

Coastal Flood Resilience Project

WHITE PAPER

Ocean-Based Climate Solutions Act 4.28.2021

The Ocean-Based Climate Solutions Act (H.R. 8632), introduced in the last Congress, provided for significant improvements to the climate related elements of the nation's ocean and coastal programs. This *White Paper* describes the risks that coastal storms and sea level rise poses for coastal communities, infrastructure, and ecosystems and provides suggestions for possible improvements related to coastal flood resilience in any bill reintroduced this year.

Coastal Flood Resilience Problem Statement

A changing climate is causing more severe storms and rising sea levels that pose a significant risk to coastal communities, infrastructure, and ecosystems.

Coastal storms are a major risk to life and property and a warming climate is causing an increase in the number of the strongest storms. These storms bring more extensive coastal flooding, higher storm surges, and increased rainfall. Research indicates that intense storms are [slowing down and thus](#) raining on a given place for longer. Even as storms move more slowly, they [intensifying more rapidly](#), making their landfall harder to predict and more likely to result in major damage and loss of life.

Sea level rise around the globe is likely to be [3 to 4 feet by 2100](#) but may be as high as 6 to 8 feet if efforts to control emissions of greenhouse gases falter. Sea level rise along parts of the American coast will be as much as [30 percent greater](#) than the global average due to factors such as ocean currents and land subsidence. In the short term, this will result in more [“sunny day flooding”](#) during high tides and larger surges and greater flooding during storms. In the long term, sea level rise will lead to permanent inundation of significant parts of the American coast.

More severe storms and rising seas will bring economic, environmental, and social disruption to coastal communities on an unprecedented scale. Prompt and thoughtful preparation for these impacts can save lives and dramatically reduce costs. Millions of people and [hundreds of coastal communities](#) face far more extensive flooding than they currently experience. The combination of more severe storms and rising seas is projected to result in potential losses of coastal property running into [trillions of dollars](#). These loss estimates, however, are based on the existing population along the coast which is increasing rapidly. Population living right along the coast (i.e., at elevations of 33 feet and lower) is expected to [double by 2060](#).

In addition, low income and minority communities are [in harm's way](#). These communities are [disproportionately affected](#) by climate change including sea level rise, flooding, and extreme coastal weather events, and often lack the resources to respond to these risks. .

Storm and sea level rise risks to critical coastal infrastructure, such as transportation, water, and energy, [are well documented](#). [Thousands of miles of roads](#), railroads, ports, and airports are at risk. [Sewage treatment plants](#) and drinking water treatment facilities will be inundated. [Energy facilities](#), especially along the Gulf coast, are endangered. [Major defense installations](#), such as Naval Station Norfolk, need to prepare for more severe storms and rising seas.

Coastal beaches and wetlands have already been harmed by coastal storms and rising seas and these losses will increase in the future. Some researchers estimate loss of [30 percent of Gulf of Mexico wetlands](#) by 2050 and over [60 percent of California beaches](#) by 2100. Some of these ecosystems may be able to migrate to upland areas if geography is favorable and if the needs of communities and infrastructure do not take priority. The fortunes of [coastal tourism](#) and [fishing sectors](#) are tied to the health of these ecosystems.

Key Proposals in Oceans-Based Climate Solutions Act

Enactment of the Ocean-Based Climate Solutions Act will provide critical new authority and resources to help federal agencies, states, and local governments effectively respond to coastal flood and sea level rise risks. Some key proposals are described below.

- 1. New Grants for Coastal Flood Hazard Planning and Project Implementation:** State and local governments need to start now to plan to respond to more severe storms and rising seas. As these plans are developed, they will need financial assistance to implement plans. Section 604 of H.R. 8632 amended the Coastal Zone Management Act to provide increased funding for grants to states for planning and implementation to address these coastal flood hazards including an authorization of \$100 million per year for five years. This new authority directed the National Oceanic and Atmospheric Administration to provide technical assistance as well as guidance addressing challenging issues, such as evaluation of response options ranging from construction of protection structures to relocation and best practices for engaging disadvantaged communities. Additional authority was provided for assisting coastal communities facing severe flooding after a major disaster.
- 2. Shovel Ready Coastal Restoration Projects:** Many coastal communities have suffered from coastal flooding for years and have developed projects that will improve resilience and are ready to proceed once funding is available, including projects using nature-based infrastructure and protecting “blue carbon”. Section 1005 provided \$3 billion to support these and related projects. Disadvantaged communities are given priority for this funding.

- 3. Coastal Land Conservation Funding:** A key element of many state and local plans to respond to coastal flood hazards is the acquisition of land to provide a buffer for storm surges and facilitate the inland migration of coastal ecosystems as sea levels rise. Section 603 of the bill amended the existing Coastal and Estuarine Land Conservation Program to support these efforts and renews the authorization at \$60 million per year for five years.
- 4. Living Shoreline Grant Program:** Coastal storm surges and rising sea levels are resulting in erosion and landward migration of existing shorelines. Property owners interested in stabilizing shorelines have the option of armoring the shoreline (e.g., building a seawall or bulkhead or applying rip rap) or using less damaging practices like a “living shoreline” that uses primarily biological material to support existing wetlands and related natural features. Section 1001 of the bill provided for new authority for NOAA to make grants to governments and nonprofit organizations for living shoreline projects. Funding of \$50 million per year for five years was authorized and a match of 50 percent of project costs was required unless waived by the NOAA Administrator.
- 5. National Oceans and Coastal Security Act:** The existing National Oceans and Coastal Security Act provides funding for grants for improving the resilience of coastal ecosystems. In 2021, funding for grants is \$34 million. Section 1004 of the bill provided an increased authorization of \$100 million per year. In addition, Section 319 of the bill provided that 30 percent of wind energy lease revenue is to be deposited in the National Oceans and Coastal Security Fund established by the National Oceans and Coastal Security Act.
- 6. Strategic Climate Change Relocation Initiative:** Many coastal communities working to respond to more severe storms and rising sea level face difficult choices about whether to build protection structures, such as seawalls, or to plan for gradually shifting homes and community assets to higher ground. H.R. 8632 directed the Chair of the Council on Environmental Quality to assist communities seeking assistance with these choices and to develop a report to Congress within two years of the date of enactment describing the key elements of a new Strategic Climate Change Relocation Program.
- 7. Federal Leadership on Coastal Inundation Risks:** Making consistent progress toward reducing coastal flood and sea level rise risks will require national leadership. H.R. 8632 provided for federal agencies to provide leadership in evaluating and addressing coastal flood resilience risks:

 - Section 1211(c)(4) called on the existing Interagency Committee on Ocean Mapping to develop and initiate a research agenda to improve understanding of inundation risks to coastal areas and to meet the information needs of decision-makers;
 - Section 1213 created a new Committee on Ocean Policy with several functions including to “evaluate threats to coastal communities from storm and sea level rise and define, implement, and coordinate needed policies and programs to advance national preparedness for and resilience to more severe storms and rising sea level”; and

- Section 1215 provided for a new National Sea Level Rise Risk Analysis this is to, among other things “produce new information products and services, targeted to end-user needs, that allow coastal communities across the United States to plan for present and future coastal flood risk” and requires a report on these risks from NOAA within 180 days and every three years thereafter.

- 8. Coastal Wetland Restoration:** Coastal wetlands are critical to sustaining fisheries and coastal communities and provide valuable buffers from storms and rising seas. H.R. 8632 proposed a major new investment in restoration of coastal wetlands. Title XIII set a goal of restoring 1.5 million acres of coastal wetlands over 10 years and authorized \$400 million a year for projects on federal land and a total of \$200 million for grants to protect other coastal wetlands.
- 9. Coastal Barrier Resources Act:** The Coastal Barrier Resources Act (CBRA) prohibits federal spending, including subsidies such as federal flood insurance, for property on vulnerable coastal barriers. The CBRA program helps to discourage development in these risky areas and thus reduces loss of life and property and federal spending on disaster relief. Title V of H.R. 8632 made important improvements to the Coastal Barrier Resources Act, including a pilot program addressing addition to the program of coastal hazard area at risk of flooding, storm surge, and sea level rise, a report on expansion of the program to the Pacific coast and Territories, and a requirement for disclosure that a property is in the CBRA system at time of property sale.

Comments and Suggestions

The coastal flood resilience provisions of H.R. 8632 provided for critically needed improvements in the national program to prepare for more severe coastal storms and rising sea level. Some possible additions to the bill are identified below.

- 1. Blue Carbon Strategy and Methane:** There is growing [evidence](#) that aquatic ecosystems are a significant source of methane emissions and that changes in location as a result of sea level rise or the use of various management practices can increase or decrease release of methane. **The Blue Carbon Program in section 101 of H.R. 8632 and the related strategy in section 106(e) should be amended to provide for consideration of potential impacts of carbon sequestration actions on methane emissions.**
- 2. Sea Level Rise and Fisheries Management:** Section 405 of HR 8632 established new authority for considering climate change in fisheries research and management. **Proposed new section 409 of the Magnuson-Stevens Act should include consideration of the impact of sea level rise on fisheries generally and consideration of potential loss of Essential Fish Habitat and Habitat Areas of Particular Concern.**
- 3. Expanded Definition of Coastal Barrier:** Coastal barriers are extremely vulnerable to more severe storms and rising seas. The current Coastal Barrier Resources Act (CBRA) prohibits Federal investment, including subsidies such as federal flood insurance, on

coastal barriers that are undeveloped (i.e., have limited development of less than one structure per five acres and lack services such as power and water). The current definition prevents many coastal barriers with higher density development from being included in the program. Expanding the program to include barriers that have higher density development would discourage further development of these barriers and thereby reduce loss of life and property and reduce federal disaster relief costs. **An updated version of H.R. 8632 should amend section 3503(g)(1)(A) of the current law to allow the Secretary of Interior to propose addition of barriers to the CBRA with a higher density (e.g., less than five structures per 5 acres) and to include lands to which barriers are expected to migrate as sea level rises.**

4. **New Standards for Living Shorelines:** Living shoreline projects are generally an improvement over other more damaging shoreline stabilization approaches, such as bulkheads and rip rap. The design of these projects, however, varies widely and, because there is no national design standard, some living shoreline projects bring some of the same undesirable features as more conventional projects. **The definition of “living shoreline” in 1005(i)(2) of the H.R. 8632 should be amended to emphasize the use of biological materials, rather than simply natural materials like rock, and provide that projects facilitate landward migration on the landward side of the project rather than just stabilize the shoreline side of a project site.** Section 1005(f)(3) should be amended to direct NOAA to develop national minimum standards for such projects.
5. **Better Mapping of Future Coastal Risk Areas:** Section 1211(c)(4) of H.R. 8632 called on the existing Interagency Committee on Ocean Mapping to develop and initiate a research agenda to improve understanding of inundation risks to coastal areas and to meet the information needs of decision-makers. **This important provision should be revised to more formally authorize the process of revising maps of the nation’s shoreline in response to rising sea level.** NOAA should also be directed to provide a digital mapping service that allows users to easily identify flood risks around the country as a result of sea level rise projected to occur by 2050 and 2100 based in the Intermediate High scenario in the [NOAA 2017 sea level rise scenario report](#) and maximum tide and storm surge by hurricane category.
6. **Planning for Protection of Coastal Wetlands:** Title XIII of H.R. 8632 provided critical new authority for wetlands restoration and section 1305 set a goal of restoring 1.5 million acres over 10 years. And, section 1303(b) of the bill provided for an inventory of coastal wetlands. **This title of the bill should be improved by addition of a direction to NOAA to work with other federal agencies and stakeholders to develop a coastal wetland protection and restoration strategy that explains how the new grant funds and other authorities will be used to meet the 10-year restoration goal.** In addition, the inventory should include both existing wetlands and places that are not wetlands today but are expected to become wetlands in the future as sea level rises. The inventory should also include assessment of the likelihood of successful inland migration of existing coastal wetlands based on elevation and soil type of adjacent lands and presence of geographic barriers or human development.

- 7. Sustaining Beaches as Sea Level Rises:** Beaches are a critical element of coastal ecosystems, provide outstanding recreational value, and are important contributors to the economies of coastal communities. Like wetlands, beaches will migrate inland as sea level rises where geography and human development make that possible. Unfortunately, data on the consequences of rising sea level for the nation's beaches is limited and inconsistent. **A new version of H.R. 8632 should include a new section to Title V directing the Department of Interior to work with other federal agencies to inventory the nation's beaches and assess the potential for beaches to survive varying degrees of sea level rise.** Federal agencies should also work with state and local governments and stakeholders to develop recommendations for adapting beaches to rising sea level in coordination with similar plans for wetlands as well as communities and infrastructure.
- 8. Forward Looking Ocean Report:** The report provided for in section 1503 of H.R. 863 called for annual reporting of important baseline information on changes to ocean conditions, including sea level rise, but is limited to current and historical data and trends in that data. **This provision should be amended to add projected changes in these conditions where such projections are available.** In addition, because sea level and other changes are different around the U.S. coast, changes and projections should be reported by region in addition to as a national or global average.
- 9. Report on Coastal Demographics:** More severe storms and sea level rise will cause significant changes in the location of people living along the coast. As the population moves to higher ground in the decades ahead, it will be important to have baseline and updated information on population changes in coastal counties and in areas right along the coast (i.e., in the coastal floodplain). Information about socio-economic characteristics of this population, and the places people choose to relocate to, will also be needed to support effective planning and adaptation strategies. **A new section should be added to Title XV of H.R. 8632 providing for a biennial report on coastal demographic changes related to climate change and shifting coastlines.**
- 10. Study of Legal Issues Related to Ownership of Lands Inundated by Rising Seas:** State and local governments are working to manage coastal flood risks but are concerned that their actions might result in legal challenges under the 5th amendment to the Constitution regarding "takings." There is some debate about how lands inundated, or soon to be inundated, by rising seas should be treated with respect to takings (i.e., whether a local government has to pay compensation for a loss of use or failure to provide a service such as water or power). **A new section should be added to Title XV of H.R. 8632 providing for a study of issues related to inundated and soon to be inundated lands. The study should be developed by Federal agencies with input from diverse stakeholders, including legal scholars and frontline and indigenous communities, especially those without traditional deeds. The study should provide Congress, other units of government, and the private sector with information on the socioeconomic and legal status of inundated and soon to be inundated lands and make recommendations to ensure more transparency, identify**

legal protections to frontline and indigenous communities, and reduce uncertainty for all parties.

The *Coastal Flood Resilience Project* is a coalition of organizations working for stronger programs to prepare for coastal storm flooding and rising sea level in the United States. The views expressed in this *White Paper* are those of the contributors and do not represent the views or endorsements of their organizations.

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