org/ParticipateAndAdvocate/Content.aspx?ItemNumber=13144#:~:text=Background%20Information%20on%20Informed%20Consent,studied%2C%20or%20otherwise%20identified%20as>.
- Barra, M.P. 2021. Good sediment: Race and restoration in coastal Louisiana. *Ann Amer Assoc Geographers*. 111(1):266–82. <https://doi.org/10.1080/24694452.2020.1766411>.
- Barry, J.M. 2007. *Rising Tide: The Great Mississippi Flood of 1927 and How It Changed America*. Simon and Schuster.
- Britt, S.G. 1994. In an Age of Experts: The Changing Role of Experts in Politics and Public Life. Princeton University Press. <https://doi.org/10.1515/9780691214535>.
- Burley, D.M. 2010. Losing ground: Identity and land loss in coastal Louisiana. University Press of Mississippi. <https://doi.org/10.14325/mississippi/9781604734881.001.0001>.
- Burley, D., Jenkins, P., Laska, S., & Davis, T. 2007. Place attachment and environmental change in coastal Louisiana. *Organ Environ*. 20(3):347–66. <https://doi.org/10.1177/1086026607305739>.
- Cherry, K.E. 2020. *The Other Side of Suffering: Finding a Path to Peace After Tragedy*. Oxford University Press.
- Cherry, K.E., Lyon, B.A., Marks, L.D., Nezat, P.F., Adamek, R., Walsh, S.D., & Bernacchio, C.V. 2015a. After the BP Deepwater Horizon oil spill: Financial and health concerns among coastal residents and commercial fishers. *Curr Psychol*. 34(3):576–86. <https://doi.org/10.1007/s12144-015-9372-4>.
- Cherry, K.E., Marks, L.D., Adamek, R., & Lyon, B.A. 2015b. Younger and older coastal fishers face catastrophic loss after Hurricane Katrina. In: Cherry, K. (Ed.), *Traumatic Stress and Long-Term Recovery* (pp. 327–48). Springer. https://doi.org/10.1007/978-3-319-18866-9_18.
- Cherry, K.E., Sampson, L., Nezat, P.F., Cacamo, A., Marks, L.D., & Galea, S. 2015c. Long-term psychological outcomes in older adults after disaster: Relationships to religiosity and social support. *Aging Ment Health*. 19(5):430–43. <https://doi.org/10.1080/13607863.2014.941325>.
- Colten, C.E. 2021. *State of Disaster: A Historical Geography of Louisiana’s Land Loss Crisis*. Louisiana State University Press.
- Colten, C.E., Hay, J., & Giancarlo, A. 2012. Community resilience and oil spills in coastal Louisiana. *Ecol Soc*. 17(3):5–15. <https://doi.org/10.5751/ES-05047-170305>.
- Colten, C.E., & Hemmerling, S. 2014. Social impact assessment methodology for diversions and other Louisiana coastal master plan restoration and protection projects. The Water Institute of the Gulf. https://dev.thewaterinstitute.org/assets/docs/reports/4_22_2014_Social-Impact-Assessment-Methodology-for-Diversions-and-other-Louisiana-Coastal-Master-Plan-Projects.pdf.
- Colten, C.E., Kates, R.W., & Laska, S.B. 2008. Community resilience: Lessons from New Orleans and Hurricane Katrina. CARRI Report. 3:2–4.
- Colten, C.E., Simms, J.R., Grismore, A.A., & Hemmerling, S.A. 2018. Social justice and mobility in coastal Louisiana, USA. *Reg Env Change*. 18(2):371–83. <https://doi.org/10.1007/s10113-017-1115-7>.
- Dandy, J., Horwitz, P., Campbell, R., Drake, D., & Leviston, Z. 2019. Leaving home: Place attachment and decisions to move in the face of environmental change. *Reg Env Change*. 19(2):615–20. <https://doi.org/10.1007/s10113-019-01463-1>.
- Durkheim, É. 1893. *De la Division du Travail Social*. Ancienne Librairie Germer Baillièrre et Cie.
- Erikson, K. 1976. *Everything in Its Path*. Simon and Schuster.
- Falk, I., & Kilpatrick, S. 2000. What is social capital? A study of interaction in a rural community. *Sociol Ruralis*. 40(1): 87–110. <https://doi.org/10.1111/1467-9523.00133>.
- Fischhoff, B. 1995. Risk perception and communication unplugged: Twenty years of process. *Risk Anal*. 15(2):137–45. <https://doi.org/10.1111/j.1539-6924.1995.tb00308.x>.

- Fitchen, J.M.** 1981. *Poverty in Rural America: A Case Study*. Westview Press.
- Gomez, G.** 2000. Perspective, power, and priorities: New Orleans and the Mississippi River flood of 1927. In: Colten, C. (Ed.), *Transforming New Orleans and Its Environs: Centuries of Change* (pp. 109–20). University of Pittsburgh Press. <https://doi.org/10.2307/j.ctt7zw9kz.14>
- Gramling, R., & Hagelman, R.** 2005. A working coast: People in the Louisiana wetlands. *J Coastal Res.* 44:112–33. <http://www.jstor.org/stable/25737052>.
- Harvey, D.L.** 1993. *Potter Addition: Poverty, Family, and Kinship in a Heartland Community*. Transaction Publishers.
- Hemmerling, S.A.** 2018. Eroding communities and diverting populations: Historical population dynamics in coastal Louisiana. In: *Mississippi Delta Restoration*, eds. Day, J., & Erdman, J., pp. 201–30. Springer. https://doi.org/10.1007/978-3-319-65663-2_12.
- Hillyard, S.** 2007. *Sociology of Rural Life*. Berg Publishers. https://doi.org/10.26530/OAPEN_390771.
- Jamali, M., & Nejat, A.** 2016. Place attachment and disasters: Knowns and unknowns. *J Emerg Manage.* 14(5):349–64. <https://doi.org/10.5055/jem.2016.0299>.
- Laska, S., Wooddell, G., Hagelman, R., Gramling, R., & Farris, M.T.** 2005. At risk: The human, community and infrastructure resources of coastal Louisiana. *J Coastal Res.* 44:90–111. <http://www.jstor.org/stable/25737051>.
- Lambert, C.E., Holley, J.R., McComas, K.A., Snider, N.P., & Tucker, G.K.** 2021. Eroding land and erasing place: A qualitative study of place attachment, risk perception, and coastal land loss in southern Louisiana. *Sustainability.* 13(11):6269. <https://doi.org/10.3390/su13116269>.
- Lansing, J.S.** 2003. Complex adaptive systems. *Ann Rev Anthropol.* 32(1):183–204. <https://doi.org/10.1146/annurev.anthro.32.061002.093440>.
- Leiss, W.** 1996. Three phases in the evolution of risk communication practice. *Ann Am Acad Polit SS.* 545(1):85–94. <https://doi.org/10.1177/0002716296545001009>.
- Levin, S.A.** 1998. Ecosystems and the biosphere as complex adaptive systems. *Ecosystems.* 1(5):431–6. <https://doi.org/10.1007/s100219900037>.
- Lewicka, M.** 2011. Place attachment: How far have we come in the last 40 years? *J Env Psychol.* 31(3):207–30. <https://doi.org/10.1016/j.jenvp.2010.10.001>.
- Louisiana Coastal Protection and Restoration Authority (CPRA).** 2017. Louisiana’s comprehensive plan for a sustainable coast. http://coastal.la.gov/wp-content/uploads/2017/04/2017-Coastal-Master-Plan_Web-Single-Page_CFinal-with-Effective-Date-06092017.pdf.
- Louisiana State University Agriculture Center (LSU AgCenter).** 2019. Louisiana summary: Agriculture and natural resources. https://www.lsuagcenter.com/-/media/system/ab/0/e/ab0e93885851482b859f34df89606ce3/p2382_2019agsummary_rh1021_tblanchardpdf.pdf.
- Maldonado, J.K., & Peterson, K.** 2018. A community-based model for resettlement: Lessons from coastal Louisiana. In: *Routledge Handbook of Environmental Displacement and Migration*, eds. McLeman, R., & Gemmene, F., pp. 289–99. Routledge. <https://doi.org/10.4324/9781315638843-23>.
- Marks, B.** 2012. The political economy of household commodity production in the Louisiana shrimp fishery. *J Agrarian Change.* 12(2-3):227–51. <https://doi.org/10.1111/j.1471-0366.2011.00353.x>.
- Marks, B.** 2015. Making shrimp and unmaking shrimpers in the Mississippi and Mekong deltas. In: *Precarious Worlds: Contested Geographies of Social Reproduction*, eds. Meehan, K., & Strauss, K., pp. 156–69. University of Georgia Press.
- May, C.K.** 2019. Governing resilience through power: Explaining community adaptations to extreme events in Coastal Louisiana. *Rural Sociol.* 84(3):489–515. <https://doi.org/10.1111/ruso.12252>.
- May, C.K.** 2021. Coastal community resilience and power in the United States: A comparative analysis of adaptability in North Carolina and Louisiana. *Env Management.* 68(1):100–16. <https://doi.org/10.1007/s00267-021-01482-x>.
- Mizelle, R.M., Jr.** 2014. *Backwater Blues: The Mississippi Flood of 1927 in the African American Imagination*. University of Minnesota Press.
- Neal, S., & Walters, S.** 2008. Rural belonging and rural social organizations: Conviviality and community-making in the English countryside. *Sociol.* 42(2):279–97. <https://doi.org/10.1177/0038038507087354>.
- Nelson, M.K., & Smith, J.** 1999. *Working Hard and Making Do: Surviving in Small Town America*. University of California Press.
- Porter, R.R.** 2015. *Looking homeward: Place attachment and forced relocation*. Ph.D. dissertation. Pacifica Graduate Institute.
- Putnam, R.D.** 2000. *Bowling Alone: The Collapse and Revival of American Community*. Simon and Schuster. <https://doi.org/10.1145/358916.361990>
- Simms, J.R.** 2017. “Why would I live anywhere else?”: Resilience, sense of place, and possibilities of migration in coastal Louisiana. *J Coastal Res.* 33(2):408–20. <https://doi.org/10.2112/JCOASTRES-D-15-00193.1>.
- Simms, J.R.** 2021. Solastalgic landscapes: Prospects of relocation in coastal Louisiana. *Frontiers Env Sci.* 9:572724. <https://doi.org/10.3389/fenvs.2021.578724>.
- Spradley, J.P.** 2016. *Participant Observation*. Waveland Press.
- Straub, A.M., Gray, B.J., Ritchie, L.A., & Gill, D.A.** 2020. Cultivating disaster resilience in rural Oklahoma: Community disenfranchisement and relational aspects of social capital. *J Rural Stud.* 73:105–13. <https://doi.org/10.1016/j.jrurstud.2019.12.010>.

Tönnies, F. 1940. *Fundamental Concepts of Sociology*. American Book Company.

United Nations Educational, Scientific, and Cultural Organization (UNESCO). 2021.

The Science We Need for the Ocean We Want. <https://www.oceandecade.org/wp-content/uploads//2021/10/346780-The%20Science%20We%20Need%20For%20The%20Ocean%20We%20Want>).