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How Subsidy Removal Alters the Politics of Coastal Development

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ABSTRACT

Problem, research strategy, and findings: Federal, state, and local government funding helps stimulate urban development, with *growth machine* politics playing an important role in determining where subsidies are allocated. The U.S. Coastal Barrier Resources Act (CBRA) was enacted to curb the role of federal subsidies in fostering development along hazardous coastal barriers, providing an opportunity to explore how local growth politics are influenced by the removal of one source of government funding. In this study, we used a series of interview-based case studies to investigate why certain areas in the CBRA developed while most did not. In most cases, the CBRA obstructed local growth coalitions, isolating landowners from the resources necessary to improve the growth potential of their land interests. However, in cases where development occurred within the CBRA, we often found evidence that powerful growth machines were able to acquire replacement subsidies from state and local governments, suggesting these actions are a key driver in overcoming the financial barriers posed by the CBRA.

Takeaway for practice: This study revealed how growth machines could be hampered by removing access to the financial resources of one level of government, despite the potential to be undermined by intervention at other levels. In an era of increasing coastal risks, subsidy removal can be an effective tool for managing coastal growth, even when authority over land use decisions is limited.

Keywords: CBRA, coastal development, federalism, growth machine, subsidy removal

The beauty and abundance of natural resources has long attracted people to coastal areas. Although local amenities and land characteristics are important determinants of coastal development, other considerations also shape development decisions. Hazard risks and the cost of insurance influence construction feasibility, and federal, state, and local policies affect the cost of development (e.g., Craig, 2019; Gyourko & Krimmel, 2021). Government subsidies provide funding for infrastructure (e.g., roads, water/sewer), risk reduction measures (e.g., levees), post-disaster assistance, and subsidized flood insurance (Bagstad et al., 2007). These subsidies reduce the financial burden of development while also minimizing the barriers posed by coastal hazards.

The politics of growth play an important role in determining where, and for what purpose, development subsidies are allocated. Fundamental to local development politics is the perspective of the community as a *growth machine*, whereby land interests conspire to secure government resources for the purpose of improving the growth potential of an area (Molotch, 1976). Growth machines are primarily driven by landed elites working in concert with local political actors and institutions, each of whom have different motivations yet share a common interest in local urban development and expansion (Logan & Molotch, 1987; Wachsmuth, 2017). In the United States, growth machine politics are situated within a federalist context, in which coalitions can aggregate at different levels (e.g., neighborhood, community, region) to lobby for government resources from local, state, and federal actors. Despite the immense role of the federal government in funding growth-oriented projects, we know relatively little about the effect of limitations on federal spending and their influence on growth machine politics.

The U.S. Coastal Barrier Resources Act (CBRA, 1982; 16 USC 3501 et seq.) offered an opportunity to examine how restrictions on federal spending influenced local growth machines and their ability to fuel development by obtaining government resources (Coburn & Whitehead, 2019). The U.S. Congress enacted the CBRA in response to increasing disaster response and recovery costs, seeking to curb the role of federal expenditures in stimulating development on hazardous coastal areas while reducing the loss of human life, habitat degradation, and wasteful federal spending. To this end, the CBRA removed federal financial assistance for infrastructure (e.g., roads, bridges, sewer/water, risk reduction measures) and post-disaster assistance, as well as the availability of subsidized flood insurance via the National Flood Insurance Program, along designated coastal barriers (called CBRA units). The U.S. Fish and

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Wildlife Service (USFWS) administers the Act; however, CBRA units can only be established or modified by an act of Congress, producing a relatively inflexible boundary demarcating areas where federal funds are inaccessible.

As of 2022, there were 588 CBRA units encompassing 1.4 million acres of land along the Atlantic, Gulf of Mexico, Great Lakes, U.S. Virgin Islands, and Puerto Rico coasts (USFWS, 2022). An additional 2.1 million acres of coastal land was designated as Otherwise Protected Areas (OPAs), which can be established by federal, state, or local governments, as well as conservation organizations, and are typically held for conservation purposes (USFWS, 2022). Together, CBRA units and OPAs comprise the Coastal Barrier Resources System. OPAs differ from CBRA units because they allow for some federal investment, usually for natural resource management; however, the land also tends to be owned by governments or conservation organizations, neutralizing traditional development pressures.

Prior studies of the CBRA (e.g., Onda et al., 2020; Salvesen, 2005; U.S. General Accounting Office [USGAO], 2007) have found that, in general, the Act stymies development; however, a small number of CBRA units have continued to develop despite the removal of federal subsidies. In some instances, CBRA units in one county experienced no development, whereas CBRA units in neighboring counties experienced development trends indistinguishable from non-CBRA areas. The purpose of our study was to explore, in depth, why certain areas in CBRA developed whereas others did not. We investigated how local growth politics were altered by the CBRA's restrictions and whether land interests were able to acquire replacement subsidies from state and local governments to fill the funding gap created by the CBRA. Specifically, we asked the following:

1. What were the causes of the wide variations—even within the same geographic region—in the CBRA's ability to limit development?
2. Did state and local governments take actions to *undermine* the CBRA (such as providing infrastructure funding), resulting in development? If so, what actions did they take, and what made these effective?
3. How did nongovernment actors—landowners, developers, conservation organizations, and other institutions—influence this dynamic?

We addressed these questions using case studies in eight counties across four states (Alabama, Florida, North Carolina, and Texas), which we selected to reflect a wide variety of development levels and economic and political forces within the CBRA. We anticipated that the CBRA altered the functionality of local growth machines and limited their scope to only local and state governments, reducing their ability to obtain government resources. Specifically, we expected that development would be limited when growth coalitions were unable to sway state and local governments to provide replacement subsidies in CBRA units or when antigrowth coalitions encouraged government action that reinforced the intent of CBRA (Hypothesis 1). Alternatively, we hypothesized that CBRA units that had substantially developed would be likely to have been undermined by state and local governments stepping in to provide development subsidies in lieu of the federal government and that growth machines would have played an important role ensuring the provision of these replacement subsidies (Hypothesis 2).

We begin by summarizing existing literature on growth machines and on the CBRA. Next, we document the findings from our eight case studies and identify how each case conforms with or differs from our hypotheses, highlighting the impact of the CBRA on coalition formation and the ingredients necessary for land interests to sway resources into the CBRA. Finally, we conclude by evaluating the strengths and weaknesses of the CBRA, offering insights for growth management policy: 1) the CBRA's rigid design has obstructed most efforts to overcome its restrictions and 2) its efficacy might be improved with stronger efforts to encourage policy coordination at state and local levels.

Background

Growth Machine Theory and Evidence

In their classic text on the politics of urban growth, Logan and Molotch (1987) described how land constitutes a vital interest, with the potential to fulfill both use value (e.g., a place of residence) and exchange value (e.g., an investment). Places are socially produced and interconnected, motivating a "special collective interest among individuals" (Logan & Molotch, 1987, p. 19) to foster conditions that satisfy their desired use for land. Coalitions interested in land as a commodity—its exchange value—often engage in activities that increase its potential monetary return, which can serve as a source of conflict for those concerned with a place's use value (Rodgers, 2009). In some cases, this can lead to the rise of antigrowth coalitions, which seek to influence policy to prevent development and preserve land in its original use (e.g., farmland, recreation, historic preservation; Vogel & Swanson, 1989). Areas with abundant natural resources amplify this state of contention because these environments also represent enticing opportunities for growth (Pfeffer & Lapping, 1994). Coastal areas are emblematic of this relationship because development seeking to capitalize on the

attractiveness of coastal areas threatens sensitive wildlife habitat as well as the marine resources that have long underpinned many coastal economies (Gale, 1991).

Government investment, such as providing and maintaining urban infrastructure, can often dictate when and where growth occurs (Erie, 1992; Kirkpatrick & Smith, 2011). The ability of public investments to shape market outcomes motivates the local rentier class—landowners, developers, and banks—to attempt to influence the allocation of government resources through political processes (Logan & Molotch, 1987). The goal of this growth machine is to secure the "preconditions of growth" (Jonas & Wilson, 1999, p. 5), such as investment in transportation infrastructure or favorable land use policy, to maximize the value of their land. Importantly, growth machines also incorporate strategies to galvanize support of the citizenry in their plans and counter the efforts of those opposed to growth (Cox, 1999).

In the United States, the authority to shape land use is decentralized, with much of the power vested in local authorities that exist within a hierarchical, federalist system. Each level of government can use a variety of regulations and incentives to influence local land markets (Ostrow, 2012; Pendall et al., 2006). Typically, growth machines will seek to influence governmental action at levels higher than the community in question, such as a city-level coalition lobbying for state or federal intervention (Molotch, 1976). However, the motivations of actors at different levels of government are not always aligned. A local government's incentive to pursue growth may come into conflict with federal conservation efforts or budget constraints, for example, or a state's desire to promote smart growth (e.g., Boyle & Mohamed, 2007; Lewis et al., 2009).

Despite differing desires for land use, many coastal areas have undergone explosive growth since the mid-20th century (Wilson & Fischetti, 2010), with federal policy and investment playing a critical role in stimulating development (Bagstad et al., 2007). In particular, federally subsidized flood insurance and post-disaster aid has helped alleviate the financial risk of building in high-hazard coastal areas and has funded the continued repair of damaged infrastructure (Olshansky & Johnson, 2014). The subsidization of coastal hazard risk has also amplified growth coalition activity, with *recovery machines* using the availability of additional government resources to spur more rapid growth (Pais & Elliott, 2008). Although the CBRA removed the federal government's perverse incentives to build on designated coastal barriers, it left state and local governments the option of providing substitutable resources.

Existing Research on the CBRA

In 2007, the USGAO measured development on a random sample of 91 CBRA units and found that most (84%) did not develop. Where growth in CBRA units occurred, the study's participants attributed development to three factors: 1) local governments provided financial and policy support for development, 2) limited availability of developable land nearby pushed development into CBRA units, and 3) availability of affordable private flood insurance. Although the USGAO study identified the important role of local governments in supporting development, it did not explore *why* these factors influenced development in some CBRA units while failing to influence growth in others.

Recent analyses examining the CBRA's impact across broad spatial scales found that it has largely been effective at lowering rates of development (Branham et al., 2022; Onda et al., 2020). In measuring the causal effect of the CBRA on development, Branham et al. (2022) found that 12.9% of the CBRA areas exhibited some level of development from 1980 to 2016, and 5.4% experienced development that outpaced neighboring non-CBRA areas. Although the disincentives created by the removal of federal subsidies have largely prevented development within most CBRA units, there are exceptions where development has occurred largely unimpeded. The purpose of our analysis was to better understand what factors led to divergent outcomes within CBRA.

In a case study of five CBRA units, Salvesen (2005) found that state and local governments helped fill funding gaps created by the CBRA. The author contextualized these findings through the Advocacy Coalition Framework advanced by Sabatier (1988), noting that small coalitions worked to overcome state or local policies that otherwise restrict development close to shorelines, whereas opposing coalitions sought to prevent development. With the results of our study, we add to the literature on the CBRA by applying the narrower growth machine framework, which helps explain how the CBRA upends the pursuit of exchange value on coastal lands, or, alternatively, how this pursuit occasionally overcomes the CBRA.

Study Site and Interviewee Selection

In-depth case studies are ideal for delving into the specific conditions and factors that produced highly local outcomes, particularly when these events occur over an extended period (Yin, 2014). To explore our research questions, we identified geographic pairings of coastal counties with CBRA units that had divergent development outcomes (i.e., neighboring or nearby counties in which one had CBRA units that were developed and the other county did not), using data derived from

Branham et al. (2022). We chose the county as our unit of analysis given that it is a standard and static geopolitical unit, often vested with significant regulatory power over development. We selected study states to reflect a variety of development trends, coastal vulnerabilities, and state-level policies. For a detailed description of study site selection, see Technical Appendix A.

We conducted semistructured interviews in each county with local planners, floodplain administrators, economic development officials, conservation organizations, developers, realtors, insurers, and federal officials (i.e., the USFWS) in a 6-month span between January and June 2019 (Figure 1). In total, we interviewed 47 individuals across 34 interview sessions. Interview questions varied slightly based on the position of the interviewee (i.e., questions tailored toward floodplain managers vs. realtors) but generally sought to better understand development trends within local CBRA units, the types of development that had occurred, the role of state and local governments in helping (or hindering) development, and local opinions of the CBRA and its effectiveness. Transcripts of interviews were coded and analyzed using the MaxQDA v.20.0.2 qualitative analysis software (VERBI Software, 2020). We also drew upon news articles, local government meeting minutes, and state and local planning documents in evaluating past and present decision making influencing our study area's CBRA units. For detailed information on interviewee selection and interview coding and analysis, see Technical Appendix A.

Results

The CBRA Stymied Growth Coalitions and Encouraged Anti-Growth Activity

In most of our study areas (Mobile [AL], Escambia [FL], Dare [NC], and Galveston and Nueces [TX]), coastal development was limited because growth interests were not sufficiently powerful or organized (Hypothesis 1). Specifically, we found evidence that the CBRA influenced local development politics and growth machine effectiveness in these counties via two non-mutually exclusive mechanisms (Figure 2).

BARRIERS TO GROWTH

First, the absence of federal funding limited the possible resources that could be obtained by growth machines, making it difficult for land interests within CBRA units to form coalitions with land interests in non-CBRA areas. Although many landowners in CBRA continued to advocate for state and local investments in infrastructure, the inability to supplement these projects with federal money increased the financial burden on developers and local governments, making it difficult to garner local support for investments in CBRA areas. Local officials noted that the absence of federal funding made infrastructure provision "very, very costly" and that, as a result, "CBRA units can't compete [because] there are so many options outside" of CBRA that are ripe for development. Furthermore, lobbying for federal intervention in CBRA was usually futile, reducing the potential gain that state and local politicians may have been able to provide as critical members of a growth machine. As one member of a local chamber of commerce stated: "We've lobbied Congress really hard a while back to change the CBRA zones here, but no luck at all."

We observed several examples where the lack of action—or failed action—by state and local governments highlighted the political barriers to growth. About 20 years ago on Dauphin Island (Mobile), a group that owned a large parcel in the western CBRA unit (Q02, the official ID for this particular unit; see Figure 2 for the IDs of all relevant study units) negotiated a deal with the county government to turn half of their proposed development into a public beach in exchange for infrastructure provided by the county, yet "for one

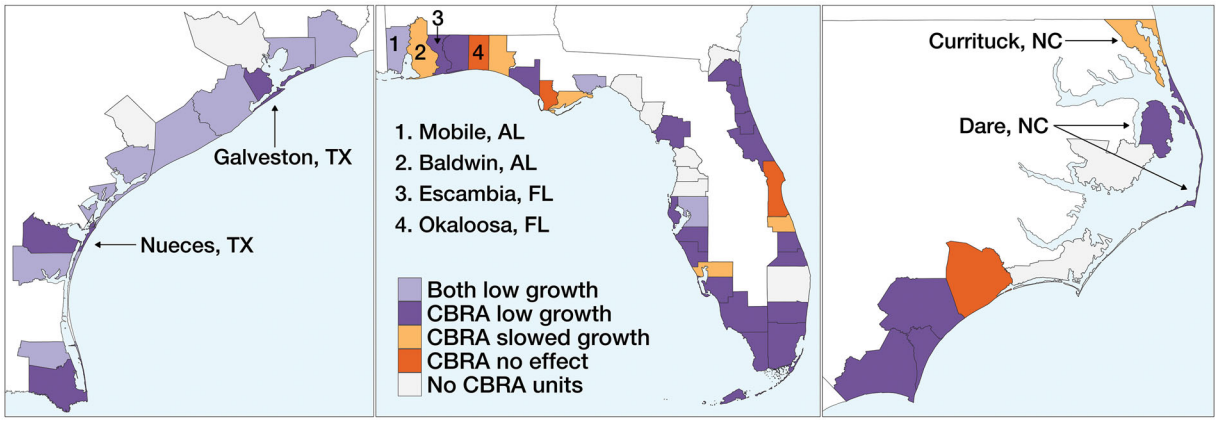

Figure 1. Selection of case study sites in Texas, Alabama, Florida, and North Carolina (left to right). Low growth is categorized as areas with growth rates below 0.1 structures/acre (0.247 structures/ha), or half the level of development needed to not be included in a CBRA unit. Detailed description of growth categories is provided in Technical Appendix A.

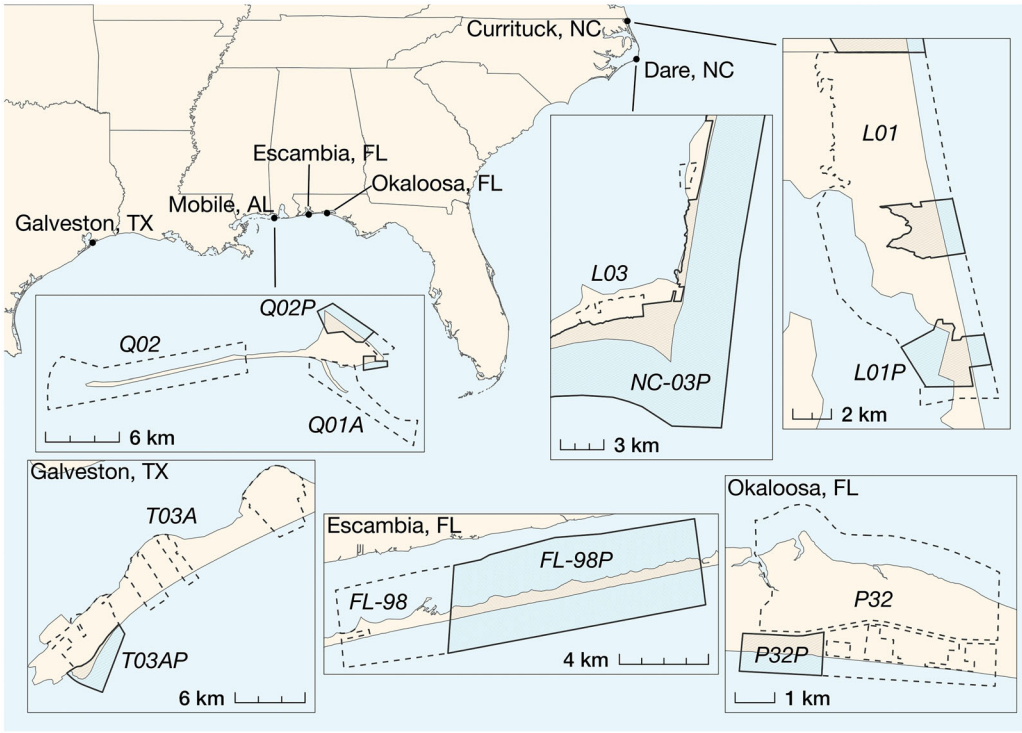

Figure 2. CBRA units (and associated county) discussed in Results section. CBRA units are outlined with dotted lines. Otherwise Protected Areas (OPAs) are shaded.

reason or another, all of that fell through." Several devastating hurricanes in the late 1990s (Danny and Georges) reinforced the limitations within the CBRA unit because the non-CBRA areas on the island benefited from substantial federal disaster aid (Gaul, 2019). Today, this portion of the island remains undeveloped because any potential project would need to self-fund its infrastructure and contend with enormous financial risk. We observed a similar pattern on the Bolivar Peninsula in Galveston County, where two mid-2000s development projects were halted by Hurricane Ike (2007). Since then, project developers have been unable to reinvigorate interest because potential investors are more aware of heightened financial risks in the CBRA unit and local governments are unwilling to provide additional investment.

As access to information about the limitations within CBRA units became more widespread, local officials altered their plans and funneled capital for projects elsewhere. State and local governments accustomed to acquiring federal support for infrastructure projects often scaled back or scuttled development plans when the restrictions in CBRA units became clear. For example, a state official in North Carolina noted the experience of Bird Island, where "the local government was going to extend services there until they were told they'd basically suffer major consequences in terms of federal funding for their infrastructure." Similarly, a proposal to allocate Federal Emergency Management Agency grant funds toward a water treatment system along the Bolivar Peninsula failed because the project would have had to cross multiple sections of a CBRA unit. One local official noted: "It failed in this area in the middle and that affected the whole system. … [I]f one dollar of federal money went into that, it kills the whole [project]."

EMBOLDENED ANTI-GROWTH COALITIONS

The second mechanism we observed in low-growth counties was the emboldening of anti-growth coalitions, which strategically use the CBRA's restrictions to advantage their land preservation interests. In these instances, both public (state, local governments) and private (environmental organizations, individuals) actors sought to acquire land for conservation, sometimes working in concert. For example, funding from the State of North Carolina, along with several conservation organizations, helped created a coastal reserve on the largest CBRA unit in Dare County (part of L03). Similarly, the Houston Audubon Society has engaged in extensive purchasing of tracts of land on the Bolivar Peninsula, resulting in 6.2 km^2 of land in conservation in the CBRA unit and OPA located on the barrier island (T03A and T03AP).

A notable case of the CBRA's influence on anti-growth coalitions is Escambia County, where there has been a strong desire among the public to conserve the county's largest CBRA unit (FL-98), which is located

between the city of Pensacola Beach and the Gulf National Seashore. A unique land arrangement exists on the island, in which the Santa Rosa Island Authority manages all land and the county government owns it; anybody wishing to develop on the island is able to purchase leases from the county but is unable to permanently acquire the land. Thus, the Island Authority and county have a high degree of control over land use. These two entities have worked in concert to zone all land in the CBRA unit for conservation, except for three small residential parcels that were platted prior to the CBRA. Public sentiment has largely supported these local policies, which has preserved more than 10 miles of uninterrupted and undeveloped beach for local enjoyment. In response to one proposed development in the CBRA unit, a local official noted extensive public opposition: "[The] public lost their mind … developers are—needless to say—they are looking for way easier battlegrounds [elsewhere]."

County ownership of the land within the CBRA also meant that changing zoning designations was more straightforward and politically palatable. A local official reflected on the public's sentiment: "[E]verybody knows that it's conservation, and they're very protective of it … it's a conservation area that just so happens to be a CBRA zone." According to our interviews, the county's zoning began in 1998, well after the implementation of the CBRA, which made the zoning of the CBRA unit for conservation "easy" given that "there wasn't pressure on that end for development." Local officials "really appreciate that layer of restriction" that the CBRA adds to the land, which serves as an added barrier to potential efforts to change the area's zoning to pursue development.

Despite CBRA's importance in shaping state and local investment decisions and its utility for land conservation, we found limited evidence that CBRA units were explicitly incorporated into state and local planning processes. For instance, in a review of state Coastal Zone Management Acts and hazard mitigation plans, as well as local hazard mitigation and comprehensive plans, we found only a single plan (in our study area) that mentioned the CBRA (Currituck County Department of Planning & Community Development, 2022). Although Currituck's plan simply notes the CBRA's existence in an area of limited development, its restrictions have helped to justify a county policy of "avoid[ing] growth-inducing policies and infrastructure" in the CBRA unit (Currituck County Department of Planning & Community Development, 2022, p. 94).

Growth Machines Overcame CBRA Restrictions

Two study counties experienced substantial development within their CBRA units (Baldwin County [AL] and Okaloosa County [FL]) and conformed to our expectation that intervention by state and local governments could increase the feasibility of development, with growth machines playing a role in obtaining government support (Hypothesis 2). Providing infrastructure is a crucial first step toward creating conditions in which development is more viable. In Baldwin County (AL), land interests successfully advocated for local government assistance in building out infrastructure, including water and sewer. As an insurer in the region noted, "A lot of the people that bought CBRA land and sold it were people with money and influence—political influence—and politics is interest and gain." This influence has helped growth interests secure the resources necessary to increase the exchange value of the land.

Okaloosa County's (FL) primary transportation artery (U.S. Highway 98) existed prior to the enactment of the CBRA, and its right-of-way was excluded from the surrounding CBRA unit (P32), allowing for continued investment and road maintenance with federal assistance. Local governments have also made investments in primary roads within the CBRA unit and have undertaken projects to address drainage issues caused by development. Local development codes have compelled developers to beautify streetscapes with landscaping and sidewalks, further increasing the appeal of the area. Perhaps most important, the Mid-Bay Bridge opened in June 1993, serving as a north–south connection over the Choctawhatchee Bay that substantially improved accessibility to the Destin area, with the bridge's southern approach passing directly through the CBRA unit. This siting of the bridge precluded the possibility of federal funding; instead, the Mid-Bay Bridge Authority, which was created in 1986 via an Act of the Florida legislature, issued $93 million in bonds to fund its construction.

The establishment of the Bridge Authority and ensuing bridge construction are notable examples of a local growth machine overcoming barriers to development. Local leaders were recorded advocating for a bridge more than 20 years before it would be completed, urging the county to "get on with the bridge" in 1970 (McLaughlin, 2003, p. 2). In 1986, a group spearheaded by a state representative and a member of the county commission secured the establishment of the authority, as well as state grants for feasibility and environmental impact studies. Land interests played a direct role throughout this process, with a North Bay developer serving as the first chairman of the authority (McLaughlin, 2003) and a landowner in the CBRA unit selling the land used for the southern approach for less than $100. The year after the bridge's completion, this same landowner sold large nearby tracts to several developers to create golf course communities with waterfront along the bay. Local developers helped fund

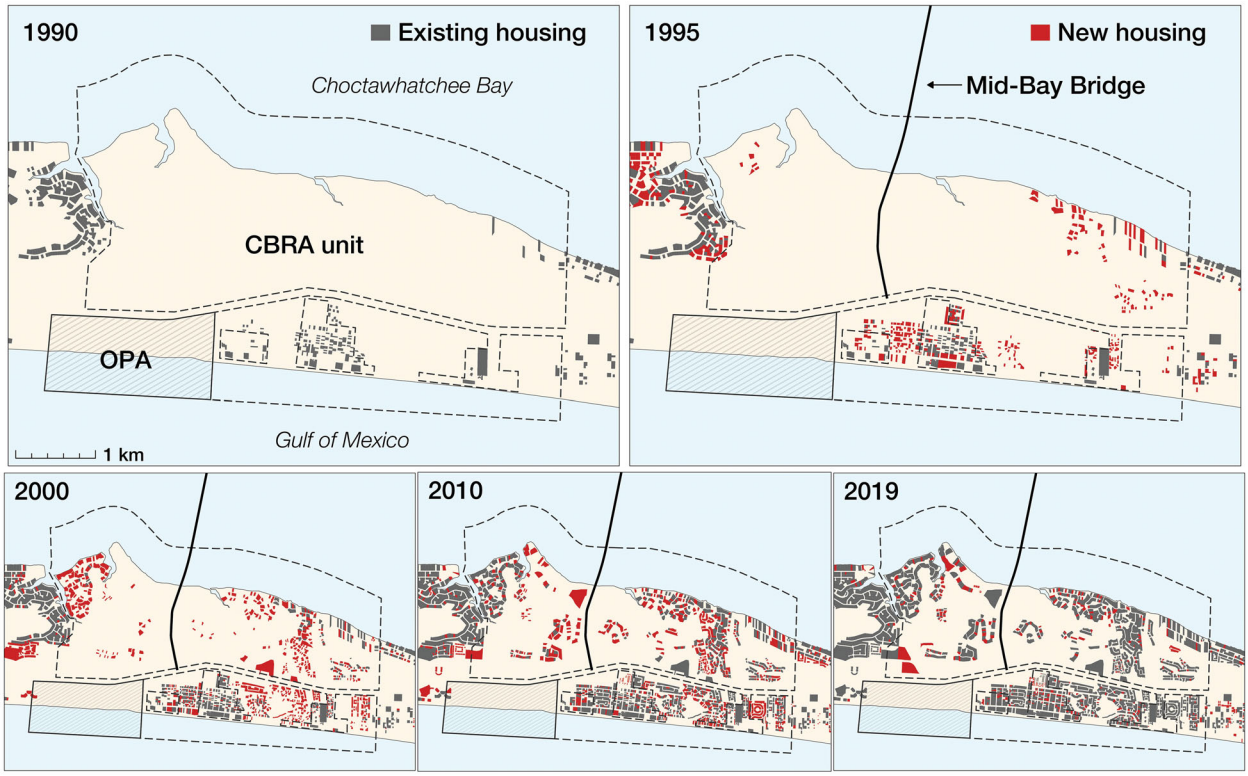

Figure 3. Development patterns in Okaloosa County's (FL) Moreno Point CBRA unit (P32) before and after the construction of the Mid-Bay Bridge.

future expansions of the bridge, including road improvements to improve accessibility to shopping centers. Taken together, what was derisively named the "Bridge to Nowhere" during its construction would help the city of Destin and its surrounding area, as well as the mostly undeveloped land within its nearby CBRA unit, swell to "near bursting" by the early 2000s (see Figure 3; McLaughlin, 2003, p. 1).

Over time, Destin's beaches have become its dominant attraction. Hurricanes in the late 1990s and early 2000s eroded much of the beach in the CBRA unit, threatening development and tourism in the area (Florida Department of Environmental Protection, 2018); however, a beach nourishment project conducted jointly by Walton County and the City of Destin began in 2006 to restore the beach and its protective dune. The 7-mile (11.3-km) stretch of beach included the entire CBRA unit, precluding the use of federal funding. Instead, the city and county used tourist tax revenue to fund half the project, with the other half derived from state grants (McLaughlin, 2003). Working together, state and local governments were able to overcome the limitations of the CBRA and rebuild the beach that helps much of the area's development remain viable. The restoration of the beach's frontal dune also helped keep much of the nearby land outside the 100-year floodplain, reducing the impact of the CBRA's restrictions on National Flood Insurance Program access. Even as public awareness of the impact of climate change on extreme weather and sea level rise has increased in the last decade (Leiserowitz et al., 2012), development in CBRA units has continued to keep pace with areas outside CBRA (see Technical Appendix B).

Finally, development in CBRA units rarely occurred without motivated land interests seeking to capitalize on their holdings. Several developers have played a prominent role investing in new development in the Destin area's CBRA unit, beginning in earnest in the early 1990s. One prominent developer made an early residential subdivision in the CBRA unit a reality by lobbying successfully for two important changes: First, with the help of a local politician, the developer successfully petitioned the county to approve a change in the path of a highway to provide beachfront access for the subdivision's homes (Algarin, 2011). At the same time, they spent approximately $700,000 and 200 days in Washington (DC) lobbying to have this portion of land removed from the CBRA; ultimately, the lobbying was successful, resulting in boundary changes in 1998 (USFWS, 1999). When asked why Destin's CBRA unit developed so rapidly, the developer surmised, "I would imagine that some of it is the effect of what I did." Other local interviewees agreed, with one insurer noting, "You can tie a lot of the development back to just a

few people that really pumped big money into it and made it happen." Thus, with alignment in their desire to improve the growth potential of their holdings, motivated land interests were able to acquire the state and local resources necessary to overcome the removal of federal subsidies.

Muddled (Salt)Waters: Conflicting Coalitions

One of the counties within our study—Currituck County (NC)—exemplified the unpredictability of coastal development and did not conform to either of our hypotheses. In the CBRA unit located along the northern edge of the Outer Banks barrier islands (L01, Currituck Banks; mostly located in the unincorporated community of Carova Beach), state and local governments took a hands-off approach to funding assistance. Proposals to fund a bridge to improve accessibility to the area, as well as efforts to extend a paved road to the area, have been unsuccessful. As a result, the area remains accessible only via the beach (which can be driven on with 4-wheel-drive vehicles) or by boat, yet some development has occurred despite the area's inaccessibility and lack of government funding.

According to county officials, much of the Carova Beach area was platted in the 1960s, with unofficial plans for a large neighborhood that would span the northern part of North Carolina's Outer Banks and the southern edge of Virginia's. However, despite substantial development in neighboring Dare County to the south, much of Currituck County did not start developing until the 1980s. By this time, the establishment of False Cape State Park in Virginia restricted accessibility from the north, whereas the enactment of CBRA increased the cost of building in the Carova Beach area. The county, cognizant of the restrictions on federal infrastructure assistance in the area, as well as its status as home to the famed Corolla wild horses, changed the area's zoning to solely residential. Taken together, each of these events worked to dramatically slow development in the area. According to our interviews, less than a quarter of the lots platted in the 1960s have a home on them today, there is no central water or sewer, and the only roads in the area are those made of sand.

Although it is slow, development continues steadily, with estimates of 20 to 30 homes built per year. Platting of the land prior to the CBRA has aided development, with numerous small lots available for purchase and improvement. According to interviews, much of the development that occurs has been for investment properties and vacation homes, with only about 20% of the development for long-term residents.

Surprisingly, the area's lack of infrastructure and commercial development has become its primary attraction. As one interviewee put it, "Right now, part of the reason people love going up there is it's the Wild, Wild West." The area's inaccessibility is one of its biggest amenities and helps produce an odd mixture of growth and anti-growth sentiment. Every year, individuals are attracted to the area to build homes, with many used as revenue-generating investments or secondary residences. Yet, the county has resisted larger efforts to increase the exchange value of the land in this area, as exemplified by a failed legal battle to secure land use concessions allowing for commercial development in the area (Beamon, 2012).

Despite the desire for more commercialized development among some landowners, many of those with land interests, including residents, realtors, and developers, do not wish to see broader development occur. One local developer praised the CBRA for slowing development in the area; when asked to clarify whether they were supportive of additional construction, the developer responded: "No, I live here too! I like it the way it is." Similarly, with the threat of commercial development being allowed, many "residents protested that the project would open the door for more business growth in an area ill-equipped to handle it" (Beamon, 2012). Contrary to the experience of Destin, those who have been attracted to Carova Beach for its unique character and environment wish it to stay that way and have mobilized to thwart significant land use changes. Although development slowly occurs in the CBRA unit, larger efforts to change the features of the area have produced dynamics that mirror anti-growth coalitions, with landowners mustering political resources to preserve the character of this place.

Discussion

CBRA as a Growth Management Policy

We sought to explore why some CBRA units develop whereas most do not. Using a series of case studies, we found that removing the availability of critical government subsidies from designated areas markedly altered the politics that shape land use decisions and investments. Importantly, the design and implementation of the CBRA as a policy has shaped these outcomes, providing important lessons for future growth management policy.

In most of our study counties, CBRA appeared to have isolated landowners from the resources necessary to improve the growth potential of their land interests. By tying the hands of the federal government, CBRA significantly increased the lobbying costs of growth machines. Although a community surrounding a CBRA unit may seek federal project funding, those resources are unable to directly benefit the landowners within the CBRA unit. Thus, landowners in a CBRA unit must either a) lobby the U.S. Congress to remove their land from

the CBRA, which is both costly and unlikely to succeed; b) hope for indirect benefits from federal funding directed to neighboring, non-CBRA lands; or c) engage coalitions that are willing to forego federal resources and instead focus solely on acquiring resources from state and local governments. In the latter case, the opportunity costs to those with land interests outside CBRA units are significant. This dynamic creates substantial hurdles to building a shared agenda that will benefit land interests within CBRA units, thereby inhibiting the formation of strong growth machines.

Moreover, the CBRA reduced obstacles for anti-growth coalitions by destabilizing the traditional primacy of pro-growth interests. As a result, strong *anti-growth machines* were more likely to emerge and effectively lobby for local and state action, or inaction, that reinforced the CBRA (Clark & Geotz, 1994). The CBRA enabled these coalitions to be more effective even in the absence of characteristics of anti-growth coalitions in other communities, such as a galvanizing anti-growth leader (see Schneider & Teske, 1993).

Investments and Concessions That Drove Growth in CBRA Units

Development still occurred in several counties, often aided by infrastructure investments from state and local governments. Although road building was one such investment, many CBRA units that failed to develop had a primary access road. Instead, powerful growth machines were able to acquire more considerable infrastructure investments from state and local governments needed to sustain development, such as water networks, bridges, or beach nourishment. Landowners in Destin's CBRA unit (P32) were able to garner support for large infrastructure projects in the CBRA by connecting these investments to broader, regional goals. For example, one of the key investments—the Mid-Bay Bridge—had broad support around the region due to the belief that its construction would facilitate job creation in the Destin area and provide access to those jobs for inland residents. Other investments, such as beach nourishment, were framed as benefiting the region's tourism industry.

Perhaps more important, P32's size and location meant any westward growth emanating from Destin would have to cross through, or otherwise leapfrog, the CBRA unit. Within this geographical context, growth interests were able to sway public infrastructure investment into the unit, making these decisions more palatable by offering concessions such as the donation of land for the bridge's right-of-way. This helps contextualize why the growth machine active in Destin's CBRA unit succeeded where others failed: The land within this CBRA unit not only possessed substantial amenity value but was also intimately connected to the broader community's growth. Land interests within the CBRA unit could reasonably assert that building the Mid-Bay Bridge in its present location would benefit communities on both sides of the unit, along with those on the other side of the Bay. This contrasts with the experience of Galveston County's CBRA unit on the Bolivar Peninsula, which has failed to mobilize regional support for a bridge over the Galveston Bay Channel in part because a growing community is not immediately adjacent to the CBRA unit nor reliant on its land for expansion. Landowners within this CBRA unit, as with many others, are not geographically situated for coordination and cooperation with non-CBRA landowners that are beneficial to both parties.

A prominent marker of the political strength of land interests in the CBRA is the ability to secure federal concessions. Though we observed numerous long-term efforts by landowners, developers, and local politicians to change the boundaries of CBRA units, only one (P32) achieved some measure of success. The CBRA's rigid design and implementation, with clearly demarcated unit boundaries that can only be modified by an act of Congress, stifled most growth coalitions. However, strong growth machines have been able to overcome these obstacles, securing changes to the CBRA's boundaries and even procuring federal investment for certain exempted projects, such as the post-hurricane repair of a road deemed an essential link (see Platt et al., 2002; Salvesen, 2005). There is also evidence that several federal agencies erroneously assisted properties in the CBRA after its enactment (USGAO, 2007), although our interviews suggested that adherence to the law has improved over time. Thus, although the CBRA has been largely effective at removing federal investment from designated areas, its design contains some weaknesses that a strong growth machine can exploit.

The CBRA remains most susceptible to being counteracted by the actions of state and local governments. Although the law increases costs to nonfederal actors, overlapping jurisdictions may possess countervailing incentives to foster development in CBRA units or adopt a laissez-faire approach. Although the federal government sought state and local feedback in designating CBRA units, there was little explicit coordination of coastal management policies across the different levels of government. To this day, the CBRA remains a policy on an island, with only a single government plan (in our study area) explicitly incorporating the CBRA into its decision making.

Implications for Practice

Our findings offer lessons for the implementation of policies seeking to manage growth or stimulate land conservation. First, given that multiple overlapping jurisdictions influence development, it is important to develop

strategies to increase policy coordination and reduce the likelihood that different levels of government will undertake actions that conflict with growth management objectives. It may be useful to apply another layer of incentives or disincentives directed at other levels of government to encourage policy alignment. For example, the federal government could offer matching funds to state or local governments to purchase land designated in the CBRA, thereby offering an additional incentive to permanently prevent development of these lands.

Second, a growth management policy is more likely to be successful if its design is robust and resistant to changes and its implementation is unambiguous. The CBRA has been largely effective in thwarting motivated growth interests in part because its boundaries are established by Congress and are immensely onerous to change, its restrictions are clear cut (i.e., no federal funding available within these areas), and the other duties of its implementing body are not a potential source of conflict with the CBRA. Though extensive lobbying efforts can overcome the CBRA, the Act is less likely to be undermined by its implementing agency, the USFWS, because its agency-wide mission overlaps with the CBRA's intent to conserve natural habitats. More important, its role in implementing the policy is narrow. This is in stark contrast to other federal policies that regulate development in sensitive ecosystems, such as Section 404 of the Clean Water Act, which leaves much of the interpretation to the U.S. Army Corps of Engineers, including delineating wetland boundaries (e.g., Lawson, 1988).

Finally, our findings illustrate how even the most well-designed and stringently implemented policies are at risk of being overcome when the conditions are right. The factors that shaped development in Destin's CBRA unit—motivated and connected growth interests, proximity to a growing urban area, high amenity values—are liable to overcome many development disincentives. Even without those ingredients, the attractiveness of an area may still be high enough to facilitate development on its own, as in Currituck County's CBRA unit. This case demonstrates the unpredictability of managing coastal development; even without *any* government resources, the CBRA's implementation in high-amenity areas makes it susceptible to being overcome by individuals willing to pay a premium to live on the coast.

Nevertheless, the CBRA remains largely effective in slowing development by deterring the formation of growth machines. Even though most land use authority is concentrated at local levels, growth machines' reliance on federal subsidies in coastal and hazard-prone areas has empowered the federal government to shape development patterns through the CBRA by selectively removing access to those subsidies. Importantly, its present efficacy suggests opportunities for improvement, such as improved policy coordination with other levels of government.

As coastal areas grapple with increasing hazard risks due to climate change and sea level rise, novel strategies are needed to disincentivize risky development and steer growth toward less hazard-prone lands. This, in part, means overcoming development interests seeking to capitalize on the potential value in these areas. The CBRA's strong policy design and meaningful financial limitations have helped it stifle local growth interests, and its subsidy removal approach should be more broadly considered as an effective strategy for managing development in other environmentally sensitive or hazard-prone contexts.

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