



# **Comments on the National Strategy for a Sustainable Ocean Economy**

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**Public Comment**  
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Executive Office of the President  
Eisenhower Executive Office Building  
1650 Pennsylvania Avenue  
Washington, DC 20504

To whom it may interest,

On behalf of Resources for the Future (RFF), I am pleased to share the accompanying comments to the Office of Science and Technology Policy and the Council on Environmental Quality, on behalf of the interagency Ocean Policy Committee, in response to a request for information on the National Strategy for a Sustainable Ocean Economy.

RFF is an independent, nonprofit research institution in Washington, DC. Its mission is to improve environmental, energy, and natural resource decisions through impartial economic research and policy engagement. RFF is committed to being the most widely trusted source of research insights and policy solutions leading to a healthy environment and a thriving economy.

While RFF researchers are encouraged to offer their expertise to inform policy decisions, the views expressed here are my own and my coauthors' and may differ from those of other RFF experts, its officers, or its directors. RFF does not take positions on specific policy proposals.

The authors of these comments are:

- Margaret Walls, RFF Senior Fellow and Director, Climate Risks and Resilience Program,
- Yanjun (Penny) Liao, RFF Fellow, and
- Hannah Druckenmiller, Assistant Professor, California Institute of Technology and RFF University Fellow.

If you have any questions or would like additional information, please contact me at [walls@rff.org](mailto:walls@rff.org).

Sincerely,

Margaret Walls

Resources for the Future

# Comments on the National Strategy for a Sustainable Ocean Economy

Annual economic losses from disasters in the United States have risen, on average, more than six percent per year since 1980, according to data from the **National Oceanic and Atmospheric Administration**. Tropical cyclones, or hurricanes, account for more than half of these losses. Losses are expected to rise in the future with global climate change and growing exposure of people and property along our coastlines.

According to an Office of Management and Budget report, the annual cost of climate change to the federal government, and thus to American taxpayers, is expected to be over \$17 billion by mid-century and nearly \$66 billion by late century, under a central measure of climate projections (OMB 2022). Coastal disasters account for the lion's share of these costs—84 percent in the mid-century scenario, or nearly \$15 billion.

In our view, maintaining a sustainable ocean economy will be impossible without recognizing and addressing these climate change challenges. In this comment, we report on some new research findings that shed light on one promising policy approach to reducing damages from climate change.

Increasing exposure to risk—i.e., growth in the amount of development in harm's way—is the main reason why climate-induced disasters lead to economic losses. In a recent study, “Can Removing Development Subsidies Promote Adaptation? The Coastal Barrier Resources Act as a Natural Experiment,” our team conducted extensive research into one approach to curbing inappropriate development in risky coastal areas. This approach is to remove implicit federal subsidies that promote development. Specifically, we studied the 1982 Coastal Barrier Resources Act (CBRA), which designated certain coastal areas along the Atlantic and Gulf Coasts as a Coastal Barrier Resources System (CBRS) within which federal funding for new roads, bridges, utilities, and other infrastructure, federal spending on post-disaster relief, and flood insurance under the National Flood Insurance Program (NFIP) are prohibited.<sup>1</sup> The law's intended purpose is to transfer the full cost of protecting and maintaining private development in these areas from federal taxpayers to individual property owners. Besides removing these federal incentives, CBRS designations do not otherwise prohibit development. The law originally designated 450,000 acres of land as part of the system; over time, lands have been added (including along the Great Lakes, the US Virgin Islands, and Puerto Rico), and the CBRS now stands at 3.5 million acres.

We use the CBRA as a natural experiment to study the long-term economic impacts of removing federal assistance in flood-prone areas and assess its efficacy as a land conservation and climate adaptation strategy. Because CBRS lands were carefully selected based on elevation, land cover, location relative to the shoreline, and existing levels of development, we took care in the design of our study to compare lands with similar features to the CBRS lands to have an appropriate “treatment-control” analytical framework. We developed a unique method to construct a control group, combining a spatial machine learning technique known as regionalization with propensity score matching to mimic the process by which natural resource planners determined original CBRS boundaries based on geomorphic and development features. This method allowed us to identify a set of coastal areas that could have been selected for CBRS designations in 1982 but were not.

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<sup>1</sup> The US Fish and Wildlife Service **administers the CBRA** and maintains maps of CBRS units.

The present-day outcomes in the control areas are thus representative of how the treated areas would have developed over four decades had they not been designated as part of the CBRS.

Using this method, we addressed three main research questions:

1. Has the CBRA been effective in discouraging development within designated areas and thus limiting exposure to damaging coastal storms and flooding?
2. What have been the long-term impacts of the CBRA on development, flood damages, and land values in neighboring areas near CBRS lands?
3. What are the overall effects on property tax revenues for counties that include CBRS lands?

Through answering these questions, we assessed not only the direct effect of CBRA inside the designated areas, but also its spillover effects on neighboring areas. This allows for a comprehensive picture of the CBRA's economic impacts. Our analysis yielded several key findings, which provide important insights into approaches that may help in achieving a sustainable ocean economy:

- The density of development (number of houses per acre of land) is 85 percent lower on CBRS lands compared to the control areas, showing that the CBRA has been highly effective in curbing development and limiting exposure to flood risks, which was the law's primary objective.
- In the areas surrounding the CBRS units, we find a 20 percent increase in development densities. Thus, some of the reduction in development on CBRS lands has been offset to neighboring lands. We also find that property values on neighboring lands are higher, which we attribute to the capitalization of amenity values and storm protective services provided by the natural lands in the CBRS.
- We also find a significant reduction in the intensity of flood damage in the neighboring areas, measured as the change in NFIP claims per thousand dollars of insurance coverage. This finding provides further evidence that CBRS lands are providing protective services to nearby properties.
- Using our findings, we calculate that the CBRS designations, through eliminating flood claims on the CBRS lands (because property owners do not have access to the NFIP) and reducing flood damage intensity in neighboring areas, lead to an approximately 7 percent drop in annual NFIP claims in coastal counties. This is a savings to the federal government's flood insurance program of approximately \$112 million per year.<sup>2</sup>
- Local governments often worry about a loss of vital property tax revenues when there is a reduction in development. Overall, however, we find that the effects of the CBRA on coastal county property tax revenues are minimal, with the loss in revenues on CBRS lands mostly offset by a gain in revenues from neighboring properties. According to our calculations, more than half of the counties that host CBRS lands experience a net positive fiscal effect.

Overall, we find that the CBRA has been highly effective in achieving its primary objective of limiting development and reducing flood damages in disaster-prone coastal areas while also generating protective services and other positive spillover effects for nearby areas. Because the policy is both less restrictive and less costly than most land use regulations and land or easement purchase programs, it may offer a particularly attractive option for managing development in areas at high risk of natural disasters and climate change.

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<sup>2</sup> Coburn and Whitehead (2019) calculate that the CBRA reduced federal coastal disaster expenditures by \$9.5 billion over a 24-year period.

Studies are increasingly recognizing the value of “natural infrastructure” in coastal areas such as marshes, wetlands, oyster beds, dunes, and other natural lands (Narayan et al. 2017; Costanza et al. 2021). As sea levels continue to rise and the worst hurricanes become more frequent, these lands are becoming both more valuable and more vulnerable to climate impacts (Epanchin-Niell et al. 2017).<sup>3</sup> One way to prepare for these challenges is to find ways to replace natural infrastructure that may be lost to sea level rise, growing the extent of coastal conservation to provide protective services in the future. Expanding CBRS lands to preempt development in a larger set of risky areas may be one way to do this. A current bill in Congress, the ***Strengthening Coastal Communities Act of 2022***, proposes adding over 277,000 acres to the CBRS in nine Atlantic coast states, as well as a new coastal hazard pilot project to identify areas that could be added to the system. Passing such a bill could help lower the economic burden of disasters on the federal government and overall disaster costs, promoting a more sustainable coastal economy.

More broadly, implicit federal subsidies for development such as federal infrastructure spending, disaster assistance, and subsidized flood insurance should be examined more closely to determine their contribution to high development levels in vulnerable coastal lands. Our experience with the CBRS shows that withdrawing these subsidies can limit exposure to coastal hazards, contribute to the preservation of natural lands that provide a range of environmental benefits, and reduce federal liabilities in the event of disasters. Indeed, a sustainable and thriving ocean economy is not possible without attention to the problem of over-development in high-risk coastal zones.

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<sup>3</sup> See, for example, the **damage to Fire Island** in New York from coastal storms despite federal investments in restoring dunes and beaches.