

**H.R. 660, H.R. 1415, H.R. 1689, H.R. 2750,
H.R. 3160, H.R. 3228, H.R. 3692, H.R. 3748,
H.R. 3764, H.R. 3817, H.R. 3864, H.R. 3892,
and H.R. 3906**

LEGISLATIVE HEARING

BEFORE THE

**COMMITTEE ON NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES**

ONE HUNDRED SEVENTEENTH CONGRESS

FIRST SESSION

Tuesday, June 22, 2021

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**LEGISLATIVE HEARING ON H.R. 660, “SHOVEL-
READY RESTORATION GRANTS FOR COAST-
LINES AND FISHERIES ACT OF 2021”;
H.R. 1415, “TRIBAL COASTAL RESILIENCY
ACT”; H.R. 1689, “OFFSHORE WIND FOR TER-
RITORIES ACT”; H.R. 2750, “BLUE CARBON
FOR OUR PLANET ACT”; H.R. 3160, “KEEP
AMERICA’S WATERFRONTS WORKING ACT”;
H.R. 3228, “NATIONAL COASTAL RESILIENCE
DATA AND SERVICES ACT”; H.R. 3692,
“MARINE MAMMAL CLIMATE CHANGE PRO-
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ACT”; H.R. 3764, “OCEAN-BASED CLIMATE
SOLUTIONS ACT OF 2021”; H.R. 3817,
“REGIONAL OCEAN PARTNERSHIP ACT”;
H.R. 3864, “CHESAPEAKE BAY OYSTER RE-
SEARCH ACT”; H.R. 3892, “NATIONAL
OCEANS AND COASTAL SECURITY IMPROVE-
MENTS ACT”; AND H.R. 3906, “BLUE CARBON
PROTECTION ACT”**

**Tuesday, June 22, 2021
U.S. House of Representatives
Committee on Natural Resources
Washington, DC**

The Committee met, pursuant to notice, at 2:59 p.m., via Webex, Hon. Raúl M. Grijalva [Chairman of the Committee] presiding.

Present: Representatives Grijalva, Huffman, Lowenthal, Porter, Stansbury, Dingell, McEachin, Soto, Case, Cohen, Tlaib; Westerman, Young, Gohmert, Graves, Radewagen, González-Colón, Stauber, Tiffany, Carl, Moore, Herrell, Boebert, and Bentz.

The CHAIRMAN. Thank you. The Committee on Natural Resources will come to order.

The Committee is meeting today to hear testimony on ocean climate legislation. Under Committee Rule 4(f), any oral opening statements at the hearing are limited to the Chair and the Ranking Member or their designees. This will allow us to hear from our witnesses sooner and help Members keep to their schedules.

Therefore, I am asking unanimous consent that all other Members’ opening statements be made part of the hearing record if they are submitted to the Clerk by 5 p.m. today or at the close of the hearing, whichever comes first.

Hearing no objection, so ordered.

I also want to welcome today Representative Melanie Stansbury to the Committee. Representative Stansbury has extensive experience on issues under the Committee's jurisdiction. Before being elected to the House of Representatives, Representative Stansbury served in the New Mexico legislature where she advanced many forward-thinking climate and natural resource policies.

The Representative also reported on natural resources issues at the White House Council on Environmental Quality, the Office of Management and Budget, and the Senate Energy and Natural Resources Committee where she oversaw western water issues and other issues that fall under this Committee she'll be serving under. Representative Stansbury will bring valuable experience to the Committee, and we are very lucky to have her join us, and we welcome her.

I will now recognize myself for an opening statement on the legislation before us today.

STATEMENT OF THE HON. RAÚL M. GRIJALVA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

The CHAIRMAN. Today, during World Oceans Month, the Committee is meeting about the new and improved Ocean-Based Climate Solutions Act. In November 2020, at that hearing, it introduced many of us to the concept of ocean-based climate solutions which we learned can provide up to 21 percent of the annual emissions cuts we need to address climate change.

With ocean climate action, we will protect coastal communities and their ecosystems from dangerous symptoms of climate change, capture and reduce greenhouse gases, and achieve justice for underserved communities. And while we are at it, we can build back better, bolstering the economy and putting people to work in green or blue careers.

There are several changes in the Ocean-Based Climate Solutions Act that I would like to highlight for you today. Some of the sections were removed because they have already been signed into law such as the Digital Coast Act or the Integrated Coastal Ocean Observation System. Other sections were removed because the Biden administration is already acting on the initiative to protect 30 percent of our ocean by 2030 and reinstating the Northern Bering Sea Climate Resilience Area.

A new title places a 5-cent excise tax on virgin plastic manufactured for single-use products, which will help pay for ocean conservation. Taxing plastic will also discourage this wasteful material that chokes our marine life, contributes to climate change, and creates environmental injustices.

Other new additions to this version of the bill will include: a report on the United States' progress and plans toward achieving the targets of our United Nations Sustainable Development Goal to conserve and sustainably use the oceans and marine resources; a new grant program in the National Marine Sanctuary System to support climate research and resilience with Indigenous and local knowledge of marine and natural areas; a requirement that NOAA develop and coordinate data, products, and services regarding

coastal flooding, sea level rise, and Great Lakes water levels; a study on black carbon, quantifying black carbon emissions and examining its impact on Indigenous communities and arctic wildlife; and a study on public access to our Nation's coasts, including the Great Lakes, because, unfortunately, there are many barriers and obstacles for underserved communities accessing our coasts, and climate change is only making that more difficult.

Throughout the bill, we made technical changes based on feedback from stakeholders and environmental groups as well as NOAA and the Fish and Wildlife Service, who are with us today to provide further feedback. We talked to a wide array of stakeholders, ensuring our solutions are solutions for everyone.

I greatly look forward to the hearing from today's panel of witnesses, who are leading ocean climate and justice efforts at grassroots, local, state, and national levels. With 29 co-sponsors already on, we are proud of this bill and the momentum for ocean climate solutions.

[The prepared statement of Mr. Grijalva follows:]

PREPARED STATEMENT OF THE HON. RAÚL M. GRIJALVA, CHAIR, COMMITTEE ON
NATURAL RESOURCES

Today, during World Oceans Month, the Committee is meeting about the new and improved Ocean-Based Climate Solutions Act.

Our November 2020 hearing introduced many of us to the concept of ocean-based climate solutions, which we learned can provide up to 21 percent of the annual emissions cuts we need to address climate change.

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Some sections were removed because they have already been signed into law, such as the Digital Coast Act and the Integrated Coastal Ocean Observation System.

Other sections were removed because the Biden administration is already acting on the initiative to protect 30 percent of our ocean by 2030 and reinstating the Northern Bering Sea Climate Resilience Area.

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Other new additions to this version of the bill include:

- a report on the United States' progress and plans toward achieving the targets of our United Nations Sustainable Development Goal to conserve and sustainably use the ocean and marine resources;
- a new grant program in the National Marine Sanctuary System to support climate research and resilience with Indigenous and local knowledge of marine and natural areas;
- a requirement that NOAA develop and coordinate data, products, and services regarding coastal flooding, sea-level rise, and Great Lakes water levels;
- a study on black carbon, quantifying black carbon emissions and examining its impacts on Indigenous communities and Arctic wildlife;
- and a study on public access to our nation's coasts, including the Great Lakes—because unfortunately, there are many barriers and obstacles for underserved communities to accessing our coasts, and climate change is only making it more difficult.

Throughout the bill, we made technical changes based on feedback from stakeholders and environmental groups, as well as NOAA and the Fish and Wildlife Service, who are with us today to provide further feedback.

We talked to a wide array of stakeholders, ensuring that our solutions are solutions for everybody.

I greatly look forward to hearing from today's panel of witnesses, who are leading ocean-climate and justice efforts at the grassroots, local, state, and national levels.

With 29 co-sponsors already signed on, we are proud of this bill and the momentum for ocean climate solutions.

Finally, I would like to enter into the record two letters of support for the Ocean-Based Climate Solutions Act. One is signed by more than 135 organizations and businesses, representing millions of Americans. Another is from 19 of the nation's leading aquariums.

The CHAIRMAN. Finally, I would like to enter into the record two letters of support for the Ocean-Based Climate Solutions Act. One is signed by more than 135 organizations and businesses representing millions of Americans. The other is from 19 of the Nation's leading aquariums.

[The information follows:]

June 22, 2021

Nancy Pelosi, Speaker
U.S. House of Representatives
Washington, DC 20515

Kevin McCarthy, Minority Leader
U.S. House of Representatives
Washington, DC 20515

Dear Speaker Pelosi and Minority Leader McCarthy,

Our ocean is a source of solutions and hope when it comes to addressing climate change. The undersigned businesses and organizations are writing to express our strong support for ocean climate action and the inclusion of ocean-based solutions in any larger climate legislation.

Major scientific reports such as the Special Report on the Ocean and Cryosphere and the High Level Panel Report on a Sustainable Ocean Economy have shown us not just the devastating toll climate change has had on the ocean, but also the incredible role it has to play as a source of climate solutions with the potential to provide a fifth of the greenhouse gas emission reductions needed globally to limit temperature rise to 1.5°C.

Support for ocean climate action is at an all time high. Since January, the Biden Administration has made impressive progress on ocean climate action, through promoting ocean-based renewable energy; pausing offshore oil and gas leasing for a rigorous review; prioritizing environmental justice in ocean and climate decision making; advocating for investments in coastal restoration and resilience; and supporting ocean sanctuaries for fish and wildlife to thrive in a changing climate.

Now, Congress has the opportunity to act and turn the vision for ocean climate action into durable solutions. The Ocean-Based Climate Solutions Act of 2021 (H.R. 3764), led by House Natural Resources Committee Chair Raúl Grijalva, will codify many of the proposals made by the Biden Administration, and includes many other innovative provisions to leverage the power of the ocean to address climate change. By implementing a full suite of ocean-based climate solutions, the legislation would bolster frontline communities, increase the resilience of ocean ecosystems, and demonstrate much-needed leadership in the global effort to address the climate crisis.

Specifically, the Ocean-Based Climate Solutions Act of 2021 will:

Reduce Greenhouse Gas Emissions by supporting the transition to a clean energy economy through promoting ocean-based renewable energy. The bill also prohibits oil and gas development activities in most areas of the Outer Continental Shelf.

Increase Carbon Storage in Blue Carbon Ecosystems by capitalizing on the carbon storage potential and other co-benefits provided by "blue carbon" ecosystems like salt marshes, sea grasses, and mangroves. These ecosystems absorb carbon dioxide out of the atmosphere and safely store it at a rate of up to four times that

of forests on land. They also protect coastal communities by limiting the impacts of coastal erosion, flooding, and storms—all while providing habitat for marine wildlife and fisheries.

Promote Coastal Resiliency to protect our coasts and communities from the climate impacts we can't avoid; mandate the establishment of a strategic task force to coordinate federal efforts around voluntary relocation; and recognize and support tribal and Indigenous knowledge and expertise. It also authorizes a \$10 billion investment in coastal restoration and resilience that is a win-win-win for our economy, our frontline communities, and our environment.

Improve Ocean Protection by supporting the Biden Administration's goal to protect at least 30% of our ocean by 2030. Marine protected areas, like our protected areas on land, are a key tool for protecting biodiversity, which is more critical than ever in the face of the nature and climate crises.

Support Climate-Ready Fisheries by encouraging the development and implementation of strategies to improve the management of fisheries in a changing climate. The bill will help to promote U.S. seafood sourced from environmentally and climate-friendly fisheries and eliminate fishing subsidies in trade agreements for countries that contribute to overfishing or illegal, unreported, and unregulated fishing.

Tackle the Ocean and Human Health Challenges of ocean acidification and harmful algal blooms and the impacts of plastic pollution by establishing a manufacturers fee on virgin single-use plastic production.

The Ocean-Based Climate Solutions Act of 2021 would bolster frontline communities most at risk from climate change; increase the resilience of ocean ecosystems; and help demonstrate much-needed leadership in the global effort to address the climate crisis. We urge you to act quickly to implement the measures detailed in this legislation—before it's too late.

Signed,

350 Maine	Inland Ocean Coalition Great Lakes Chapter
Acadia Center	Inland Ocean Coalition Illinois Chapter
AFGE Local 704	Inland Ocean Coalition Montana Chapter
Alaska Wilderness League	Inland Ocean Coalition North Texas Chapter
ALRAS Digital	Inland Ocean Coalition University of Michigan Chapter
American Littoral Society	Inland Ocean Coalition Washington DC Chapter
Audubon Delta	Inland Ocean Coalition Wyoming Chapter
Audubon Florida	International Fund for Animal Welfare
Audubon Great Lakes	International Marine Mammal Project of Earth Island Institute
Audubon New York	League of Conservation Voters
Audubon Society Lincoln City	Lopez-Wagner Strategies
Audubon South Carolina	Marine Conservation Voters
Audubon Washington	Maine Council of Churches

Azul	Maine Unitarian Universalist State Advocacy Network
Bay Area Youth Climate Summit	Marine Conservation Institute
Benitez Strategies	Marine Mammal Alliance Nantucket
Blue Frontier	Maryland League of Conservation Voters
California League of Conservation Voters	Milwaukee Riverkeeper
Californians for Western Wilderness	Mystic Aquarium
Center for American Progress	National Aquarium
Center for the Blue Economy	National Audubon Society
Cetacean Society International	National Ocean Protection Coalition
Clean Water Action	National Parks Conservation Association
Climate Law & Policy Project	Natural Resources Defense Council (NRDC)
Climate Strong Islands Network	NC League of Conservation Voters
Coastal Conservation League	New Mexico Wildlife Federation
Colorado Ocean Coalition	NY4WHALES
Conservation Law Foundation	Ocean Conservancy
Conservation Voters PA	Ocean Conservation Research
Conservation Voters South Carolina	Ocean Defense Initiative
Corazon Latino	Ocean River Institute
CT League of Conservation Voters	Ocean Visions, Inc.
Defenders of Wildlife	Oceana
EarthEcho International	Oceanic Preservation Society
Endangered Species Coalition	Only One
Environment America	Oregon League of Conservation Voters
Environmental Action Committee of West Marin	Patagonia
Environment California	Philadelphia Zoo
Environment Connecticut	Restore America's Estuaries
Environment Florida	Rivers Alliance of Connecticut
Environment Georgia	Sachamama
Environment Maine	Sanctuary Education Advisory Specialists (SEAS)

Environment Massachusetts	Save the Manatee Club
Environment New Jersey	Save the Sound
Environment North Carolina	Seattle Aquarium
Environment Oregon	Seven Circles Foundation
Environment Texas	Shedd Aquarium
Environment Virginia	Sierra Club
Environment Washington	Sierra Club National Marine Team
Environmental Defense Center	South Shore Audubon Society
Environmental Law & Policy Center	Southern Environmental Law Center
Environmental League of MA	Surfrider Foundation
Florida Bay Forever	Sylvia Earle Alliance/Mission Blue
Friends of Casco Bay	TAO
Gotham Whale	The FREED Peoples
Great Old Broads for Wilderness	The Ocean Foundation
GreenLatinos	The Ocean Project
Greenpeace USA	The Rachel Carson Council
Hannah4Change	The Rewilding Institute
Healthy Ocean Coalition	The Whale Guitar Project
Hispanic Access Foundation	The Wilderness Society
Inland Ocean Coalition	The Years Project Inc.
Inland Ocean Coalition Alaska Chapter	Tropical Audubon Society
Inland Ocean Coalition Arizona Chapter	Urban Ocean Lab
Inland Ocean Coalition Buffalo NY Chapter	Virginia Aquarium & Marine Science Center
Inland Ocean Coalition Central Texas Chapter	Waterkeeper Alliance
Inland Ocean Coalition CSU Fort Collins Chapter	Wildlife Conservation Society
Inland Ocean Coalition CU Boulder Chapter	World Wildlife Fund



June 14, 2021

Hon. Raúl Grijalva
Chair
Committee on Natural Resources
U.S. House of Representatives
Washington, DC 20515

Hon. Bruce Westerman
Ranking Member
Committee on Natural Resources
U.S. House of Representatives
Washington, DC 20515

Hon. Peter DeFazio
Chair
Committee on Transportation and
Infrastructure
U.S. House of Representatives
Washington, DC 20515

Hon. Sam Graves
Ranking Member
Committee on Transportation and
Infrastructure
U.S. House of Representatives
Washington, DC 20515

Dear Chair Grijalva, Chair DeFazio, Ranking Member Westerman and Ranking Member Graves:

As the nation's leading aquariums committed to ocean and freshwater conservation, we thank you for your climate leadership and express our support for strong ocean-climate action included in the Ocean-Based Climate Solutions Act of 2021 (H.R. 3764).

We recognize that climate change is the greatest threat to the future of our planet, of people, and of our ocean and freshwater systems. For the well-being of people and all life on Earth, we must take immediate and significant action to address the climate crisis. Climate action can produce local economic benefits, generate new jobs, restore public lands and waters, and engage current and future generations to help rebuild our infrastructure and create a clean-energy future. We must also ensure that communities disproportionately bearing the brunt of climate impacts are engaged in designing equitable strategies for a path forward and derive environmental and economic benefits from their engagement.

To fight climate change, we need a healthy ocean. According to the National Oceanic and Atmospheric Administration, oceans absorb approximately 25 percent of the carbon dioxide generated by human activities, and more than 90 percent of the excess heat. But these services have come at a tremendous cost. By altering the chemistry and temperature of the ocean, we have put marine ecosystems and wild-life at increasing risk. The life-giving benefits we derive from ocean and freshwater systems—including food and water, transportation, defense, tourism, and cultural values—underpin our global prosperity and community identities.

Our ocean, lakes, and rivers are also sources of climate solutions. Together, we can build resilience to the impacts of climate change by restoring and conserving natural habitats, curbing pollution, and managing fisheries and other natural resources in sustainable ways. We also can protect and restore our tidal marshes, seagrasses, wetlands, and mangroves that sequester atmospheric carbon, and develop new offshore sources of renewable energy in an environmentally responsible way.

Our aquariums, which make up the Aquarium Conservation Partnership, play unique and powerful roles in promoting climate solutions. We are trusted science-based communicators, conservation stewards, and local business leaders. We are committed to working with our communities, government leaders, business partners, and public audiences to meet these challenges and accelerate the pace of progress for our planet.

Our aquariums appreciate your leadership on ocean-climate action and we stand ready to work with you to address the causes of climate change and find solutions to the impacts it is having on ocean and freshwater life and ecosystems.

Sincerely,

Ron Forman,
President and CEO
Audubon Nature Institute of New
Orleans

John F. Calvelli,
Exec. VP, Public Affairs
Wildlife Conservation Society, on
behalf of the New York Aquarium

Scott D. Sampson, PhD,
Executive Director
California Academy of Sciences

Vikki Spruill,
President & CEO
New England Aquarium

Jerry Borin,
Interim President & CEO
Columbus Zoo and Aquarium

Dennis Pate,
CEO
Omaha's Henry Doorly Zoo &
Aquarium

Roger Germann,
President/CEO
The Florida Aquarium

Alan Varsik,
Director
Point Defiance Zoo and Aquarium

Dr. Alistair D.M. Dove,
VP of Research, Cons. & Nutrition
Georgia Aquarium

Robert Davidson,
CEO
Seattle Aquarium

Jason Patlis,
President & CEO
The Maritime Aquarium at Norwalk

Bridget C. Coughlin, PhD,
President and CEO
John G. Shedd Aquarium

Julie Packard,
Executive Director
Monterey Bay Aquarium

Kevin Mills,
President and CEO
South Carolina Aquarium

Stephen Coan,
President & CEO
Mystic Aquarium

Keith Sanford,
President and CEO
Tennessee Aquarium

John Racanelli,
CEO
National Aquarium

Cynthia Whitbred-Spanoulis,
Executive Director
Virginia Aquarium & Marine Science
Center

Kurt Strand,
President & CEO
The National Mississippi River
Museum & Aquarium

The CHAIRMAN. The Chair now recognizes the Ranking Member for his statement, and I believe it is Congressman Bentz, as designee for Ranking Member Westerman. Sir, you are recognized.

**STATEMENT OF THE HON. CLIFF BENTZ, A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF OREGON**

Mr. BENTZ. Thank you, Mr. Chair. Let me begin by welcoming Members and witnesses to today's hearing. We are considering 13 bills, 12 of which are included in some form in Chair Grijalva's larger 290-page, 14 title bill, H.R. 3764. These bills reflect a broad set of concerns including climate, resilience to higher ocean levels, conservation, restoration, tribal issues, wind leases, waterfront task forces, Great Lakes water levels, and improvement of circumstances of marine mammals, to name just some of the bill's many topics.

But will this bill address and help our Nation also face one of the major challenges with us today, that being the greatest drought in modern day history, affecting some 70 million people across the western United States? Do these bills contain provisions for and possibly solutions that the ocean might offer, such as desalinization, to offset long-term drought? Perhaps our witnesses today will tell us.

Additionally, as this bill title suggests, it is ocean-based, but obviously, the bill carries with it serious implication for land and inland waters. Take, for example, the national blue carbon ecosystem map mandated in the bill. This provision would require that NOAA identify upstream structures or pollution sources that affect the watershed and potential for blue carbon sequestration. This requirement has no limits of how far upstream that process might reach. For example, the Columbia River watershed includes the landlocked states of Idaho and Montana and parts of Canada, including some 182 million acres and tens of thousands of miles of waterways. Do those who support this bill understand the extent, not necessarily oceans-linked, of this bill's impact?

Equally concerning are new consultation requirements contained in this bill for all Federal agencies where a proposed action has the potential to cause an adversarial impact to blue carbon areas of significance or marine mammal climate impact management plans. Will these new requirements cause delay in activities adjacent to such waterways such as construction of needed bridges, roads, wind energy projects, and other infrastructure? Could adding red tape to the siting of energy projects and energy transmission drive up consumer costs?

Indeed, these requirements will understandably create yet another layer of environmental bureaucracy that will be used to block Federal actions such as maintaining or building new infrastructure of any and all kinds that might be adjacent to waterways. It could also be used as a reason or a justification for removal of essential existing water infrastructures, or cause more litigation, and that is coming from me, an attorney.

The upstream impacts of this bill will no doubt make any activity with Federal involvement slower and more difficult. There are several areas of this bill that cause concerns due to potential far-ranging and uncertain impacts to water management for communities of millions of people in the western United States. The last thing this half of the United States needs is yet another demand for diminishing volumes of water caused by Federal legislation. We are fortunate to have a witness representing the Family Farm

Alliance with us today who will discuss some of these important issues. I want to welcome this witness, Mr. Mauricio Guardado, from Oxnard, California, who will testify about his concerns over the far-reaching authorities contained in this bill.

In conclusion, I am hopeful that these bills will ultimately advance our Nation's interests, directing Federal agencies to explore how to conserve our seas and the creatures and structures in them, while at the same time, helping people cope with the on-land challenges of drought and ever more expensive energy. While we have had an oversight hearing on drought almost a month ago which the 70 million people affected by the drought and the 115-degree temperatures I am sure appreciate, I hope that this or that hearing is not the only thing Congress will do regarding this drought because it is only getting worse.

With that, Mr. Chairman, I yield back.

[The prepared statement of Mr. Bentz follows:]

PREPARED STATEMENT OF THE HON. CLIFF BENTZ, A REPRESENTATIVE IN CONGRESS
FROM THE STATE OF OREGON

Let me begin by welcoming Members and witnesses to today's hearing. We are considering 13 bills, 12 of which are included in some form in Chairman Grijalva's larger 290-page, 14 title bill, H.R. 3764. These bills reflect a broad set of concerns including climate, resilience to higher ocean levels, conservation, restoration, tribal issues, wind leases, waterfront task forces, Great Lake water levels, and improvement of the circumstances of marine mammals, to name just some of the bill's many topics.

But will this bill help our nation also address one of the major challenges facing us today—that being the greatest drought in modern day history affecting some 70 million people? Do these bills contain solutions that the ocean might offer (such as desalination) to offset long-term drought? Perhaps our witnesses will tell us.

Additionally, as this bill's title suggests it's "ocean based" but obviously the bill carries with it serious implications for lands and inland waters. Take, for example, the national blue carbon ecosystem map mandated in the bill. This provision would require that NOAA identify upstream structures or pollution sources that affect the watershed and potential for blue carbon sequestration. This requirement has no limits of how far upstream that process might reach. For example, the Columbia River watershed includes the landlocked states of Idaho and Montana, and parts of Canada—some 182 million acres and tens of thousands of miles of waterways. Do those who support this bill understand the extent, not necessarily oceans-linked, of this bill's impact?

Equally concerning are new consultation requirements contained in this bill for all federal agencies where a proposed action has the potential to cause an adversarial impact to "blue carbon areas of significance" or "marine mammal climate impact management plans." Will these new requirements cause delay in activities adjacent to waterways, such as construction of bridges, roads, wind energy projects, and other infrastructure? Could adding red tape to sitting key energy projects and energy transmission drive up consumer costs? Indeed, these requirements will undoubtedly create yet another layer of environmental bureaucracy that will be used to block federal actions, such as maintaining or building new infrastructure of all kinds near water including water supply infrastructure that could help in meeting demand caused by drought in the West. Importantly, the processes found in this bill could also be used as a reason or justification for removal of essential existing water infrastructure. Or it could cause more litigation, and that's coming from a lawyer.

The upstream impacts of this bill will no doubt make any activity with federal involvement slower and more difficult. The last thing the Western half of the U.S. needs is yet another demand for diminishing volumes of water caused by federal legislation. We are fortunate to have a witness representing the Family Farm Alliance who will discuss some of these important issues. I want to welcome this witness, Mr. Mauricio Guardado from Oxnard, California, who will testify about his concerns over the far-reaching authorities in this bill.

In conclusion, I am hopeful that these bills will ultimately advance our nation's interests by directing the federal agencies to explore how to conserve our seas and the creatures and structures in them, while at the same time helping people cope

with the on-land challenges of drought and even more expensive energy. While we had an oversight hearing on drought almost a month ago (which the 70 million people affected by the drought and 115 degree temperatures I'm sure appreciated) I hope that that hearing is not the only thing Congress will do regarding the drought because it is getting worse. We need to act now.

With that, Mr. Chair, I yield back.

The CHAIRMAN. We will begin. The first panel is the Congressional panel. It is featuring the bill sponsors from today's agenda. As was noted, 12 individual pieces of legislation have been integrated into the overall climate solutions legislation, and we have some of our colleagues with us today to speak to their piece of the legislation that have been incorporated to the bill.

Let me begin now by recognizing Representative Plaskett for her statement on H.R. 660. You have 5 minutes.

**STATEMENT OF THE HON. STACEY E. PLASKETT, A DELEGATE
IN CONGRESS FROM THE TERRITORY OF THE U.S. VIRGIN
ISLANDS**

Ms. PLASKETT. Good afternoon to my colleagues, and good afternoon, Chairman Grijalva and Ranking Member Bentz, acting for Congressman Westerman. Thank you for holding this legislative hearing on ocean-based climate action and providing me the opportunity to lend support for my legislation, H.R. 660, the Shovel-Ready Restoration Grants for Coastlines and Fisheries Act.

I am pleased that the Committee is holding today's hearing on the important issue of improving our coastlines and oceans. Healthy coastal ecosystems provide critical social and environmental benefits in addition to playing important roles to the fishing industries and broader economies of coastal communities across the country. According to the National Oceanic and Atmospheric Administration, NOAA, our coastal economy supports 2.3 million jobs and contributes approximately \$373 billion to our Nation's gross domestic product.

Sadly, we are losing these habitats at rapid rates, and we are seeing losses across habitat types, from coral reefs to wetlands to kelp. Coral reefs and mangroves are extremely important in places like my home in the Virgin Islands and other coastal communities. They protect our shorelines by reducing 90 percent of wave energy during storm surges. They feed our families by providing habitat for our fisheries, and the quiet beaches and bays they create support our economy by attracting millions of tourists each year. They also provide adaptation to climate changes by reducing damage due to storm surges caused by more frequent and intense storms.

Our response to these losses needs to address the causes of decline and accelerate recovery through the restoration and resilience projects that my bill, H.R. 660, would authorize.

During the last major recession, Congress provided \$167 million through the Americans Recovery and Reinvestment Act of 2009 for NOAA to support coastal resilience projects that create jobs. This program was highly successful in advancing coastal and marine restoration while also spurring economic recovery.

As we work to recover from the coronavirus pandemic and the related economic recession, I believe it is very important that we

support projects that can both stimulate the economy and make strides in advancing coastal restoration. Economies in coastal communities like my home tend to be highly reliant on tourism, and consequently, have some of the hardest-hit communities during the coronavirus pandemic.

That is why Congressman Don Young, Dean of the House, and I re-introduced the Shovel-Ready Restoration Grants for Coastlines and Fisheries Act. This bipartisan legislation is modeled after and expands on the temporary program originally established by ARRA.

Our bill would meet the need for coastal restoration and economic recovery projects by creating a \$3 billion NOAA grant program to fund shovel-ready projects that restore and improve coastal habits, coastal resiliency, and the economy of coastal communities.

Under the program, priority projects are those that would stimulate the economy and would begin within 90 days of the grant award. Additionally, these priority projects would also provide compensation to fishermen for either their labor or use of fishing vessels.

It is important to note that the bill would not only support remote coastal communities neighboring the oceans, but would also support those coastal communities that border the Great Lakes.

In addition to being included in Chairman Grijalva's Ocean-Based Climate Solutions Act of 2021, H.R. 3764, with the funding raised to \$10 billion, the Shovel-Ready Restoration Grants for Coastlines and Fisheries Act was also passed by the House of Representatives last year as part of H.R. 2.

And I would like to thank Dean Young for working with me on this initiative, and I invite other members of this Committee to co-sponsor the bill.

Investing in coastal restoration is good policy. It is not just the right thing to do for the environment; it is the right thing to do for coastal communities, vulnerable coastal populations, and the U.S. economy.

I urge the Committee to move this legislation through the House to final passage by the Senate to strengthen our coastal resiliency and help countless Virgin Islanders and other coastal community residents who are out of work through no fault of their own.

Thank you again for your consideration.

[The prepared statement of Ms. Plaskett follows:]

PREPARED STATEMENT OF THE HON. STACEY E. PLASKETT, A DELEGATE IN CONGRESS
FROM THE TERRITORY OF THE U.S. VIRGIN ISLANDS

Good afternoon, Chairman Grijalva and Ranking Member Westerman. Thank you for holding this legislative hearing on "Ocean-Based Climate Action" and for providing me with the opportunity to lend support for my legislation, H.R. 660, the Shovel-Ready Restoration Grants for Coastlines and Fisheries Act.

I am pleased that the Committee is holding today's hearing on the important issue of improving our coastlines and oceans. Healthy coastal ecosystems provide critical social and environmental benefits, in addition to playing important roles to the fishing industries and broader economies of coastal communities across country. According to the National Oceanic and Atmospheric Administration (NOAA), our coastal economy supports 2.3 million jobs and contributes approximately \$373 billion to the nation's gross domestic product.

Sadly, we're losing these habitats at a rapid rate, and we're seeing losses across habitat types—from coral reefs to wetlands to kelp. Coral reefs and mangroves are

extremely important to places like my home of the Virgin Islands and other coastal communities. They protect our shorelines by reducing 90% of the wave energy during storm surges; they feed our families by providing habitat for our fisheries; and the quiet beaches and bays that they create support our economy by attracting millions of tourists each year. They also provide adaptation to climate change by reducing damage due to storm surge caused by more frequent and intense storms. Our response to this loss needs to address the causes of decline and accelerate recovery through the restoration and resilience projects that my bill, H.R. 660, would authorize.

During the last major recession, Congress provided \$167 million through the American Recovery and Reinvestment Act of 2009 (ARRA) for the National Oceanic and Atmospheric Administration to support coastal resilience projects that created jobs. This program was highly successful in advancing coastal and marine restoration while also spurring economic recovery. In fact, the program created an estimated 17 jobs for every million dollars spent, and it generated \$15 dollars in net economic benefits for every dollar invested. However, the program was so popular that it received about \$3 billion in proposed projects from communities across the country—far more applications than were initially anticipated.

As we work to recover from the coronavirus pandemic and the related economic recession, I believe it is very important that we support projects that can both stimulate the economy and make strides in advancing coastal restoration. Economies in coastal communities—like my home of the Virgin Islands—tend to be highly reliant on tourism, and have consequently been some of the hardest hit communities during the coronavirus pandemic.

That's why Congressman Don Young, Dean of the House, and I reintroduced the Shovel-Ready Restoration Grants for Coastlines and Fisheries Act. This bipartisan legislation is modeled after and expands on the temporary program originally established by ARRA. Our bill will meet the need for coastal restoration and economic recovery projects by creating a \$3 billion NOAA grant program to fund shovel-ready projects that restore or improve coastal habitats, coastal resiliency, and the economy of coastal communities. Under the program, priority projects are those that would stimulate the economy and could begin within 90 days of the grant award. Additionally, these priority projects would also provide compensation to fishermen for either their labor or use of a fishing vessel. It is also important to note that the bill would not only support remote coastal communities neighboring the ocean, it would also support those coastal communities that border the Great Lakes.

This bill would go far to provide the resources and labor needed to protect our shorelines, improve our fisheries, and attract more tourism. These projects are reinvestments in our communities.

In addition to being included in Chairman Grijalva's Ocean-Based Climate Solutions Act of 2021 (H.R. 3764), with the funding raised to \$10 billion, the Shovel-Ready Restoration Grants for Coastlines and Fisheries Act was also passed by the House of Representatives last year as part of H.R. 2, the Moving Forward Act. I would like to thank Dean Young for working with me on this initiative, and I invite the other members of this Committee to co-sponsor this bill.

Investing in coastal restoration is good policy. It's not just the right thing to do for the environment; it's the right thing to do for coastal communities, vulnerable coastal populations, and the U.S. economy. I urge that the Committee move this legislation through the House to final passage by the Senate, to strengthen our coastal resiliency and help countless Virgin Islanders—and other coastal community residents—who are out of work through no fault of their own.

Thank you for your consideration.

The CHAIRMAN. Thank you very much, Representative, and I appreciate your comments.

Let me now recognize a member of the Committee. I want to recognize Representative González-Colón for her statement on H.R. 1689. Representative, you are recognized.

**STATEMENT OF THE HON. JENNIFER GONZÁLEZ-COLÓN, A
RESIDENT COMMISSIONER IN CONGRESS FROM THE TERRI-
TORY OF PUERTO RICO**

Miss GONZÁLEZ-COLÓN. Thank you, Mr. Chairman, and I appreciate you and Ranking Member Westerman, now Bentz, for the opportunity to testify on my bill, H.R. 1689, the Offshore Wind for Territories Act.

This is a bipartisan legislation that would apply the Outer Continental Shelf Lands Act to the submerged lands off the five U.S. territories for renewable energy purposes. It further requires the Secretary of the Interior, in consultation with the appropriate Federal and local stakeholders, to study the potential for offshore wind energy development in these Federal waters off the territories. Should a study determine that a wind lease is viable, the Secretary is directed to conduct a lease sale.

By allowing us to tap into potential offshore wind resources, H.R. 1689 would help territories address high energy costs, diversify our fuel sources, and end our reliance on foreign petroleum imports. In Fiscal Year 2020, just for an instance, only 2.5 percent of Puerto Rico's electricity came from renewables.

The bill would also guarantee each territory a state equivalent share of all royalty payments made to the Federal Government by offshore wind developers. Territories would receive 37.5 percent of qualifying revenues, consistent with the revenue sharing structure established for the Gulf Coast states under GOMESA.

Lastly, H.R. 1689 directs that 12.5 percent of the revenues be deposited into a Coral Reef Conservation Fund, thus providing dedicated funding for coral reef conservation efforts at no additional cost to the American taxpayer.

Last Congress, this Committee passed a previous version of this Offshore Wind for Territories Act with unanimous support. Similarly, in the 115th Congress, the House approved this legislation under suspension. If enacted, the Offshore Wind for Territories Act would boost revenues and provide Americans in the territories access to cleaner, renewable energy sources, and help protect our coral reefs.

I, therefore, hope that we can once again work in a bipartisan manner to move H.R. 1689 out of the Committee and finally get it across the finish line.

Thank you, Mr. Chairman, and I yield back.

[The prepared statement of Miss González-Colón follows:]

**PREPARED STATEMENT OF THE HON. JENNIFFER GONZÁLEZ-COLÓN, A RESIDENT
COMMISSIONER IN CONGRESS FROM THE TERRITORY OF PUERTO RICO**

Chairman Grijalva and Ranking Member Westerman, thank you for the opportunity to testify on my bill, H.R. 1689, the Offshore Wind for Territories Act.

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Thank you, I yield back.

The CHAIRMAN. Thank you for your legislation. It is appreciated and has far-reaching impacts. As we did in the past, I hope we can move that on to the Senate so they can do their part of the job.

Now I want to recognize Representative Pingree for her statement on H.R. 3160. The Representative is recognized.

**STATEMENT OF THE HON. CHELLIE PINGREE, A
REPRESENTATIVE IN CONGRESS FROM THE STATE OF MAINE**

Ms. PINGREE. Thank you very much, Chairman Grijalva and Ranking Member Bentz, for giving me the opportunity to speak in support of the Ocean-Based Climate Solutions Act, and thank you for having this hearing today.

This legislation includes my bipartisan bill with Congressman Wittman, the Keep America's Waterfronts Working Act. Throughout my time in Congress, I have advocated for the needs of coastal communities and those who use our working waterfronts. I am grateful to have a chance to talk a little bit about this bill with you today.

I know members of this Committee hear regularly from constituents who make their living from the water, whether they are boat builders from the West Coast, seafood buyers and processors across America, recreational fishing guides in the Gulf of Mexico, or commercial fisherman and aquaculture business owners in New England. The refrain is always the same. Water-dependent businesses from coast to coast need our help. They want us to preserve access to the working waterfronts that make their livelihoods possible and keep our coastal economies thriving.

More than 30,000 Mainers rely on marine-related industries for their livelihoods. In fact, in our state, we refer to this as a "heritage industry" because it is so ingrained in the fabric of the state. Yet, out of 5,000 miles of coastline, just 20 miles of working waterfronts remain in my state.

Across the country, working waterfronts are rapidly disappearing due to heavy development pressure. When fishermen must grapple with the loss of wharves, processing facilities, and other essential infrastructure in addition to navigating the challenge of climate change, it threatens the very survival of coastal communities.

Congress can contribute to the great work that states are already doing by expanding access to funding and resources. We don't need to duplicate efforts, but we can provide more support for states to

preserve coastal economies. I have been proud to work across the aisle with my colleagues, including Congressman Wittman of Virginia, to create bipartisan solutions that can work for America's coastal communities.

This bill will help reverse a worrying trend of shrinking waterfronts, while simultaneously protecting jobs and preserving the character of our coastal communities. It establishes a Working Waterfront Grant Program for waterfront preservation and sets up a task force within the Department of Commerce to identify and prioritize critical needs for the Nation's working waterfronts. Through the task force, the bill will also help communities identify and mitigate the impacts of the climate crisis.

These programs are voluntary, so states can opt into the program this bill would create. Through the creation of statewide working waterfront plans, each state can identify their own needs and create their own plans to address the unique challenges facing their working waterfronts.

It has been gratifying to hear so many proposals to solve the problems facing our coastal communities today. Working waterfronts are an integral part of our coastal communities, economies, and traditions. We must all do our part to ensure they survive into the future. I would welcome the opportunity for the Committee to move this bill.

Thank you for the opportunity to speak today, and I yield back.
[The prepared statement of Ms. Pingree follows:]

PREPARED STATEMENT OF THE HON. CHELLIE PINGREE, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF MAINE

Thank you, Chairman Grijalva and Ranking Member Westerman for giving me the opportunity to speak in support of the Ocean Based Climate Solutions Act. This legislation includes my bipartisan bill with Congressman Wittman, the Keep America's Waterfronts Working Act.

Throughout my time in Congress, I have advocated for the needs of coastal communities and those who use our working waterfronts. I am grateful to have a chance to discuss this bill with you today.

I know members of this Committee hear regularly from constituents who make their living from the water. Whether they are boatbuilders from the West Coast, seafood buyers and processors across America, recreational fishing guides in the Gulf of Mexico, or commercial fishermen and aquaculture business owners in New England, the refrain is the same: **water-dependent businesses from coast to coast need our help**. They want us to preserve access to the working waterfronts that make their livelihoods possible and keep our coastal economies thriving.

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It has been gratifying to hear so many proposals to solve the problems facing our coastal communities today. Working waterfronts are an integral part of our coastal economies, communities, and traditions. We must all do our part to ensure they survive into the future. I would welcome the opportunity for the Committee to move this bill.

Thank you for the opportunity to speak today. I yield back.

The CHAIRMAN. Thank you very much, Representative. Your legislation is appreciated and I am very happy to be supporting it and helping move it along.

Let me now recognize Representative Beyer for his statement on H.R. 3892, his legislation.

Sir, you are recognized.

STATEMENT OF THE HON. DONALD S. BEYER, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF VIRGINIA

Mr. BEYER. Chairman Grijalva, thank you very much, and thank you and Congressman Bentz for having this legislative hearing. I am honored to be here today. It is always a thrill to be back with the National Resources Committee.

I just recently re-introduced the bipartisan National Oceans and Coastal Security Improvements Act. I worked on this in the last session with Congressman Francis Rooney and this session with my colleague, Representative Brian Mast. This bill aims to improve the ability of coastal communities to become resilient.

Resilience is the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events, such as extreme weather and long-term changing environmental conditions. This bill is intended to reduce the vulnerability of coastal communities and infrastructure from the impacts of extreme weather events, climate hazards, and changing ocean conditions.

Currently, there is insufficient Federal attention to the necessary coastal research, resiliency, conservation, and restoration work that coastal communities need, so this bill aims to address those needs. The bill improves on NOAA's existing National Coastal Resilience Fund with improved definitions. It applies a formula for improved distributions for state block grants and a national competitive grant program.

It clarifies specific projects that would be eligible for the fund's grant programs, including things like technical assistance to help develop comprehensive resilience and mitigation plans as an eligible funding effort.

Eligible recipients include state, local, tribal, and territorial government agencies and non-profits. They use these funds to increase the ability to prepare for and recover from a variety of coastal threats, including hurricanes, tsunamis, and sea level rise.

I have been working on coastal resilience funding since I first got to Congress. You know, I live just across the river in Alexandria, and I hear from constituents daily about the nuisance flooding that

has only gotten worse over time. I have been working to address these concerns and build up the resources that can respond, but unfortunately, resource needs greatly outpace the funds that are historically available.

To competitively fund projects across the 35 coastal and Great Lakes states, as well as territories, this bill will also direct 30 percent of offshore wind revenues to the program. It is critical that we protect our coastal communities and ecosystems and help them more effectively adapt and prepare for sea level rise and changing ocean conditions. According to the 4th NCA, shoreline counties hold 49.4 million housing units, while homes and businesses worth at least \$1.4 trillion sit within an eighth of a mile of the coast. Flooding from rising sea levels and storms is likely to destroy, or make unsuitable for use, billions of dollars of property by the middle of the century, with the Atlantic and Gulf Coasts facing greater-than-average risk compared to other regions of the country.

In 2018 alone, there were 14 separate billion-dollar weather and climate disasters in the United States with a total cost of at least \$91 billion. The cost of weather disasters has illustrated the need to plan for these risks and invest in resilience. This can reduce the need for far more costly steps in the decades to come.

So, Mr. Chairman, this bill is intended to meet those funding needs and reduce the vulnerability of coastal communities. Thank you for letting me be here today. I hope we can advance this bipartisan bill and help our coastal communities.

With that, I yield back, sir.

[The prepared statement of Mr. Beyer follows:]

PREPARED STATEMENT OF THE HON. DONALD S. BEYER, JR., A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF VIRGINIA

Thank you Chair Grijalva and Ranking Member Westerman for having this legislative hearing.

I am honored to be here today and always glad to be back with the Natural Resources Committee.

I just recently reintroduced the bipartisan National Ocean and Coastal Security Improvements Act that I worked on with former Congressman Rooney last Congress with my colleague Representative Mast this Congress.

The bill aims to improve the ability of coastal communities to become resilient. Resilience is the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events such as extreme weather or long-term changing environmental conditions.

This bill is intended to reduce the vulnerability of coastal communities and infrastructure from the impacts of extreme weather events, climate hazards, and changing ocean conditions.

Currently, there is insufficient federal attention to the necessary coastal research, resiliency, conservation, and restoration work that coastal communities need.

This bill aims to meet those needs.

This bill improves on NOAA's existing National Coastal Resilience Fund with improved definitions, applies a formula for improved distribution for state block grants and the national competitive grant program, and clarifies specific projects that would be eligible for the Fund's grant programs, including things like technical assistance to help develop comprehensive resilience and mitigation plans as an eligible funding effort.

Eligible recipients include state, local, tribal and territorial government agencies and nonprofits who use these funds to increase the ability to prepare for and recover from a variety of coastal threats, including hurricanes, tsunamis, and sea level rise.

I have been working on improving our coastal resilience response and funding since my first years in Congress.

I live in Alexandria and I hear from constituents daily about nuisance flooding that has only gotten worse over time.

I have been working to address these concerns and build up the resources that can respond. Unfortunately, resource needs greatly outpace the funding that has been historically available.

To competitively fund projects across the 35 coastal and Great Lakes states as well as territories, this bill also directs 30 percent of offshore wind revenues to the program.

It is critical that we protect our coastal communities and ecosystems and help them more effectively adapt and prepare for sea level rise and changing ocean conditions.

According to the 4th NCA, shoreline counties hold 49.4 million housing units, while homes and businesses worth at least \$1.4 trillion sit within about 1/8th mile of the coast.

Flooding from rising sea levels and storms is likely to destroy, or make unsuitable for use, billions of dollars of property by the middle of this century, with the Atlantic and Gulf coasts facing greater-than-average risk compared to other regions of the country.

In 2018 alone, there were 14 separate billion-dollar weather and climate disasters in the United States, with a total cost of at least \$91 billion.

In the GAO's own words, federal investments in resilience to reduce fiscal exposures have been limited.

The cost of recent weather disasters has illustrated the need to plan for these risks and invest in resilience.

Investing in coastal resilience can reduce the need for far more costly steps in the decades to come.

This bill is intended to meet those funding needs and reduce the vulnerability of coastal communities and infrastructure from the impacts of extreme weather events, climate hazards, and changing ocean conditions.

Thank you for letting me be here with you today and I hope we can advance this bipartisan bill to help our coastal communities.

The CHAIRMAN. Thank you very much, Congressman Beyer. Much appreciated. And you should have stayed on the Committee, Beyer. I am telling you. We miss you like you miss us.

Mr. BEYER. I do miss you.

The CHAIRMAN. I now want to recognize the Subcommittee Chair of the Committee of jurisdiction, Representative Huffman, for his statement on H.R. 3906.

Chairman, you are recognized.

STATEMENT OF THE HON. JARED HUFFMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. HUFFMAN. Thank you, Mr. Chairman, and we do, indeed, have Beyer's remorse. We miss Don Beyer. And I want to thank you for your leadership in bringing this legislation together. Thank you for including my bill in the package.

The concept behind the Blue Carbon Protection Act is simple. It aims to protect and restore blue carbon ecosystems across the country. My bill invests in blue carbon ecosystems so that the carbon sequestration potential of these important areas can be sustained as a key tool in tackling the climate crisis.

Blue carbon is the carbon stored in coastal and marine ecosystems, like mangroves, tidal marshes, and seagrass beds. Coastal and ocean blue carbon ecosystems can naturally capture and store quantities of carbon for hundreds of years. And they can do that 10 times more effectively per area than terrestrial forests, really, a remarkably powerful tool.

Not only are these ecosystems excellent at storing carbon and helping our climate, they are also some of the most productive ecosystems in the world. They are important grounds for feeding,

spawning, breeding, and nesting for an incredibly diverse community of animals. These ecosystems are also critical natural buffers that protect shorelines, coastal communities, and property.

However, these ecosystems are threatened by coastal development, climate change, and pollution. In the last 50 years, up to 50 percent of some global blue carbon ecosystems have already been converted or degraded. When these ecosystems are destroyed, not only does the carbon that was stored in them get released into the atmosphere, but significant sequestration capacity is also lost. And the importance of these ecosystems for carbon sequestration makes their protection and restoration essential for nature-based climate solutions.

My bill directs NOAA to establish a new program to research and evaluate blue carbon storage and to protect and restore blue carbon ecosystems, including through a new blue carbon grant program.

In addition, it directs NOAA to designate blue carbon areas of significance. These areas would be prioritized for protection, and the bill requires consultation and mitigation requirements for proposed agency actions that may cause adverse impacts to these areas of significance.

And lastly, my bill authorizes funding for NOAA, the Fish and Wildlife Service, and the National Park Service, all of which have some blue carbon areas under their jurisdiction, to conduct coastal and marine restoration and protection activities to sequester carbon and to reduce methane emissions from degraded wetlands.

The Blue Carbon Protection Act would provide NOAA the tools needed to ensure these important ecosystems are part of the fight to tackle the climate crisis.

I look forward to hearing from the witnesses today, and again, thank you very much for your leadership, Mr. Chairman. I yield back.

[The prepared statement of Mr. Huffman follows:]

PREPARED STATEMENT OF THE HON. JARED HUFFMAN, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF CALIFORNIA

Thank you Chair Grijalva for including my bill, the Blue Carbon Protection Act, in today's hearing and in your climate legislation. I'd also like to thank you, my colleagues on the Committee, and other Members who have co-sponsored the bill.

The concept behind the Blue Carbon Protection Act is simple—it aims to protect and restore blue carbon ecosystems across the country. My bill invests in blue carbon ecosystems so that the carbon sequestration potential of these important areas can be sustained as a key tool in tackling the climate crisis.

Blue carbon is the carbon stored in coastal and marine ecosystems, like mangroves, tidal marshes, and seagrass beds. Coastal and ocean blue carbon ecosystems can naturally capture and store large quantities of carbon, often for hundreds of years, and they are 10 times more effective at sequestering carbon per area than terrestrial forests.

Not only are these ecosystems excellent at storing carbon and helping our climate, they are also some of the most productive ecosystems in the world. They serve as important grounds for feeding, spawning, breeding, and nesting for an incredibly diverse community of animals. These ecosystems are also critical as natural buffers to protect shorelines, coastal communities, and property.

However, these ecosystems are threatened by coastal development, climate change, and pollution. In the last 50 years, up to 50% of some global blue carbon ecosystems have already been converted or degraded. When these ecosystems are destroyed, not only is the carbon that was stored released into the atmosphere, but significant sequestration capacity is also lost. The importance of these ecosystems

for carbon sequestration makes their protection and restoration essential for nature-based climate solutions.

My bill directs NOAA to establish a program to research and evaluate blue carbon storage and protect and restore blue carbon ecosystems, including through a new blue carbon grant program.

In addition, it directs NOAA to designate “blue carbon areas of significance.” These areas would be prioritized for protection, and the bill requires consultation and mitigation requirements for proposed agency actions that may cause adverse impacts to these areas of significance.

Lastly, my bill authorizes funding for NOAA, the Fish and Wildlife Service, and National Park Service, which all have some blue carbon areas under their jurisdiction, to conduct coastal and marine restoration and protection activities to sequester carbon and reduce methane emissions from degraded wetlands.

The Blue Carbon Protection Act would provide NOAA the tools needed to ensure these important ecosystems are part of the fight to tackle the climate crisis.

I look forward to hearing from the witnesses today. Thank you, and I yield back.

The CHAIRMAN. Thank you, Mr. Chairman. Much appreciated.

And that concludes our Member panel. I thank all the Members and their staffs for their collective work in bringing these good pieces of legislation forward, and we look forward to moving it comprehensively and also the standalone ability of each one of these pieces of legislation. Thank you.

We now transition to the second panel which will feature Administration witnesses. Our first witness will be Mr. Stephen Guertin, Deputy Director for Policy at the U.S. Fish and Wildlife Service.

Our second witness will be Ms. Nicole LeBoeuf, Acting Administrator for the National Ocean Service at the National Oceanic and Atmospheric Administration.

Let me just quickly remind the witnesses that under Committee Rules, their oral statements are limited to 5 minutes. Their entire written statement will appear in the hearing record.

The lights will turn green on the witness table, after 4 minutes, yellow, and then red. Your time will have expired when the red light comes on, and I will ask you to please complete your statement. I will also allow the entire panel to testify before questioning from the Members.

The Chair now recognizes Mr. Guertin for him to testimony and welcome him. Sir, the floor is yours.

STATEMENT OF STEPHEN GUERTIN, DEPUTY DIRECTOR FOR POLICY, U.S. FISH AND WILDLIFE SERVICE, FALLS CHURCH, VIRGINIA

Mr. GUERTIN. Good afternoon, Chairman Grijalva, Congressman Bentz, and members of the Committee. I am Steve Guertin, Deputy Director of Policy for the U.S. Fish and Wildlife Service. I appreciate the opportunity to testify before you today on H.R. 3764, the Ocean-Based Climate Solutions Act.

My written testimony provides detailed comments on the specific provisions of the bill related to the Service. I would like to focus my remarks here on the climate crisis and how the Service is stepping up to meet the challenges that it presents to our wildlife conservation mission.

The Administration has set ambitious goals that will ensure America and the world can meet the urgent demands of climate change, and the Service is a key player in advancing those goals.

We are integrating climate change considerations into nearly all of our actions from at-risk species conservation decisions to invasive species prevention and response to prescribed fire activities.

The Service is working to reduce and mitigate the impacts of climate change on our trusted resources. We are actively combating this threat by increasing carbon sequestration through the maintenance and restoration of healthy ecosystems and by reducing our own carbon footprint to more efficient facilities and vehicles.

Our mission is working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. Climate change presents a profound and growing challenge for this conservation mission. Warming temperatures, changing weather patterns, and other climatic changes are having far-reaching impacts on species and ecosystems.

The impacts of climate change are especially apparent along our Nation's coasts. Our coasts face rising sea levels, saltwater intrusion, and increasingly frequent and intense storms.

These climate stressors can have cascading and cumulative impacts on species and their habitats. Increasing coastal development further compounds these risks by reducing available habitat and making our coast less resilient in the face of storms.

Despite these challenges, there are ample opportunities to mitigate the effects of climate change and create a more resilient future for people and wildlife along the coast. The potential for oceans and coasts to absorb and hold on to atmospheric carbon, also known as blue carbon, is easily overlooked, even though it is a critical tool in the fight against climate change.

The Service manages extensive coastal and marine resources and works with partners to restore and protect coastal wetlands and ecosystems across the country. Section 109 of this bill complements our existing work and will increase our capacity to harness the potential of blue carbon ecosystems.

The protection of our Nation's coastal barriers is another highly effective strategy to combat climate change. Congress had great foresight when it enacted the Coastal Barrier Resources Act nearly 40 years ago. Using a broadly supported, free market approach, CBRA removes Federal incentives to build in risky coastal areas. The law saves taxpayers millions of dollars each year in what would be wasteful expenditures.

In addition, these areas which were relatively undeveloped 40 years ago remain relatively undeveloped today—3.5 million acres of the coast barrier resource system provide significant benefits to coastal communities and wildlife. They serve as natural buffers against storm surge and sea level rise, habitat for countless fish and wildlife species, improved water quality, and enhanced recreation and tourism opportunities.

As the impacts of sea level rise and storm surge due to climate change continue to increase, CBRA is more relevant and important than ever. This bill recognizes CBRA's role in mitigating the

coastal hazards associated with climate change and in reducing development pressure along the coast.

In order to address the growing threat of climate change, it is essential that we consider all available tools to build climate resiliencies in communities, species, and habitats. By investing in coastal restoration, green infrastructure, and nature-based solutions, we can create and improve more fish and wildlife habitat, sequester more carbon, and more effectively protect coastal communities from severe storms.

The Ocean-Based Climate Solutions Act recognizes the important role that oceans and coasts play in addressing climate change and its impacts on the people and natural resources that depend on them. The bill seeks to strengthen the Federal Government's response to climate change through its stewardship of our Nation's marine and coastal resource. The Service appreciates the Committee's attention to this important issue.

We are committed to meeting the challenge that the change in climate presents to fish and wildlife resources, and we look forward to working with this Committee and Congress to advance this important work.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Guertin follows:]

PREPARED STATEMENT OF STEPHEN GUERTIN, DEPUTY DIRECTOR FOR POLICY, U.S.
FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR

Good afternoon Chairman Grijalva, Ranking Member Westerman, and members of the Committee. I am Stephen Guertin, Deputy Director for Policy for the U.S. Fish and Wildlife Service (Service) within the Department of the Interior (Department). I appreciate the opportunity to testify before you today on the Service-related provisions contained in H.R. 3764, the Ocean-Based Climate Solutions Act. This testimony provides comments on the provisions of greatest relevance to the Service's areas of jurisdiction and does not include comments on other provisions of the legislation, which continue to be under review by the Department and the Administration.

The Service's mission is "working with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people." As we work to carry out this important charge, climate change presents a profound and growing conservation challenge. Warming temperatures, changing weather patterns, and other climatic changes are having far-reaching impacts on species and ecosystems, causing shifts and contractions in species ranges, changes in the timing of breeding and migration events, and declines in fish, wildlife, and plant populations.

The impacts of greenhouse gas emissions and climate change are especially apparent along our nation's coasts, which face rising sea levels, saltwater intrusion, warming ocean temperatures, ocean acidification, and increasingly frequent and intense storms. These stressors can have cascading and cumulative impacts to species and their habitats. Increasing coastal development further compounds these risks by reducing available habitat and making our coasts less resilient in the face of storms. With population growth and urbanization projected to increase along the American coastline, the people, assets, and natural resources exposed to these risks will increase significantly.

Despite these challenges, our coasts present a tremendous opportunity to address climate change and its effects, and create a more resilient future for people and wildlife alike. By investing in green infrastructure and coastal protection and restoration, fish and wildlife habitat can be created and improved, more carbon can be sequestered, and coastal communities can be more effectively buffered from severe storms. The Service deploys these strategies in coastal habitats across the country to capture and store carbon, mitigate the impacts of climate change, and help wildlife and people adapt to our changing world. The Ocean-Based Climate Solution Act recognizes the important role that oceans and coasts play in addressing climate change and its impacts on the people and natural resources that depend on

them. The bill authorizes new programs and expands upon existing ones with the goal of better tackling the impacts of climate change on coastal and marine communities and ecosystems.

TITLE IV—COASTAL BARRIER RESOURCES ACT AMENDMENTS

Undeveloped coastal barriers and their associated aquatic habitat provide a number of benefits to the economy and society. These lands and waters serve as natural storm buffers; provide habitat for countless fish and wildlife species, including many at-risk species; support recreationally and commercially important fisheries; improve water quality; and create recreation and tourism opportunities that help support local economies. Development of these dynamic areas, however, often puts people in harm's way and can disrupt the natural movement and functions of the barriers, degrading fish and wildlife habitat and increasing shoreline erosion. The impacts of sea level rise and storm surge due to climate change will increase both the risk associated with developing coastal barriers and the value of these areas as cost-effective buffers to protect mainland communities against coastal storm damage.

With the passage of the Coastal Barrier Resources Act (CBRA) in 1982, Congress recognized that certain actions and programs of the Federal Government have historically subsidized and encouraged development on coastal barriers, resulting in the loss of natural resources, threats to human life, health, and property, and the expenditure of millions of tax dollars each year. The purposes of the law are to save taxpayers' money, keep people out of harm's way, and remove federal incentives to develop coastal barriers. The law accomplishes these purposes by restricting most new federal expenditures and financial assistance, including federal flood insurance, in areas designated as the John H. Chafee Coastal Barrier Resources System (CBRS).

The CBRS now encompasses about 3.5 million acres along the Atlantic, Gulf of Mexico, Great Lakes, U.S. Virgin Islands, and Puerto Rico coasts. The Service is responsible for administering CBRA, which includes maintaining and updating the official maps of the CBRS and consulting with federal agencies that propose to spend funds within the CBRS. Congress plays an important role in the implementation of the law by considering and adopting the Service's recommended maps into law.

CBRA does not prohibit or regulate development; however, it removes the federal incentives to build on these unstable and environmentally sensitive areas. By removing federal incentives for such development, CBRA uses a nonregulatory and free-market approach to conserve and maintain these hurricane-prone, biologically rich coastal barriers. Over its nearly 40-year history, CBRA has been successful in achieving its goals. One recent study evaluating the effectiveness of CBRA in discouraging development on coastal barriers found that the Act has been successful in its intention of decreasing development rates and densities of hazard-prone coastal areas.¹ Another study found that CBRA reduced federal coastal disaster expenditures by \$9.5 billion between 1989 and 2013.²

Maintaining these natural storm buffers will be even more important as the nation prepares for more severe coastal flooding, erosion, and other anticipated effects associated with climate change and sea level rise. Title IV of the Ocean-Based Climate Solutions Act recognizes CBRA's role in mitigating these hazards associated with climate change and reducing development pressures along our coasts. The bill makes several amendments to the law to expand its geographic scope and to enhance compliance with and awareness of CBRA. The Service supports the provisions of this title, which are outlined below, and looks forward to working with the Committee on technical changes.

Section 401. Undeveloped coastal barrier

The Service supports Section 401, which revises the definition of an "undeveloped coastal barrier" to remove restrictive language regarding the impact of "man's activities" on coastal barriers. Section 401 also modifies the definition of a coastal barrier to accommodate the geomorphology of the Pacific Coast and address sea level rise.

¹Kyle Onda et al., "Does removal of federal subsidies discourage urban development? An evaluation of the US Coastal Barrier Resources Act," PLoS ONE 15, no. 6 (June 2020): e0233888, accessed March 25, 2021, <https://doi.org/10.1371/journal.pone.0233888>.

²Andrew S. Coburn and John C. Whitehead, "An analysis of federal expenditures related to the Coastal Barrier Resources Act (CBRA) of 1982," Journal of Coastal Research 35, no. 6 (November 2019): 1358–1361, accessed March 25, 2021, <https://doi.org/10.2112/JCOASTRES-D-18-00114.1>.

Section 402. Coastal hazard pilot project

The Service supports Section 402, which authorizes a pilot project to examine application of the free market CBRA approach to certain high hazard coastal areas that are not currently a part of the CBRS. The longer-term purpose of this project is to better address coastal hazards that are increasing, such as sea level rise and storm surge. This section directs the Service to consider including within the CBRS, certain vulnerable coastal areas that would not otherwise meet the criteria of CBRA and submit to Congress a subset of draft maps delineating those areas. This pilot project could lead to future Congressional action to add such areas to the CBRS under certain conditions and may result in enhanced coastal resiliency for the longer term.

Section 403. Report on expanding Coastal Barrier Resources Act to the Pacific coast

Section 403 authorizes a study on expanding the CBRS to include areas along the Pacific coast, including Alaska, Pacific Territories, and Freely Associated States. The Service supports the intent of this provision to increase the resiliency of the Pacific coastline and save taxpayer dollars. There are, however, significant geological and climatic differences between the Pacific coast and those areas of the Atlantic and Gulf coasts that meet the definition of coastal barrier under CBRA. Additionally, large portions of the Pacific coast of the contiguous United States are already either highly developed and therefore would not meet criteria for inclusion in the CBRS, or are currently protected for conservation purposes, and therefore at low risk of development. Given these significant differences between the Pacific coast and other coastlines currently subject to CBRA, the Service does not believe that CBRA is the most effective tool to achieve the goal of this section. If enacted, we would interpret Section 403 to allow for the consideration of coastal high hazard areas similar to those considered in Section 402. To ensure that the potential impacts on federally-recognized tribes, indigenous communities, and cultural and historic resources are fully considered, the Service would coordinate with the Bureau of Indian Affairs and Interior's Office of Insular Affairs on a study of expanding CBRA to the Pacific Coast.

Section 404. Require disclosure to prospective buyers that property is in the CBRS

Section 404 requires that sellers of real property disclose to buyers when property is within the CBRS and would require the Department to create an online reporting system for such transactions. The Service supports the goal of this provision to increase awareness of CBRA. A CBRS designation can limit the availability of federal flood insurance and other federal subsidies. When prospective buyers are not aware of a property's inclusion in the CBRS, they are unable to make informed decisions that consider the increased costs of obtaining private flood insurance. Because many sellers (and buyers) may not be aware of existing CBRS designations, the disclosure system established under Section 404 may not have the full desired effect. The Service suggests modeling this disclosure requirement after the Residential Lead-Based Paint Hazard Reduction Act of 1992, which has been highly effective at increasing awareness of lead-based paint and lead-based paint hazards before the sale or lease of most housing.

Section 405. Improve Federal agency compliance with CBRA

The Service supports Section 405, which requires the Secretary of the Interior (Secretary) to annually certify to Congress whether federal agencies are in compliance with CBRA. This builds upon an existing requirement that affected agencies certify annually to the Secretary that they are in compliance with the Act. Section 405 also directs affected agencies to update their regulations and guidance, as necessary, to comply with CBRA.

Section 406. Excess Federal property

The Service supports Section 406, which expands upon the existing authority for the Secretary to administratively add to the CBRS excess federal property that qualifies as an "undeveloped coastal barrier" to also allow for the inclusion of any excess federal property regardless of the degree of development.

Section 407. Emergency exceptions to limitations on expenditures

The Service supports Section 407, which modifies the emergency exemption to CBRA's limitations on expenditures to better provide for critical response activities to alleviate an immediate emergency. Section 6 of CBRA provides several exceptions to the law's limitations on expenditures for federal assistance. These exemptions are divided into two broad categories—those exempted activities and projects that must

be consistent with the purposes of CBRA and those that are exempted regardless of consistency.

Currently, the law's exemption for emergency actions essential to saving lives and protecting property and public health and safety requires that the exempted actions be consistent with the purposes of CBRA. The Service supports removing this requirement, as it is not practical for urgent life-saving emergency actions. The Service also agrees that this exception should be limited to expenditures necessary to alleviate the "immediate" emergency, consistent with the original spirit of the exception. It is the Service's view that the emergency exception should not be used to facilitate federal expenditures for property protection activities that exceed the scope and needs of the true and immediate emergency.

Section 408. Authorization of appropriations

The Service supports Section 408, which reauthorizes CBRA through 2026 at an increased level. Fulfillment of this section will better position the Service to help mitigate the effects of climate change. In addition to supporting the implementation of the above provisions, the increased authorization level will allow the Service to increase its capacity to maintain and update the maps, improve public awareness of CBRA, and engage in consultation with other federal agencies.

Additional opportunities for enhancement of CBRA

The Service proposes the following additional amendments to CBRA to complement and enhance the efforts contained in Title IV, H.R. 3764, the Ocean-Based Climate Solutions Act.

Incentivizing federally-funded buyouts to enhance long term coastal resiliency

With the heightened risk of sea level rise and coastal flooding, federally-funded buyouts that remove properties from the development cycle and allow them to return to their natural state are becoming an increasingly important component of federal disaster policy. As coastlines become more vulnerable to the effects of climate change, federal, state, and local governments are offering incentives in certain areas to help keep people and property out of harm's way. Such efforts can result in a patchwork of acquired properties when some property owners decline buyout offers. Because buyout programs are generally consistent with the purposes of CBRA, the Service recommends amending Section 4 to allow the Service to administratively add to the CBRS coastal barrier areas that have been offered federally-funded buyouts. This authority would build upon CBRA's free-market approach and allow property owners a choice to be fairly compensated by the federal government for transferring ownership of their property and removing it from the development cycle; or to maintain their homes in high-risk areas, but to do so at their own expense, without future federal financial assistance.

Mapping progress and timely adoption of recommended maps

An important step in solidifying CBRA's conservation legacy is the digitization and modernization of the maps upon which the law is based. The official maps of the CBRS were first created more than 40 years ago. Today's technology produces more refined maps and digital data that are more easily accessed and understood by the public. Congress recognized the challenges associated with the outdated maps and, through the 2000 and 2005 CBRA reauthorizations, directed the Service to prepare digital maps for the entire CBRS and make recommendations for its expansion. The Service agrees that the maps should be modernized and is working diligently on that effort.

To date, the Service has transmitted comprehensively revised maps for approximately 14 percent of the CBRS to Congress for consideration and Congress has adopted modernized maps for 9 percent of the acreage within the CBRS.

The Service is actively remapping an additional 26 percent of the CBRS. This includes the Hurricane Sandy Remapping Project, through which the Service is modernizing and remapping the official maps of the CBRS for the nine states affected by Hurricane Sandy in 2012. The Service is also undertaking smaller mapping projects to address mapping errors and make technical corrections, including revising the maps for certain units in Florida and South Carolina. The maps associated with these projects recently underwent public review and we look forward to delivering the Service's final recommended maps to Congress in the near future.

Congress' adoption of final recommended maps produced by the Service will help enhance coastal resiliency and sustainability by improving federal agency compliance with CBRA and by adding other vulnerable coastal areas that qualify as undeveloped coastal barriers to the CBRS. Many of these revised maps also correct mapping errors affecting property owners and provide more accurate and accessible CBRS data for planning coastal infrastructure projects, habitat conservation efforts,

and flood risk mitigation measures. We would appreciate the opportunity to brief the Committee on the process and on outstanding maps.

TITLE VII—STRENGTHENING MARINE MAMMAL CONSERVATION

The Marine Mammal Protection Act (MMPA) of 1972 established a federal responsibility for the management and conservation of marine mammals and was the first statute to call for an ecosystem approach to natural resource management and conservation. Jurisdiction under the MMPA is shared between the Service and the National Marine Fisheries Service, with the Service having authority over the conservation and management of sea and marine otters, walrus, polar bear, three species of manatee, and dugong.

Despite the significant conservation gains since the passage of the MMPA nearly 50 years ago, many marine mammal populations continue to face declines due to habitat loss and other anthropogenic impacts such as boat strikes and entanglement in marine debris. The Service supports efforts to strengthen MMPA implementation and enhance conservation delivery for marine mammals, such as those in Title VII of the Ocean-Based Climate Solutions Act. We offer the below comments on the sections in this title and look forward to working with the Committee on this and other marine mammal legislation.

Section 701. Conservation of marine mammals adversely affected by climate change

Section 701 directs the Administrator of the National Oceanic and Atmospheric Administration (NOAA) to designate a list of marine mammal species and stocks that may be negatively impacted by climate change and to develop climate impact management plans for the entities on that list. The Service supports the intent of this section to increase the consideration of climate change impacts in marine mammal management and conservation and recommends that this section direct coordination with the Service for those species under Service jurisdiction. All Service-managed stocks are already facing the effects of climate change, including loss of sea ice and changes in the range and abundance of important prey species. As such, the Service recommends that the listing process be struck from this section so that agencies can focus limited resources on developing and implementing measures to address the impacts of climate on marine mammals.

Section 701 also recognizes the inherent connection between climate impact management plans and similar plans under Section 115 of the MMPA (conservation plans) and Section 4 of the Endangered Species Act (recovery plans) and encourages the integration of such plans. The Service appreciates the Committee's consideration of these complementary plans and recommends that the requirements of Section 701 be incorporated into existing requirements for similar plans under the MMPA and other conservation statutes to avoid duplicative efforts. Many of the components of climate impact management plans are already considered in existing species planning efforts. By incorporating the concepts of this section into existing management and recovery plans, we can achieve more effective and efficient conservation for marine mammals.

Additional Marine Mammal Sections

- **Section 702. Vessel speed restrictions in marine mammal habitat**
- **Section 703. Monitoring ocean noise for marine mammal protection**
- **Section 704. Grants for seaports to establish programs to reduce the impacts of vessel traffic and port operations on marine mammals**
- **Section 706. Grants to support technology that reduces underwater noise from vessels**
- **Section 707. Naval technology transfer for quieting Federal non-combatant vessels**

The risks and challenges that marine mammals face due to climate change are exacerbated by other human-caused stressors, including vessel strikes and noise pollution. We have seen the harmful effects of these stressors on Service-managed species. Sea otters may alter their behavior in the face of noise pollution, with high levels of noise causing temporary and permanent hearing loss. Slow-moving manatees may be injured or killed by accidental collisions with watercraft, an ongoing threat that the Service is working to reduce in coordination with state and local authorities.

Sections 702, 703, 704, 706, and 707 of the Ocean-Based Climate Solutions Act authorize NOAA and the U.S. military to pursue various studies, grant programs and regulations with the goals of reducing and mitigating the impacts of ocean noise

and vessel strikes. The Service supports these goals and recommends that these sections be carried out in coordination with the Service and, when appropriate, the relevant state, Tribal, and local governments. Coordination among the many agencies responsible for marine mammal conservation is essential in order to provide the best management strategies and practices for marine mammals.

TITLE I—BLUE CARBON

Section 109. Federal coastal and marine blue carbon restoration and protections; funding

Section 109 directs the Service, the National Park Service, and NOAA to conduct coastal and marine restoration and protection activities to support blue carbon ecosystems. The Service manages extensive coastal and marine resources, including 760 million acres of Marine National Monument submerged lands and waters, and has vast experience in restoring and protecting coastal wetlands and ecosystems across the country. Many lands and waters of the National Wildlife Refuge System are strategically located along our coasts and estuaries where blue carbon ecosystems are located, and the Service's Coastal Program provides key financial and technical assistance to federal, state, and local agencies as well as local communities for projects that have blue carbon co-benefits. As a result, the Service is well-positioned to execute the Service-related provisions of Section 109 and to further the goals of restoration and protection of our nation's blue carbon ecosystems.

CONCLUSION

Warming from anthropogenic greenhouse gas emissions will accelerate the rate of climate change, which will in turn have significant consequences for people and natural resources across the globe. In order to address this growing threat, it is essential that we consider all available tools to build climate resilience for communities, species, and habitats. The Ocean-Based Climate Solutions Act recognizes the dual vulnerability and resilience of our coastal and marine resources and proposes, through the policies discussed above, to strengthen the Federal Government's response to climate change through stewardship of these resources. The Service is committed to meeting the challenge a changing climate presents to fish and wildlife resources, and we look forward to working with this Committee and the Congress to enhance this important work.

QUESTIONS SUBMITTED FOR THE RECORD TO MR. STEPHEN GUERTIN, DEPUTY
DIRECTOR FOR POLICY, U.S. FISH AND WILDLIFE SERVICE

Questions Submitted by Representative Sablan

Question 1. Several parts of this bill call upon the Department of the Interior to leverage their resources and improve the resilience of the insular areas, tribes, and Indigenous communities to the rapidly worsening effects of climate change. How will focusing on equity while lifting up these historically neglected and under-represented areas and communities benefit everyone in our fight against climate change?

Answer. Although climate change affects everyone, we know that it disproportionately affects historically disadvantaged and underrepresented communities. These communities are often hit the hardest by climate stressors like sea level rise and flooding but have the fewest resources available to address or prevent climate impacts. In addition, there are many communities that have been underrepresented in discussions about how to address climate change.

To advance climate adaptation and resilience in these areas, we will first listen. Then, we will work together and leverage our resources to support climate adaptation and resilience projects in these communities. These projects will improve the health and safety of populations in the most vulnerable situations, prevent damage to homes and infrastructure, minimize economic losses, and create new jobs, recreational opportunities, and access to nature to support healthy ecosystems, thriving fish and wildlife populations, and vibrant communities. These social, economic, and environmental outcomes benefit all Americans.

Questions Submitted by Representative Graves

Question 1. South Louisiana is home to a truly unique ecosystem—the coastal forest. These forests comprise over 1 million acres of cypress-tupelo swamp, and represent the final stretch of land connected to the Mississippi River Watershed

before it deposits into the Gulf of Mexico. The forests were formed over centuries from the hydrologic patterns of the Mississippi River, which provided alternating periods of drying followed by several months of seasonal flooding on an annual basis. The net result of these hydrologic patterns over thousands of years was an environment uniquely adapted for bald cypress and water tupelo trees to establish and thrive.

However, due to a multitude of natural and man-made changes to the landscape over the past century, these forests are declining at a staggering rate. The loss of these valuable ecosystems represents a significant loss of biodiversity, valuable wildlife habitat, floodwater retention and control, and hurricane and storm surge buffering. Yet perhaps most alarming, these forests would convert from a beneficial carbon sink to a detrimental carbon source.

Restoring the coastal forests of south Louisiana would fulfill many of the enumerated goals of the Ocean-Based Climate Solutions Act. Moreover, the grant programs included in this legislation could provide a valuable lifeline to these forests. Unfortunately, I am worried they will not be included in these programs because they are 100% freshwater systems.

Would these forests be considered "blue carbon" under the Ocean-Based Climate Solutions Act and, if not, how can we work to have them included in these future grant programs?

Answer. H.R. 3764 defines "blue carbon ecosystem" to mean "vegetated coastal habitats including mangroves, tidal marshes, seagrasses, kelp forests, and other tidal or salt-water wetlands that have the capacity to sequester carbon from the atmosphere for a period of not less than 100 years." The Service does not believe this definition includes freshwater systems like the coastal forests referenced in your question.

The Service agrees that these ecosystems can provide numerous ecosystem services, including carbon sequestration. While freshwater systems do not appear to qualify as blue carbon under the Ocean-Based Climate Solution Act of 2021, the Service has financial and technical assistance programs that can support conservation of these coastal forests, including our Coastal Program and Partners for Fish and Wildlife Program. We would be happy to work with your office to identify existing financial assistance programs available to these ecosystems.

The CHAIRMAN. Thank you very much for your comments. Much appreciated.

Let me now turn to Ms. LeBoeuf, Acting Administrator, National Ocean Service, NOAA, for your comments. You are recognized for 5 minutes. Thank you.

**STATEMENT OF NICOLE LEBOEUF, ACTING ADMINISTRATOR,
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION,
WASHINGTON, DC**

Ms. LEBOEUF. Chairman Grijalva, Congressman Bentz, and members of the Committee, thank you for the opportunity to testify on the bills comprising the Ocean-Based Climate Solutions Act of 2021. I am Nicole LeBoeuf, Acting NOAA Assistant Administrator for Ocean Services and Coastal Zone Management.

The Ocean-Based Climate Solutions Act addresses many of the challenges facing the ocean coastal resources and coastal communities as well as economies and industries upon which our entire Nation depends. I thank the Committee for shining a light on ocean and coastal health and for connecting the contributions of NOAA's long-standing programs and technical expertise to new and innovative approaches to climate readiness.

The Act highlights the dual roles of the ocean and coasts in both expressing and in reducing the impacts of climate change. Beyond intensifying hurricanes, the ocean's heat and circulation influence our inland weather patterns, including dangerous droughts and wildfires occurring far from the water's edge. At the same time,

ocean and coastal ecosystems will be essential to creating climate resilient solutions via carbon sequestration or as buffers from hazardous conditions.

These bills have substantial implications for NOAA's mission and operations and are timely as the demand for our climate and ocean-related services is rapidly increasing. Today, I will briefly touch on key areas of alignment between the various bills and NOAA's interest and capabilities, including those found within NOAA's FY 2022 budget request.

One of NOAA's long-standing and increasingly important missions is safeguarding communities, industry, and critical infrastructure in the coastal zone.

Along our coasts and Great Lakes, Americans are already experiencing changes in the intensity, duration, and frequency of extreme weather, as well as the chronic threat of sea level rise which already impacts lives, homes, and our essential built-in natural environments.

NOAA must be empowered and sufficiently resourced to build on its foundational ocean and coastal data and services to produce timely, authoritative observations and predictions and to facilitate Federal coordination and integration of coastal risk data.

NOAA's FY 2022 request includes upgrading our ocean and coastal observing systems and better integrating NOAA's marine navigation, weather, and environmental information into public and private sector decision making to ensure that we are planning for changing conditions in this urgent and historic opportunity to make significant investments in our Nation's future.

Because underserved communities are especially vulnerable to climate change, NOAA proposes targeted investments related to historically underserved populations, including enhancements to the development and delivery of coastal hazard products like our weather and climate tool kit and our sea level rise viewer.

With NOAA's unique emphasis on research-to-operations, our Fiscal Year 2022 budget proposals expand key flagship programs to help communities prepare for the impacts of a changing climate, and it seeks to empower on the ground expertise via Sea Grant, NOAA's Coastal Zone Management Program, and our regional observing partners.

NOAA proposes to enhance our work with nature-based resilience solutions via coastal habitat and research, engaging communities and creating local jobs through significant new investments in coral reef conservation programs and the National Coastal Resilience Fund.

NOAA proposes to augment our pioneering research on blue carbon sequestration for places that provide fish habitat, storm and erosion protection, and water quality improvements. And NOAA is actively seeking input from key stakeholders such as tribes and regional fishery management councils on how to create climate resilient fisheries as well as how to conserve species and special places through investments in our national marine sanctuaries and our National Estuarine Research Reserve System.

NOAA proposes to dedicate more research toward biological observing and modeling to inform conservation and restoration adaptation strategies that project climate impacts and then

incorporate this knowledge into our next generation observations and forecasting modeling systems and tool development.

This includes NOAA's proposed new investments in our capacity to support the planning, siting, and permitting of offshore wind development so that Americans may expand clean energy usage while protecting marine resources, fisheries, and other important ocean activities.

NOAA is a proud leader in delivering authoritative climate and ocean science and services in service of the Nation's coastal communities and in ensuring responsible stewardship of our ocean and coastal resources.

We share the Committee's interest in advancing the role of ocean and coasts in tackling the climate crisis, and we welcome the opportunity to work with you to enhance NOAA's unique mission and capabilities to help all Americans prepare for climate change.

Thank you for your support of NOAA, and I look forward to any questions that you may have.

[The prepared statement of Ms. LeBoeuf follows:]

PREPARED STATEMENT OF MS. NICOLE R. LEBOEUF, ASSISTANT ADMINISTRATOR FOR OCEAN SERVICES AND COASTAL ZONE MANAGEMENT (ACTING), NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Chairman Grijalva, Ranking Member Westerman, and Members of the Committee, thank you for the opportunity to testify today on the "Ocean-Based Climate Solutions Act of 2021." NOAA appreciates the Committee's strong commitment to addressing climate impacts to our ocean and coasts and to sustaining their health and resilience for this and future generations. Today, my testimony will focus on key NOAA priorities that align with and complement provisions of this legislation. We look forward to continued collaboration with the Committee throughout the legislative process.

It is fitting that this hearing is being held during the month of June as President Biden recently designated June 2021 as National Ocean Month, in continuance of one of our nation's modern traditions. The world's ocean is critical to our Nation and to life on Earth. The ocean powers our economy, provides food for billions of people, supplies 50 percent of the world's oxygen, offers recreational opportunities for us to enjoy, and regulates weather patterns and our global climate system. Likewise, our coastal habitats and ecosystems provide essential protection from coastal hazards for large population centers and are home to many commercially and recreationally important marine species. While human activities are impacting the ocean environment, resulting in ocean warming, rising sea levels, and ocean acidification, the ocean environment and the associated ocean economy also present critical opportunities to strengthen our efforts to mitigate and adapt to the impacts of climate change.

NOAA's science and services are the bedrock of efforts to understand these changes and to enhance resilience and efficient operations of many sectors of the economy, including ports, shipping, transportation, agriculture, seafood and fishing, and ocean-based tourism and recreation. In 2018, our ocean and coastal economies contributed \$397 billion or 45 percent of the U.S. GDP.¹ Investing in climate-resilient, reliable coastal infrastructure—including modern ports and waterways—that can withstand the impacts of rising seas and powerful storms will keep our economy competitive in the global marketplace while safeguarding our communities and their livelihoods. Conserving and restoring coastal wetlands and habitats will improve the resilience of coastal communities, support climate mitigation efforts, and help restore nursery areas that are important to our essential commerce and recreational fisheries and other marine wildlife.

NOAA'S PRIORITY INITIATIVES ALIGN WITH THE OCEAN-BASED CLIMATE SOLUTIONS ACT

NOAA's mission is science, service, and stewardship. Our reach goes from the surface of the sun to the depths of the ocean floor as we work to keep the public informed of the changing environment. NOAA manages fisheries, coastal habitats

¹ <https://coast.noaa.gov/digitalcoast/data/coastaleconomy.html>.

and species, and protected areas around the Nation and administers key authorities, such as the Coastal Zone Management Act and others, based on the best scientific information available. The broad portfolio of environmental science, tools, and services that NOAA provides are crucial to carrying out our mission and to ensuring that future generations can enjoy the benefits of healthy ocean and coastal communities, economies, and ecosystems. NOAA's capabilities to observe, monitor, and predict changes in our oceans and along our coasts are more important than ever given the unprecedented rate with which those changes are occurring.

At this critical time in our planet's history, many of NOAA's ocean and coastal priorities are aligned with the goals of the Ocean-Based Climate Solutions Act of 2021 and can be summarized in the following categories:

1. Improving the resilience of critical infrastructure and services;
2. Mobilizing the next generation of workers to equitably advance climate solutions;
3. Improving environmental and community resilience; and
4. Scaling up climate science and services, innovation, and research & development.

While this is not an exhaustive list, these four categories highlight some of NOAA's priority ocean and coastal activities to address climate change.

(1) Improving the resilience of critical infrastructure and services

The science is clear. The impacts of climate change are happening now and are projected to worsen over the coming decades, not only here in the United States but around the world. Coastal communities and critical infrastructure are particularly vulnerable and are already experiencing adverse impacts. These impacts include changes in the intensity, duration, and frequency of certain extreme-weather events, as well as sea level rise and coastal flooding, which are increasingly threatening lives, homes, and the natural environment. We must safeguard investments in infrastructure, bringing to bear NOAA's essential observation and prediction capabilities to help others assess and plan for climate risks in both the near and long term.

NOAA plays an increasingly important role in understanding our changing coastal environment and strengthening and protecting coastal infrastructure and economies.

National Coastal Resilience Data and Services

Improved understanding of coastal flood risk, sea level rise, changing Great Lakes water levels, and land subsidence is an urgent national priority due to their significant negative environmental, economic, and social impacts. The scope of this challenge requires a long-term, whole-of-government commitment, with NOAA science and service delivery at its center. NOAA's long-standing observational infrastructure, such as the National Water Level Observation Network (NWLON), the National Bathymetric Source, and the National Spatial Reference System, represent foundational national assets, that undergird the ability of public and private sector partners to monitor, model, predict, and warn communities about climate-related impacts. This information is already enabling city and community planners to revise building codes and land use plans on decadal and longer timescales. For example, with more flooding expected in the future, NOAA's foundational and climate data have the potential to play an increasing role in helping our nation decide how and where to build.

This legislation would authorize NOAA to build on these services and develop a comprehensive suite of data, products, and services, which would produce and maintain timely, authoritative observations, predictions, and maps to allow coastal communities to understand and plan for floods and other risks. NOAA's science and services are central to our nation's ability to make climate-informed decisions, both when it comes to weather- and climate-ready infrastructure and safeguarding and investing in more vulnerable communities. We are working to assess and eliminate any inequalities that exist in the coastal flooding products and services available to users due to regional gaps in data coverage. For example, in remote or rural communities in particular, the distance between water level or vertical land motion observations, modeling, and analysis can exceed 200 miles. NOAA's FY 2022 Budget Request lays the framework for success in service delivery equity moving forward.

Furthermore, we have an historic opportunity to make significant investments in our nation's infrastructure as we prepare for coastal change; however, that will require more than just pouring concrete. For example, the capacity and efficiency of our Nation's seaports must be sustained and enhanced given their major role in

supporting our economic livelihood and the global competitiveness of U.S. goods, generating \$5.4 trillion in economic activity, and supporting the employment of more than 31 million people. NOAA's integrated suite of timely and accurate information, products, and services enhance understanding of our ports and waterways, their connections to our coastal communities and intermodal transportation networks, and their vulnerability to current and future weather and climate hazards.

Regional Ocean Partnerships and U.S. IOOS Regional Associations

NOAA's mission could not be fully carried out without our long-standing and trusted local and regional partnerships. The Ocean-Based Climate Solutions Act 2021 authorizes the establishment of new Regional Ocean Partnerships on request from the governor of a coastal state. Regional Ocean Partnerships are state-driven, voluntary forums that identify shared priorities and take action on a diversity of ocean, coastal and Great Lakes issues. These long-standing interstate partnerships are also an effective means of fostering interagency coordination, data-informed ocean and coastal management, and thoughtful engagement with regional constituents. For example, NOAA is the federal co-chair of the Northeast Regional Ocean Council (NROC), a 15-year-old federal-state partnership that addresses challenges at a regional scale around ecosystem health, coastal hazards, and infrastructure. Through NROC, NOAA has established a 10-year credible ocean management forum trusted by both regulators and ocean users, who use data on the robust Northeast Ocean Data Portal to inform decision-making. The Council continues to learn and improve in real time by sharing best practices and hosting informative webinars on topics such as regional offshore wind transmission and coastal resilience.

NOAA administers other critical programs, including the U.S. Integrated Ocean Observing System (IOOS) and its 11 Regional Associations (RAs), which provide ocean observations, data management, regional knowledge and technological expertise, and outreach and engagement to advance the development of products that meet regional and local stakeholder needs. Since 2019, NOAA has supported joint ROP and RA collaborative efforts to enhance our collective capacity for sharing and integrating Federal and non-Federal data into public-facing data portals to better inform regional coastal, ocean, and Great Lakes decision-making.

(2) Mobilizing the next generation of workers to advance climate solutions

There are numerous provisions of the Ocean-Based Climate Solutions Act of 2021 that prioritize ensuring that communities of color, low-income communities, tribal communities, and other underserved communities have the tools and resources they need to both effectively mitigate and adapt to effects of climate change. As described in our FY 2022 Budget Request, NOAA is investing in our internal capacity to better respond to the needs of vulnerable populations, assessing key services to identify and address barriers to access for all Americans, funding targeted investments in historically underserved communities, and enhancing NOAA's capabilities, such as our award-winning Weather and Climate Toolkit and the Sea Level Rise Viewer. With NOAA staff living and working throughout the United States, NOAA is well positioned to efficiently and effectively deliver our products and services and to actively solicit feedback about needed improvements. NOAA is aware that underserved communities are especially vulnerable to weather, water and climate events, with large disasters causing poverty rates to increase. NOAA also provides education, training, and hands-on research opportunities to individuals from traditionally underrepresented minority communities through internship programs like the José E. Serrano Educational Partnership Program with Minority Serving Institutions. Their research has significantly contributed to the understanding of communities as they prepare for and adapt to climate change as well as better respond to severe weather events.

Through programs such as National Sea Grant, National Estuarine Research Reserve System, Coastal Zone Management Program, Coral Reef Conservation Program, GulfCorps, EarthCorps, and Vet Corps, NOAA will continue to empower local communities and mobilize the next generation of workers to advance climate solutions through grants, fellowships, training, and short-term employment opportunities. These efforts will support natural infrastructure projects, such as wetland and coral reef restoration, which curb storm impacts, reduce flooding, absorb excess carbon dioxide, and provide essential fish and wildlife habitat, while also supporting tourism, recreation, and other economic benefits.

(3) Improving environmental and community resilience

We know that addressing climate change is crucial for the environment, people, and economy. We have long-standing, distributed programs across NOAA that deliver services like habitat restoration, research, and community engagement as a part of our core activities. We note that a number of provisions in the Ocean-Based

Climate Solutions Act of 2021 would aim to tackle climate change by supporting adaptation for industry and for communities and by promoting sustainable job opportunities. Similarly, our FY 2022 Budget Request proposes significant investments in NOAA programs that connect scientists and local decision makers around climate resilience, such as the Regional Integrated Sciences and Assessments Program, as well as efforts to restore coastal habitats and protect communities, such as the National Coastal Resilience Fund.

Healthy coastal habitats, such as mangroves, salt marshes, and seagrass beds benefit natural and human communities through protections from storms, providing fishing and tourism opportunities, capturing carbon, among other benefits. Restoration of these habitats creates an average of 15 jobs per \$1 million invested² and require a diverse set of skills that directly and indirectly employ a wide variety of people, including construction workers, engineers, fishermen, ecologists, project managers, veterans, and heavy equipment operators. As an example of NOAA's work in this area, NOAA's Restoration Center has successfully executed a Shovel-Ready Restoration Grant Program similar to what is described in the Ocean-Based Climate Solutions Act of 2021.

Coastal Zone Management Act

NOAA appreciates the continued interest in the Coastal Zone Management Act. Our state coastal zone managers provide frontline leadership in protecting, restoring, and responsibly managing the diverse resources along our coasts. NOAA recognizes that Indigenous communities face unique coastal challenges, including those related to climate change and the conservation of natural, cultural, and historical resources and sacred sites.

Conserving Resilient Living Marine Resources

At the heart of NOAA's stewardship mission is species and place-based conservation, authorized by multiple statutes. Like other aspects of NOAA's mission, however, our changing climate and other pressures facing our ocean and coasts will require NOAA to adapt our programs and services. For example, NOAA is currently developing a process that will seek input from ocean and coastal stakeholders on how to implement and measure additional place-based conservation, particularly in light of climate change. NOAA proposes utilizing our National Marine Sanctuary System and the National Estuarine Research Reserve System to enhance conservation of our nation's ocean and coasts. Indeed, NOAA is advancing the designation of new national marine sanctuaries while also considering initiating the designation process for nominated sites in the inventory. In addition, NOAA is collaborating with states and territories on potential new National Estuarine Research Reserve designations. If approved, they would join a network of coastal sites managed in partnership with coastal states and local partners for the protection and research of essential estuarine systems.

NOAA's National Marine Sanctuary System and our National Estuarine Research Reserves System conserve and protect habitats and resources that enhance the resilience of and make positive economic contributions to the coastal communities that they serve. Diverse activities within national marine sanctuaries, such as commercial fishing, research, education, recreation and tourism support billions of dollars in output within local sanctuary economies. Similarly, pilot studies at three national estuarine research reserves have demonstrated that these sites contribute to local economies by supporting jobs; through visitor spending, partnerships, and stakeholder engagement; and investments in reserve staff salaries, facility maintenance, and operations. Each of these contributions has ripple effects that lead to greater economic impacts.

The Ocean-Based Climate Solutions Act of 2021 requires NOAA to update the NOAA Marine Protected Areas Inventory, and authorizes NOAA to maintain a baseline assessment of how much ocean and Great Lakes waters in the United States are currently protected, conserved, and restored. As a complement to our traditional place-based conservation programs, NOAA recognizes the important contributions of regional fishery management councils and their conservation and management measures under the Magnuson-Stevens Fishery Conservation and Management Act and is committed to investing in ecosystem-based management of species through the U.S. Marine Biodiversity Observation Network to advance biological observing, modeling, and other innovative tools to inform adaptation strategies.

² <https://repository.library.noaa.gov/view/noaa/15030>.

Ensuring More Resilient Fisheries and Protected Resources

Changing climate and oceans affect nearly every aspect of our mission, from fisheries management and aquaculture, to conservation of important protected resources and vital habitats. To address these growing impacts, NOAA is gathering and integrating information on climate and ecosystem changes into its resource management decisions. For example, with respect to fisheries management, NOAA is implementing a NOAA Fisheries Climate Science Strategy, Regional Climate Action Plans, and an Ecosystem-based Fisheries Management Road Map. In partnership with the regional fishery management councils, interstate fishery commissions, and states, we are taking steps to help fisheries and protected species prepare for and respond to changing climate and ocean conditions by ensuring well-managed fish stocks with a sustainable biomass and stock structure; producing regional ecosystem status reports to track and provide early warnings of climate and ecosystem changes in each region; using climate vulnerability assessments of major fish stocks, habitat and protected species to better understand their vulnerability and support management actions; and using scenario planning and other tools to identify effective fishery management strategies and protected species recovery actions under current and future conditions. NOAA is also reviewing input from fishermen, regional ocean councils, regional fishery management councils, scientists, and other stakeholders on how to make fisheries and protected resources more resilient to climate change, including changes in management and conservation measures, and improvements in science, monitoring, and cooperative research. NOAA will consider these stakeholder recommendations in future policy, guidance or management, affecting programs discussed in this testimony.

Through proactive partnerships with industries and other stakeholders, NOAA has led the advancement of new methods for reducing negative human impacts on protected species and places. These advancements may also have the added benefit of reducing the carbon footprint of marine industries. For example, partnerships with the shipping industry have spurred a new field of innovation in that sector, and are now poised to study vessel design and operation methods that can both reduce greenhouse gas emissions and reduce underwater noise in places that matter to the marine animals and protected areas in our trust. In recognition of the trans-boundary nature of both the species we manage and maritime transport operations, NOAA will seek to build on past collaborations, with our interagency partners, through international forums such as the UN's International Maritime Organization and the Arctic Council.

(4) Scaling up climate science and services, innovation, and R&D

NOAA's climate science and services contribute greatly to the United States leadership in climate science, clean energy technology, and clean energy jobs. NOAA has long-standing research and technology programs, with an emphasis on research-to-operations, providing the foundation for smart policy and decision making in a changing world.

NOAA develops and runs world class research and operational weather, hydrologic, ocean, Great Lakes, climate, and Earth System Modeling systems. These and other physical science research and development capabilities and programs at NOAA Laboratories, Cooperative Institutes and Centers—as well as access to partners like the IOOS Regional Associations, academia, and other research groups through NOAA grants programs—provide a solid foundation for much-needed research, regional/local application development, and numerical, statistical, and hybrid modeling improvements to advance understanding of coastal flood risk, including sea level rise. This applied research, and the expertise in transitioning research into operations, directly enhances the operational products and decision-support services that NOAA and our partners provide to help communities adapt to and mitigate the impacts of a changing climate.

NOAA will continue to provide climate data, tools, and services to Federal agencies, state and local governments, tribes, and the commercial sector. However, to ensure that our services continuously reflect the most current understanding of our changing climate, it is imperative that NOAA dedicates more research toward understanding and projecting coastal inundation from rising seas, high lake levels, heavier precipitation, and more frequent extreme weather events and incorporate this knowledge into the next-generation modeling systems and tool development. NOAA's goal, as reflected in our FY 2022 Budget Request, is to scale up efforts to research the climate system and inform solutions to the climate crisis through investments in research, observations and forecasting, restoration and resilience. This includes support for ecologically sound offshore wind development and equitable services through multiple programs that touch everyday lives.

Offshore Wind

Offshore wind development is rapidly expanding in the United States, particularly in the Northeast, Mid-Atlantic, and West Coast, and there is renewed interest along the Gulf of Mexico as well. This is a relatively new use of our marine waters and will require continued and substantial scientific and regulatory review to balance energy production with protecting marine resources, fisheries production, Department of Defense testing and training that supports national security requirements, and NOAA sensors, like radar, that are sensitive to wind turbine interference.

In this vein, the Ocean-Based Climate Solutions Act of 2021 describes the importance of increasing electricity production from offshore wind while addressing key issues such as increasing funding for scientific research and developing strategies to protect wildlife and be compatible with other ocean uses. Working in partnership with other key federal agencies, NOAA's science and stewardship missions will be critical to helping our nation fully utilize our ocean as a producer of offshore wind energy in a way that is environmentally and scientifically sound. As reflected in NOAA's FY 2022 Budget Request, NOAA's expertise and capabilities will have to keep pace with this growing industry and will require investing in several key areas to appropriately engage in Federal interagency planning, siting, and environmental review and permitting of offshore energy projects to responsibly evaluate, monitor, and minimize impacts on our trust resources and constituencies.

Blue Carbon

The Ocean-Based Climate Solution Act of 2021 highlights the contributions coastal ecosystems can make to climate mitigation and adaptation efforts and authorizes a Blue Carbon Program in NOAA to advance understanding, conservation and restoration of these ecosystems for their climate services. This program would build on NOAA's existing pioneering research on blue carbon, with the primary focus on carbon sequestration and storage in coastal habitats (e.g., coastal wetlands, including seagrasses, salt marshes, and mangroves). These habitats have been a focus of NOAA research, restoration and conservation for many years because of their importance in providing essential fish habitat, wildlife habitat, storm and erosion protection, and water quality improvements; and align with the climate-oriented activities described in the Ocean-Based Climate Solutions Act of 2021. NOAA's coastal blue carbon activities are a collaborative effort across the agency and with other Federal agencies. Other initiatives that Primary topics include greenhouse gas inventory and accounting; habitat restoration and protection; research, monitoring and mapping; the management of coastal blue carbon in National Estuarine Research Reserves, national marine sanctuaries, and the coastal zone; technical assistance and outreach; and international cooperation and capacity building. NOAA can also support Advanced Research Projects Agency-Climate (ARPA-C) through its observations, monitoring and advanced climate research. A better understanding of coastal and deep seabed blue carbon habitats and their role in climate change mitigation will assist NOAA and other partners and stakeholders to better manage and maintain these ecosystems and provide multiple, critical benefits to communities and species.

Ocean Acidification and Harmful Algal Blooms

The Ocean-Based Climate Solutions Act of 2021 also describes activities to address ocean acidification and harmful algal blooms (HABs). As the lead federal agency for both ocean acidification and HABs, NOAA is committed to identifying knowledge gaps and potential adaptation strategies needed to address the increasing severity of both ocean acidification and HABs being driven by climate change.

Climate change is one of the drivers of the increasing frequency, toxicity, and duration of harmful algal blooms. Warmer waters, changes in salinity and carbon dioxide levels, sea level rise, and coastal upwelling are creating conditions in which HABs thrive. Toxic blooms threaten human and marine mammal health, drinking water, tourism, and commercial and recreational fisheries. Some blooms kill fish and shellfish directly, causing millions in losses to the aquaculture industry. NOAA is the lead federal agency for marine HABs and shares jurisdiction for the Great Lakes with the Environmental Protection Agency. NOAA's role is understanding, detecting, monitoring, and forecasting HABs, and in helping communities with decision-making related to their prevention, control, and mitigation. NOAA's HAB programs are national in scope but targeted to different regional needs.

Through our research, forecast, monitoring, and response activities, NOAA provides actionable information about HABs to decision-makers responsible for water treatment, aquaculture, public health, tourism, and coastal resource management. NOAA provides funding and technical training to state and local partners to build HAB monitoring capacity, and most HAB observing networks are a collabora-

tion between NOAA and non-NOAA partners. NOAA and our partners provide long-term operational HAB forecasts for Lake Erie, Florida, and Texas that support public drinking water managers, and the fishing and tourism industry sectors. Additionally, NOAA runs HAB forecasts in several other regions of the country, including California, the Pacific Northwest, and the Gulf of Maine, that have not yet been operationalized (i.e., they provide a sustained service while remaining in research mode).

Additionally, NOAA is the lead federal agency for understanding the impacts of coastal and ocean acidification and chairs the Interagency Working Group on Ocean Acidification. NOAA's efforts are led by the Ocean Acidification Program (OAP) in partnership with the Integrated Ocean Observing System (IOOS) and the IOOS Regional Associations, and others. The OAP seeks to better prepare society to respond to changing ocean conditions by expanding our understanding of ocean acidification, a fundamental change in the ocean's chemistry caused by absorbing carbon dioxide. OAP created and continues to partner extensively with the regional coastal acidification networks to understand and work to mitigate the impacts of acidification at the local level, where it is felt most severely. We have also created the Ocean Acidification Information Exchange³ portal that makes data and tools on coastal and ocean acidification available to partners to assist them in understanding and preparing for this dramatic element of a changing climate. OAP also partners with the National Sea Grant College Program to provide heavily impacted stakeholders, such as the aquaculture industry, with adaptation techniques for acidification and a changing climate broadly. Finally, OAP is working with the National Centers for Coastal Ocean Science on ongoing research to fill knowledge gaps in the linkages between acidification and HABs, identify potential research products, and stakeholder needs.

OCEAN-BASED CLIMATE SOLUTIONS ACT OF 2021

The Ocean-Based Climate Solutions Act of 2021 is a broad bill aimed at addressing many challenges facing ocean and coastal wildlife and habitats as well as coastal communities and economies. As such, the bill has substantial implications for NOAA's mission and operations. With the exception of the provisions that the U.S. Fish and Wildlife Service addresses in its statement, the Administration has not taken a position on this bill. We are happy to provide technical suggestions on the bill as needed.

CONCLUSION

NOAA is proud to continue to lead the world in ocean science, serve the nation's coastal communities and industries, and ensure responsible stewardship of our ocean and coastal resources. With our expertise and unique capabilities, NOAA can help our nation better understand our changing planet and make better decisions to prepare for, adapt to, and tackle the climate crisis. Together, we can meet the moment. Thank you and your staff for your work to support NOAA's mission.

QUESTIONS SUBMITTED FOR THE RECORD TO MS. NICOLE LEBOEUF, ACTING
ADMINISTRATOR, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Questions Submitted by Representative Sablan

Question 1. Title VI of the Ocean-Based Climate Solutions Act directs NOAA's Office for Coastal Management to provide technical assistance to the insular areas to enhance their coastal management and climate change programs. Can you describe what that technical assistance might look like and why it is important that we include this language?

Answer. NOAA's Office for Coastal Management (OCM) provides technical assistance in a number of ways to help coastal communities access and apply tools, technology, policy, science, and other knowledge to address coastal management issues. NOAA also provides subject-matter expertise that allows coastal decision-makers to make the best use of tools and techniques to answer specific questions or resolve issues. A few examples of NOAA's technical assistance include:

- Training on topics, tools, and processes. The OCM has recently provided training on topics such as nature-based solutions for coastal hazards and climate adaptation planning to the territories, and demand for these trainings

³ oainfoexchange.org.

continues. For example, Puerto Rico has interest in more nature-based solutions trainings. The OCM also provides demos of different Digital Coast tools such as the sea level rise viewer and the coastal flood exposure mapper and can help insular areas apply those tools to their location in order to assess vulnerabilities and prioritize adaptation actions.

- Providing geospatial support: The OCM helps insular areas acquire geospatial data by partnering on data acquisition under our existing geospatial contract. The OCM also provides technical assistance accessing and applying data on the Digital Coast, such as lidar, shoreline, and land cover change data. The OCM also offers training on coastal inundation mapping that helps local staff with GIS expertise learn how to do specialized mapping.
- Facilitating and/or assisting in planning partner workshops and meetings: The OCM has expertise in planning and facilitating meetings, and can support insular areas in identifying desired outcomes, applying different process techniques such as breakout groups, and executing a well-run event.
- Supporting Coastal Zone Management (CZM) and Coral programs: The OCM liaison positions support the territories as they apply for, execute, and report out on their use of NOAA grant funds, and they share lessons and best practices from other states and territories. One liaison serves Coral and CZM programs in each territory. Also, the OCM supports fellowships that build capacity in territories' coastal and coral programs.
- Regional networking: By maintaining a strong regional presence in the Southeast and Caribbean as well as the Pacific, the OCM often serves as the first point of contact for coastal programs looking for partners in the continental U.S. For example, the OCM helps connect partners in other NOAA programs, federal agencies, academia, and non-profit organizations.

Importance of technical assistance language being included:

- The territories often face more significant capacity limitations than their stateside counterparts due to historic inequities. Providing technical assistance is critical to ensure insular areas can access and apply available science and data, can learn from others in the coastal management field, and can maximize the impact of grant funding they receive. Over time, this technical assistance builds on-the-ground capacity and enables partners to take full advantage of not only NOAA funding but other federal, non-profit, or foundation funding.
- Insular areas need access to online data, tools, and references, as well as *high-touch delivery* of the science that enables them to apply it in decision-making.
- Another important aspect of technical assistance is taking the time to listen to and understand needs. The OCM has staff living in the territories and working directly with partners. That enables the OCM to learn about the challenges faced, the capacities and expertise available locally, and the opportunities to make gains. Then, assistance can be tailored to best fit needs.

Questions Submitted by Representative Graves

Question 1. South Louisiana is home to a truly unique ecosystem—the coastal forest. These forests comprise over 1 million acres of cypress-tupelo swamp, and represent the final stretch of land connected to the Mississippi River Watershed before it deposits into the Gulf of Mexico. The forests were formed over centuries from the hydrologic patterns of the Mississippi River, which provided alternating periods of drying followed by several months of seasonal flooding on an annual basis. The net result of these hydrologic patterns over thousands of years was an environment uniquely adapted for bald cypress and water tupelo trees to establish and thrive.

However, due to a multitude of natural and man-made changes to the landscape over the past century, these forests are declining at a staggering rate. The loss of these valuable ecosystems represents a significant loss of biodiversity, valuable wildlife habitat, floodwater retention and control, and hurricane and storm surge buffering. Yet perhaps most alarming, these forests would convert from a beneficial carbon sink to a detrimental carbon source.

Restoring the coastal forests of south Louisiana would fulfill many of the enumerated goals of the Ocean-Based Climate Solutions Act. Moreover, the grant programs included in this legislation could provide a valuable lifeline to these forests.

Unfortunately, I am worried they will not be included in these programs because they are 100% freshwater systems.

Would these forests be considered “blue carbon” under the Ocean-Based Climate Solutions Act and, if not, how can we work to have them included in these future grant programs?

Answer.

- The forests in question would need to be tidal and salt-water to fall within the definition of “blue carbon ecosystem” in the current draft bill. Congress would need to modify this definition and/or the grant program description to more broadly include other aquatic ecosystems that capture and store carbon resulting in net greenhouse gas reduction in order to include Cypress-tupelo swamps.
- Also, as currently drafted in the Act in Section 104(d) (selection criteria), an applicant would need to show how their project would result in long-term protection and sequestration of carbon stored in coastal and marine habitats.

The CHAIRMAN. Thank you very much.

Let me now begin questions by Members. Let me turn to the Chairman of the Subcommittee, Mr. Huffman, for your questions. You have 5 minutes, sir. You are recognized.

Mr. HUFFMAN. Thank you, Mr. Chairman, and thanks very much to this panel of witnesses.

Ms. LeBoeuf, I would like to begin with you, please. One of the key aspects of the Blue Carbon Protection Act, Title I of the Ocean-Based Climate Solutions Act, is a partnership grant program.

I want to just ask if you could speak to how grants to non-Federal entities to restore blue carbon ecosystems fit into the Administration’s goals to build back better.

Ms. LEBOEUF. Yes. Thank you, Congressman Huffman. Investments in on-the-ground restoration activities are really good spends for taxpayer dollars. Coastal economies depend on coastal environments to be healthy and resilient to climate change, but our entire nation depends on the ability of our industries and economies and infrastructure along the coastal zone, both nature-based and hardscape, to survive the climate impacts that they are already facing.

At NOAA, we have been doing coastal restoration and habitat restoration for decades. We have been studying carbon sequestration. And we verified what we heard already, that coastal environments like salt marshes can sequester as much as 10 times the amount of carbon as terrestrial forest habitats. But they also provide habitat and nurseries for recreational and economically important species of fish and shellfish. They also provide places for people to recreate and to call home.

And what we also heard just from Members today is the importance of these coastal environments as protection from erosion and storms and storm surge and other coastal hazards. So, every time we invest in coastal restoration and in coastal ecosystems, we are building back better those environments for people, for the animals, for the plants, and for future generations.

I will say also that we know that habitat restoration creates jobs. For every \$1 million invested in habitat restoration, we estimate at least 15 jobs across a wide range of industries from project management to engineering. This is something that NOAA is very eager to expand and continue to invest in.

Mr. HUFFMAN. Thank you. I am glad you brought that up because this bill also includes a \$10 billion program to support shovel-ready coastal restoration projects. And my understanding is a similar program was put in place after the 2009 recession.

Can you briefly speak to the success of that program as an example of what we might expect.

Ms. LEBOEUF. Yes. Absolutely. And the demand for that work has grown so much since 2009. In 2009, NOAA was able to scale up its existing restoration grant programs and provide funds for over 100 projects in 24 states and territories around the country, really not only jump starting and kick starting those economies through job creation, and again, through all kinds of other ecological services that those habitats provide but also have really helped local communities invest in the restoration and recovery of habitats that are important to them and important to their local traditions and cultures.

So, it has really provided a model, not only for the benefits of habitat restoration, but within NOAA, how we can quickly scale up our grant programs to meet the demand which is really outstripping our abilities right now.

Mr. HUFFMAN. Thank you.

In the time I have left, Mr. Guertin, I would like to ask you to speak to how the goal of conserving blue carbon ecosystems aligns with protecting wildlife in our National Refuge System.

Mr. GUERTIN. Thank you for your question, Congressman. Conservation of blue carbon ecosystems aligns very well with our conservation issues with wildlife and fisheries restoration and protection on the National Wildlife Refuge System. The refuge system conserves these species and habitats on a landscape scale. There are about 180, 182 coastal refuges encompassing more than 740 million acres of coastal and marine habitat.

They feature a wide range of blue carbon opportunities of salt grass, kelp beds, and mangroves, and they are critical to the conservation of many Federal trust species including manatee, sea turtles, and migratory water fowl, so there is a very good alignment, sir.

Mr. HUFFMAN. All right. Thank you very much, sir.

I yield back.

The CHAIRMAN. The gentleman yields. Thank you very much.

Mr. Bentz, you are the Ranking Member, Congressman. You are recognized, sir.

Mr. BENTZ. Thank you, Mr. Chair.

A question for Ms. LeBoeuf on the Interagency Task Force created by H.R. 3764. It identifies 19 Federal agencies, but notably missing is the Bureau of Reclamation. As you know, that agency maintains critically important water supply projects, many located on the rivers and streams that ultimately run into the ocean. Considering the task force has the potential to impact the Bureau of Reclamation's work, wouldn't it make sense to include them in that task force?

Ms. LEBOEUF. Thank you for your question, Congressman Bentz. And we are still reviewing the bills in their entirety and have not taken a position on them at this time. What I will say, when it

comes to coastal resilience and climate action, we are going to need all hands on deck.

We are going to need to be consulting with those with the expertise and those that will be impacted from other Federal agencies to communities on the ground to all be a part of the solutions.

And I would say to use one more analogy, we need to put as many tools in our toolbox as possible. So, as I am saying to other Federal agencies, if you have something to bring to this conversation, let's hear it.

Mr. BENTZ. Thank you. And while we are talking about consultation, H.R. 3764 creates several new consultation requirements such as blue carbon areas of significance, marine mammal climate impact management plans, and changes to consultation requirements under "essential fish habitat."

Would your agency need to complete three different consultations, should a Federal action affect these designations?

Ms. LEBOEUF. Thank you for that question as well. I will speak mostly to the climate aspects of those consultations. Again, conversations are needed to make sure we are not being duplicative across Federal agencies and that we are bringing taxpayers' dollars to bear in the best way possible. I know we consult with, for example, the Marine Mammal Commission on a number of activities because they can look across the Federal agencies, identify best practices or gaps in information, and help queue us in on those activities.

So, I would welcome continued work with you and other Committee members to ensure that we are bringing the right folks to the table and having the right kinds of conversations.

Mr. BENTZ. Thank you. And the question that often comes up in dealing with consultations is how long is it going to take, and that brings us almost immediately into how much information you have already developed that applies to these types of consultation.

Do you anticipate that these bills will require additional studies before you are able to correctly engage in such consultations?

Ms. LEBOEUF. Well, of course, we would want to have as much information as necessary to make meaningful decisions, particularly when it comes to predictive decision making and climate change in the future.

What I will say is that consultations across the board, whether they be for essential fish habitat or other means, are designed to bring the right agencies to bear so that we are not missing anything and we're not making mistakes along the way.

I do believe that there are many opportunities across NOAA and the Federal agencies to further empower us to bring good information to the table so that we can enable, for example, infrastructure choices as an example for promotion of wind energy development, for the promotion of other industries along the coastline.

And without the ability to bring the right agencies the right information together, we could very well be doing things in a duplicative manner or could be missing important vital information for those choices.

Mr. BENTZ. Thank you. And while we are talking about consultation, the bill also amends the essential fish habitat provisions of

the law. It would trigger secretarial consultation on any federally permitted action on essential fish habitat.

If information or determinations were to come from regional councils, federal or state agencies, and then "or from another source,"—it is this last phrase I am interested in. Can you please tell us your interpretation of what this means to your agency and whether you think it will expose the agency to a proliferation of essential fish habitat-related petitions.

Ms. LEBOEUF. Yes. Thank you. My agency does not have a position on that particular interpretation. I will say that we are very much looking forward to working with the Committee on refinement of language where we do need to discuss that kind of interpretation. There are a lot of shared interests here, and healthy fish populations are just one of those. But at this time, I would say, sir, we are still reviewing that interpretation.

Mr. BENTZ. Thank you.

With that, Mr. Chair, I yield back.

The CHAIRMAN. Thank you. The gentleman yields back. And your point on the involvement of the Bureau of Reclamation is well taken, Congressman, and I appreciate that suggestion, and your comments regarding that.

With that, let me now—Chairman Lowenthal. Sir, you are recognized for 5 minutes.

Mr. LOWENTHAL. Thank you, Mr. Chair, and thank you for holding this very, very important hearing on really protecting and preserving our oceans and our ecosystems around the ocean.

What I am interested in is a number of critically important protections within the legislation to help marine mammal populations rebound. Two protections that I would like to highlight. One is the creation of a quiet sky—the Quiet Seas and Clear Skies, the vessel speed reduction award program. And the second is a study directing NOAA to analyze fishing gear, marine debris, and issue recommendations on management measures to address this issue.

I was hoping that both of you or either one of you, although I will ask specifically a question to each of you, can deal with this issue. One, the issue of abandoned fishing gear. I will start with that one and then come back to ship strikes.

And this is for Assistant Administrator LeBoeuf. Can you briefly touch on how such a study from NOAA can help shed light on the domestic and international problem of abandoned fishing gear? And what do you see as the best management practices that you are aware of to help address this issue.

Ms. LEBOEUF. Congressman Lowenthal, thank you very much, and thank you for your long-standing support of NOAA and for your background, although that doesn't look like the LA Long Beach area to me. What I will say is—

Mr. LOWENTHAL. It is a little bit further, further west.

Ms. LEBOEUF. It is a little further west. OK.

Mr. LOWENTHAL. That is right.

Ms. LEBOEUF. Any additional information we can obtain on best practices for, first, prevention and then recovery of derelict fishing gear would be an advancement. This, like ship collisions, are best prevented rather than clean up on the other end, but we are

looking to develop best practices and would welcome further investigation into that.

Of course, you know there are some methods employed now. There are ways to tag gear so that it can be tracked and retrieved. And, of course, we are looking to expand our marine debris grants program to actually employ fishermen to be a part of the solution to retrieve fishing gear once it has become loose in the water. And we would welcome to continue to work with you to better assess what that problem is.

Mr. LOWENTHAL. Thank you. I don't think many people are aware of how large the problem is on abandoned fishing gear and the impacts of it, so I just really wanted to raise this issue, and I know that NOAA is working really hard on this issue. And I think it is critical that as we are talking about protection of our oceans that we look at some of what we are throwing into the ocean, what we are leaving in the ocean.

Deputy Director Guertin, I have a question. Can you briefly touch on how a voluntary program to reduce ship speeds can help minimize ship strikes on whales and other marine mammals? And does a program like this work?

Mr. GUERTIN. Thank you for your question, Congressman. Our nexus to this issue is largely with some of the in shore species like manatee and sea otters. Unfortunately, about a quarter of the mortality every year is caused by ship strikes. We do a lot of work as this is a listed species with the state boating industry, recreational and commercial fishermen to put in place a lot of buoys, markers, mapping products, and public information. We also have three law enforcement officers in the Service deployed to Florida to work specifically on working with the boating recreational folks on awareness and management.

These voluntary things we believe go a long way toward helping these animals. We know largely where they are going to be, but they move around a lot on their own, and we try to focus our efforts to keep people away from the known corridors and known foraging areas and do a lot of public awareness.

And, certainly, many of the provisions in this bill that address some of the wound-related stress on marine mammals, habitat conservation, and resiliency would go a long way toward our ongoing efforts for manatee and other sea mammal recoveries, sir.

Mr. LOWENTHAL. Thank you.

I am going to yield back.

The CHAIRMAN. The gentleman yields back, and I recognize the Dean of the House, Congressman Young. You are recognized, sir.

Mr. YOUNG. Thank you, Mr. Chairman. God bless you.

Interesting hearing. I am sorry I am a little late. I had another meeting I had to go to. It was not a Zoomer, but anyway.

Ms. LeBoeuf, H.R. 3764 requires the creation of national grant programs to support U.S. fisheries, including the motion of domestic products for climate friendly fisheries and fisheries with low bycatch and low impacts on marine mammals.

My question is this: Currently, the NOAA and regional council successfully manage their fisheries to reduce bycatch as much as possible, and the MM&P requires very strict, some of the most

precautionary work in the world. Therefore, our fisheries are, by and large, considered sustainable.

Wouldn't it be more beneficial to a greater portion of our domestic industry and our Nation to allow access to our national grant program promoting research and development for as many products as possible rather than limiting access via a subject list of qualifiers? The last part is the real question.

Ms. LEBOEUF. Oh. Yes, sir. I appreciate your question, and thank you for raising this issue. We work very closely with the fishery management councils, as you know, to make sure that U.S. seafood is sustainably harvested and is safe to eat, quite frankly, and is as delicious as it can possibly be. We don't have a position on this particular provision of the Act.

I will say that working with our U.S. fishermen is a complex business. They are very well invested in sustainability of those fisheries, and then it is up to our folks at NOAA to figure out how to work with them and work with the provisions of the Marine Mammal Protection Act to make sure that their fisheries are sustainable when it comes to marine mammal conservation as well.

So, the Administration doesn't have a preference on one approach or another, but we will continue to work with the fishery management councils both under the Magnuson-Stevens Act and under the Marine Mammal Protection Act to do the best thing we can.

Mr. YOUNG. Thank you. And keep us informed on this issue because it has come up to me before, and I think we can improve is what I am saying. I do believe that there is room for improvement there.

Mr. Guertin, Section 701 of H.R. 3764 amends the Marine Mammal Protection Act, whereby the Secretary is required to publish and maintain a list of marine mammals negatively impacted by climate change and requires the development of climate impact management plans and 18 to 30 months to address any activity that may contribute to population declines.

The provision also allows population projection using climate projection data 100 years in the future, just as was done with the polar bears, the original poster child of climate change. I will never forget some of the scenes I saw. But we have learned we got it wrong with the polar bears. Statistically speaking, there are more polar bears today than there were listed under the ESA Act of 2008, mostly due to the impacts from climate change.

Based on this example, is it fair to say we may well get it wrong again but only after we have implemented regulations undermining commerce in the U.S. EEZ zone? What I am saying—sorry. If you don't understand that question, I will make it very clear. We sometimes made mistakes, and I don't like to make mistakes when they affect the commerce part of our EEZ zone.

Mr. GUERTIN. Thank you for your question, Congressman. We don't want to make mistakes either at the Federal Government level, and our commitment to you is we will always use the best available science. We will work closely with our state partners. We will keep Congress informed as we move forward. It is in our collective best interest to always use the best available information to make any species determination.

Mr. YOUNG. With all due respect, sir, best available information sometimes isn't any information at all. And when you do make a decision like with the polar bears, I do believe the Secretary made a mistake, and I don't want that to happen again.

And, by the way, where did you get that little elk behind you? It looks like a 5-pointer or 10-pointer. I would be really shocked—if I count the points right, it was illegal?

Mr. GUERTIN. That is just a painting, a reproduction of a Olaus Murie painting, sir, just sentimental value. I didn't shoot it—

Mr. YOUNG. If you have been to my office, you would understand what I am saying.

Mr. GUERTIN. Oh.

Mr. YOUNG [continuing]. Real elk.

Mr. GUERTIN. So, that is just sentimental—a copy of a thing from the visitor center out in Grand Teton that I keep.

Mr. YOUNG. All right. Thank you.

Mr. Chairman, I don't have any other questions. Thanks for having this hearing, and I do appreciate it. God bless.

The CHAIRMAN. Thank you, Mr. Young, and appreciate your questions.

Let me now ask Congressman, the gentleman from Hawaii, Mr. Case, sir, you are recognized for 5 minutes.

Mr. CASE. Thank you, Mr. Chair.

And first of all, to the witnesses, I am a co-introducer of this measure and so that will tell you where I am coming from. I do want to say to Mr. Guertin and Ms. LeBoeuf, from Hawaii and the Pacific, thank you for your efforts. The Fish and Wildlife Service and NOAA have been great partners, and I look forward to that all continuing, so really appreciate the partnership.

Mr. Guertin, I am looking at your testimony, and I am focusing on the Coastal Barrier Resources Act amendments, the provision that basically calls for the 1982 approach that I believe your testimony was to the effect that it has been quite successful. And the goal of preserving our coastal barrier areas in this bill, of course, proposes to expand that to the "Pacific Coast," although, I am still unsure whether that includes Hawaii, as well as to the territories and the Freely Associated States.

And you made a comment that the coastal geology is different, so it wouldn't be appropriate there. I just kind of paused on that to ask myself whether I agree with that because obviously anything we can do to preserve our coastal ecosystems we should do.

And if it has been successful in the Atlantic Coast, why wouldn't it be successful elsewhere? And if the answer is the geology of the Atlantic Coast are barrier islands and you don't have that in the other side of the country, then I will accept that. But is that what you meant?

Mr. GUERTIN. Thank you for your question, Congressman. We can be kind of pin heads, I guess, when we write our testimony. We take things very scientifically but in very general terms. In our view, the Pacific Coast and the Hawaiian Islands, for example, face different threats and challenges from the Atlantic, Great Lakes, and Gulf Coast where the traditional CBRA is.

We focus the traditional program more on these sand barrier islands and offshore kind of things. When we look at the Pacific

Coast, a lot of it is already protected. Military bases and state parks are very heavily developed, not a lot of similar geology. Hawaiian Islands, we are not seeing so much the traditional offshore sand barriers there necessarily.

That said, we are very open to working with Congress as you interpret what the implementation will be going forward. There are certainly many other factors in this legislation that would apply to the Hawaiian Island chain out there and other sections of the Pacific Ocean.

So, we are open to working with Congress as we work forward, but apologize if our testimony was a little too egghead for you. It is just we are looking at the traditional meaning of what the CBRA program has gotten us so far and its focus on these largely offshore complexes along these coast lines.

Mr. CASE. OK. I appreciate that, and understood. I would comment back to you that I am not sure the geology should be the determining factor here. I mean, we have clear erosion going along our Pacific Coast and to include the Hawaiian Islands and elsewhere in the Pacific.

Mr. GUERTIN. Sure, that is fine.

Mr. CASE. The impact of climate change is what we are after here, and some of the mechanisms that the Federal Government employed in that 1982 law to disincentivize development in that coastal region could well be applicable to a different geology elsewhere. Anyway, I will leave it at that because I would like to move on quickly to Ms. LeBoeuf.

I am noting that in the first part of your testimony, you say that basically NOAA's ocean and coastal priorities are aligned with the goals of the Ocean-Based Climate Solutions Act, and yet you conclude with the statement that the Administration doesn't take a position on the bill other than for the Fish and Wildlife portion, and I am not sure what that means.

Does that mean you just haven't done it yet or generally it is OK but you may take a different approach, or you have more ideas for the Committee to consider, or how am I to interpret that?

Ms. LEBOEUF. Yes, thank you for the clarifying question. Alignment, in my mind, is that we have a lot of shared interests in keeping our oceans healthy and our coastal communities and economies safe and prosperous. We are still analyzing the various aspects of the bill, and there are several for which we have already provided technical drafting assistance, and that was taken, and we are appreciative of that.

We would just like more of an opportunity to examine some of the refined versions that have just recently come out. But when I say "alignment," I mean it is very clear that there are shared interests between NOAA's mission and the interests of this Committee.

Mr. CASE. OK. Thank you so much.

I yield back.

The CHAIRMAN. Thank you, Mr. Case.

Let me now recognize Congressman Gohmert for your questions, sir. You are recognized.

Mr. GOHMERT. Thank you, Mr. Chairman.

I am curious when I hear about wanting to help the fish population. Growing up in Texas, I heard for years that, "Gee, if we

allow oil and gas production off the Texas coast, we are going to have big problems, and it is going to end up killing off the fish.”

And then, over time, it turned out that actually when people go fishing now, they like to go around where there is a rig because it is an artificial reef, and fish have just really populated the area extensively. So, all of those gloom-and-doomers that were saying developing oil and gas and helping the economy, that was all going to destroy fishing in the Gulf of Mexico, it ended up having exactly the opposite effect.

And last I checked, there was a long wait, a long list of places that wanted oil rigs that were actually discarded in their area because of the artificial reef it created. I haven’t heard anything about how drilling of oil and gas actually can proliferate fishing or fish population. I have just heard about gloom and doom again, like I did when I was young in Texas.

I would just ask either one of you, have you taken that into account at all, that actually the work of a vibrant economy in producing oil and gas can actually help increase the population of fish?

Ms. LEBOEUF. Congressman Gohmert, I will give a start at that. And I also grew up in the Gulf Coast of Texas and did a lot of fishing myself and found a love for the coastal communities there, not just the beach, but the folks that live near the beach and the industries that depend on them.

And your example is not one that I am aware of that we have studied per se. I can absolutely take that as a question back. I do know that we do find dive sites around rigs and, as you have said, that rigs can turn into artificial reefs once they are decommissioned.

There is information out there that fish like to aggregate around things that are bigger than they are, right, and so if it is a big pile of rocks or a rig, fish may not know the difference.

What I will say, as you know being from Texas, the ocean and the coast, that is a busy place. There are a lot of industries out there that contribute to our Nation’s entire well-being. From sneakers to bananas to natural gas, people all over the country require our coastal communities and economies to be vibrant and to be ready for what is to come.

And one of the things that gets me excited when I talk about coastal infrastructure is about all the information that we can bring to bear from NOAA to make sure that our infrastructure is climate ready so that all of those economies and industries can prepare for what is to come.

Mr. GOHMERT. I am a little surprised that there hasn’t been any looking at that and how man’s productivity can work hand in hand with the fish world. I am quite concerned that that hasn’t been looked at because what I have heard from sources in Texas is that it has been a big boon for fishing growth and fishing population, the growth of population.

And as we continue to try to take actions to change the climate change, and we know that polar ice caps have melted, as I understand Antarctica has actually expanded. But I understood recently that it is for sure that the polar ice caps on Mars are also melting, and I have a hard time believing that anything we are going to do

is going to change the climate on Mars and stop the polar caps continuing to melt there. It is just one thought.

But it also seems that the more we talk about giving government more and more power, more and more money to battle evil climate change that we have seen for millions of years, it is a matter of giving up more and more private rights and personal rights that the Constitution assured to us.

My time is expired. I yield back.

The CHAIRMAN. The gentleman yields.

Let me recognize the gentlelady from Michigan, Ms. Tlaib.

Ms. TLAIB. Thank you so much, Chairman Grijalva, for this important hearing today.

As we all are becoming increasingly aware, you don't have to live near an ocean to feel the effects of our warming planet. If we are going to fight the climate crisis with the scale and urgency necessary to save our planet, we must look toward ocean-based climate solutions as key pieces for our efforts.

This question is for you, Mr. Guertin. Researchers predict climate change will have a significant impact on the Great Lakes system's natural resources, and for Michigan, that is something critically important.

Creating new problems for our ecosystems and making existing problems like rising water levels and algae blooms worse, how do you anticipate the Fish and Wildlife Service will balance existing problems, which also include habitat degradation, pollution, erosion, invasive species, with actions to address its issues that emerge with the increasing climate change?

Mr. GUERTIN. Thank you for your question, Congresswoman. We are integrating climate change and these other stressors on the environment into nearly all of our management actions as an agency. Many of the existing problems you have highlighted are exasperated by climate change and the negative impacts of these multiple stressors on wildlife can be cumulative and compounding.

A number of the programs highlighted in today's bill, including CBRA, restoration of blue carbon ecosystems, and others, allow us to tackle both the existing problems as well as these emerging threats of climate change.

We are a land manager. We manage our Nation's beautiful National Wildlife Refuge System. We work with our state, tribal, and private landowner partners, military base commanders on a lot of habitat restoration projects. We can bring a lot of capacity, know-how, and programs to the table.

And we come back to our defining mission statement. Working with others, the Service will tackle these on behalf of the American people. So, we believe a lot of these tenets included in this legislation will help amplify our ongoing conservation mission to get after some of the issues you have addressed. Thank you.

Ms. TLAIB. Thank you.

And, Ms. LeBoeuf, I love that I can actually hear your passion and love for our oceans as you speak about growing up near that kind of environment. We know the Ocean-Based Climate Solutions Act and Rep. Velázquez's H.R. 3228 call for NOAA to lead on improvements to products and services which enable sound and science-based decisions in the face of climate change. Can you

discuss NOAA's vision for identifying data gaps and adjusting vulnerabilities and investing in communities on the front lines of climate change, please?

Ms. LEBOEUF. Yes, thank you, Congresswoman Tlaib. And on the front lines of climate change, we are here mostly talking about coastal. We know that the changes on the coastal environment in the ocean are happening more rapidly than elsewhere and the rate of change is accelerating.

But on the front lines, I think also means communities that have been historically underserved, communities that rely upon the coastal environment for their lives and livelihoods. And we spend a lot of time on the ground listening to those communities and to their industry representatives and others that can help us understand what their needs are, the questions that they have, the problems that they are seeing coming their way.

One of the best ways to provide for communities and economies is to be able to predict and to provide them with the right of informed decision making, and that is one of the things that NOAA really works hard and prides ourselves in doing for all Americans, is providing authoritative information, not just for research or science's sake but for solutions and for decision support for training and for enabling communities to really make informed decisions for themselves. And that is what we are looking forward to continue doing. And where we see gaps, we are asking questions, and we are finding some gaps, and we are addressing those right away, particularly when it comes to underserved communities.

Ms. TLAIB. Thank you so much.

And, Chairman Grijalva, I would love to really continue to try to talk about—and I know this is Natural Resources, but we never have public health experts in line in this conversation about vulnerabilities of frontline communities. Because I think it is so interconnected, and for us to truly understand the impact for frontline communities is to understand the impact on their public health.

It is not just what we are putting in our body from the fishery, but we also very much rely on that kind of environment for our air, our water, and those kinds of things. So, I hope in some ways we can always bring that public health aspect to it.

With that, I yield, sir.

The CHAIRMAN. Thank you very much, Ms. Tlaib, and your point is really good. We anticipate soon to have a hearing on EJ initiatives, overall EJ legislation, what the Administration is doing and not doing with working groups and everything to get an update on a very urgent issue, and integral to that—and I appreciate your recommendation—integral to that to deal with the consequences around public health for frontline communities and impacted communities. So, yes, I appreciate it very much. Thank you.

Ms. TLAIB. Thank you, sir.

The CHAIRMAN. Congressman Graves, sir, you are recognized.

Representative Radewagen, you are recognized for 5 minutes.

Mrs. RADEWAGEN. Thank you, Mr. Chairman. And talofa lava, good afternoon, and thank you for testifying today.

Ms. LeBoeuf, I have a couple questions for you. Title I of the bill introduces two new types of coastal and marine designations,

coastal and marine blue carbon ecosystems, and blue carbon areas of significance that the bill would enhance the protection of.

But the bill also gives the Administrator of NOAA the authority to identify vulnerable areas where management, protection, and restoration effort should be focused, as well as the authority to establish national coastal and marine carbon ecosystem protection and restoration priorities.

Do you think the identification of these areas and the requirement to protect and restore these areas will over-ride existing habitat protection programs, such as those through the Magnuson-Stevens Act, MSA, or add new criteria that are not currently in the MSA? And if so, how will this affect fisheries management in the United States, which is already lauded as the gold standard of fisheries management?

Ms. LEBOEUF. Thank you, Congresswoman, for your question. Every time a new law is enacted, we seek to ensure that there aren't any contradictory provisions, so we often have to reconcile on the other side. And we will work with the Committee to make sure that if there is anything we see that could come our way that doesn't work with another law, that we can identify that.

The habitat restoration efforts that we have had ongoing for decades rely upon users on the ground in communities to help identify and to apply for programs that can assist them in that restoration. We have long-standing research programs on carbon sequestration.

We have not yet been in the business of prioritizing over those grant proposals, in addition to the grant proposals that have already been provided to us, and into those evaluate criteria. We would want to look more closely as to how those existing programs might harmonize or marry up with the new requirements that you speak of. Thank you.

Mrs. RADEWAGEN. Thank you. Title III appears to create an independent international body to review countries' fishery management practices and do assessments of the health of fishery stocks in the United States. The Magnuson-Stevens Act is already viewed as the most sustainable management system in the world, yet this requirement, this legislation would require an outside review to review our system. Is this really necessary?

Ms. LEBOEUF. I will say that we have not taken a position on that particular element of the legislation or the Act as a whole. We do have a laudable fisheries management system in the United States. I certainly have no problem eating U.S. seafood myself and choose it every time that I can. So, I appreciate your acknowledgment of the work that we have done to have sustainable fisheries.

Mrs. RADEWAGEN. Thank you. As a follow-up, in addition, this title would require that future trade agreements require parties to the agreement to have a system of protected areas, not just marine protected areas, that protects at least 30 percent and also that protects biodiversity. How do you believe the WTO will view this language?

Ms. LEBOEUF. That is a great question. I am certainly not an expert in the World Trade Organization or would never speculate on its interpretations, but I am certain that NOAA is looking at

that. We have a lot of experts in WTO interpretation and cases, but thank you for that question.

Mrs. RADEWAGEN. Thank you, Mr. Chairman.

I yield back the balance of my time.

The CHAIRMAN. Thank you.

Let me now recognize Ms. Stansbury, the gentlelady from New Mexico. Representative, you are recognized for 5 minutes.

Ms. STANSBURY. Thank you, Mr. Chairman.

And thank you to all of our folks who testified today. My question is about the provisions in this bill that would benefit tribes, and I am not sure if this question should be directed to the sponsors of the bill or to our agency experts here, but could you talk a little bit more about the various grant programs and provisions in here that would benefit tribes in different regions and what those programs do?

The CHAIRMAN. The primary one, Representative, is the Coastal Resilience Grant Program that targets and specifies tribes and Indigenous communities. There are others in there that deal with the consequences to some of these frontline communities, but specifically to your answer, that would be the one that would be primarily focused on that.

Ms. STANSBURY. Thank you, Mr. Chairman. And are these expansions of existing programs, or does this create new programs that various tribes would be able to apply for?

The CHAIRMAN. It is codifying existing programs into law.

Ms. STANSBURY. Got it. With that, I yield. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

The gentlelady yields.

Let me recognize the gentleman from Louisiana, Mr. Graves. Mr. Graves, you are recognized for 5 minutes, sir.

Mr. GRAVES. I want to thank the witnesses for being here today and appreciate your testimony.

I also want to welcome some of my friends to the 21st century. It is great to finally hear you all talking about the importance of resiliency in our coastal areas and protecting our coastal communities and ecosystem because, for years now, you all have fought us on some of those efforts. Every single one of you have voted against efforts to make substantial investments in our coastal communities, in the resilience for our ecosystem, resilience for our coastal lands.

I am curious, Ms. LeBoeuf, I am from south Louisiana, and the largest coastal wetlands loss in the Continental United States occurs in my home state. The Government Accountability Office found that 90 percent of the coastal wetlands loss occurs in our state. And when you start looking at how and why that is happening, the largest cause is attributable to how the U.S. Army Corps of Engineers manages the Mississippi River. That is what used to cause our state to grow. It is what created our state.

We, in the past, have actually gone and made inconsistency determinations under CZM for the state—for the Corps of Engineers management of the river system, and NOAA, even dating back to the Obama administration, refused to come in and allow for some type of mediation. Do you have any thoughts on

maybe how we could engage the Corps more constructively that would result in a more sustainable coastal system in Louisiana utilizing the river's resources?

Ms. LEBOEUF. Yes, thank you, Congressman Graves. You and I have spoken. It has been a couple years, but we have spoken about the need for really informed and durable solutions to coastal resilience, including taking care of our economies and the communities there.

We do work closely with the Army Corps of Engineers across the board on their nature-based infrastructure initiatives as well as their increasing incorporation of sea-level rise into their projections and that kind of thing, so I know we have really close relationships there. I can't speak to the history of consultation of the CZ consultation there, and I can absolutely look into that and be happy to follow up with you on that specific area.

Mr. GRAVES. Thank you. I just want to ask, so think about this for just a minute. We have the greatest coastal wetlands loss. You all were just talking about the productivity, the efficacy of these areas, the sequestration potential, and these are the areas that are just completely being ignored, the greatest loss of habitat, the most productive habitat, again, this Committee fighting against us when we are trying to save it, and having our own Federal Government that is undermining our efforts at sustainability, which, of course, increases disaster cost, implications on livelihoods in south Louisiana.

To see this is really confounding when it is our own sister agency that is the primary cause of the problems, and NOAA refusing to step in and sort of referee some type of discussion that would allow for better sustainability. So, I do want to ask that you would follow up with us on this and see if you could be more helpful.

The second question I have, and I know I don't have much more time, but for both of you—Mr. Huffman has legislation regarding blue ocean sequestration opportunities, and I am just curious when you start looking at the cost per ton of sequestration opportunities, looking at what China is doing and just exceeding everything that everyone else is doing in regard to increasing emissions, shouldn't we be looking at where you get the best bang for the buck?

I mean, where are the best opportunities, the lowest hanging fruit for the greatest cost per ton—or not the greatest, I guess the lowest cost per ton for sequestration as opposed to—and I don't know the answer. I don't know the comparison of Mr. Huffman's legislation, but shouldn't we be looking at not just in the United States but globally considering this is a global problem?

Ms. LEBOEUF. Yes, I am not going to speak to the international question, but I do believe, and I said this earlier, we should be developing and utilizing all the right tools in the toolbox. You are absolutely right about the loss of coastal wetlands and habitat around the United States. It is a real loss for opportunity here at home to combat the climate crisis and to keep these communities and economies durable and prosperous.

I am with you. I don't think we can wait any longer to help restore and preserve, particularly the areas where we know there is potential of 10 times as much carbon sequestration as a terrestrial habitat. We are kind of sitting on a pot of gold when it comes

to our coastal wetlands, and I think anything we can do to preserve them and to restore them we should be focused on.

Mr. GRAVES. Thank you very much.

I know I am out of time. Mr. Chairman, all I heard her say is, "I am with you," so I am just going to take that and go to the bank. But, Members and Mr. Chairman, I hope we can work together on some of these programs that you all have fought us on in the past. It is great to see you all finally in the same lane that we are. Take care.

The CHAIRMAN. I now recognize the gentleman, Mr. Cohen, for 5 minutes. Sir, you are recognized.

Mr. COHEN. Thank you, Mr. Chair.

I want to direct my question to Mr. Guertin. In your written testimony, you discussed impacts on marine mammals caused by humans, such as vessel strikes and noise pollution. Can you elaborate on those stressors?

Mr. GUERTIN. Thank you for your question, Congressman. We have done a lot of work to see what is happening with these animals. We know for a fact that over a quarter of the mortality each year to our management population is due to over-running by vessels. They are also very highly susceptible to noise and other disruptions in their environment.

Our strategy to combat and try to address those stressors is to be very proactive. We are working with states and industry and recreationists and others to put a lot of buoys and sensors out there. We do a lot of monitoring the populations. We try to map out where the animals are going to be moving, congregation areas, things like that, try to steer people away from them so that they can go about their business every day.

Mr. COHEN. How about the effect of sonar on the animals that use sonar for direction, particularly dolphins, whales as well?

Mr. GUERTIN. I would defer to NOAA for their expertise on those animals, sir.

Mr. COHEN. NOAA?

Ms. LEBOEUF. Thank you. I appreciate your question, sir. We do know that acoustics and the auditory environment is the most important for most whale and dolphin species, sort of like our visual environment and visual cues are important for us.

And with the vessel strikes, of course, anything we can do to slow vessels. We know that reducing, for example, vessel speed by down to 10 knots cannot only decrease the probability of vessel strikes of large whales but can decrease the likelihood of serious injury and mortality when those vessel strikes do occur.

So, we look to engage with the industry, the shipping industry and others to make sure they are aware of the potential harm to marine mammals from vessel strikes. And through voluntary as well as required means, we try to slow those boats down.

Mr. COHEN. And what is the main enemy of dolphins?

Ms. LEBOEUF. Well, when I was a kid, I thought it was sharks, but what—

Mr. COHEN. And you are still a kid.

Ms. LEBOEUF. I am still a kid. I was told it was sharks. Marine mammals are exposed to a wide range of threats from water quality to habitat loss, including things in the ocean that they can

move away from, like sound, or sometimes water quality, they can move.

In other cases, marine mammals, like bottlenose dolphins along the coast, they get really loyal to certain places and it is hard for them to leave. I think we kind of know where our happy place is. Dolphins find a bay, for example, and they will stay there despite the threats posed to them.

So, it is important to continue to try to minimize impacts to those populations, whether it is through fishing or sound or other things. And at NOAA, we provide a lot of the science and the analysis to make sure that we can engage in a very busy ocean, lots of activities, while minimizing impacts to their populations.

Mr. COHEN. Mr. Guertin mentioned manatees, and I grew up part of the time in Florida and lived on a canal, and we had manatees. I know that boats can be a problem for manatees, which you mentioned. How about humans that just have malevolent motives?

Mr. GUERTIN. Could you repeat your question, sir?

Mr. COHEN. Manatees, are they more damaged by boats and accidents by humans, or is it humans with intentional conduct and people that are just not very humane?

Mr. GUERTIN. Again, sir, we turn to the evidence we can see. We know that we are suffering enormous loss of manatees this past year, particularly in the area of Indian River Lagoon. That was caused by a very large mortality event, a lack of forage for them. Over the winter, they congregated there. The other major cause of loss is attributed to collisions with pleasure boats, fishing boats, and things like that.

What we try to do is be proactive, put in place speed zone regulations, enforcement signage, buoys, and things like that. They are very docile creatures. People will go to Florida and other places to swim with them where it is allowed. You are not supposed to harass or harm them because they are endangered species, so that doesn't happen much anymore, but they tend to kind of shy away from any type of danger they see out there. Our strategy for recovery is continuing to work on all levels to give them the habitat they need, the room they need to move around, and freedom of access to their areas.

Mr. COHEN. Thank you, Mr. Guertin. If I have the manatees, I'll say thank you.

And I yield back the balance of my time.

Mr. GUERTIN. Thank you, sir.

The CHAIRMAN. Thank you, Mr. Cohen. The gentleman yields.

Let me recognize Representative Tiffany. You are recognized for 5 minutes.

Mr. TIFFANY. Thank you, Mr. Chairman.

Ms. LeBoeuf, H.R. 3764 would require NOAA to create a map listing any upstream restrictions. Would that include the Mississippi River watershed?

Ms. LEBOEUF. Are you asking if the Mississippi River watershed would be included in the map?

Mr. TIFFANY. Yes.

Ms. LEBOEUF. I would presume so, sir. I would have to double check that, but I would assume so.

Mr. TIFFANY. Do you think it is reasonable to include 40 percent of the United States with a map like that? I mean, that is—

Ms. LEBOEUF. That is a lot of water. That is big territory.

Mr. TIFFANY. Do you think it is reasonable?

Ms. LEBOEUF. We have not taken a position on that aspect of the bill.

Mr. TIFFANY. One of the concerns I have, Mr. Chairman, is that this is a backdoor WOTUS, the Waters of the United States, which the people of this country have rejected. And it really concerns me that that is part of what is trying to be accomplished here.

Mr. Guertin, you said in your conclusion that anthropogenic global warming will accelerate. Are you guaranteeing that?

Mr. GUERTIN. Sorry, sir, I couldn't connect. Your question was, am I guaranteeing that?

Mr. TIFFANY. Yes. In your conclusion, you said anthropogenic global warming will accelerate.

Mr. GUERTIN. That is what a lot of the models are showing, sir, that we can anticipate that. As a land management agency, we try to build in planning of some things going forward.

Mr. TIFFANY. So, it is based on models?

Mr. GUERTIN. Yes, sir.

Mr. TIFFANY. OK. Kind of the same question, Ms. LeBoeuf, you said that impacts happening now are projected to worsen. Is that for sure going to happen?

Ms. LEBOEUF. The worsening is for sure going to happen. The degree of worsening and the localized impacts are what we are still trying to understand. We know that the rates have changed particularly along the coast and the ocean are accelerating, not just changes, but the changes are accelerating.

But impacts of climate change are going to be highly localized, so better understanding the various contributors to those impacts and understanding what is happening in the different places under different conditions is where we use our modeling capabilities.

Mr. TIFFANY. OK. So, it is based on models, and you believe that model is a guarantee that this is going to happen, that global warming will continue into the future?

Ms. LEBOEUF. It is modeling, but the models are fed by our continuous observing. We have real-time observations at NOAA at least in the coast and the oceans, in the atmosphere throughout our country that are being used and coupled with one another to better understand the processes. And as new data become available, those data feed the models, groundproof them, and the models are powered by modelers, right.

Mr. TIFFANY. OK, yes.

Ms. LEBOEUF. There are a lot of people working on that.

Mr. TIFFANY. Yes, thank you. The only thing is, Representative Young, the Representative from Alaska, brought up a very good situation in regards to polar bears. He said the science claimed from a couple decades ago that polar bears were going to decrease in numbers has been wrong. So, public policy decisions emanate from this, and we are seeing some significant mistakes.

I mean, I would take you back to *Newsweek* and *Time* magazine in 1975 when they were predicting global cooling will cause much of the—I believe they said up to 2 billion people could starve to

death because we are not going to have enough agricultural production. That is as recent as 1975. They got it completely wrong. What if these models are wrong also?

And I just take a look at our backyard—I represent up to the south shores of Lake Superior, and it was back in 2004, 2011, we had a significant drought in that region, and water levels were very low. It was attributed to climate change. Well, now we are here in 2021, and those water levels are significantly high, higher than normal.

So, I sometimes wonder if we are seeing weather rather than climate in some of the discussion that we have here, but there are real-world impacts that happen as a result of some of the recommendations that are given to us policy makers. And if we are wrong, as Representative Young brought up in regards to the polar bear, that really can create a significant problem.

Anyhow, with that, I am very skeptical of these models that have been out there because we have seen this modeling now for decades that predict global cooling, global warming. The climate is always changing, and we should adapt to it, but we should make sure that we are very circumspect about this and that we don't take actions on the public policy front that could end up harming not just our economy but also the environment.

I yield back.

The CHAIRMAN. The gentleman yields.

I recognize the Ranking Member of the Full Committee, Mr. Westerman. Sir, you are recognized.

Mr. WESTERMAN. Thank you, Mr. Chairman, and thank you to the witnesses for the testimony today.

I want to continue the questioning that Mr. Tiffany started with Ms. LeBoeuf and talk more about the practical side, the operational side of NOAA, and, first off, just to be clear, this would be a new authority that would be given to your agency. Is that correct?

Ms. LEBOEUF. Which authority, sir, for clarification?

Mr. WESTERMAN. The monitoring of the—I am thinking about the Mississippi watershed.

Ms. LEBOEUF. Oh, gotcha, the mapping, yes. Yes, that would be a new requirement. I will say, we are already conducting a lot of the research and observations that would go into that kind of an exercise. It is different and new, but it is not altogether foreign from the kind of expertise that we have.

Mr. WESTERMAN. Yes. Have you had a chance to give any thought to the impact of the workload and the new decision authorities that would be required to add this to the scope?

Ms. LEBOEUF. Not this requirement specifically. I will say that, when it comes to climate change and the impacts folks are already feeling, our phones are ringing off the hook, and that is why we have requested such a large increase in Fiscal Year 2022 to bring up our capacity to respond to industry. Whether it is insurance reports to local economies and states, really, across the board, the signal is very, very strong, and we take much pride in providing trusted, authoritative data for decision makers in industry and like yourselves so that you can make your own predictions and make your own decisions based on that information.

Mr. WESTERMAN. Right. And making ports and harbors more resilient, I think, is certainly an area where we could find common ground on that.

Ms. LEBOEUF. Absolutely.

Mr. WESTERMAN. When we look at the effects the oceans have on carbon in these blue water areas, practically what would you be looking at in the Mississippi watershed? I am from Arkansas. The Arkansas River feeds the Mississippi River. Mississippi borders the eastern side of our state, so basically every drop of water that falls in Arkansas at some point—well, not all of it, but most of it—makes its way into the Mississippi River, but all of it makes its way into the Gulf.

Ms. LEBOEUF. Yes. We have to ask our colleagues at USGS for some of that information. But NOAA is most concerned about the coastal impacts of riverine runoff, but precipitation, quantity, and quality is something that we are working with our sister agencies to better understand.

We are looking to understand precipitation events or lack of precipitation events such as drought conditions. We know that the ocean is influencing those patterns. We are trying to understand how much and how the ocean is influencing the inland patterns, including precipitation and scale of runoff and flooding. So, we would have to just keep looking to see how much more resources it would require to carry out those provisions in addition to everything else that we are getting.

Mr. WESTERMAN. Where do you see the role of NOAA with the Corps of Engineers? Because obviously the Corps of Engineers controls a lot of the flow and the structures along the Mississippi River, and they are not always the easiest agency or group to work with. So, what would NOAA's role be in conjunction with the Army Corps of Engineers?

Ms. LEBOEUF. Well, I would never speak ill about another member of the Federal family, but what I will say is NOAA is in a unique position as connective tissue between the science agencies and the service agencies, because we are a science-based service organization.

And we are working very closely with the other science organizations, such as NASA, NSF, Department of the Interior, and others, to better understand the kinds of data streams that they have on climate change and how we can incorporate them into our products and services.

When it comes to the service agencies, like Army Corps, FEMA, and HUD, we are doing something very analogous by finding out what they need from us to do their missions better. And in the case of Army Corps of Engineers, for example, we are working closely with them to understand the effects of their projects on the coastal environments as well as the effect of sea-level rise on their projects, so I would like to see an expansion of that. And we do continue to work well with them, but it is an evolving process, just as climate change is, for sure.

Mr. WESTERMAN. Would you say your role is to streamline the process by the Corps, or would it take even longer to do a Corps of Engineers project if NOAA was in the equation with them?

Ms. LEBOEUF. I would hope that NOAA's expertise would enable their projects to be more climate resilient and climate smart so that they are not building something for conditions that we believe are going to change over the life of that project. I don't see it as slowing up or speeding up their projects but making them more durable over time.

Mr. WESTERMAN. So, my friends from Louisiana, just south of Arkansas, one of the problems I hear them talk about a lot is the loss of coastline. And some people want to blame the Corps of Engineers on that for closing off the Atchafalaya Basin. Where do you see issues like that down the road?

Ms. LEBOEUF. I think—

The CHAIRMAN. Ms. LeBoeuf, if you could respond in writing. We are over, and we have four more people, if you don't mind, Mr. Westerman.

Mr. WESTERMAN. That is fine. I couldn't see the clock. I am anxious for us to get back here in person, Mr. Chairman.

The CHAIRMAN. We will get a chance to be all cozy tomorrow. That is tomorrow's hearing with Secretary Haaland will be our first hybrid meeting, most of the people coming in person. I am looking forward to that.

Let me now recognize Mr. Carl for 5 minutes. You are recognized, Representative.

Mr. CARL. Good afternoon. Thank you, Mr. Chairman. I appreciate the chance.

There are 110 million red snapper in the Gulf of Mexico. That is three times more than was previously estimated. A study paid for by Congress using world-class scientists and universities just made that determination this year. I have seen videos where you can throw chicken bones off the back of boats and they are catching red snapper, they are so plentiful.

And I just got back from a fishing trip with the University of South Alabama where we took robotics, and we looked at three or four of these reefs where there are 2,000 or 3,000 of these man-made reefs that are in the Alabama waters, so the abundance of snapper is just totally underestimated.

Folks back home, they get frustrated. They want to know why they can only fish a certain amount of days when they can go out and catch their limit in a matter of minutes. If we found 300 percent as many snapper in the Gulf this year, you would think our season would be increased by that much. It sounds like following the science to me, but that is not how it works. We only get to fish 2 percent more this season versus 300 percent more. Try explaining that to a constituent.

What I have concluded is that NOAA has its own environmental agenda, and they would rather see no fishing at all. That is why I am concerned about the piece of this bill that would create a new program, NOAA, to improve management fishery under the current and expected impact of climate change.

The climate change that we keep focusing on, the rising of the water, has been going on for thousands and thousands of years. It is not something that is new. If you don't believe it, I can take you out, show you a petrified forest out in the Gulf of Mexico. That is all the proof I need.

This is not about the environment because every fisherman in Alabama, when they get in those Alabama waters, they are environmentalists. They lost their chance of a lifetime of fishing when we had the Deepwater Horizon. I saw grown men crying because, in their eyes, they would never be able to get back in speckled trout fish.

One of the positive things that came from the Deepwater Horizon is they have turned every fisherman into an environmentalist. They are picking up trash. They are reporting oil spills. They are out there. They are boots on the ground, eyes.

What I see, this is about taking America's resources away from American people and giving more power to unelected bureaucrats who probably have never even been fishing, and I would encourage the handful of them to go with me sometime.

Mr. Guardado, your testimony highlighted several concerns you had with giving NOAA more power. Can you highlight some of those concerns and talk about what it has been like working with NOAA so far?

The CHAIRMAN. The person you are addressing the question to is in the next panel, and if you want to reserve that question for then, and have one for the two witnesses that we have on this particular panel, please do so, but he is on the third panel.

Mr. CARL. OK. Well, let me ask about the snapper count, the great red snapper count. Does NOAA agree with that count?

Ms. LEBOEUF. Thank you, Congressman Carl, and NOAA does incorporate that count and the data from that count into its information. I am not a red snapper specialist. I did grow up fishing on the Gulf Coast of Texas, but I am not here to answer those kind of questions.

I do know that NOAA does provide the best information that it can to manage those fisheries and does take into account the data that is provided in the great red snapper count.

Mr. CARL. Let me ask you another question. Since sea level is rising, do you think that is something we can stop?

Ms. LEBOEUF. I believe based on the science that is before us, the conditions for the next few decades are, I hate to say it, baked in. What we are trying to understand is the localized impacts and how we can adapt to those so that our communities and our economies can survive the next little while, while we get under control what we can't predict as easily, and that is our emission of greenhouse gases and our ability to sequester carbon like we have been talking about through coastal ecosystems.

Mr. CARL. So, you are looking at the ecosystem out in the water. This is kind of a greenhouse, a New Green Deal in blue water? Is that what we are talking about here?

Ms. LEBOEUF. Well, the ocean is an effective heat sink. She is storing a lot of heat and carbon for us right now. We are seeing that express itself through ocean acidification and other problems with the ecosystems. We are just looking to find any tool in the toolbox we can right now, quite honestly, and the ocean and our coastal ecosystems can help us.

Mr. CARL. There are a lot of tools in the toolbox we don't need to use, though, and that is what I am arguing. Your mapping that

we are talking about, is this mapping also the Alabama river system?

Ms. LEBOEUF. Sir, I would assume that it is any river system that is relevant to the request that the Committee has provided to us. We have not taken a position on the bill yet.

Mr. CARL. So, you are talking about NOAA taking over every river system, basically, across the Nation?

Ms. LEBOEUF. We have to work with the Committee to better understand the requirements of that bill.

Mr. CARL. Wow.

The CHAIRMAN. The gentleman's time is up.

Let me now recognize the gentleman from Florida, Mr. Soto, for 5 minutes. Sir, you are recognized.

Mr. SOTO. Thank you, Chairman, and thank you for putting together this omnibus of multiple, amazing bills.

I want to start out with a question for Ms. LeBoeuf from NOAA. Florida has the second largest coastline of all states and territories and Freely Associated States. How will investing in natural infrastructure bolster living shorelines and coastal or blue carbon ecosystem resiliency to help protect all Floridians, even communities located further from the shore?

Ms. LEBOEUF. Yes. Thank you for that question, Congressman Soto. Florida has been a leader on climate resilience and coastal resilience. And in heavily developed areas of south Florida, for example, we will need to use a complement of nature-based and hard infrastructure to make sure that communities and infrastructure, resilient essential infrastructure like airports and ports, remain climate resilient and durable over time.

In terms of improving our ability to predict the conditions along the coast of Florida, as you know, not just the coastal Floridians are affected when there are large scale evacuations from hurricanes or whether there is nuisance flooding at airports or ports. That affects all of the state, and in some cases, our entire Nation.

Coastal tourism in Florida is a huge economic source of prosperity for the state of Florida, but the coastal communities around the country, and Florida is the leading example of this, make up a disproportionate amount of our economy and population and a high level of population growth. Forty percent of the U.S. population lives in coastal counties which means that if something goes wrong with those populations in those economies, something is going wrong for the rest of the country. So, I see easy connections between coastal Florida health and the rest of your constituents across Florida as well as the rest of the Nation.

Mr. SOTO. And my fellow Floridian, Representative Crist, brought up the Regional Ocean Partnership Act. It is part of the slate of bills that would make sure that we have more regional ocean partnerships between Florida, Georgia, Alabama, Mississippi, and other areas in the Southeast. How key is that to help protect our living resources and expand and protect valuable habitats and ocean ecosystems?

Ms. LEBOEUF. Yes. Thank you. NOAA is a proponent of regional ocean partnerships and other type regional partnerships that allow us to better serve communities' needs because we are working with

partners that are in those communities, asking the questions and finding out what it is that folks need for solutions.

We are active participants in the existing regional ocean partnerships and other regional bodies and really rely upon them, like you said, to get that intelligence from the users so we can make sure that not only are we providing the right data and tools but that they are able to scale down to the level of specificity that their local stakeholders and users need, which can mean that we don't need to. So, it is a wonderful partnership to have those folks. It is almost like a workforce multiplier.

Mr. SOTO. Thank you.

And, Mr. Guertin, there is a bipartisan concern about the unusual mortality event among manatees in Florida. Both myself and Representative Buchanan, Representative Murphy, and Representative Mast have all put forward legislation and letters about this. What is the U.S. Fish and Wildlife doing to ensure that these mortality trends, like saving the manatees, whether we can protect them in the future? What can we do to help save the manatees in Florida?

Mr. GUERTIN. Thank you for your question, Congressman. We are working hard to ensure that all of our partners, including the state, have the resources they need for rescue and rehabilitation to address this ongoing unusual mortality. Almost 800 animals lost this year in 6 months already, two-thirds of those in the Indian River Lagoon area. They congregated there because of the warm water during cold weather.

We declared the unusual mortality event that allowed us to unlock a lot more additional funding and capacity to give to partner organizations to do a lot of rescue and rehabilitation work. We just recently allocated another \$100,000 to the state of Florida to support that work, but that has gotten us through June now. What we are doing now is focusing on what comes next and preparing for the eventuality that we could have another cold winter down there and face the same type of mortality coming up again.

So, we are trying to do what we can to restore habitats. What we can do is do some planting in seagrass beds, get that restored, do a lot of early surveillance this time, make sure our partners, particularly the rehab groups and others, have the resources they need.

They are looking at an old hatchery down there to maybe house some of them during the cold weather snaps, get them out of harm's way, so to speak. Do a lot of public awareness. We already know the manatee is stressed from other factors including boat strikes and things like that. We have done a lot of proactive community involvement, but we are very concerned about this, and as you know, the manatees are due for a 5-year status assessment next year. We will certainly give due consideration to what we have learned from this unusual mortality event, but very, very troubling for all of us in conservation, sir.

Mr. SOTO. Well, we hope you will consider raising it to endangered again. And thank you, Chairman, for all your work on coastal conservation and resiliency and saving the Florida manatee.

I yield back.

The CHAIRMAN. Thank you, Mr. Soto.

Let me now recognize Representative Moore. Five minutes are yours. Thank you.

Mr. MOORE. Thank you, Chairman. I appreciate the chance to be here today.

While I appreciate the intent behind H.R. 3764, I have concerns that it goes too far to accomplish its goals and expands the size and scope of the Federal Government. I think that is a fundamental piece in this, but again, I appreciate the intent.

I have several questions for Mr. Guertin. In your testimony, you said that you support incentivizing federally funded buyouts to enhance long-term coastal resilience. The question on this is, under this kind of an approach, what protections would be provided to property owners living within coastal barrier areas to ensure they are not compelled to give up their property, and if they choose to do so, making sure that they are fairly compensated?

Mr. GUERTIN. Sure. The whole premise behind the CBRA legislation is to try to steer development away from high hazard areas. So, building on that foundation, one area that we are looking at is working with private landowners who wind up, through no fault of their own, in a newly designated area or just are not able to cope with the threats that they are facing there. So, the concept here would be working on some type of mechanism to offer them a voluntary buyout or incentive program.

We don't have condemnation authority. We are not envisioning anything like that. This would all be just a proactive way to partner with private landowners and recognize their property rights and try to bring the free market principles of CBRA legislation to bear as well.

And, certainly, sir, we would not be the action agency to do that. We are a conservation agency. There would probably be other Federal agencies who would be stepping into that role.

Mr. MOORE. Excellent. Continuing on in that same sense, I have concerns that in pursuing federally funded buyouts, that we run the risk of triggering land speculation among developers since it would basically guarantee them a buyer. Have there been discussions around this? How would you propose avoiding such speculation?

Mr. GUERTIN. We are just in the early stages of taking a look at this proposed legislation, Congressman. That is certainly a great point for us to take to heart as we move forward. We will work on the Federal level with Committee staff and your staff as this legislation gets further scoped out. And that is certainly a key point that we need to take a look at, but we also don't want to encourage a lot of speculative purchases on some of these high hazard areas as well. It is in no one's interest if that was how it turned out.

Mr. MOORE. Yes. Excellent. I would agree that it is not in anyone's interest. Have there been any potential buyout sites? Have they identified any potential buyout sites at this point?

Mr. GUERTIN. Not that I am aware of, sir. This is all just draft legislation.

Mr. MOORE. All draft legislation. OK.

Mr. GUERTIN. Or introduced legislation. I am not an expert on the rules up there, sir. Introduced legislation.

Mr. MOORE. Any initial conversations in certain sites? Any sense for how that process would be approached?

Mr. GUERTIN. We have not been involved in any, sir.

Mr. MOORE. OK. The question that I would want to get to, then, and I think I will hold off on that for right now, but what the anticipated cost would be for these kind of buyouts.

So, I just want to kind of hit on those points. I look forward to more discussion. Thank you.

And, Chairman, I will yield back.

The CHAIRMAN. Thank you, Mr. Moore. I appreciate it.

And Representative Boebert, you are recognized for 5 minutes.

Mrs. BOEBERT. Good afternoon, Chairman Grijalva and Ranking Member Westerman and members of the Committee. I would like to thank all the witnesses for taking time to testify today.

For me, it is really extremely unfortunate that we are meeting to discuss these partisan bills that will hurt our economy and add excessive red tape on the private sector. It is no surprise that the House Democrats and their radical environmental activists are pushing an agenda that falls squarely in line with the Green New Deal, which the American people do not want.

Chairman Grijalva's 290-page bill, H.R. 3764, is simply an attack of the American energy industry and American consumers. It is a big giveaway of \$19 billion in new discretionary spending and a pretext to lock up more land from development. My screen is off also. One second. Sorry. Let me get that. I will let you all see too.

Title I of H.R. 3764 creates a new blue carbon program within the National Oceanic and Atmospheric Administration, NOAA, and it directs NOAA to create a national blue carbon ecosystem map which requires the listing of any upstream restrictions that are detrimental to the watershed processes and conditions including dams, dikes, and levees. This is the exact kind of provision that Washington bureaucrats will use to expand their regulatory power into the private sector.

There are zero limits on just how far upstream the map can extend. For all we know, the map can include over 30 states. Under this bill, NOAA is required to designate in each coastal state the blue carbon areas of significance.

These areas of significance are to include the coastal zones, U.S. territorial waters, or U.S. exclusive economic zones that provide long-term storage or sequestration of significant amounts of ecosystem carbon. And among other things, it provides a spawning, breeding, feeding, or nesting habitat for wildlife, or to say it another way, a land grab by the Federal Government and red tape headache for private companies who want to develop coastal lands in the areas and the people who benefit from these resources.

There is no content to lock up more land from productive use, the bill outright ends all offshore oil and gas leasing in the Outer Continental Shelf except for the western and central Gulf of Mexico. While this probably plays well with the millionaire and billionaire donor club in New York and California, it is a recipe for higher energy bills, and the cost will fall squarely on the middle class. This is a classic example of how out of touch Democrats are hell bent on destroying good-paying jobs.

Research conducted by the National Ocean Industry Association, NOIA, studied the economic impact of the offshore drilling ban and found that if no new permits are issued, the offshore industry would lose 179,000 jobs in about two decades. That is about half the jobs that are currently supported right now by the industry. Again, I will never support this.

Finally, H.R. 3764 is full of unnecessary spending. Why is the Federal Government spending money on underwater noise mitigation? Think about that. We are proposing spending money to reduce noise underwater where humans do not live. Is that the proper role of the Federal Government? I don't think so.

This bill would spend \$10 billion on coastal restoration projects with a priority given to projects that will benefit low income and communities of color. I don't think that the government should pick winners and losers, especially on the basis of race. We have seen the Democrat playbook insert race-based spending in every program the Federal Government runs, and there is a whole lot of it. There is no place, not your home, not your school, not the places you work, not even coastal restoration, that is off limits for the left's social justice warriors.

Mr. Chairman, I have used up my time, but someone has to be real with the American people and tell them what is up with the kind of stuff that the Democrats would pass into Federal law.

Thank you, and I yield back.

The CHAIRMAN. The gentlelady yields. Anyone else?

Let me ask a couple of questions. Mr. Guertin, updating the Coastal Barrier Resource Act or CBRA is featured prominently in the legislation. How does CBRA save taxpayers dollars while at the same time enact smart climate policy?

Mr. GUERTIN. Thank you, Mr. Chairman.

Maintaining and conserving our Nation's undeveloped coastal barriers is a time-proven, cost-effective strategy to protect mainland communities against coastal storm damage and mitigate negative impacts of climate change such as sea level rise and saltwater intrusion.

CBRA has removed the Federal incentives to build on these unstable and environmentally sensitive areas, which saves taxpayers millions of dollars each year in what would otherwise be wasteful expenditures. We believe using this non-regulatory and free market approach, CBRA can guide smarter development in stable, less risky areas.

The CHAIRMAN. So, in reality, what is done with CBRA, and with the program, and now under the Act would be an enhanced program to prevent the waste of money; and (2) prevent development speculation in areas it shouldn't be, and end up costing the taxpayers, states, and communities even more money to attempt to mitigate or to remediate those areas.

This is a pre-emptive and proactive approach, and I think by making it more prominent as a strategy, as you said, you create an opportunity in the marketplace that I think is very important.

The other issue I think for review by both NOAA and yourselves is the whole idea of mapping upstream that is becoming, according to some critics, part of a general conspiracy in life as we know it, that you look, and it is about blue carbon. It is about the ocean-

based mapping and priorities so that we can look at where those threats are and where resilience has to be built in.

And upstream, as far as I can read it, there is no specific mandate that says you must and you shall. So, before we get all worked up over that, let's actually understand how it is written.

The other issue, Ms. LeBoeuf, a big part of the reason we wrote this bill was because the ocean was largely left out of climate conversation. A lot of the climate legislation it seems focuses on the Environmental Protection Agency. However, your agency is one that runs climate.gov, if I am correct. Can you share the role your agency plays in climate efforts within the Federal Government? And do you believe that NOAA should even be more prominent with a seat at the table in these climate discussions?

Ms. LEBOEUF. Thank you, Chairman Grijalva. I welcome the opportunity for oceans and coastal resources to be a part of the conversations. Again, the Committee has highlighted for many that the oceans are both signaling climate change and rapid change along our coasts, and our oceans also can serve to help mitigate and help us adapt, so they are really quite a boon for us if we are paying attention.

NOAA has been studying the oceans and the atmosphere from the highest part of our environment to the lowest part of the ocean for many decades, and we have done so always with the view of providing decision support. And that may seem like a term of phrase, but that just means that we are conducting science for the purposes of getting into people's hands to create solutions and to make sure our economy is prosperous and to make sure that farmers, ranchers, and industry have predictability so that they can invest and capitalize in their industries.

Like I said earlier, the insurance companies come to us. The ports come to us. We would love to have a greater seat at the table because we do believe we are the connective tissue between the science agencies and the service agencies when it comes to climate change.

The CHAIRMAN. Thank you. I agree. I think that the whole point of this discussion, and you see it as a basic template of the legislation we are talking about today and the other pieces that were integrated in there is the reliance on empirical information, fact, and science, and that reliance should not be a threat to anybody. That reliance is not a conspiracy to undo.

It is almost a demand now that if we are going to deal with climate change, it has to be integrated. It has to be comprehensive. And if we can all agree that we are moving forward on a basis of empirical information, fact, and peer-reviewed science, then I think people will be more assured that this is not a decision—the politics that were played was to ignore science for the last 4 years. The politics we are trying to play is to integrate science back into the discussions.

I want to thank the witnesses very much for their testimony, it is much appreciated. I now invite the third panel up, and I will introduce them. Thank you so much.

Ms. LEBOEUF. Thank you.

Mr. GUERTIN. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

We are beginning Panel 3. I will now recognize my colleague, Mr. Case of Hawaii, to introduce our first witness, Hawaii State Senator Chris Lee, and then we will proceed from there.

Mr. Case, you are recognized.

Mr. CASE. Thank you so much, Mr. Chair. I am really honored to introduce my friend and colleague, Hawaii State Senator Chris Lee, who has been a passionate advocate for environmental issues with a long history of working in a bipartisan manner in Hawaii and nationally.

Senator Lee currently serves as Vice President of the Board of Directors for the National Caucus of Environmental Legislators and is a member of the Natural Resources Infrastructure Committee at the National Conference of State Legislators. Senator Lee authored the bipartisan legislation that established Hawaii as the first state to require full carbon neutrality by 2045. I really appreciate your leadership, Senator Lee, and good to have you here today.

**STATEMENT OF STATE SENATOR CHRIS LEE, HAWAII STATE
LEGISLATURE, HONOLULU, HAWAII**

Mr. LEE. Thank you very much, Chairman Grijalva and Ranking Member Westerman. I really appreciate the opportunity to testify on the Ocean-Based Climate Solutions Act.

To keep it short because I know we are running long here, climate change has been harming our entire Nation. Taxpayers from coast to coast and out here on our islands are hemorrhaging money and funds as a result of having to deal with climate impacts. And states are taking action, but we do need Federal assistance because we know that the faster we are able to act, the less it will ultimately cost taxpayers, the less it will cost states, and the less it will cost our economy.

This bill, in particular, deals with a number of things, and it is going to help protect against the costs of sea level rise that is impacting homes which in our state are falling into the ocean. It is going to help to adapt to rising seas. For our part, we have done some of the highest resolution sea level rise analysis in the world on Hawaii, and we found that we are on par to lose about \$19 billion of homes and displace 20,000 residents in the coming few decades.

We are looking at \$15 billion in highways we are going to have to move inland, and we are already having to spend hundreds of millions of dollars to do that just to keep them above water.

This bill will also help protect taxpayers against the cost of plastics and pollutants that are entering our oceans at unfathomable rates. We are spending millions on the part of states and local municipalities to clean this up. These costs are hidden, but taxpayers are being forced to bear the costs to clean up. Also, the cost of energy. This bill will help speed up removals, offshore wind, and other opportunities that we know are cheaper than other traditional fuel sources.

And in Hawaii and in California, who have, in part, led the way, making this transition already, we know that getting off of costly fossil fuels have already reduced our electric bills by about \$39 a month since 2011 which is huge amounts of money, about \$3 billion

in savings we have already locked in by switching over to renewables. And if we go a little bit further, we have billions more to save.

And we know that government bureaucracy has been basically holding back some of those opportunities, offshore wind and others, just mired in endless red tape. This bill lets that innovation move forward. It helps advance these kinds of projects that will reduce costs across the electric grid and help taxpayers and rate payers all around the country.

We know there is an opportunity for this bill to also help protect businesses and the economy. We know that beach loss is a huge deal. It affects my 4-year-old niece who can't play on the same beach I did growing up in Hawaii. Waikiki, perhaps the most prominent beach in the country, if it loses that beach which is currently eroding rapidly, that is \$2 billion out the door. And it is a rare case where hotels and businesses stepped up and said, you know what, tax us more so we can help restore this beach.

When we lose our reefs, as other witnesses have mentioned, there is a huge economic cost. Those contribute \$477 million to our local economy in Hawaii alone. Florida has its reefs and other millions and hundreds of millions of dollars in protections that they provide. Most of all, the ocean economy around the country provides over \$373 billion to GDP, and this bill will take critical steps to help protect those natural resources, businesses, and economies that rely on them.

Most of all, it will help protect our families. We know hurricanes have been intensifying as a result of warming seas. We know that along the Gulf Coast, colleagues that represent at the state level, those states have been pleading for additional help to help prevent the kinds of property loss, loss of lives that we know that those things can lead to. And this will help empower those local communities to help save the natural barriers that protect them from these kinds of events.

But, also, climate action is creating jobs and boosting the economy, and this bill can work hand in hand with a lot of that. California and Hawaii, as I mentioned, were the first to act. There is a clean jobs economy going on that has been producing a whole lot of new opportunities and complete industries that have helped save our economy through the last recession, and in California, have led to hundreds of thousands of jobs created, 350,000 still on track to be created by 2030 as a result of meeting those clean energy standards, and this bill will help accelerate that kind of growth.

Finally, we will hit clean investment, sustainable fisheries which can provide for more stable future jobs and economy in those areas, alternatives to plastics that are creating new businesses and jobs that didn't exist even a few years ago. These kinds of things are huge economic drivers.

In conclusion, states are taking action, but it is just not enough. We can look at I think the GAO report released this year highlighting, and I quote, "climate change poses risks to many environmental and economic systems and creates a significant fiscal risk to the Federal Government. The Federal Government has not made

measurable progress to reduce its fiscal exposure to climate change, and therefore, this high risk area warrants significant attention.”

And I will end by saying, when it comes back to my 4-year-old niece, which is why I got into politics and policy in the first place—if we don’t change, by the time she graduates from high school, the Federal Government will have lost hundreds of billions, if not trillions of dollars, to these kinds of impacts. By the time she is 33, there will be more plastic in the oceans by weight than fish if we do nothing. And, finally, by the time she is my age, there won’t be reefs in Hawaii anymore. Almost none are expected to survive that long.

So, we have a lot of work on our hands, and I appreciate the Committee for working on this measure and working with the states in partnership to move this issue forward.

Thank you for the opportunity to testify.

[The prepared statement of Mr. Lee follows:]

PREPARED STATEMENT OF SENATOR CHRIS LEE, HAWAII STATE LEGISLATURE

Chair Grijalva, Ranking Member Westerman, and distinguished members of the Committee, thank you for the opportunity to submit this written testimony regarding the Oceans-Based Climate Solutions Act. It is an honor to be able to provide a unique perspective on this measure from state and local governments working on these important issues.

I am a State Senator representing the 25th Senate District in the State of Hawaii. For 13 years I have been fortunate to serve the people of our state representing a district that stretches over 1,200 miles across the Pacific Ocean, encompassing populous areas of the main Hawaiian Islands, as well as countless other islands, coastal and marine habitats, fisheries, and the Papahānaumokuākea Marine National Monument.

I currently serve as the chair of the Senate Committee on Transportation, and previously chaired both the House Committee on Judiciary and House Committee on Energy and Environmental Protection. Throughout my time in office our committees worked diligently with government, business, non-profit, and community stakeholders to address the harmful impacts of climate change on our taxpayers, economy, and way of life. Together, we have taken bipartisan action to address ocean degradation and climate change, while also reducing cost to taxpayers, growing new markets, industries, and jobs, with positive real-world results.

I am testifying today in strong support of the Oceans-Based Climate Solutions Act. Despite Hawaii and other states beginning to take individual action on climate change, significantly more must be done to avoid costly and irreversible climate damage in the years to come. Climate change is not a challenge that can be resolved by any one state, it is a challenge faced in some way by every state. Nationwide coordination, resources, and execution will be critical to future success. Federal partnership and investment proposed by the Oceans-Based Climate Solutions Act will be necessary to maximize the ocean’s potential to help mitigate this threat.

Healthy oceans can fight climate change and reduce climate impacts. Oceans have already absorbed over a third of our carbon emissions and 90 percent of the excess heat we have generated, moderating the impacts of climate change. However, the ocean’s capacity to safely absorb carbon and heat is limited. This has already resulted in warming waters, stronger hurricanes, ocean acidification, sea level rise, shifting fish stocks, and coral reef die-offs. The Oceans-Based Climate Solutions Act is an important step forward that provides a coordinated roadmap for ocean and coastal climate resilience. The investments it makes will help preserve our oceans and minimize the worst impacts of our changing climate.

Changing climate is already impacting people, businesses, and economies in states around the country, draining state and local resources.

Often lost in discussions about future impacts from climate change are the taxpayers and businesses in states around the country already being impacted by the effects of climate change today. Many are already paying higher costs for adaptation and need help. Globally, weather disasters have doubled since the 1980s,

resulting in billions in annual economic losses and increased costs to taxpayers.¹ Recent years have seen record fires in states like California and Oregon. Warming temperatures are shifting seasons in Idaho, Utah, and Wyoming. Hurricanes and flooding are increasingly devastating Louisiana, Florida, and Gulf Coast states. Declining rainfall and drought are threatening water supplies in Arizona, Nevada, and the Southwest. Heatwaves are baking Colorado, Nebraska, and Kansas. And large industries such as agriculture are being impacted across the country.

Sea level rise, warming, and ocean acidification are jeopardizing local economies and increasing costs to taxpayers and businesses. Federal coordination and assistance is needed.

Around the country sea level rise is already threatening coastal communities and infrastructure at a rapid pace. Over the past century, Hawaii has experienced about 8 inches of sea level rise, with most of the increase coming from accelerating rise in recent years. The rising ocean has pushed over 70 percent of Hawaii's shoreline into a state of chronic erosion.²

On Oahu and Maui, homes and roads are being undermined by rising waves, and private homeowners in multiple counties are losing property and investments. As sea levels continue to rise, an additional \$19 billion in coastal assets will be exposed to damage and loss as sea levels in Hawaii approach 3 feet, perhaps as soon as 2060.³ This includes 38 miles of roads, 6,500 structures, 20,000 residents displaced, 25,800 acres of land, and 550 cultural sites.⁴

State and local governments in the islands are already being forced to spend hundreds of millions of dollars to move, retrofit, or replace critical infrastructure, such as projects increasing the height of the docks at Honolulu Harbor, and moving coastal highways on Maui and Oahu inland. The State Department of Transportation has identified an additional \$15 billion in projects to move, raise, or harden threatened coastal highways that serve as lifelines for population centers.

Sea level rise is also responsible for the loss of over 13 miles of sandy beaches around the state through the latter half of the 20th century. Beaches are critical to Hawaii's communities and economy. The loss of Waikiki Beach alone is projected to cause annual losses of \$2 billion to Honolulu's local economy. As a result, in 2014 local hotels and businesses groups worked together to establish a new tax applied to about 6,000 commercial properties in Waikiki to raise funds to regularly replenish eroding sand on Waikiki Beach.

Ocean acidification and warming sea surface temperatures threaten Hawaii's coral reefs. We have already seen an 8.7% increase in ocean acidity in just 30 years.⁵ Warmer, acidic ocean water is dissolving corals and killing reefs. As a result, by midcentury nearly all of Hawaii's reefs will be experiencing annual bleaching and ecosystem collapse from which most are unlikely to recover.⁶ Reefs host about 25% of the ocean's marine life, and losing reefs means massive losses to fishing communities and disruption of the global food chain.

Hawaii's top tourist attraction is Hanauma Bay, a world-famous coral reef reserve that draws more visitors per year than Pearl Harbor. Hanauma Bay and reefs around the state were valued at \$33.57 billion in 2011.⁷ They currently contribute \$477 million to the local economy each year.⁸ Losing these reefs will have a crippling effect on jobs and our tourism-dependent economy.

By a different measure, Hawaii's reefs also provide natural protection and buffer high waves and storm surges, providing \$860 million in flood-risk benefits to prop-

¹ <https://reliefweb.int/report/world/human-cost-weather-related-disasters-1995-2015>.

² Fletcher, C.H., et al. (2012) National assessment of shoreline change: Historical shoreline change in the Hawaiian Islands: U.S. Geological Survey Open-File Report 2011-1051, 55 p.

³ <https://science2017.globalchange.gov/chapter/12/>.

⁴ Anderson, T., et al. (2018) Modeling multiple sea level rise stresses reveals up to twice the land at risk compared to strictly passive flooding methods. *Nature Scientific Reports* 8: 14484 DOI:10.1038/s41598-018-32658-x.

⁵ https://coralreefwatch.noaa.gov/satellite/publications/state_of_the_environment_2017_hawaii-usapi_noaa-nedis-nci oct2017.pdf

⁶ Van Hooijdonk, R., et al. (2014) Opposite latitudinal gradients in projected ocean acidification and bleaching impacts on coral reefs. *Global Change Biology*, 20.

⁷ Richard C. Bishop, et al. 2011. Total Economic Value for Protecting and Restoring Hawaiian Coral Reef Ecosystems: Final Report. Silver Spring, MD: NOAA Office of National Marine Sanctuaries, Office of Response and Restoration, and Coral Reef Conservation Program. NOAA Technical Memorandum CRCP 16. 406 pp.

⁸ Keener, V., et al. (2018) Hawai'i and U.S.-Affiliated Pacific Islands. In *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., et al. (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 1242-1308. doi: 10.7930/NCA4.2018.CH27.

erty owners and people's livelihoods every year.⁹ Reefs also provide other coastal states like Florida with similar protections and benefits. Losing these reefs means increasing damage from hurricanes, which themselves are growing in number and intensity as a result of warming seas providing more fuel and shifting tracks into Hawaiian waters.¹⁰ More hurricanes also threaten the Atlantic seaboard and Gulf Coast causing billions in damage and lives lost.

The Oceans-Based Climate Solutions Act will help address these critical issues facing coastal states. It will provide coordination and resources to enhance coastal barriers to better protect against natural disasters, expand coastal barrier programs to include the Pacific Coast and offshore islands, update the Coastal Zone Management Act, enable indigenous and underserved communities to better manage coastal resources, provide grants for coastal resiliency and adaptation work, and provide for better research and understanding to act on ocean acidification to protect coastal communities and economies.

Plastics and other pollutants in the ocean are harming coastal communities, ecosystems, and increasing costs to taxpayers for cleanup.

Shorelines in coastal states around the country from Alaska to Florida have been inundated with trash, pollutants, and microplastic debris. About 40 percent of today's global plastic waste continues to end up in the environment with 11 million metric tons of plastic leaked into the ocean in 2016 alone.¹¹ Plastic debris is now so common in the ocean that by 2050 the world may have more plastics in the ocean than fish, by weight.¹²

Plastic and other debris litters marine environments in coastal states where it is being ingested by fish, turtles, birds, and is now showing up in local catch at our supermarkets. Plastic debris often ends up breaking into millions of small microplastic contaminants that are incredibly difficult to clean up. In Hawaii every single beach, including those regularly rated "the best beach in the country" are now littered with microplastic. One beach on Oahu's Kahuku coastline is notorious for high volumes of marine debris. In a single 90-minute cleanup there with 100 volunteers it is possible to remove as much as 10,000 pounds of debris.

Taxpayers are being forced to pay the costs to clean up plastics and other pollutants in Hawaii and in cities around the country. In recent years California has spent over \$400 million per year to help prevent trash and plastic debris from getting into waterways, and eventually the ocean.¹³ Residents in New York City have spent over \$40 million per year on waste management fees for single-use plastic foodware.¹⁴ Taxpayers in other places around the country commonly pay for similar cleanup efforts in their states and cities. Reducing the amount of plastics and debris entering the waste stream will reduce the burden for cleanup that is passed on to taxpayers.

The Oceans-Based Climate Solutions Act will help reduce the unfair burden of cleanup currently passed on to taxpayers. It will place a 5-cent tax on virgin plastic manufacturers that would create a market-based incentive encouraging more plastic to be recycled properly so less ends up in the ocean. Funds raised will be directed to address ocean-based climate solutions and could potentially be used for plastics and pollutants cleanup. That will allow people who wish to purchase virgin plastic products the freedom to do so without unfairly passing the cost of cleanup along to their neighbors.

Expanding opportunities for offshore wind and transitioning to clean energy can reduce cost and risk for ratepayers, as well as reduce greenhouse gasses.

Switching to renewable electricity generation from fossil fuels not only reduces greenhouse gas emissions but can also help reduce energy costs for ratepayers. The cost of solar panels and batteries have decreased by about 85 percent over the last decade. The cost of wind power has declined about 50 percent. As a result, renewables are now the cheapest form of energy to install on the electric grid in many places, and their cost continues to fall. Additionally, renewables operate at a fixed

⁹ Reguero, B.G., et al. (2021) The value of US coral reefs for flood risk reduction. *Nat Sustain* (2021). <https://doi.org/10.1038/s41893-021-00706-6>.

¹⁰ Murakami, H., et al. (2013) Projected increase in tropical cyclones near Hawai'i. *Nature Climate Change*, v. 3, August, pp. 749–754.

¹¹ https://www.pewtrusts.org/-/media/assets/2020/07/breakingtheplasticwave_report.pdf.

¹² <https://www.weforum.org/reports/the-new-plastics-economy-rethinking-the-future-of-plastics>.

¹³ <https://www.nrdc.org/resources/waste-our-water-annual-cost-california-communities-reducing-litter-pollutes-our-waterways>.

¹⁴ https://uploads.ssl.webflow.com/5d696bc69fa6c25158733360a/5e618b692785ae55f96072f7_The%20Dirty%20Truth%20About%20Disposable%20Foodware_vF.pdf.

cost and aren't subject to price volatility due to supply shortages or foreign events that can drive up the cost of fossil fuel energy, which makes renewables a much safer long-term financial investment for ratepayers.

Mitigating climate change means rapidly decarbonizing the economy. To this end, 11 states have already established targets to achieve economy-wide carbon neutrality by mid-century. They include Montana, California, Louisiana, Michigan, Nevada, and Maine, among others. An additional 12 states have established paths to significantly reduce carbon emissions, typically a reduction of 80% below 2005 levels by mid-century.

Hawaii was the first state to commit to achieving 100% clean electricity and a carbon-negative economy by 2045. Over the last decade Hawaii has more than tripled renewable energy on the electric grid resulting in significant savings to ratepayers. Utility scale solar, wind, and battery storage projects have helped stabilize volatile fossil fuel electric rates. Most significantly, today one in three single family homes in Hawaii has rooftop solar panels. Collectively, rooftop solar is the single largest source of power on the electric grid and together with energy efficiency upgrades is a key driver that helped reduce electric bills by an average of \$39 per month since 2011.¹⁵

Rapid declines in the price of renewable technology have now made renewable projects financially viable all around the country. If Hawaii can transition to clean, renewable power resulting in cost savings for residents and the economy, the same can be done faster, better, and cheaper in other places with larger electric grids with greater economies of scale, more flexible resources, and declining costs of renewable technology.

The Oceans-Based Climate Solutions Act has immediate potential to unlock those opportunities for appropriately sited offshore wind that can provide some of the largest sources of clean energy for coastal and inland states. Requiring approvals for reasonable amounts of wind generation creates an instant market providing certainty to project financiers, developers, and communities seeking to benefit from the opportunity. This is one of the quickest ways to help deploy these resources and spur change.

Ocean-based climate solutions can create new jobs and innovative industries.

Perhaps one of the most notable benefits of taking action to protect our oceans and address climate change through the Oceans-Based Climate Solutions Act is the potential for new jobs and innovative industries that it creates.

In 2018, America's ocean economy contributed roughly \$373 billion to the nation's gross domestic product, with coastal tourism and recreation bringing in \$143 billion.¹⁶ With support from the Oceans-Based Climate Solutions Act, resources could begin flowing through grants and other means into ocean-based economies with the potential to expand local benefit.

In Hawaii, NOAA's Economics National Ocean Watch found that the islands' ocean-dependent economy can support over 114,000 employees in 47 industries across six sectors, producing a conservative estimate of over \$8 billion in the annual gross domestic product.¹⁷ Today, Hawaii's ocean sector is believed to be underperforming its potential to provide jobs to local residents. The Oceans-Based Climate Solutions Act can help seed work that properly assesses, manages, and restores Hawaii's marine resources. Restoration of natural habitat, sustainable fishing, recreation and other sectors can in turn expand markets and create new potential for more community and economic benefit.

Right now the energy and climate technology market is the strongest it has ever been, with climate tech investment growing 3 times faster than investments in artificial intelligence and 5 times faster than the average growth of general venture capital. In 2019, over \$13B was invested into climate technology which is more than double what it was in 2016. These funds have birthed startups and companies working on climate issues such as CarbonCure, a sustainable carbon-sequestering concrete company that now provides carbon-infused cement for Hawaii's roadways. There is incredible potential for entrepreneurial innovation in the climate and oceans space.

Around the country the transition to cheaper, cleaner, renewables has spawned an entire new sector of high paying jobs. In Hawaii alone, jobs in solar installation,

¹⁵ https://energy.hawaii.gov/wp-content/uploads/2019/07/2019-FF_Final.pdf.

¹⁶ <https://www.noaa.gov/media-release/marine-economy-in-2018-grew-faster-than-us-overall>.

¹⁷ NOAA Office for Coastal Management. 2018. ENOW Hawaii: Exploring the Hawaii Ocean Economy through a Deeper Dive into the ENOW Dataset. <https://coast.noaa.gov/data/digitalcoast/pdf/econ-hawaii.pdf>.

energy efficiency, and renewable fuel production totaled over 15,000 in 2016, paying an average of \$3 to \$7/hour higher than the state's median wage. Clean energy jobs related to renewables such as appropriately sited offshore wind have been proven to similarly create decades of high-paying work for local residents.

In Conclusion

Thank you once more for the opportunity to provide these comments on the Oceans-Based Climate Solutions Act. State and local governments have taken steps which prove that investing in climate solutions helps to address climate impacts, reduces costs to taxpayers, and promotes economic growth. However, no state can solve climate change on its own. Coordination, planning, and resources will be needed if we are to succeed. I appreciate the role the federal government has to play to help address this global issue, because our time to meaningfully address it is running out. Our oceans, our economy, our way of life, and our future depend on it.

QUESTIONS SUBMITTED FOR THE RECORD TO SENATOR CHRIS LEE,
HAWAII STATE LEGISLATURE

Questions Submitted by Representative Sablan

Question 1. Sea-level rise, storm surge, and other climate impacts are of utmost concern for Pacific island communities. How do programs in the Ocean-Based Climate Solutions Act better protect communities in places like Hawaii and the Northern Mariana Islands?

Answer. Coastlines and taxpayers in the United States and throughout Pacific island communities face enormous risk, impact, and cost increases as a result of climate change.

Sea level rise has already begun causing coastal losses and is driving up cost to taxpayers around the country and across Pacific islands. In Hawaii in 2017, as homes and roads began falling into the ocean as coastal erosion accelerated, the State of Hawaii conducted the highest resolution and most comprehensive sea level rise study to date, finding that over \$19 billion of property, including 38 miles of roads, 6,500 structures, 25,800 acres of land, and 550 cultural sites will be lost to sea level rise in coming decades. This study also found that 20,000 people will be displaced. Further analysis by the State Department of Transportation found that an additional \$15 billion in highways would also be imperiled, spurring over \$175 million in projects already underway to modify or move coastal highways.

Unfortunately, most coastal areas in the United States and throughout Pacific island communities do not have this kind of comprehensive analysis. The Ocean-Based Climate Solutions Act (OBCSA) will help provide coordination and resources to assist coastal communities who do not have the ability or expertise to analyze risk and plan to adapt, especially in rural areas. OBCSA will also allow for regional ocean partnership opportunities for states and territories to coordinate and work together and learn from one another as we analyze the full risk to taxpayers and local economies.

As human-induced greenhouse gasses continue to accumulate in the atmosphere and oceans at rates exponentially faster than would otherwise naturally occur, climate changes will continue to accelerate infinitely faster than would otherwise be naturally possible. Warming ocean waters are already helping to fuel stronger storms and hurricanes of greater intensity and frequency. This directly impacts areas such as the Gulf coast, Hawaii, and Pacific islands. A direct impact from a hurricane on a city the size of Honolulu is estimated to incur as much as \$40 billion in damage and loss of life.

Coastal barriers such as reefs and dune systems are critical tools to help prevent damage from increasing hurricanes and storm surges. Hawaii and many coastal areas have robust coral reefs. In Hawaii, coastal barriers contribute \$477 million to our local economy enabling fishing, tourism, and related industries. Most of all the presence of coral reefs blunts the impact of storm surges and coastal erosion, and this adds an estimated \$860 million in annual benefit to coastal resiliency. This is the result of reduced shoreline damage, insurance claims, loss to industry, and local economies.

However, as oceans absorb greater quantities of carbon and greenhouse gasses, water begins to acidify. In Hawaii we have already measured an 8.7% increase in the acidity of ocean water over 30 years. Together with warming ocean waters, the acidification of the ocean is causing Hawaii coral reefs to experience unprecedented

bleaching which is killing entire reef ecosystems. Hawaii is expected to lose about 95% of its coral reefs by mid-century to chronic bleaching. The same is true in many coastal areas.

OBCSA will help provide for coastal community vulnerability assessments to identify risks to key coastal barriers and expand definitions to encompass bluffs and other vulnerable areas. It will allow for regional ocean partnerships between states and agencies. It will help quantify reef loss potential in vulnerable communities and make recommendations for action. It will also help the National Oceanic and Atmospheric Administration coordinate and address harmful algal blooms that threaten coral reefs and the coastal protection they provide. OBCSA will also protect consumers and property owners by requiring disclosure of risk, and limitations on the availability of federal assistance. It will provide grants to assist working waterfronts to ensure more resilient harbors and protect jobs. And it will critically exempt cost sharing requirements in communities that may not have adequate resources for disaster relief. Ultimately, assistance from OBCSA will help save coastal economies, jobs, and lives.

States and Municipalities Need Federal Help

States and municipalities do not have the resources to address the threats to their economies, jobs, and communities from climate change. Federal action is necessary for assistance to states and municipalities, and to mitigate financial risk to the federal government itself.

The 2021 GAO (Government Accountability Office) High Risk Report—Limiting the Federal Government's Fiscal Exposure by Better Managing Climate Change Risks, found that, "Climate change poses risks to many environmental and economic systems and creates a significant fiscal risk to the federal government. Since our 2019 High-Risk Report, the federal government has not made measurable progress to reduce its fiscal exposure to climate change; therefore, this high-risk area warrants significant attention."

"Specifically, the federal government needs to, among other things, (1) lead the development of a national climate strategic plan; (2) establish an entity to prioritize national-scale climate resilience projects; (3) develop a national climate information system; (4) make structural changes to the flood and crop insurance programs; and (5) establish a pilot program for community climate migration."

OBCSA will take long overdue steps to responsibly limit harm and risk to taxpayers, local economies, jobs, and communities around the country and throughout the Pacific.

The United States is Falling Behind Other Countries

Other countries have already begun assessing the impacts of climate change on their coastlines and economies. Many nations are also taking action to mitigate the impact of climate change far in excess of the United States, which has the added benefit for them of surpassing the United States in technological innovation and economic development.

For example, of all new solar capacity added globally in 2018, 45% was in China. China has also become the largest producer of solar panels, wind turbines, batteries, and electric vehicles. It is committed to the rollout of 800,000 electric vehicle chargers and on track to produce over 8 million electric vehicles per year by 2028, while the United States is likely to produce just 1.4 million. These investments in clean technology and greenhouse gas mitigation are significantly boosting their economy today and forging a path to dominate the global economy in the future. India has already reduced emissions intensity by 21% over 2005 levels and is on track to exceed Paris Agreement Targets. It is expected to reach 175 GW of renewables by 2022.

If the United States is going to remain globally competitive it must innovate and build a clean economy that can mitigate climate emissions and compete with other nations through the rest of the 21st century. OBCSA is a complimentary and necessary step to our nation's mitigation strategies that will adapt coastlines and protect communities from climate impacts that mitigation efforts cannot prevent.

Acting on Climate Change Does Not Have to be a Partisan Issue

Republicans, Democrats, liberals, conservatives, business, labor, and communities can all come to agreement that climate change is a critical threat to our economy, communities, and way of life, and take action that not only addresses its impacts, but benefits taxpayers, the economy, and local communities at the same time. In Hawaii our collaboration across sectors and ideologies proves it.

It was a Republican governor who began the Hawaii Clean Energy Initiative to transition Hawaii off fossil fuels and begin to address climate change. Democratic

governors have continued accelerating this effort. As a Democrat, I joined together with our House Republican leader to lead a campaign that successfully blocked a \$4.2 billion buyout that would entrench fossil fuels in our electric grid at great risk to taxpayers. We were successful because it was not about party or ideology, it was about what would most benefit everyone in Hawaii.

When we passed legislation in 2018 making Hawaii the first state to commit to achieving a carbon negative economy by 2045, it was passed unanimously with all Republicans and Democrats in support. It was also supported by a coalition of environmental advocates, labor and business interests alike. The President of the Chamber of Commerce of Hawaii noted at its signing that, "Moving forward on this bill will help catalyze additional investment in local businesses while helping us reach our 100% renewable energy by 2045 goal and achieve economic, social and environmental sustainability."

Setting politics aside and working together to address climate change we have been able to successfully triple renewable energy in Hawaii over the last decade. Investment in clean energy has reduced electric bills by almost \$40/month for local residents who are now on track to save \$3 billion over the life of these projects. Hawaii is now leading nation with one in three single family homes having installed rooftop solar, whose financial benefits and cost reductions are shared by all ratepayers. Increasing the number of homes with solar panels by just 10% will save an additional billion dollars for everyone. Hawaii has built an entirely new clean energy industry with thousands of jobs, grown innovative companies, and we are collectively on track to achieve a carbon negative economy that will help reduce climate impacts for everyone.

Taking action to address climate change benefits everyone. It is fiscally responsible to protect taxpayers and businesses. It is economically empowering for jobs and the economy. Most of all it is morally responsible to ensure a better future for our next generation. Hawaii proves that when Democrats and Republicans set partisan politics aside to act on climate, everyone can benefit.

I strongly encourage our elected representatives in the U.S. Congress to do the same.

Mr. HUFFMAN [presiding]. Thank you very much, Senator.

I am going to take the virtual gavel from the Chair and pinch hit here for a bit, and the Chair will now recognize Dr. Ayana Elizabeth Johnson for 5 minutes.

Welcome, Dr. Johnson.

STATEMENT OF DR. AYANA ELIZABETH JOHNSON, CO-FOUNDER URBAN OCEAN LAB

Dr. JOHNSON. Thank you, Chairman Grijalva, Ranking Member Westerman, and members of the Committee for this invitation to testify.

The ocean is a source of nourishment, protection, livelihoods, and joy. It is the foundation of climate stability. In the United States, the blue economy supports around 2.3 million jobs and contributes \$373 billion annually to GDP from tourism, to shipping, to fishing. This value can continue to increase but only if we have robust laws in place and only if we protect and restore ocean ecosystems.

Because of climate change, ocean temperatures are climbing, pH is plummeting, fish are fleeing for the poles, corals are frying in place, marine mammals are threatened with extinction, and plastic is everywhere. The situation is extremely bad. The United States is the largest historical emitter of greenhouse gasses and the largest current contributor to ocean plastic pollution of any nation in the world. We must understand these stakes and our responsibility. We are here to talk about solutions.

The ocean is not merely a victim; it is also a hero. Collectively, ocean-based solutions could be 21 percent of our climate solution,

and there are three that I would like to highlight: (1) protecting and restoring coastal ecosystems that absorb tons of carbon and protect us from storms too; (2) producing clean, renewable energy from offshore wind; and (3) farming the ocean regeneratively to support a sustainable food system.

First, coastal ecosystems. When we think of climate solutions, it is tempting to think about technological fixes, but nature and the process of photosynthesis are key. For example, during Superstorm Sandy, although 85 percent of the wetlands in New York and New Jersey had already been destroyed by development, what little remained prevented \$625 million in damages.

Coastal ecosystems often provide cheaper and more effective shoreline protection than hard structures such as sea walls while absorbing up to four times more carbon in their soils than a forest on land. This is why I support the blue carbon proposal as well as the proposal introduced by Congresswoman Plaskett that would allocate \$10 billion to coastal restoration. Also key is the provision that would support the President's goal of protecting 30 percent of the ocean by 2030.

Second solution, renewable ocean energy. Historically, ocean energy meant drilling for oil and gas, but today, we have the opportunity for renewable energy offshore, and 66 percent of Republican and 72 percent of Democrat voters support new offshore wind farms. In the next decade, such farms could support 80,000 jobs per year which is 60 percent more jobs than the coal mining industry provided in 2019.

And with 40 percent of Americans living in coastal counties, harnessing this offshore renewable energy would allow the United States to generate electricity near where demand is highest. I support the provision to set a national goal of 30 gigawatts of offshore wind production by 2030.

And the third solution, regenerative ocean farming. As we consider the future of seafood, we must focus on farming the ocean regeneratively. Instead of farming tuna and salmon, think of seaweed and shellfish which live simply off sunlight and nutrients already in the water. A single acre of ocean can produce 25 tons of seaweed and 250,000 shellfish in just 5 months.

Scaling regenerative ocean farming could create millions of direct and indirect jobs, improve habitat, and provide nutritious food. No land, fresh water, or fertilizer required. Notably, there is little in the Ocean-Based Climate Solutions Act on supporting this type of aquaculture, a gap worth filling.

One last key point, ocean justice. How we go about ocean conservation and the implementation of ocean climate solutions really matters. Ocean conservation is not only about fish or wells or even about octopuses and the phytoplankton; it is also about people. It is about who has access to healthy seafood to eat, clean waters for recreation, and jobs in the blue economy, and who does not.

Our solutions must be grounded in environmental justice, and I appreciate that many of the provisions in the Ocean-Based Climate Solutions Act recognize that need. That need has also led the non-profit think tank I have co-founded, Urban Ocean Lab, to convene the Ocean Justice Forum to ensure justice is at the heart of U.S. ocean climate policy.

In closing, with robust policies like the bills we are discussing here today, the ocean can be a core element of our climate solutions, sequestering carbon, protecting coastal communities, producing clean energy, providing nutritious seafood, and providing millions of jobs.

Frankly, we have not been giving the ocean the respect it deserves, and that must change. Trying to address the climate crisis without including the ocean is simply a recipe for failure.

Thank you again for the opportunity to testify today, and I look forward to your questions.

[The prepared statement of Dr. Johnson follows:]

PREPARED STATEMENT OF AYANA ELIZABETH JOHNSON, PH.D., CO-FOUNDER OF
URBAN OCEAN LAB

Thank you Chairman Grijalva, Ranking Member Westerman, and members of the committee for the invitation to testify today on these important bills. Thank you for your leadership Mr. Chairman, both with the introduction of the Ocean-Based Climate Solutions Act (OBSCA) and with the Environmental Justice For All Act. I also want to thank the sponsors of the other bills we are talking about today, many of which contribute to ocean policy topics which have been the focus of my work for the last decade.

The ocean is singular—one interconnected system of currents and wildlife covering 71% of our planet. It is a source of nourishment, protection, livelihoods, and joy. A healthy ocean is critical to our food security, economies, cultures, and human health.

In the U.S., the “blue economy” supports around 2.3 million jobs and contributes \$373 billion annually to GDP—from tourism to shipping, fishing, and construction. The largest share of that is tourism and recreation, which alone contributes around \$143 billion to the U.S. economy each year. These industries depend on a healthy ocean, clean beaches, and abundant fish and wildlife. That number of jobs can continue to grow and the economic value can continue to increase, but only if we have robust policies in place, and *only* if we protect and restore ocean ecosystems.

The ocean has massively buffered the impacts of climate change, and it can’t take much more. For example, it has absorbed over 90% of the excess heat trapped by greenhouse gases. Without the ocean absorbing all that heat, our atmosphere would be around 95 degrees fahrenheit hotter. The ocean has also absorbed around 30% of the carbon dioxide we’ve emitted by burning fossil fuels.

But absorbing all this heat has changed the ocean—dramatically and for the worse. As the ocean heats up, many species are migrating toward the poles in search of cooler waters, while coral reefs are frying in place. And warmer seawater fuels stronger and wetter storms, wreaking havoc on coastal communities. Absorbing all this carbon dioxide has also made the entire ocean 30% more acidic—among other things, this increased acidity makes it harder for shellfish and corals to grow their shells and skeletons, and harder for fish to smell home or their predators or prey.

More broadly, to date, 66% of marine environments have been “severely altered” by human actions—overfishing, pollution, coastal development and climate change. The ocean’s biodiversity is also at risk with a third of reef forming corals and marine mammals threatened with extinction. And every year approximately 8 million tons of plastic, and rising, end up in our ocean, harming marine life and getting incorporated into the food chain. The U.S. is the largest contributor to ocean plastic pollution of any nation in the world. Therefore, I was pleased to see that this re-introduced version of OBSCA includes creation of a tax on single-use, virgin plastics.

But at the same time, we need to reframe the narrative of the ocean being merely a victim, and sometimes a threat, to valuing the ocean as a hero—as a source for climate *solutions*. So I appreciate the name of the OBSCA because indeed we must leverage the power of the ocean to address our climate crisis.

Ocean-based mitigation options could provide 21% of the greenhouse gas emission reductions needed by 2050 to reach the goal of remaining below 1.5 Celsius of global warming—and reaching that goal is the most important thing we can do for the ocean. This reduction is larger than annual emissions from all current coal fired power plants worldwide.

There are three main ocean-climate solutions I would like to highlight in my testimony: (1) protecting and restoring coastal ecosystems that absorb tons of carbon and protect us from storms; (2) producing clean, renewable energy from offshore wind; and (3) farming the ocean regeneratively to support a sustainable food system. Many of the bills we are considering today would further these solutions, so I will elaborate briefly on each of the three.

1. Coastal Ecosystems

The carbon sequestered by ocean ecosystems is often called “*blue carbon*.” While trees get a lot of attention for their carbon dioxide absorbing potential, wetlands, mangroves, kelp forests, and seagrasses can absorb several times more carbon in their soils than a forest on land.

Yet, these ecosystems are increasingly threatened—degraded and destroyed by development, climate change, and pollution. Disturbing these ecosystems not only inhibits ongoing carbon sequestration, but also releases previously stored carbon. Up to 1 billion tons of carbon dioxide are released annually from degraded and destroyed coastal ecosystems. And worse, this destruction also releases massive amounts of methane, a potent greenhouse gas.

When we think about climate solutions, it is tempting to think about technological fixes. But in reality, nature and the process of photosynthesis are a big part of the solutions we have at our fingertips. For example, during Superstorm Sandy, although 95% of the wetlands in New York and New Jersey had already been destroyed by development, what little remained prevented \$625 million in damages to property and infrastructure. Coastal ecosystems can often provide cheaper and more effective shoreline protection than hard structures such as sea walls. They also enhance food security and support coastal economies. Clearly, protecting and restoring these ecosystems is critical.

That is why I and many others support Title 1 of the OBCSA and Mr Huffman’s bill H.R. 3906, establishing a Blue Carbon program to conserve and restore marine and coastal blue carbon ecosystems, as well as the provision in the OBCSA and in H.R. 660, introduced by Congresswoman Plaskett, that would allocate \$10 billion to a broad scale coastal restoration program. We can expect that investment to be paid back many times over through healthier fish stocks, reduced storm damages, and climate mitigation that we desperately need.

At present, less than 3% of the global ocean area is fully protected, while leading scientists recommend protecting at least 30% in order to safeguard biodiversity and restore ocean health. While 23% of U.S. waters are well-protected, the vast majority of that is around remote Pacific Islands. A well-connected, effectively and equitably managed system of marine protected areas, that includes all ecosystem types and the high seas, will build the ocean’s resilience against climate change. Therefore, the OBCSA provision that would support the President’s goal of protecting 30% of the ocean by 2030 is key.

2. Renewable Ocean Energy

Historically, ocean energy meant drilling for oil and gas—whose extraction will only intensify climate change. Today, both President Biden and the OBCSA are advocating for increases in ocean-based renewable energy. Clean offshore energy (now primarily wind energy, but perhaps in the future wave, tidal, and other forms as well) will be a critical component of rapidly transitioning away from polluting fossil fuels and eliminating the economic and ecological devastation caused by oil spills.

Well-planned and well-sited offshore wind has the potential to support an average of 80,000 jobs per year through development, construction, and operation from 2025 to 2035, including many union jobs and jobs that require skills easily transferable from the oil and gas sector. That’s 60% more jobs than the coal mining industry provided in 2019.

And there is strong public support for this burgeoning industry. Polling by Data for Progress shows that U.S. voters support the construction of new offshore wind farms by a 48-percentage-point margin, with support from 66% of Republicans and 72% of Democrats.

With 40% of Americans living in coastal counties, harnessing offshore renewable energy would allow the U.S. to generate energy close to where demand is highest. That is why I strongly support the provision in the OBCSA that would set a national goal of 30 GW of offshore wind production by 2030—matching the goal set by the President.

3. Regenerative Ocean Farming

Globally, approximately 34% of the world’s fish stocks and 18% of U.S. fish stocks are overfished. We cannot rely heavily on wild fish to feed our growing world

population. At the same time, industrial aquaculture, the farming of seafood, has been largely unsustainable, often focused on raising carnivorous fish that require a lot of feed, feed which to-date is often smaller wild fish. Hence, I support the provisions in the OBSCA that would promote sustainable, climate ready fisheries.

However, for our food security and for sustainability, as we consider the future of seafood we must focus on regeneratively farming the ocean. Regenerative agriculture on land has gained a lot of traction in recent years—it is essentially farming in a way that regenerates the health of the soil, restores ecosystems and biodiversity, and absorbs carbon in the soil instead of emitting it. In the ocean, this would look like seaweed and shellfish farms along our coastlines—with oysters and clams growing in cages on the seafloor, mussels growing on hanging ropes, and kelp growing like hanging curtains between it all. These organisms live simply off sunlight and nutrients already in seawater—no fertilizer, freshwater, or feed required.

A single acre of ocean can produce 25 tons of seaweed and 250,000 shellfish in just five months. Moreover, these seaweeds have high nutritional value, and one species, when fed to cows, can reduce their methane emissions by over 60%. Through photosynthesis and the formation of shells, ocean farms can absorb tons of carbon, help reduce local ocean acidification, and improve local water quality, while also creating a habitat for a cornucopia of wild marine life. Scaling regenerative ocean farming could create millions of direct and indirect jobs. Notably, there is little in this bill on supporting this type of aquaculture—a gap well worth filling.

Ocean Justice

One last key point I must include: *How* we go about ocean conservation and the implementation of ocean-climate solutions really matters.

Ocean conservation is not only about fish or whales, or even octopuses or phytoplankton. It's also about people, about protecting our livelihoods and communities, about preserving coastal cultures. It's about parents and grandparents getting to take their kids fishing—and actually catching something. It's about who has access to healthy seafood to eat, clean waters for recreation, and jobs in the blue economy—and who does not.

The well-being of communities of color and of poor and working-class communities are deeply affected as the ocean's health degrades. In the United States, people of color make up about 40% of the population, but 48% of the population of coastal counties and, per my team's estimates, 53% of the population of coastal cities. Within these areas, people of color often live in low-lying, flood-prone areas.

It has been well-documented that poor communities and communities of color endure disproportionate exposure to toxic air, land, and water. New Orleans, Flint, Standing Rock, and countless places in between exemplify the need to prevent such communities from bearing the brunt of environmental devastation. In New York, where I live, high-polluting peaker plants are located adjacent to lower-income communities of color. Hence, in the last few decades as the environmental movement arose, right alongside it arose the environmental justice movement.

According to the U.S. Environmental Protection Agency, environmental justice will exist “when everyone enjoys the same degree of protection from environmental and health hazards, and equal access to the decision-making process to have a healthy environment in which to live, learn, and work.”

This need for environmental justice clearly extends to the coastline and into the sea. Ocean conservation is a social justice issue. This is why, in collaboration with the Gulf Coast Center for Law and Policy, Azul, and Center for American Progress, the non-profit think tank I co-founded, Urban Ocean Lab, is convening the Ocean Justice Forum, to ensure justice is at the heart of U.S. ocean-climate policy.

The longer we wait to enact strong ocean and climate policies, the more vulnerable people of color and low-income people in coastal communities will become. Therefore, our solutions must be grounded in environmental justice, and I appreciate that many of the provisions in the OBSCA recognize that need.

In sum, the ocean is severely threatened, but it is also resilient. With robust policies like the OBSCA and other bills we are discussing here today, the ocean can be a core element of our climate solutions—sequestering carbon, protecting shorelines, producing renewable energy, providing nutritious and sustainable seafood, and supporting millions of good jobs.

Frankly, we have not been giving it the respect it deserves, and that must change. Trying to address the climate crisis without including the ocean is a recipe for failure. If we protect the ocean, it will protect us.

Thank you again for the opportunity to testify today, and I look forward to your questions.

The following documents were submitted as supplemental materials to Ms. Ayana Elizabeth Johnson's testimony.

Select relevant publications:

—Podcast: An Origin Story of the Blue New Deal—How to Save a Planet, 2021
<https://gimletmedia.com/shows/howtosaveaplanet/2ohwd7k/an-origin-story-of-the-blue-new-deal>

Policy Memo: A Plan for Offshore Wind Energy in the U.S.—Urban Ocean Lab, 2021

ADVANCING OFFSHORE WIND ENERGY IN THE U.S.

URBAN
OCEAN
LAB

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BY TERESA R. CHRISTOPHER, MEGAN DAVIS,
 JEAN FLEMMING, AND AYANA ELIZABETH JOHNSON¹

BACKGROUND



Globally, offshore wind development is flourishing. As costs decline, wind is becoming more competitive with traditional energy sources, and government and public support is increasing. The offshore wind energy market is expected to grow at 18.6% annually through 2024 and 8.2% through the end of the decade, with the industry projected to generate about 234 gigawatts (GW) of power globally by 2030. In the U.S., seven east coast states alone have committed to sign contracts totaling over 30 GW of offshore wind by 2035, and President Biden has also established a national goal of 30 GW of production by 2030. However, there are currently only two operational offshore wind facilities: A 30 megawatt (MW) wind farm off the coast of Rhode Island that became operational in 2016 and a 12 MW wind farm (phase one of a potentially 2,640 MW project) off the coast of Virginia that became operational in June 2020. Around 30 additional proposed offshore wind projects are in various stages of development in U.S. waters. The Bureau of Ocean Energy Management (BOEM) has issued 16 active commercial wind energy leases, which, when operational, could power approximately 8 million homes. In May 2021, the Vineyard Wind project received final federal approval to begin construction, and it is expected to begin delivering clean energy to 400,000 Massachusetts homes in 2023.

There is massive potential for offshore wind as an energy source, and it could be a major component of a clean energy economy. Notably, offshore wind is stronger and more consistent than onshore wind. This is particularly significant because lack of reliability is often cited as one of the major barriers to expanding renewable energy. In the U.S., it is technically feasible that offshore wind could

provide over 2,000 GW of energy, two times the present generation of the entire U.S. electric grid. With 40% of Americans living in coastal counties, harnessing offshore wind energy would allow the U.S. to generate energy close to where demand is highest.

Additionally, offshore wind has the ability to create jobs and bolster the transition to a clean energy economy. BOEM has a number of lease areas that are expected to be auctioned in 2021 and 2022. If these areas are auctioned as commercial leases, offshore wind has the potential to support an average of 80,000 jobs per year in the United States through development, construction, and operation from 2025 to 2035—60% more jobs than the coal mining industry provided in 2019. Under current plans, this will include jobs in turbine manufacturing and supply chains, and in the construction, transportation, and port industries. Many wind energy jobs require highly skilled trades, including skills easily transferable from the oil and gas sector, helping to enable a just and economically sound energy transition. As the U.S. continues to recover from the major economic downturn instigated by the Covid-19 pandemic and deal with our climate crisis, offshore wind can be part of the solution.

BARRIERS TO U.S. OFFSHORE WIND GROWTH

As offshore wind continues to grow, it can become a significant component of our energy mix and a key contributor to our clean energy economy. However, to-date, the U.S. offshore wind industry has been slow to develop due to a number of factors. Energy markets, cost competitiveness, protracted permitting processes, lack of science and data concerning cumulative impacts on wildlife and ecosystems, needing to conduct studies during specific times of year, interest group opposition, lawsuits, and

jurisdiction complications have all contributed to delays or barriers to expeditiously expanding offshore wind in U.S. waters. In order to harness this opportunity and achieve the targets the President has set forth, we need to address these barriers with pragmatic solutions and continue to advance policies that allow for the growth of the industry.

Here are the key barriers that have slowed the growth of the U.S. offshore wind industry.

COMPLEX OFFSHORE GOVERNANCE AND REGULATORY REQUIREMENTS

Offshore areas often support multiple industries and fragile marine environments, all of which need to be considered and protected when proposing, developing, and constructing an offshore wind project. This requires involvement from multiple federal agencies with different authorities at various points of the process. It can result in lengthy permitting processes and a certain amount of risk and uncertainty for developers. Additionally, offshore site selection and acquisition usually involves a combination of federal, state, and local government jurisdictions.² Overlapping state and federal jurisdiction creates numerous complications, as offshore wind projects within state waters are still subject to a number of federal laws, and offshore wind projects in federal waters will still need to run transmission lines through state waters to connect to the onshore grid.

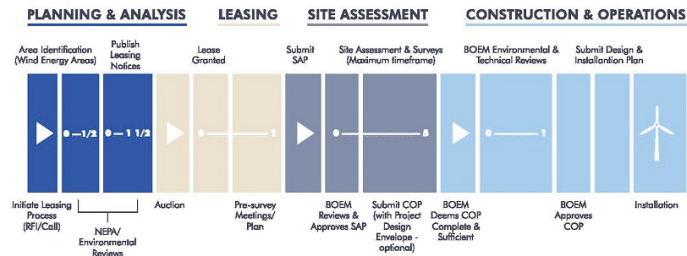
INADEQUATE STAFFING AND RESOURCES

Lack of adequate staffing and resources at BOEM, the federal agency with primary responsibility for permitting offshore wind, has contributed to the protracted permitting review process. While BOEM has received some increases in their budget—including at the end of 2020—more funding is needed to meet the President's goals. BOEM has already completed eight competitive lease sales, issued 16 active commercial leases, approved nine Site Assessment Plans, approved one general activity plan, and issued 10 instances of guidance on offshore wind programs.³ However, without additional resources the agency will be limited by staff capacity as it seeks to implement additional lease sales, review Construction and Operation Plans (COPs), and conduct other technical and environmental analyses necessary for projects to move forward.

INTEREST GROUP OPPOSITION

Interest groups that are common opponents of offshore wind construction include marine industries like fishing and shipping, as well as coastal homeowners. Commercial fishermen often oppose wind farms due to potential loss of use of commercial fishing areas, and shipping and other stakeholders have expressed concerns over navigation and safety. However, many of these concerns can be addressed upfront with coordinated planning and modification of turbine spacing. In the past, coastal homeowners and communities have opposed the construction of wind farms

The Bureau Of Ocean Energy Management Offshore Wind Permitting Process Timeline (In Years) From Call To Operations



Source: Adapted from Bureau of Ocean Management (BOEM)

due to perceived aesthetic or siting concerns, bringing lawsuits or creating public opposition that mire projects in lengthy proceedings for years. However, with improved siting and design, and proposed wind farms sited further offshore, aesthetics are less of a concern, as wind farms are barely visible from the shore. In addition, recent polling by Data for Progress shows that 58% of voters support restricting the influence of coastal homeowners on wind permitting decisions.

ECOLOGICAL IMPACTS AND LIMITED SCIENTIFIC DATA

Offshore wind development can have an impact on the marine environment, affecting birds, bats, and marine mammals, including the highly endangered North Atlantic Right Whale. While many of these negative impacts can be mitigated, it is important to first have a firm scientific understanding of what those impacts are. For example, whales are extremely sensitive to noise and the installation of offshore turbines via pile-driving can negatively impact them, as can ship strikes from support vessels. Similarly, wind farms sited in bird migration corridors or in productive scallop habitat can have impacts on wildlife and on fisheries. While site surveys and research help to determine the impact of individual wind projects, over 30 projects have been proposed along the eastern seaboard thus far and the collective impact that suite of projects could have on marine ecosystems and species is unknown. Concerns over the cumulative impacts to species and ecosystems must be considered. However, given the newness of the offshore wind industry, there has not yet been an analysis of its likely cumulative impacts due to a lack of research and data. For example, BOEM has delayed processing of COFs due to the need for supplemental environmental impact statements and reviews that account for multiple wind farms planned for the same area off the coast of New England.

LACK OF A WELL DESIGNED TRANSMISSION SYSTEM

One of the biggest challenges for the offshore wind industry is getting potential power to users. Understanding the potential impacts of a growing offshore wind energy on the onshore grid is critical for grid integration and for scaling the industry in the U.S. Existing connections to the onshore grid are limited, and as the system is developed it must account for how the additional power will affect system reliability and transmission congestion. Additionally, as wind turbines are built further offshore and grow in size, storage stations and grid architecture will become increasingly important to minimize grid losses and maintain system reliability. Potential solutions to these issues exist, such as a high-capacity transmission “backbone” or a “hub and spoke” model, where several

wind turbines are connected by a single high-capacity cable. Regardless of the type of technology used, building a well-designed offshore transmission system will be increasingly important as capacity is reached at the limited connection points onshore and as more wind farms are built.

The U.S. will require substantial investments in both its onshore and offshore transmission infrastructure to integrate the proposed and projected offshore wind projects. In Europe, planning transmission for scale and encouraging competition has been essential to the growth of the offshore wind industry. Although the Biden-Harris administration recently announced the availability of \$5 billion of transmission financing through the Department of Energy’s Loan Programs Office, there is currently no master offshore transmission plan in the U.S. to strategically develop this infrastructure. Limited regional planning has been done by the Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs). The Federal Energy Regulatory Commission (FERC) has begun to discuss whether existing regional frameworks can accommodate the anticipated growth in offshore wind and consider possible changes or improvements to the current framework. Additionally, companies are investing in offshore transmission technology advancements that could have implications for offshore wind.

TECHNOLOGICAL LIMITATIONS

Offshore wind technology is evolving globally, allowing wind farms to be built in deeper waters, at larger scales, and with the ability to harness more energy. As the technology around floating turbines develops, wind farms will be built further offshore, minimizing aesthetic concerns but potentially creating conflicts with other ocean users. Additional challenges include resilience to storms and resistance to corrosive salt water. The continental shelf is generally narrower on the west coast of the U.S., so installing offshore wind on the west coast at a significant scale will require floating turbines, which bring additional technology challenges related to substructure optimization, logistics, maintenance, and repairs.

POLICY RECOMMENDATIONS

LEGISLATIVE BRANCH

1. **Set an offshore wind goal at the federal level.** In the past, Congress has set goals for various energy types. For example, in 2005, the Energy Policy Act set a goal of authorizing more than 10,000 MW of renewable energy generation on public lands by 2015. Additionally, many states have already set target offshore wind goals. For example, New York has a

goal of 9,000 MW of offshore wind by 2035 and New Jersey has a goal of 7,500 MW by 2035. By establishing a national goal of at least 30 GW by 2030 as the Biden-Harris administration has done through executive action, Congress can monitor progress toward the goal and help ensure that offshore wind is a critical component of a clean energy agenda.

2. **Enact a Clean Electricity Standard (CES) to achieve 100% clean power by 2035.** Decarbonizing the electricity sector is the first step to fully decarbonizing our economy. A power sector-specific, technology-neutral clean energy standard will drive clean electrons to the grid, create necessary demand for a robust offshore wind industry, and continue to drive down the cost of renewable technologies. This new CES should call for 100% renewable and zero-emission energy in electricity generation by 2035, aligned with President Biden's stated goal—and consistent with language included in the CLEAN Future Act.

3. **Increase staffing and resources at BOEM to expedite review and approval processes.** Congress should allocate additional resources to BOEM specifically for staff to review permit applications and other technical reviews required during the permitting process, as well as for additional science and research to support environmental reviews. While some funding increases were authorized at the end of 2020 for FY2021, more resources will be needed to set forth the goals established by the President.

4. **Support research focused on regional and national strategies to accelerate and maximize the effectiveness, reliability, and sustainability of U.S. offshore wind deployment and operation** with partners from institutions of higher education, research institutions, national laboratories, the private sector, and state and local governments relevant to emerging commercial scale offshore wind deployment. While some investments have already been made, more are needed. For example, the National Offshore Wind R&D Consortium, partially funded by the Department of Energy, just announced 15 new projects totalling \$8 million in new investment. Additionally, the Consolidated Appropriations Act of 2021 authorized \$125 million for each of fiscal years 2021 through 2025 for a wind energy research and development (R&D) program, but appropriations will be needed to support the program.

5. **Ensure that the communities hosting new wind development receive a share of the benefits.** Congress should require all federal tax incentives for offshore wind to be conditioned on local hiring and strong labor standards, including requirements for

prevailing wages, project labor agreements, best value contracting, and collective bargaining rights. Offshore wind presents an enormous opportunity to create jobs that generate wealth in the communities that host new development. For example, coalitions like Climate Jobs New York have successfully worked in partnership with New York State to ensure that a burgeoning offshore wind industry creates good union jobs.

6. **Create a skilled, unionized, local workforce for offshore wind through investment in workforce training programs.** Offshore wind projects rely on skilled labor and advanced manufacturing for construction, installation, operations, and maintenance. With job growth projected to grow by tens of thousands, there is a need to develop a domestic workforce. Offshore wind draws on workers from a wide range of often unionized trades, including logistics, construction, and the maritime industry. To help build a highly skilled, readily available workforce, Congress should invest in workforce training programs at the federal and state levels in partnership with the industry. In February 2021, Congress took an initial step toward supporting workforce training by passing the Offshore Wind Jobs and Opportunity Act. The new law authorizes the Department of the Interior to provide offshore wind career training grants to institutions of higher education or labor organizations, but appropriations will still be necessary to implement the program.

7. **Invest in manufacturing programs that create and enhance domestic supply chains for the offshore wind industry.** With seven East Coast states having already collectively committed to creating over 30 GW of power by 2035, there is an opportunity to create a domestic supply chain to support the industry. Both manufacturing and installation of offshore wind turbines could present an opportunity to domestic businesses in the supply chain totalling nearly \$70 billion. The Biden-Harris Administration has called on Congress to make significant supply chain investments in both the American Jobs Plan and in the proposed budget for Fiscal Year 2022. Investments should be transformational and focus on American-made components from turbine creation to deployment, innovations in new materials, as well as research and development.

8. **Establish a fund to support research and mitigate environmental impacts of offshore wind.** Congress should establish a fund in which a percentage of the bonuses, royalties, and other payments made to the Treasury for leasing and operation of offshore wind projects can be collected and used to pay for research and cumulative impact studies necessary for offshore wind projects to be approved. Such funds could also be

used to monitor, minimize and mitigate potential impacts to the marine environment and marine species. While some existing efforts support research and development of the offshore wind industry, such as the National Offshore Wind Research and Development Consortium, this would ensure sustainable, long-term funding for research and monitoring.

EXECUTIVE BRANCH

1. **Prioritize offshore wind as part of a climate and clean energy agenda with near term actions and long term vision.** The Administration has taken early steps to prioritize offshore wind by establishing a 30 GW by 2030 national goal through executive action until Congress acts, and the Departments of the Interior, Energy, Commerce, and Transportation have all committed to making that goal a reality. Funds for technology advancement, research debt financing, and port infrastructure to support the offshore wind industry have been proposed or made available through various programs. Additionally, BOEM has already announced new wind energy areas, advanced proposed projects, and committed to new lease sales and the completed review of at least 16 Construction and Operation Plans (COPs) by 2025. However, prioritizing federal investments through budgetary requests is also needed. Further, bold federal leadership that sets a vision for our ocean and accounts for multiple ocean users is necessary.

2. **Establish a White House-led interagency coordinating body on offshore wind, and direct relevant agencies to prioritize creating efficiencies and reducing barriers to offshore wind development and ability to scale the industry.** While the President's plan to kickstart offshore wind advances key actions, we recommend the creation of a subcommittee of the White House National Climate Task Force to expedite deployment and enable the ability to scale offshore wind. Day-to-day leadership and focused implementation are essential to scale the industry quickly and achieve clean energy goals. We recommend the subcommittee be directed to:

- Create a plan, with input from relevant states and stakeholders, that articulates a coordinated, cohesive vision for offshore wind and details actions and timelines to address barriers;
- Recommend actions to minimize conflicts between offshore wind and other ocean users;
- Work with relevant states to ensure needs are understood and federal/state decisions are coordinated;
- Ensure BOEM, the National Oceanic and Atmospheric Association (NOAA), the Fish and

Wildlife Service (FWS), and other relevant agencies coordinate and prioritize environmental permitting needs and identify efficiencies;

- Work with the U.S. Department of Labor and the U.S. Department of Commerce to create a plan to expand domestic supply chains, manufacturing capability, and a skilled workforce to support the offshore wind industry taking into account existing efforts; and
- Ensure DOE, NOAA, and other relevant agencies prioritize research and development investments to support key industry barriers to scale.

Additionally, the subcommittee should enter into an agreement with FERC to coordinate on an offshore transmission master plan and any additional science and research needed to support transmission planning.

3. **FERC, in coordination with DOE, BOEM, other relevant Federal agencies, the States, and the RTOs/ISOs, should develop a cohesive, strategic offshore wind transmission master plan or regional master plans.** Studies have assessed the transmission and grid integration needs for U.S. wind development, and regional ISOs have planning processes that can accommodate individual wind project connections to the onshore grid. Still, an overarching, comprehensive plan to address transmission, the unique qualities of the offshore environment, and long-term grid reliability is needed. Recent studies have shown that transparent, long-term, on and offshore grid planning removes barriers to entry, improves coordination, and lowers costs. The plan should be developed within one year, consider phased implementation, and account for the projected growth of the offshore wind industry, as well as address additional transmission needs of future larger, floating turbines in deeper waters.

4. **BOEM should review its offshore wind regulations and procedures to build efficiencies into the permitting process** in a manner that facilitates a sustainable offshore wind industry while minimizing environmental impacts. The Biden-Harris Administration's "Tackling the Climate Crisis at Home and Abroad" Executive Order has taken a first step in this area by directing the Secretary of the Interior to "review siting and permitting processes on public lands and in offshore waters to identify... [steps] to increase renewable energy production on those lands and in those waters, with the goal of doubling offshore wind by 2030 while ensuring robust protection for our lands, waters, and biodiversity and creating good jobs." Regulatory and procedural changes will be needed for BOEM to implement the recommendations that result from that review.

5. Support scientific research needed for Cumulative Impact Studies. Understanding cumulative impacts of offshore wind on species and the marine environment is critical. The Administration should request and Congress should appropriate additional resources for cumulative impact studies to be done for key species or in key regions to help expedite the review process for wind projects in those areas. This will be helpful for understanding and developing solutions to address fisheries impacts. The Administration is initiating some of these studies already through BOEM, NOAA, DOE, and the National Oceanographic Partnership Program. For example, NOAA's Northeast Sea Grant programs, in partnership with DOE, DOC, and NOAA's Northeast Fisheries Science Center, recently issued a request for research proposals "to support more than \$1 million in grant funding to improve understanding of offshore renewable energy for the benefit of a diversity of stakeholders, including fishing and coastal communities," but more research will be needed.

6. Continue to invest in the regional integrated data and tools that allow for upfront planning and minimizing conflict. The Northeast Regional Ocean Council and Mid-Atlantic Regional Council on the Ocean built fairly comprehensive databases that allow planners to look at existing uses including fishing, wildlife, habitat, and other conditions to engage key stakeholders and address some stakeholder conflicts upfront. The West Coast Ocean Alliance is engaged in that process now. As offshore wind expands, additional investment in these partnerships would help facilitate the siting and review process, and provide a forum for addressing conflicting uses. At the same time, public-private sector data-sharing agreements can provide essential information for upfront planning. NOAA's newly announced Memorandum of Agreement with offshore wind developer Ørsted to share ocean mapping and biological data in Ørsted-leased waters is a first-of-its-kind agreement between an offshore wind developer and NOAA that paves the way for future data-sharing agreements that the Administration should pursue.

7. Focus existing manufacturing, workforce training, and skills programs on increasing the capability and capacity of the domestic workforce and supply chain for offshore wind. Many of the components, subcomponents, and infrastructure for commercial-scale offshore wind projects in the U.S. are currently and will continue to be imported until a domestic supply chain and workforce is developed. Several states and the Biden-Harris administration have already taken steps to build this capacity. For example, North Carolina, Maryland, and Virginia announced a

regional partnership to position themselves as an economic hub for offshore wind supply chain companies, and states such as New Jersey are expanding their port infrastructure to service the industry. The Administration has also called for a \$100 billion investment in workforce development, a portion of which would be used for training programs in clean energy and manufacturing. While Congress should make these transformational investments to increase both capability and capacity, and some investments have been made by the National Offshore Wind Research and Development Consortium, the Administration should leverage and focus applicable existing programs in the Departments of Commerce, Labor, and Education, to help address skills and labor gaps and support development of supply chains. For example, the Economic Development Administration could direct resources from applicable grant programs to support workforce training and the National Institute for Standards and Technology's (NIST) through the Hollings Manufacturing Extension Partnership (MEP) Centers could help to build a skilled workforce for manufacturing. The Department of Labor can support workforce development and potentially create specialized certification for specific types of offshore wind jobs.

Offshore wind must be a significant part of our energy mix if the United States is going to meet our carbon reduction goals. The legislative and executive actions recommended in this document provide a pathway to rapidly scale offshore wind in the United States while protecting the environment and creating American jobs.

ENDNOTES

1. Maggie Thomas, then political director of Evergreen Action, was co-author on the original August 2020 version of this memo. This update was completed in May 2021 with the assistance of Urban Ocean Lab's Project Manager, Michele Zemplenyi, and Research Fellow Daniela Schulman.
2. State jurisdiction over the seabed is defined by the Bureau of Ocean Energy Management as follows: "Texas and the Gulf coast of Florida are extended three marine leagues (nine nautical miles) seaward from the baseline from which the breadth of the territorial sea is measured. Louisiana is extended three U.S. nautical miles (U.S. nautical mile = 6080.2 feet) seaward of the baseline from which the breadth of the territorial sea is measured. All other States' seaward limits are extended three International Nautical Miles (International Nautical Miles = 6076.10333 feet) seaward of the baseline from which the breadth of the territorial sea is measured." Beyond that is considered federal waters, the exclusive economic zone.
3. These numbers were confirmed as up-to-date as of May 2021 via internal communications with the Department of the Interior.



Observations
| Opinion

To Save the Climate, Look to the Oceans

They can be a source of clean, renewable energy, sustainable food, and more

By Ayana Elizabeth Johnson on June 8, 2020



Learning to swim, in a pool in the Florida Keys, was pure joy. I was five and reveled in blowing bubbles and doing cannonballs. A few years later, when I learned to swim in the ocean, the vibe was different, not purely playful. The mantra was: never turn your back on the ocean. Because, I was warned, you need to keep an eye on the waves, to avoid getting pummeled, or worse. I was taught to navigate undertows and rip currents, to respect the power of the sea.

As an adult, I re-learned this lesson of the ocean's dangerous power watching climate change-fueled hurricanes smash into coastlines, and reading the science of sea level rise. But while we might respect the sea's capacity to upend and rend lives and communities, what we have turned our backs on is its power to *heal*. This too we neglect at our peril. I don't mean the ocean's ability to heal us emotionally, although we should probably make better use of that in these wild times. The healing power we most need to harness is the ocean as a source of climate *solutions*.

This is a much needed flip of the script. We often focus on the ways in which the ocean puts up with endless waves of abuse — pollution from oil spills, agriculture, factories, plastics; seawater heating up and acidifying due to greenhouse gases, driving fish toward the poles and disintegrating coral reefs; coastal ecosystems being bulldozed to build resorts and shrimp farms; the plunder of overfishing causing fish populations to plummet; the deep sea on the brink of being mined, torn up (perhaps needlessly) for minerals.

That was perhaps as overwhelming for you to read as it was for me to write. For sure, we must keep our eyes on all that, and work to halt it. The ocean is in dire straits (and it's so hard to write about it without inadvertent puns). *But*, know that it also offers us a way

forward. It offers major opportunities to abandon fossil fuels, sequester tons of carbon, and create a sustainable food system. I'm talking about renewable offshore energy and algae biofuel, about coastal ecosystems and regenerative ocean farming. We are overdue for a reframe, from seeing the ocean as victim or threat, to appreciating it as hero.

Offshore Renewable Energy

Around 40 percent of Americans live in coastal counties. Imagine if the homes and business along our coasts were powered by offshore wind and waves. This doesn't have to remain a dream. Offshore, the wind blows more strongly and consistently than it does over land, so floating turbines could mean more energy, generated more reliably—and produced near population centers. However, while there are quite a few in development, Block Island Wind Farm, a few miles off of Rhode Island, is currently the solitary offshore commercial wind farm operating in the U.S. Between protracted permitting processes, the need for data on environmental impacts and the fact that wealthy coastal property owners are fighting proposals near their homes, we are way behind the UK, Germany and other European countries at making use of this free, gusty resource.

Offshore wind can and should leap from providing essentially zero percent of our national energy to over 10 percent by 2050 if we are to achieve the needed rapid decarbonization of our electricity grid. And then there's the burgeoning technology for harnessing the energy of waves and currents, and even spreading solar panels across the sea surface. While we must take care with ocean ecosystems and species' migratory routes when we choose installation locations, we also need to move quickly.

Marine Ecosystems

Not only can the ocean be a source of carbon-free energy, it can also sequester tons of carbon: so far, it has absorbed around 30 percent of the carbon dioxide we have emitted by burning fossil fuels. Lately, there has been a lot of discussion of planting trees, billions of them, with no mention of the fact that about half of global photosynthesis happens in the ocean. That land-centric myopia misses the carbon drawdown potential of wetlands and seagrasses, coral reefs and oyster reefs, kelp forests and mangrove forests.

In fact, wetlands can hold five times more carbon in their soils than a temperate or tropical forest! And even though New York and New Jersey have already lost 85 percent of coastal wetlands, what little remains reduced damages during Superstorm Sandy by \$625 million. Coastal ecosystems can often provide cheaper and more effective shoreline protection than sea walls, and “blue carbon” should not be overlooked. Protecting and restoring coastal ecosystems is a good investment.

Algae Biofuel



Biofuels produced on land—mostly ethanol from crops like corn and sugar—often rely on large amounts of water, fertilizers, and pesticides, and require so much fossil fuel to produce that they can barely be considered green. Not so with algae grown along our coasts, although much research and infrastructure development is needed in order to produce algae biofuel at scale. The federal Advanced Research Projects Agency—Energy (ARPA-E) Mariner program, which funds R&D, estimates that the U.S. could grow 500 million dry metric tons of macroalgae annually, which equates to about 10 percent of national transportation demand. Plus, seaweeds absorb tons of carbon dioxide as they grow—kelp can grow up to two feet in a single day, and turn sunlight into chemical energy more efficiently than land plants. Even though I know the science, to me, photosynthesis still seems like magic.

Regenerative Ocean Farming

We also can, and arguably should, use algae to power our bodies and feed our livestock, not just provide energy for our machines. With over 90 percent of global fish stocks maximally exploited or overfished, we certainly can't rely on wild fish to feed the world as our population approaches eight billion. At the same time, industrial aquaculture has been largely unsustainable, often focused on carnivorous fish that require a lot of feed and infrastructure. However, there is huge potential for a regenerative renaissance in ocean farming, focused on seaweeds and filter-feeding shellfish (oysters, mussels, clams,

scallops), which live simply off sunlight and nutrients already in seawater.

This type of ocean farming can reduce local ocean acidification (photosynthesis!) and improve local water quality. Plus, seaweeds absorb excess nitrogen and phosphorus that runs off land from overuse of fertilizers for industrial agriculture, and can cause ocean dead zones. Bonus: These “sea vegetables” have high nutritional value, and when fed to cows can reduce their methane emissions by up to 67 percent.

As our economy struggles to recover from the coronavirus-triggered recession, it is also important to note that implementing these ocean-climate solutions can create many jobs. In the U.S., the “blue economy” supports around three million jobs and contributes \$285 billion annually to GDP, from tourism, shipping, fishing and construction. And that can continue to grow. In the next decade, installing offshore wind from Maryland to Maine could support over 36,000 full time jobs. As part of a green stimulus package, a Climate Conservation Corps could put people to work re-planting coastal ecosystems. Scaling regenerative ocean farming could create millions of direct and indirect jobs.

This is why we need a Blue New Deal in addition to a Green one. The Green New Deal resolution merely mentions the ocean once in passing. The ocean must go from afterthought to centerpiece if we are to address the climate crisis at the order of magnitude required.

So when you think of climate solutions, don't just think of rooftop solar panels and electric cars. Don't turn your back on the ocean. It positively brims with climate solutions.

The views expressed are those of the author(s) and are not necessarily those of Scientific American.

What I Know About the Ocean: We Need Ocean Justice—Sierra Magazine, 2020

THE MAGAZINE OF THE SIERRA CLUB



Marine biologist Ayana Elizabeth Johnson swimming in Jamaica's seagrass. | Photo courtesy of Jeremy McKane

What I Know About the Ocean We Need Ocean Justice

By [Ayana Elizabeth Johnson](https://sierra.org/authors/ayana-elizabeth-johnson) / sierra.org/authors/ayana-elizabeth-johnson | Dec 12 2020

Here is what I know. The ocean is not separate from us or our daily concerns. It is our nourishment, protection, livelihood, and the air we breathe. It is culture, joy, and freedom. All this is at risk, and we need ocean justice.

Ocean conservation is about people—more specifically, it's about marginalized people. Sometimes it seems we've been duped into thinking ocean conservation is just about fish, dolphins, whales, corals, and remote tropical islands. The well-being of communities of color and of poor and working-class folks is deeply affected as the ocean's health degrades. No different than on land, we are either excluded from accessing ocean resources or relegated to the most denuded and polluted places. Although we bear the greatest brunt of the impacts, we often had the least hand in causing them.

A healthy ocean is critical to food security, economies, cultures, and our own health. Right now, overfishing, pollution, coastal development, and climate change are jeopardizing all of that. In addressing these threats to ocean health, we must consider who benefits from ocean exploitation and from conservation, and who does not.

We need ocean justice. While the concept of environmental justice—defined by the US Environmental Protection Agency as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies”—may have finally permeated the zeitgeist, the concept seems to end at the shore.

Communities of color and poor communities remain most disastrously affected by pollution, overfishing, human rights abuses, loss of coastal ecosystems, storms strengthened by climate change, and sea-level rise. Tackling these challenges will require working at all levels, from micro-local to global, and building political power. We cannot afford to wait for governments and international bodies to lead. We—coastal communities who have the most at stake—must chart a path out of this mess mostly not our making.

There are not, in fact, many fish in the sea. Nearly 94 percent of fish populations are over (<http://www.fao.org/documents/card/en/c/ca9229en>)fished or fished to their maximum capacity (<http://www.fao.org/documents/card/en/c/ca9229en>). Biggie rapped about “remember when we had to eat sardines for dinner” as a sign of poverty. But that's actually what we should be eating: small, fecund fish rich in omega-3s, not top predators like tuna, whose numbers have plummeted by more than 50 percent (<https://www.pnas.org/content/108/51/20650>) (bluefin by 97 percent (<https://www.wcpfc.int/node/31024>)) since we got a taste for them. Technologies developed for war—radar, sonar, helicopters, spotter planes—are used to seek and destroy the remaining fish. While some places are fished sustainably (<https://www.fisheries.noaa.gov/national/2017-report-congress-status-us-fisheries>), wild fish simply can't make babies fast enough to keep up with our plunder. Yet, around 3 billion people rely on seafood as a significant source of protein (<http://www.fao.org/documents/card/en/c/ca9229en>). The adage about teaching a man to fish doesn't work if there are no fish to catch.

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BLACK
FUTURES

We must kill fewer fish. We must go from the 2 percent of the ocean that is currently protected to the 30 to 50 percent that scientists recommend (<https://meaties.org/>). Closing the high seas to fishing—the poorly managed two-thirds of the ocean that no one “owns,” and where fishing is often profitable only with massive subsidies (<https://advances.sciencemag.org/content/4/6/eaat2504.full>)—is a key step.

Unsustainable, unregulated fishing is a human rights disaster. Working conditions for fish workers are often perilous, and labor law violations and wage theft abound. In Africa and Asia, fish scarcity has spurred women traders to barter sex (https://pubs.iclarm.net/resource_centre/WF_973.pdf) to get priority to purchase fish—not sex for fish, but sex to get to the front of the line to buy fish. This has contributed to the spread of HIV. Meanwhile, large seafood companies are enslaving fishermen on Pacific tuna vessels, and if your shrimp was imported, it may have been peeled by slaves in Thailand (<https://www.theguardian.com/global-development/2015/dec/14/shrimp-sold-by-global-supermarkets-is-peeled-by-slave-labourers-in-thailand>).

Then there are the pirates. Overfishing by Asian corporations in the Gulf of Aden caused some Somali fishers to turn to piracy (<https://www.theguardian.com/world/2011/may/24/s-pioneer-of-somali-piracy>) since they could no longer make a living fishing, which (<https://www.theguardian.com/global-development/2012/sep/25/somalia-fishermen-struggle-pirate-infested-seas>) in turn makes it dangerous for the remaining fishermen to go out and fish (<https://www.theguardian.com/global-development/2012/sep/25/somalia-fishermen-struggle-pirate-infested-seas>). We must think beyond the science of sustainability and economics of the supply chain and consider the people upon whose work this industry is built.

Emptied and polluted oceans hollow out cultures. Overfishing happens in shallow areas first, and governments often sell off fishing rights to the highest, often foreign, bidder. This means coastal communities that have relied on seafood for centuries can no longer put fish on the table. Artisanal fishermen can't afford the gas and the bigger boats required to go farther from shore and don't have access to capital to join this race for fish. Degraded coastal ecosystems destroy not just economies but cultures. Water too dirty to swim in. Sand riddled with plastic. No teaching kids and grandkids to fish. No fish fry on the beach. No jambalaya, no crawfish boils.

We must acknowledge that some traditions don't scale, that some of the old ways can't be sustained with this many people and with such depleted ecosystems. We must also find ways to preserve invaluable cultural connections to the sea.

We need to farm the ocean. No, not industrial salmon farms that pollute the water and require tons of feed. For our food security and for sustainability, the future must include seaweed and shellfish farms dotting our coastlines. With “regenerative ocean farming,” (<https://www.greenwave.org/>) mussels grow on hanging ropes while oysters and clams grow in cages on the seafloor, and kelp grows on lines between it all. No fertilizer, freshwater, or feed required. Through photosynthesis and the formation of shells, ocean farms absorb tons of carbon, so can be a significant climate solution while also creating a habitat for a cornucopia of wild marine life (<https://www.yesmagazine.org/environment/2016/04/04/the-seas-will-save-us-how-an-army-of-ocean-farmers-is-starting-an-economic-revolution/>). A single acre of ocean can produce 25 tons of seaweed and 250,000 shellfish in five months. We must farm the ocean to health, not hunt it to death.

The ocean stabilizes the climate, but that's ruining the ocean. The ocean has absorbed 90 percent of the excess heat created by burning fossil fuels (<https://pubs.usgs.gov/of/2016/04/04/the-seas-will-save-us-how-an-army-of-ocean-farmers-is-starting-an-economic-revolution/>). This comes at a cost. Warmer seawater evaporates more easily, leading to more devastatingly torrential rains with hurricanes. Fish and other species are making a one-way migration (<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0196127>) toward the poles to stay cool. Corals can't move, so they are frying in place.

The ocean has also absorbed around 30 percent of the excess carbon from the atmosphere (<https://research-information.bris.ac.uk/en/publications/carbon-and-other-biogeochemical-cycles>). This has changed the very chemistry of seawater, a phenomenon called ocean acidification. Humans have changed the pH of the entire ocean. It boggles the mind. This makes it harder for corals to form their skeletons and harder for shellfish to make shells. Lost with coral reefs will be food and income for around 500 million people (<https://portals.iucn.org/library/node/9361>), many in the Caribbean and Africa. We must break our addiction to fossil fuels, turning instead to offshore wind farms and harnessing wave energy.

The sea level is rising and will continue to rise. As the ice melts, the ocean swells. As the seawater warms, it expands. Global mean sea level has already risen about 20 centimeters (<https://www.noaa.gov/news/sea-level-rise-report>) and could rise another meter by the end of the century (<https://www.nature.com/articles/nature17457>). This will force mass exodus from the Marshall Islands (<https://www.sierraclub.org/sierra/2019-1-january-february/feature/abils-arkansas-marshall-islands-marshallise>), the Maldives (<https://www.theguardian.com/environment/damian-carrington-blog/2013/sep/26/maldives-test-case-climate-change-action>), Kiribati, and other low-lying countries, creating many millions of “climate refugees.” Bangladesh produces only 0.3 percent of global carbon emissions, yet 18 million residents are expected to lose their homes by 2050 (<https://www.nytimes.com/2014/03/29/world/asia/facing-rising-seas-bangladesh-confronts-the-consequences-of-climate-change.html>).

New York's Rikers Island prison, already prone to flooding, has no evacuation plan, putting those incarcerated at great risk (<https://grist.org/justice/sinking-jail-the-environmental-disaster-that-is-rikers-island/>). Entire communities in coastal Louisiana and Staten Island, New York, have already had to relocate (<https://www.nytimes.com/2016/05/03/us/resetting-the-first-american-climate-refugees.html>). Likely next are Native Alaskan villages (https://www.huffpost.com/entry/shishmaref-alaska-climate-change-relocation_n_6296516), Miami (<https://www.nytimes.com/2016/11/24/science/global-warming-coastal-real-estate.html>), and the Carolinas (including Princeville, the first town chartered by African Americans (<https://www.nytimes.com/2016/12/09/us/princeville-north-carolina-hurricane-matthew-floods-black-history.html>)).

Conservatively, 190 million people globally live in places below the projected high tide line for 2100, and 630 million live in places that will soon flood annually (<https://sealevel.climatecentral.org/research/papers/new-elevation-data-triple-estimates-of-global-vulnerability-to-sea-level-rise/>). We must find just ways to move communities out of harm's way, ways to say goodbye to some of the coastal places we treasure, ways to mourn that loss, ways to adapt. It is pure hubris to think we can hold back the ocean.

Coastal ecosystems protect us. Literally. There are deadly repercussions of destroying coastal ecosystems for development. In Southeast Asia, extensive swaths of coastal mangroves have been bulldozed for shrimp aquaculture. Then, in the 2004 tsunami, locations without mangroves were the most severely impacted (https://efoundation.org/resources/downloads/tsunami_report.pdf <https://www.nytimes.com/2004/12/27/world/asia/27tsunami.html>).

because residents were left without natural protection from the deadly waves. Likewise in the Mississippi Delta. By the time Hurricane Katrina hit in 2005, southern Louisiana had already lost more than 4,900 square kilometers of wetlands, so there wasn't enough left to buffer the power of the storm (<https://ehp.niehs.nih.gov/doi/full/10.1289/ehp.114-a40>). Likewise, the archipelagic New York City, once surrounded by more than 40 square kilometers of wetlands and by oysters so abundant they were a navigational hazard, is now unprotected (<https://www.sciencedirect.com/science/article/abs/pii/S2352485516301000>). Poor and working-class folks are still reeling from Hurricane Sandy, seven years later, which wasn't even hurricane-strength when it smashed into my hometown.

This story plays out again and again. These massive storms are becoming regular occurrences, becoming stronger and wetter, fueled by warmer waters, fueled by global warming. They are devastating Black, brown, poor, and working-class communities. Storms are also a chance to consider how we rebuild. The answer is not simply to construct walls to try to keep the ocean out—our barriers will never be as effective as nature. We must restore and replant.

We have polluted the entire ocean. Drilling for oil exacerbates the climate crisis, plus inevitably and incessantly leads to spills. Across the Mississippi River Delta, pollution from industrial plants triggers high rates of cancers (<https://publitzcenter.org/reporting/cancer-alley-big-industry-big-problems>) in nearby communities of color. Chemicals from this "Cancer Alley" end up in the ocean. Rivers run to the sea. Those rivers take pesticides, antibiotics, synthetic fertilizer, and other toxins with them, harming wildlife, making seafood unsafe to eat, disrupting the balance of nutrients, and causing dead zones and blooms of toxic algae (https://www.huffpost.com/entry/opinion-algal-blooms-health_n_5b802b9e4e40cd37dfc5b9b). Our poisonous, chemical-based industrial agriculture is ruining our health and the ocean. Hurricane Florence caused massive lagoons of excrement from factory-farmed pigs to overflow (<https://www.newyorker.com/news/dispatch/after-florence-manure-lagoons-breach-and-residents-brace-for-the-rising-fifth>), with the putrid waste hitting poor and brown communities particularly hard before it wound its way to the sea. There are pesticides even in seawater and krill in Antarctica (<https://www.sciencedirect.com/science/article/abs/pii/S0967064595000860>). We must transition to regenerative agriculture (<https://www.drawdown.org/solutions/regenerative-annual-cropping>), which goes beyond organic and actually restores soil by planting cover crops and perennials, and by eliminating monocultures, tilling, and pesticides.

Every year around 8 million metric tons of plastic enter the ocean (<https://science.sciencemag.org/content/347/6223/768.full>). That's the equivalent of a garbage truck full of plastic being dumped into the ocean every single minute, every day of the year (<https://www.weforum.org/agenda/2016/10/every-minute-one-garbage-truck-of-plastic-is-dumped-into-our-oceans/>). There are 500 times more pieces of plastic in the ocean than there are stars in our galaxy (<https://news.un.org/en/story/2017/02/552052-turn-tide-plastic-urges-un-microplastics-seas-now-outnumber-stars-our-galaxy>). Once plastic is in the ocean, it is broken down into smaller pieces by the sun and salt. It becomes microplastic and gets incorporated into the food chain. There is plastic in the seafood we eat (<https://www.sciencedirect.com/science/article/abs/pii/S026974914002425>), the sea salt on our tables (<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0194970>), our drinking water, and even beer. Even animals in the Mariana Trench, the deepest place in the ocean, have plastic in their guts (<https://royalsocietypublishing.org/doi/10.1098/rsos.180667>). By 2050, there may be more plastic in the ocean than fish (<https://www.weforum.org/agenda/2016/10/every-minute-one-garbage-truck-of-plastic-is-dumped-into-our-oceans/>).

We created a material that lasts forever, and then we throw it away, all day, every day. That doesn't make any sense. And of course, there is no "away." Almost all the plastic that has ever been created is still with us (<https://blogs.scientificamerican.com/observations/we-need-to-kick-our-addiction-to-plastic/>). We must break our addiction to plastic, to a culture built around disposability. We must sit down and break bread together, look each other in the eye—and then wash the dishes.

The ocean produces over half of the oxygen we breathe. Perhaps you somehow find none of the above compelling. You hate seafood, and care neither for your fellow humans nor for nature's splendor. Perhaps, however, you would like to keep breathing. Phytoplankton, the base of the marine food web, produces over half the oxygen in the air (<https://science.sciencemag.org/content/281/5374/237.full>). Prochlorococcus is both the smallest and most abundant photosynthetic organism on Earth (<https://mmbr.asm.org/content/63/1/106>). Humans have managed to even mess with this—phytoplankton is declining by about 1 percent a year (<https://journalstaresource.org/studies/environment/ecology/global-phytoplankton-decline-over-the-past-century/>) due to warming waters with fewer nutrients. To continue respiring, we must address the climate crisis and protect the ocean.

We need a healthy ocean for our own health. And it's ocean, singular. It's all one thing, this 71 percent of the planet connected by currents and migrating animals. While people often discuss ocean health as all or nothing, as a dead ocean or a healthy one, there is a whole spectrum in between, from zero to one hundred. We must be honest with ourselves that with almost 8 billion people on the planet, one hundred is now out of our reach. But whether we land at 20 or at eight is within our control. So many lives, livelihoods, and cultures hang in that balance. So many Black lives, livelihoods, and cultures hang in that balance. Plus, the ocean is valuable for our mental health—being near it can literally keep us sane (<https://academic.oup.com/heapro/article/35/1/50/5252008>). The ocean will be fine without us; in fact, it would be much better off. However, the opposite is unequivocally untrue. We need the ocean.

It's time to radically re-envision our relationship with the ocean. The way forward will be imagined and created as we build community around solutions. We must shift public opinion, corporate practices, and political will toward sustainability. Our future could be less plastic, with less toxic pollution coming from land, and less extractive. Our future could be more oysters on the half shell, more seaweed salads, more mangrove forests, more wind turbines, more vibrant coastal cultures, more joy, more justice. That's what we should all be fighting for.

Now you know what I know. Perhaps now you will see this is your fight too.

The essay "What I Know About the Ocean" by Ayana Elizabeth Johnson appears in the book Black Futures, edited by Kimberly Drew + Jenna Wortham. Copyright © 2020 by Kimberly Drew and Jenna Wortham. Reprinted by permission of One World, an imprint of Random House, a division of Penguin Random House LLC.

The Concrete Jungle Has 578 Miles of Coastline at Risk—The New York Times, 2019

The New York Times | <https://www.nytimes.com/2019/05/27/opinion/ocean-climate-new-york.html>

The Concrete Jungle Has 578 Miles of Shoreline at Risk

New York City's safety and economy depend on the surrounding sea.

May 27, 2019

By Ayana Elizabeth Johnson
Dr. Johnson, a Brooklyn native, is a marine biologist.

In New York City, it's often easy to think that ocean conservation is an issue for someplace else — tropical islands, coral reefs, the Gulf of Mexico, the Arctic.

But New York City is an archipelago, a reality that can be obscured by the concrete jungle. The five boroughs — four of them on islands — have 578 miles of shoreline. The Hudson River can get salty up to Poughkeepsie. And the East River is not really a river; it's a tidal strait that links New York Bay and the Long Island Sound and makes Long Island an island. So the city has much to gain from a better approach to managing the ocean, including storm protection, access to healthy seafood, coastal recreation and a thriving “blue economy” based on the sustainable use of the ocean's resources.

The point is, ocean conservation is an urban issue, and fortunately, there has been a growing movement in the city to protect its waters.

The Billion Oyster Project, for which I am a board member, is working to restore a billion oysters in New York Harbor by 2035 through reef construction to create habitat and improve water quality. The groups Riverkeeper and Surfrider Foundation NYC monitor the health of local waters and work for their protection. The Science and Resilience Institute at Jamaica Bay provides scientific advice to the city on wetland restoration and making neighborhoods resilient to floods and storms. The state has been installing “living breakwaters” conceived by Scape Landscape Architecture as part of a design competition to protect the shoreline from storm surges and create habitat for marine life. The group Gotham Whale conducts scientific monitoring and offers whale-watching tours. The Wildlife Conservation Society (a former consulting client of mine) is working through its Seascape program to restore populations of threatened aquatic species and protect near-shore and offshore habitats. And Mayor Bill de Blasio's Office of Resiliency and the One NYC initiative are working to prepare the city for the changing climate.

These efforts and others are inspiring, but they are not nearly enough given the magnitude of threats from climate change, pollution and habitat loss.

Many coastal cities simply are unprepared for rising seas. For New York City, which has already seen sea levels rise 18 inches since 1850, as measured by a tide gauge at the Battery, upper-end forecasts suggest the ocean could rise another six to nine feet by 2100. While Mr. de Blasio has recently proposed a plan to fortify Lower Manhattan, we must confront the fact that because of climate change, increasingly, homes and businesses in the city will need to be relocated out of harm's way. We need a policy for this kind of managed retreat.

Hurricane Sandy made it clear that it's foolish not to spend money now to ensure that the city's infrastructure and neighborhoods are resilient to storms and flooding that undoubtedly will occur again as climate change intensifies. As with so many other environmental issues, poor communities and communities of color will likely bear the brunt of these impacts unless we guard against them.

One way to do that is to turn to nature. The replanting, restoration and conservation of disappearing coastal wetlands, sand dunes and oyster reefs is crucial. Eighty-five percent of the coastal wetlands have been lost to development in the New York-New Jersey harbor estuary, and sand dunes on Long Island's South Shore are eroding at one to two feet a year. The oyster reefs — historically an important barrier to storm surges — were wiped out a century ago from overharvesting.

Intact coastal ecosystems can provide better and less expensive flood and storm protection than sea walls; what little wetlands remain in New York and New Jersey prevented \$625 million in damages during Hurricane Sandy, according to one study. That's why the United States Army Corps of Engineers should prioritize ecosystem restoration over building more sea walls. And Congress should fully fund the National Oceanic and Atmospheric Administration's Coastal and Estuarine Land Conservation Program, which provides matching funds to state and local governments to purchase threatened coastal lands or conservation easements. These would have climate benefits, too, because the soil of wetlands holds about five times as much carbon per acre as the soil of rain forests.

Coastal cities need support from the state and federal governments. For example, preventing raw sewage from entering New York City's waterways when it rains would require a multibillion-dollar investment in the wastewater and sewage treatment system. Also, the city is relying on the Federal Emergency Management Agency to update flood risk maps, and on Congress to overhaul the National Flood Insurance Program to better manage risk and discourage building and rebuilding along coastlines. And with 40 percent of the United States population living in coastal counties, the ocean should not be forgotten in the Green New Deal.

New York City arose and prospered around a remarkable natural harbor, a reason the state ranks third among coastal states in employment in the blue economy, supporting nearly 350,000 jobs in shipping, fishing and tourism, and fourth in its contribution to state gross domestic product, worth about \$26 billion annually.

The vast majority of these jobs and dollars are from tourism and recreation, which rely on healthy ecosystems and clean water. So do the seven species of whales that visit New York Harbor and all 338 marine species that live in the city's seascape, including sharks, sea turtles, seals and sea horses. The surfing culture that is thriving in the Rockaways and other recreational opportunities city residents pursue — swimming, kayaking, boating and fishing — depend on healthy, living ecosystems. And even more than affording us these key jobs and treasured leisure activities, being near the ocean helps to keep us sane.

Ocean conservation is critical to the future of New York City. Coastal cities can and should be leaders in climate and ocean policy. As we enter the summer season and ocean waters beckon, all New Yorkers would do well to remember that — as we make sure the lawmakers who represent us don't forget it either.

Ayana Elizabeth Johnson (@ayanaeliza) is a marine biologist, founder and chief executive of the consulting firm Ocean Collective and founder of the Urban Ocean Lab.

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Mr. HUFFMAN. Thank you very much, Dr. Johnson.
The Chair now recognizes Ms. Marce Gutiérrez-Graudipš for 5 minutes.

**STATEMENT OF MARCE GUTIÉRREZ-GRAUDINŠ, FOUNDER
AND EXECUTIVE DIRECTOR, AZUL, SAN FRANCISCO,
CALIFORNIA**

Ms. GUTIÉRREZ-GRAUDINŠ. Good afternoon. Thank you, Chairman Grijalva, Ranking Member Westerman, members of the House Committee of Natural Resources, and Committee staff for the opportunity to testify on the Ocean-Based Climate Solutions Act of 2021. My name is Marce Gutiérrez-Graudinš. I am the founder and Executive Director of Azul which was started in 2011 to work with Latinx communities to protect coasts and oceans.

As someone who started their career in commercial fishing, I understand firsthand the importance of a thriving ocean for communities across the country. Now more than ever, climate change requires policy makers to take bold leadership in preserving marine resources while centering equity at the heart of these solutions.

Climate change not only threatens marine resources, it disproportionately impacts communities of color. For example, these communities overwhelmingly live in areas prone to flooding and extreme weather. Environmental justice has never been prioritized like it has been by the Biden administration and its proposal to address the climate crisis.

Chairman Grijalva, Congressman McEachin, and others are leading the way on environmental justice in Congress with the introduction of the Environmental Justice For All Act and now the Ocean-Based Climate Solutions Act.

Azul is pleased to highlight provisions of the bill that address inequality, reducing greenhouse emissions, supporting the Biden administration's goal of equitably conserving 30 percent of land and ocean by 2030, assessing barriers faced by communities of color when accessing nature, and enhancing the ocean's natural ability to store carbon and protect coastal communities and increasing their resilience of oceans through coastal ecosystems.

The most important thing we can do for the ocean is to reduce greenhouse gas emissions. This bill would advance the goal in several ways. First, by prohibiting the expansion of offshore oil exploration and drilling in most areas of the Outer Continental Shelf except the western and central Gulf of Mexico.

While we applaud the Committee's efforts to prohibit exploration and drilling in certain areas, Azul strongly advocates for complete prohibition of oil and gas exploration in the Outer Continental Shelf. Communities of color living along the coast have been disproportionately devastated by accidents involving offshore oil and gas. To continue emission reductions, the bill encourages the transition to renewable energy sources, including well planned and sited offshore renewables like wind and tidal energy as well as decreases in shipping emissions.

Azul is strongly supportive of these provisions, especially the bill's \$0.05 excise tax on single use plastic products. We appreciate the provisions in the bill that support the Biden administration's goal to protect 30 percent of the ocean by 2030, including the authorization of a marine protected areas inventory and a marine biodiversity census and gap analysis that will help ensure accountability in the progress toward achieving 30 by 30.

Over the last year, Americans from across the country turned to neighborhood parks, trails, and beaches for relief in healing more than ever before. The COVID-19 pandemic proved that access to nature is not a privilege. It is a necessity for our health and well-being.

Azul is supportive of the bill's provisions enabling more equitable access to nature like authorizing a state-by-state analysis of public access to the Nation's coasts and great lakes, including opportunities and barriers to access for low income communities and communities of color and strategies to prevent the loss of public access as well as studying the impacts of sea level rise in extreme weather.

The bill includes provisions to restore and protect coastal blue carbon ecosystems, including mangroves and salt marshes. Not only do these areas absorb and store carbon dioxide at a rate of four times that of forests on land, they provide habitat for marine wildlife, limit the impacts of ocean storms, while also creating enhanced land protection for coastal communities. We strongly support these provisions.

Azul also thanks Congressman Huffman for his Blue Carbon Protection Act which establishes a blue carbon program to conserve and restore marine and coastal blue carbon ecosystems.

Climate change can greatly impact commercial fisheries and the communities that depend on them. I believe maintaining and strengthening the fisheries management systems to support rebuilding and ensuring the sustainable supply of wild caught fish achieves the goal of supporting healthy fisheries in the ocean. We support the provisions of the bill directed to this goal.

The Ocean-Based Climate Solutions Act of 2021 would capitalize on the opportunities the ocean offers to combat climate change. And this bill is the kind of leadership from Congress we need to confront environmental justice that Azul and others have been working toward for many years.

Thank you, Mr. Chairman, for your leadership on this bill and to Congressman McEachin for your efforts to advance environmental justice so broadly.

We look forward to working you to advance these important proposals.

Thank you.

[The prepared statement of Ms. Gutiérrez-Graudiņš follows:]

PREPARED STATEMENT OF MARCE GUTIÉRREZ-GRAUDIŅŠ, FOUNDER & EXECUTIVE
DIRECTOR, AZUL

Thank you to Chairman Grijalva, Ranking Member Westerman, members of the House Committee on Natural Resources, and Committee staff for the opportunity to testify on the Ocean-Based Climate Solutions Act of 2021. My name is Marce Gutiérrez-Graudiņš, and I am the Founder and Executive Director of Azul, an initiative legally organized under Multiplier founded in 2011 that works with the Latinx community to bring its voice to conversations about marine resources. As someone who began their career in the commercial fishing and aquaculture industries, I understand first-hand the importance of a thriving ocean for communities across the country. Now more than ever, the existential threat of climate change requires policymakers to take innovative, bold leadership in conserving marine resources while centering equity at the heart of these solutions.

Since 2011, Azul's work has centered around celebrating Latinx's rich conservation traditions and connecting them to current solutions. The ocean is important to Latinx communities both culturally and as a means of economic sustainability.

Unfortunately—climate change not only threatens marine resources—it disproportionately impacts communities of color. As climate change accelerates, environmental injustice will continue to worsen unless action is taken. Communities of color are especially vulnerable because they live in places that will confront severe repercussions due to climate change: a majority of the Latinx community in the United States live in California, Texas, Florida, and New York, all states considered to be most at risk of excessive flooding, air pollution, and heat waves.¹ Despite 40 percent of the U.S. population living in densely populated coastal areas, Latinxs living in coastal communities will bear the brunt of these impacts because, in many places, they overwhelmingly reside in flood-prone neighborhoods.² This example of environmental injustice must be addressed.

Starting today, members of the Committee and the House can take action: the Ocean-Based Climate Solutions Act of 2021 proposes to advance ocean climate action while centering equity and justice each step of the way. To this day, environmental justice has never been prioritized by an administration like it has by the Biden Administration in its proposals to address the climate crisis. Chairman Grijalva, Congressman McEachin, and others are leading the way on environmental justice in Congress, Mr. Chairman, with the introduction of H.R. 2021, the Environmental Justice for All Act and now the Ocean-Based Climate Solutions Act. Azul is pleased to highlight elements of the Ocean-Based Climate Solutions Act that address inequality at its core. Provisions of the bill that address inequality include (1) reducing greenhouse gas emissions; (2) supporting the Biden Administration's goal of equitably conserving 30 percent each of land and water by 2030 (30x30); (3) assessing barriers faced by communities of color when accessing nature; (4) enhancing the ocean's natural ability to store carbon and protect coastal communities; and (5) increasing the resilience of ocean and coastal ecosystems.

Reducing GHG Emissions

In order to keep global temperatures from increasing past the 1.5C target of the Paris Agreement, the most important thing we can all do for the ocean is to reduce greenhouse gas emissions. This bill would advance that goal in several ways. First, by prohibiting the expansion of offshore oil exploration and drilling in most areas of the Outer Continental Shelf except the Western and Central Gulf of Mexico. While we applaud the Committee's efforts to prohibit exploration and drilling in certain areas, Azul strongly advocates for a complete prohibition of oil and gas exploration on the Outer Continental Shelf. Communities of color living along the coast are devastated by accidents involving offshore oil and gas. Moreover, expanding offshore oil drilling by any amount will intensify climate change and threaten ocean and coastal habitats that are important to healthy fish, marine wildlife, and coastal economies.

As a first step toward recognizing the negative impact plastic production has on our environment and frontline communities, Azul is also supportive of the bill's goal to fund broader ocean climate action through a 5-cent excise tax on single use plastic production.

We are also supportive of the provisions in the bill to encourage the transition to renewable energy sources, including well-planned and sited offshore renewables like wind and tidal energy, and Azul supports the bill's aim to promote decreases in shipping emissions.

Supporting the Biden Administration's Goal of 30x30

We appreciate the provisions in the bill that support the Biden Administration's goal to protect 30% of the ocean by 2030 including the authorization of a Marine Protected Areas inventory and a marine biodiversity census and gap analysis that will help ensure accountability in the progress toward achieving 30x30.

Assessing Barriers Faced by Communities of Color When Accessing Nature

Azul is especially supportive of a provision authorizing a study by the National Academies to assess public access to the nation's coasts, including the Great Lakes. This study must include a state-by-state analysis of the quality and quantity of existing public access points, opportunities and barriers to access for low-income communities, communities of color, Tribal and Indigenous communities, and rural communities, the impacts of sea-level rise and extreme weather, and strategies to prevent the loss of public access. Over the last year, Americans from across the country turned to neighborhood parks, trails, and beaches for respite and healing

¹ <https://www.nrdc.org/media/2016/161013>.

² <https://oceanservice.noaa.gov/facts/population.html#:~:text=As%20of%202014%2C%20nearly%2040,people%20live%20in%20coastal%20counties;> <https://www.theguardian.com/commentisfree/2020/jul/28/climate-change-environmental-racism-america>.

more than ever before. The COVID-19 pandemic proved access to nature is not a privilege: it's a necessity for our health and wellbeing. Azul is supportive of these provisions enabling more equitable access to nature.

Enhancing the Ocean's Natural Ability to Store Carbon and Protect Coastal Communities

The Ocean-Based Climate Solutions Act includes provisions to restore and protect coastal blue carbon ecosystems, including mangroves, salt marshes, sea grasses, coral reefs, and kelp forests. These coastal ecosystems absorb carbon dioxide out of the atmosphere and safely store it at a rate of up to four times that of forests on land. Additionally, the bill will limit the impacts of coastal erosion, flooding, and storms, while providing habitat for marine wildlife and fisheries by protecting and restoring blue carbon ecosystems. In addition to these natural benefits, coastal communities of color will benefit substantially from enhanced flooding protections. We strongly support these measures in the legislation. Azul would like to also thank Congressman Huffman for his Blue Carbon Protection Act, which establishes a blue carbon program to conserve and restore marine and coastal blue carbon ecosystems.

Increasing the Resilience of Ocean and Coastal Ecosystems

By decreasing the amount of stress placed on the ocean, healthy ocean systems are better able to adapt to the effects of climate change. I believe sustainably managing the ocean must be the standard moving forward if we want to continue enjoying the bounty marine resources provide.

Climate change can greatly impact commercial fisheries and the communities that depend on them.³ This is something I witnessed during my time in the seafood industry: in the winter of 2006, a *Pseudo-nitzschia* bloom resulted in a large mortality event that affected bluefin tuna as a result of domoic acid poisoning, an event explained by ocean warming leading to harmful algal blooms.⁴ A healthy ocean leads to healthy fisheries and maintaining and strengthening fisheries management systems, to support rebuilding and ensuring a sustainable supply of wild caught fish, achieves the goal of supporting healthy fisheries. We support the provisions in the bill directed at this goal.

The time to act on climate change is long overdue; the Ocean-Based Climate Solutions Act of 2021 will capitalize on the opportunities the ocean offers to combat climate change, and this bill is the kind of leadership from Congress we need to confront the environmental injustices that Azul and others have been working to correct for many, many years. Thank you, Mr. Chairman, for your leadership on this bill and to you and Congressman McEachin for your efforts to advance environmental justice more broadly. We look forward to working with you to advance these important proposals and goals.

The following documents were submitted as supplemental materials to Ms. Marce Gutiérrez-Graudiņš' testimony.

Select relevant publications:

- Neglected: Environmental Justice Impacts of Marine Litter and Plastic Pollution. United Nations Environmental Programme. April 2001
- Conservation Policy Must Include More Diverse Voices—CalMatters, 2021
- Proteger el océano es una meta urgente para 2030. América Latina ya está marcando la pauta—Washington Post, 2021

³ <https://www.npr.org/sections/thesalt/2018/12/04/671996313/fishermen-sue-big-oil-for-its-role-in-climate-change>.

⁴¹ https://dornsife.usc.edu/assets/sites/378/docs/Caron_pdfs/2018_Smith_et_al_HA.pdf.

QUESTIONS SUBMITTED FOR THE RECORD TO MARCELA GUTIÉRREZ-GRAUDINŠ,
FOUNDER AND EXECUTIVE DIRECTOR, AZUL

Questions Submitted by Representative Sablan

Question 1. Thank you for your work on the Azul and United Nations Environment Program report titled “Neglected: Environmental Justice Impacts of Marine Litter and Plastic Pollution.” Can you outline some of the environmental justice concerns surrounding single-use plastics?

Answer. Plastic goes beyond impacting the health of our ocean—it impacts the health and rights of vulnerable communities worldwide every day. Azul’s report in collaboration with the United Nations Environment Programme, *Neglected: Environmental Justice Impacts of Marine Litter and Plastic Pollution*, assesses how each stage of the death cycle of plastic impacts vulnerable communities and the natural resources they depend on to live. The report’s main finding relates to how plastics hinder the achievement of all United Nations’ 17 Sustainable Development Goals (SDG).

Vulnerable communities around the world deal with the impacts of single-use plastics but have historically been unable to inform environmental conversations on the matter. Efforts to control and decrease plastic pollution are inadequate to address the specific needs of groups and peoples already in vulnerable situations, who are socially, economically, politically, institutionally, or otherwise marginalized.

Ninety-nine percent of plastics are produced from petrochemicals, which are sourced from fossil fuels.¹ Fossil fuel exploration and contamination has severely impacted indigenous peoples whose well-being is deeply tied to the health of the natural environment.² Plastic production frequently occurs in close proximity to fossil fuel refineries given the volatility of the raw materials—and at the expense of achieving SDG No. 3 ‘Good Health and Well-being’ for fenceline communities, which tend to have less political recognition and less economic means to relocate.^{3,4} Moreover, students in fenceline communities are more susceptible to adverse health impacts, compounding education disparities and challenging SDG No. 4 ‘Quality Education.’ Plastics also challenge the achievement of SDG No. 5 ‘Gender Equality’, as women face especially high toxicity risks to the harmful plastic additives due to their higher exposure to plastics in the household and personal care products, along with differences in biology, social roles, and political power.⁵

Plastics are diverse and persistent. While these qualities make plastics desirable materials, they are also the reason why the majority of single-use plastics cannot be easily recycled by a one-size-fits-all solution.⁶ Instead, after one-time use, single-use plastics are discarded and vulnerable communities disproportionately bear the consequences of the health and environmental degradation that results from the accumulation of plastic toxins and increasingly smaller microplastics.⁷ Common plastic waste management processes, such as incineration, generate toxic air pollutants and significant CO₂ emissions.⁸ Unfortunately, incinerators and landfills are disproportionately built in low-income and heavily minority communities, further challenging SDG No. 10 ‘Reduced Inequalities’ by deepening social disparities with environmental degradation, health costs, and wasted public investments.⁹

Single-use plastics and the associated environmental injustices they aggravate are grave and complicated issues that transcend political and geographic boundaries. For the reasons mentioned above and included in our report, I believe single-use plastics deserve our immediate attention. Although Azul supports the legislation’s

¹ ‘Fossils, Plastics, & Petrochemical Feedstocks’ (CIEL 2017).

² O’Rourke D and Connolly S, ‘Just Oil? The Distribution of Environmental and Social Impacts of Oil Production and Consumption’ (2003) 28 Annual Review of Environment and Resources 587.

³ ‘Plastic & Health: The Hidden Costs of a Plastic Planet’ (CIEL 2019).

⁴ Lerner S, *Sacrifice Zones: The Front Lines of Toxic Chemical Exposure in the United States* (MIT Press 2010).

⁵ Lynn H, Rech S and Samwel-Mantingh M, ‘Plastic, Gender and the Environment. Findings of a Literature Study on the Lifecycle of Plastics and Its Impacts on Women and Men, from Production to Litter.’ <http://rgdoi.net/10.13140/RG.2.2.33644.26242>, accessed 18 November 2020.

⁶ Hopewell J, Dvorak R and Kosior E, ‘Plastics Recycling: Challenges and Opportunities’ (2009) 364 Philosophical Transactions of the Royal Society B: Biological Sciences 2115.

⁷ Choy CA and others, ‘The Vertical Distribution and Biological Transport of Marine Microplastics across the Epipelagic and Mesopelagic Water Column’ (2019) 9 Scientific Reports 7843.

⁸ Geyer R, Jambeck JR and Law KL, ‘Production, Use, and Fate of All Plastics Ever Made’ (2017) 3 Science Advances e1700782.

⁹ 124 Lerner S, *Sacrifice Zones: The Front Lines of Toxic Chemical Exposure in the United States* (MIT Press 2010).

5-cent excise tax on single-use plastic, more aggressive action aimed at reducing single-use plastic production should be considered. Thank you for the opportunity to comment on this topic and for the chance to testify on the Ocean-Based Climate Solutions Act, a bold solution to addressing threats impacting our ocean and quality of life. Azul looks forward to working with your committee again in the future.

Mr. HUFFMAN. Thank you very much.

Our last witness will be Mr. Mauricio Guardado, General Manager of the United Water Conservation. Welcome to the Committee. You are recognized for 5 minutes.

**STATEMENT OF MAURICIO GUARDADO, GENERAL MANAGER,
UNITED WATER CONSERVATION DISTRICT, OXNARD,
CALIFORNIA**

Mr. GUARDADO. Thank you, Chairman Grijalva, Interim Chair Huffman, Ranking Member Westerman, and members of the Committee.

On behalf of the Family Farm Alliance and United Water Conservation District, I thank you for the opportunity to provide my testimony today. I would also like to thank Congresswoman Brownley for her support and leadership with our water sustainability projects.

My name is Mauricio Guardado. I am the General Manager of United Water Conservation District (United), which serves a population of approximately 400,000 and covers some 214,000 acres in Ventura County, California, including U.S. Naval Base Port Hueneme, Oxnard, as well as several disadvantaged communities. Considered among the prime agricultural areas of the world, year-round growing seasons support high value crops such as citrus, avocados, berries, and row crops.

United stores and releases water at its Santa Felicia Dam and utilizes its surface flows of the Santa Clara River which is dry about 9 months of the year to administer a water management program for all ground water basins within its boundaries. Surface water deliveries offset groundwater extractions near the coastline, mitigating sea water intrusion, among other beneficial activities.

I also serve on the Advisory Committee of the Family Farm Alliance, a grassroots organization of family farmers, ranchers, irrigation districts, and allied industries in 16 western states. Its mission of ensuring reliable, affordable, irrigation water and its commitment to preserving and protecting western agriculture's positive impact on the economy, environment, and national security is often overlooked in national policy decisions.

My professional expertise substantiates my expertise in water management and validates the interactions I have had with National Marine Fishery Services, NMFS, a division of National Oceanic and Atmospheric Administration, NOAA.

While the Ocean-Based Climate Solutions Act of 2021 is well intended legislation, my primary concern is the expansion of the authority of NOAA, vaguely referenced as among other purposes.

Several areas of the new legislation have the potential for far-ranging and uncertain impacts to water management and agriculture, impeding the development of critically needed infrastructure, especially in the drought stricken western states.

I have direct experience with the arbitrary and capricious regulatory edicts of NMFS. This agency, at least in southern California, has taken Federal environmental laws intended to protect species and ecosystems, and without any basis in science, historical data, and even best practices, has issued issue requirements that are, quite frankly, senseless.

For example, based on a number of scientific studies, it was determined that steelhead are unlikely to swim upstream in water with sediment levels greater than 2,000 milligrams per liter. However, NMFS' direction to United was to provide passage for steelhead on the Santa Clara River at flows of three times that sediment level. It looks like chocolate milk at that point. Most concerning is that sediment level is lethal to the steelhead that NMFS says it is trying to protect.

NMFS has also asserted that Ventura County's Piru Creek is a possible steelhead resource despite the fact that since the late 1800s, fish and game biologists and regulatory agencies have documented that it is not conducive to steelhead. In fact, steelhead have never been observed in the watershed. Even the Federal Energy Regulatory Commission supports United's position.

NMFS' response to this overwhelming evidence, the West Coast Regional Office of Southern California branch replied, the absence of evidence isn't evidence of absence. That attitude is the foundation upon which NMFS continues to demand expensive, unnecessary fish passage and habitat mitigation regardless of historical data, consistently dry conditions, natural migration barriers, and assessments of the region. NMFS has required continuous water releases from United's infrastructure into lower Piru Creek, deeming it as critical habitat for steelhead, a fish that has never been seen in the watershed. We have to ask, why are we taking water away from farms and communities to accommodate fish that do not exist in the watershed?

The Family Farm Alliance and United are dedicated to finding a balance of environmental protection and sustainable water supply. Following the science, good sound engineering, and historical data will, in fact, yield successful results rather than foster potential conflicts. We appreciate Chairman Grijalva's efforts in making changes reflected in the current bill, but there is still room for additional improvement.

While we support some provisions, other portions would benefit from additional scrutiny. Let's be partners in developing thoughtful climate policies based on sound science. We hope these comments are considered in refining this legislation.

And, again, thank you for the opportunity to present this testimony to you. I am looking forward to questions.

[The prepared statement of Mr. Guardado follows:]

PREPARED STATEMENT OF MAURICIO GUARDADO, GENERAL MANAGER, UNITED WATER CONSERVATION DISTRICT & FAMILY FARM ALLIANCE

Chairman Grijalva, Ranking Member Westerman and Members of the Committee, on behalf of the Family Farm Alliance (Alliance) and the United Water Conservation District (United), I thank you for this opportunity to present this testimony today.

My name is Mauricio Guardado. I serve as general manager of United, which covers approximately 214,000 acres in Ventura County, California, and serves a

population of approximately 400,000 residents including U.S. Naval Base Ventura County, the beach cities of Port Hueneme and Oxnard, and Channel Islands Beach district. Considered one of the prime agricultural areas of the world, the year-round growing seasons support high value crops such as lemons, oranges, avocados, strawberries, berries, row crops and flowers.

United administers a “basin management” program for all of the hydrologically connected groundwater basins within its boundaries utilizing the surface flow of the Santa Clara River, impoundment of water through its tributaries, wholesale water deliveries and other activities in water supply for the beneficial use by various cities, municipalities and agriculture throughout Ventura County.

United is one of California’s few legislatively established Water Conservation Districts. In performing its District-wide watershed management efforts, United not only stores water at its Santa Felicia Dam and Lake Piru reservoir, it also directly recharges the groundwater aquifers via its Freeman Diversion. United also provides surface water deliveries via vast conveyance systems to minimize groundwater extractions near the coastline in its fight to mitigate seawater intrusion from contaminating the aquifers.

I also serve on the Advisory Committee of the Family Farm Alliance (Alliance), a grassroots organization of family farmers, ranchers, irrigation districts, and allied industries in 16 Western states. The Alliance is focused on one mission: To ensure the availability of reliable, affordable irrigation water supplies to Western farmers and ranchers. The Alliance is committed to the fundamental proposition that Western irrigated agriculture must be preserved and protected for a host of economic, sociological, environmental, and national security reasons—many of which are often overlooked in the context of other national policy decisions. The Western family farmers and ranchers who we represent are confronted with many critical issues today. At the top of the list is the daunting number of administrative policy and regulatory initiatives that our Western agricultural producers face daily.

I would like to focus my comments on the Ocean-Based Climate Solutions Act of 2021 (H.R. 3764). This well-intended legislation directs the Administrator of the National Oceanic and Atmospheric Administration (NOAA) to provide for ocean-based climate solutions to reduce carbon emissions and global warming; to make coastal communities more resilient; and to provide for the conservation and restoration of the ocean and coastal habitats, biodiversity, and marine mammal and fish populations, among other purposes. In November 2020, the Family Farm Alliance developed written testimony for this committee on an earlier version of this legislation. Several concerns were raised in that testimony, and we were pleased to see that some of these issues were addressed in H.R. 3764. However, there are several areas of the new legislation that continue to cause concerns for our membership due to potential far-ranging and uncertain impacts to water management and agriculture in the West.

So, why are organizations that serve family farmers and ranchers in southern California and the mostly inland West concerned with legislation that would appear to apply more to the ocean and coastal communities? It is because this wide-ranging bill could have a significant impact on the development of critically needed new inland water infrastructure. We have questions about whether the potential impact on the economy, budget, and existing statutes and regulatory processes have been assessed. Many of the Family Farm Alliance’s farmers and ranchers—and water managers, like me—have been impacted by implementation of federal environmental laws intended to protect ecosystems far-removed from their operations. I will provide some hard-learned, real-life observations in this testimony that should clearly demonstrate why many of us share these concerns.

For these reasons, concerns remain that this bill could dramatically increase the role of federal agencies on inland rivers and adjacent lands, as further outlined in this testimony.

Alliance Involvement with Climate Change Issues

In 2007, the Family Farm Alliance Board of Directors established a subcommittee to develop a white paper that addresses the important issue of climate change, its possible impact on Western water supplies and irrigated agriculture, and recommendations on how to plan and provide stewardship for this change. The report was prepared by a Family Farm Alliance climate change subcommittee, our Advisory Committee, and water resources experts from around the West. That document—titled “Water Supply in a Changing Climate: The Perspective of Family Farmers and Ranchers in the Irrigated West”—was released in September 2007. Since that time, we have been asked to testify before Congress multiple times on how climate change could further strain fresh water supplies in the West. We

continue to advocate that we must begin to practically plan for, and act on that immediately, and not wait until we are forced to make decisions during a crisis.

Importance of Western Irrigated Agriculture and Key Challenges

Irrigated agriculture in the West not only provides a \$172 billion annual boost to our economy, it also provides important habitat for western waterfowl and other wildlife, including southwestern pond turtle, least bells vireo and southwestern willow flycatcher. Its open spaces are treasured by citizens throughout the West. Family farmers and ranchers are willing to partner with constructive conservation groups and government agencies, especially if there are opportunities to both help strengthen their businesses and improve the environment.

Still, many Western producers face significant regulatory and policy related challenges, brought on—in part—by federal agency implementation of environmental laws and policies. The challenges are daunting, and they will require innovative solutions. The Family Farm Alliance and the farmers and water management organizations like United Water are dedicated to the pragmatic implementation of actions that seek to find a balance of environmental protection and sustainable water supply. Following the science, good sound engineering and historical data are the elements that guarantee constructive working relations among farmers and ranchers, water managers, environmental groups and regulatory agencies. Collectively, these elements yield successful results based on real world working solutions.

All too often, unfortunately, environmental policy is not driven to achieve meaningful results. That is why our organization seeks to collaborate with those groups that also seek positive results as an objective. The foundation for some true, collaborative solutions will be driven from the constructive “center,” one that steers away from the conflict that can ensue between new regulatory overreach and grassroots activism intended to resist any changes to existing environmental and natural resource laws, regulations, and policies.

The Alliance is on record as consistently supporting collaborative, coordinated and incentive driven voluntary efforts to implement species conservation programs. Included in this approach is the need to properly manage and support anadromous fish species.

Support for Voluntary Incentive-Driven Provisions

The Family Farm Alliance has long advocated a voluntary, incentive-driven philosophy to advance conservation, and thus we supported the bill’s provisions to provide financial assistance to interests seeking to apply voluntary conservation practices. Unfortunately, we have several over-arching concerns about the uncertainties associated with the expansive and uncertain nature of the bill. We continue to strongly believe that, rather than creating new processes and planning groups to tackle pressing marine challenges, existing collaborative programs that have proven successful should be given emphasis and perhaps be used as templates to duplicate that success elsewhere.

There are good examples of successful partnerships involving farmers and ranchers that benefit West Coast fisheries, to wit:

- The National Oceanic and Atmospheric Administration (NOAA) Fisheries Recovery Plan for Oregon Coast Coho Salmon calls for public-private partnerships to conserve habitat for the threatened species, positioning coho for possible removal from the federal list of threatened and endangered species within the next 10 years. The plan is voluntary, not regulatory, and hinges on local support and collaboration. The plan promotes a network of partnerships that integrate the needs of Oregon Coast coho with the needs of coastal communities.
- The Yakima River Basin Integrated Plan in Washington State is the result of a collaborative effort on the part of irrigators, environmentalists, local governments, the Yakama Nation, the federal government, and the State of Washington. The plan looks to improving water for farms, fish and the environment in a manner that does not pit one use against another. Anadromous fish runs are already benefiting from this forward-thinking partnership.
- After nearly 12 years of discussions and negotiations, the Deschutes Basin Habitat Conservation Plan (HCP) was recently announced, which will do a great deal to balance streamflows and better protect four threatened species for the next 30 years. The Deschutes HCP is a large-scale planning effort that will help the City of Prineville, Oregon and the Irrigation District members of the Deschutes Basin Board of Control (DBBC) meet their current and future water needs while enhancing fish and wildlife habitat. Species covered

under the HCP include three federally listed species (Oregon spotted frog, bull trout, and steelhead), and one currently unlisted species that have the potential to become listed during the life of the HCP (sockeye salmon).

Unfortunately, Alliance members like me fear that some sections of the ocean's climate bill might discourage further voluntary efforts, and would dramatically increase the role of federal agencies on inland rivers and adjacent lands, including all uses (agriculture, irrigation, ports, etc.).

The Need to Consolidate—and not Complicate—Existing Ocean Management Efforts

Western watersheds that drain to the Pacific Ocean are home to many species of fish, some of which are listed as “endangered” or “threatened” under the Federal Endangered Species Act (ESA) and fall under the responsibility of National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS). Because fish have different migration patterns or life histories, there are often duplicative and sometimes overlapping actions by each of the agencies under the ESA.

Several of these species—like the Lost River and Short Nose suckers in the Upper Klamath Basin, the Delta Smelt in the Sacramento-San Joaquin River & San Francisco Bay-Delta, and the bull trout in the Upper Snake River—spend their entire lives in freshwater. Other anadromous species—such as the southern California steelhead, coho salmon in the Lower Klamath River, chinook salmon in California's Central Valley, and salmon and steelhead in the Columbia River—spawn in freshwater, migrate to the ocean to mature, and return to spawn in freshwater. Still other species are polymorphic: an individual *O.mykiss* may live its entire life in freshwater, in which case the fish is a rainbow trout, or that fish may ultimately spend part of its life in the ocean, in which case it is a steelhead.

In fact, up and down the West coast—from California's Santa Clara Valley Watershed and Central Valley Project, to the Upper Snake River Basin in Idaho and the Klamath Irrigation Project in Oregon and California—duplicative bureaucracies have generated ESA plans that sometimes compete with or even contradict one another.

For example, based on a number of scientific studies reviewed by Stillwater Sciences, it was determined that steelhead are unlikely to swim upstream in water with sediment levels greater than 2,000 mg per liter. However, in NMFS' direction to United Water, the agency is requiring United to provide passage for steelhead on the Santa Clara River at flows that would see more than three times that rate, 7,000 mg per liter. This is lethal to the steelhead they say they are trying to protect.

NMFS' arbitrary requirement leads us to ask, “Why are we taking the water away from farms and communities when it would provide no benefit to the endangered species?”

The Ocean Based Climate Solutions Act—in our view—provides potential to further these types of unfortunate examples, especially in the drought stricken Western United States. We should be looking for ways to streamline, improve and consolidate federal resource management efforts. We need to be sure that new planning groups and programs are necessary and do not waste public resources.

Key Concerns

The Family Farm Alliance certainly sees the need to address the ocean impacts of climate change. For far too long, the ocean has been left out of conversations about West coast climate and environmental solutions. We fully support a robust, but thoughtful response to these challenges. The Ocean-Based Climate Solutions Act of 2021 is a very comprehensive bill with a long list of proposals to address climate change. While many of the provisions of this bill go beyond our area of interest and expertise, there are sections that raise grave concerns as they relate to farmers and ranchers operating many miles inland from the ocean.

1. Putting the Cart Before the Horse

We are not sure that the time is ripe for such a massive and ambitious bill addressing an issue that may be largely unknown to most Americans. For example, Title I proposes the establishment of a Blue Carbon Program within NOAA. The intent of this program is to draw on the latest science to address potential ocean solutions to accelerate progress on climate change. We are not sure what “blue carbon” actually is, and the bill does not provide a definition of this term, although Section 110 defines the term “blue carbon ecosystem.” That definition—“vegetated coastal habitats including mangroves, tidal marshes, seagrasses, kelp forests, and other tidal or salt-water wetlands that have the capacity to sequester carbon from the atmosphere for a period of not less than 100 years”—raises concerns, since the

phrase “have the capacity” appears to be subjective. We are concerned how this term will be interpreted, as described later in this testimony.

It would be helpful to provide additional information about the latest science and technology behind the blue carbon initiative. It is our understanding that resource managers attempting to promote the sequestration of blue carbon rely on best-management practices that have historically included protecting and restoring vegetated coastal habitats. Only recently are managers beginning to incorporate watershed-level approaches, a methodology that appears to be promoted in several sections of the ocean-based climate solutions bill.

In our November 2020 written testimony, we raised concerns about ambitious provisions that directed the Secretary of Interior to undertake restoration of coastal wetlands on Department lands to halt greenhouse gas (GHG) emissions and/or sequester carbon. We were pleased to see that the current bill does not include those provisions, which we believed “put the cart before the horse” and seemed to be premature.

However, we hold fast to our belief that Congress should instead work to further “raise awareness of blue carbon ecosystems as a tool to further conservation objectives through education and extension activities”, something that would be addressed as part of the strategic plan proposed in Section 101. Similarly, Section 1001 directs study examining the social and economic vulnerability to ocean acidification of coastal resource-dependent communities, including identifying critical knowledge gaps potential adaptation strategies. These are the sort of actions that should be conducted first, before the government moves forward with a new federal program that will cost approximately \$4.8 billion in the first year alone.

Given the relative unknown nature of blue carbon ecosystems to the general public and to policymakers, we would respectfully observe that a careful, thoughtful, and incremental approach be taken first.

Also, the bill should be further examined to see if other legislative vehicles might be used to carry certain provisions. For example, Title VII, Section 821 establishes a grants program within the Department of the Interior to improve the resilience of Indian Tribes to the effects of climate change. We have strong relationships with many Western tribal groups, and we were happy to work with your committee in the last Congress to support important Indian water rights settlement legislation. However, it is difficult for us to see the nexus between a \$1 billion tribal resilience package and ocean climate legislation. This section, as well as Title IX, Section 904—which authorizes \$10 billion for fiscal year 2022 to support shovel-ready coastal restoration projects to help stimulate the economy and provide jobs for workers affected by COVID-19—would appear to be better advanced in a COVID-19 stimulus package.

2. Representation Concerns

Traditionally, land use is a local and regional responsibility. The Family Farm Alliance strongly advocates that the best decisions in resources management are made at the local level. Section 101 calls for the above-referenced strategic plan to be developed in collaboration with Federal agencies, the interagency working group, State agencies, Tribes, and non-governmental organizations on research, restoration, and protection efforts relating to blue carbon ecosystems. The experience of Family Farm Alliance members has helped mold our philosophy that the best knowledge and solutions related to natural resources issues comes from those who work at the local level. The proposed collaborative effort should also include local government representatives like counties and cities, who can appoint other local experts like biologists, commercial fishermen, and other producers to provide a better level of “ground-truthing” to those unfamiliar with particular locales.

Section 106 establishes an interagency working group consisting of federal department and agency representatives. Even though this working group includes numerous representatives already, we recommend also including the Commissioner of the Bureau of Reclamation (Reclamation), since major federal water projects are located in all of the major watershed draining to the Pacific Ocean, and “dams”, “dikes” and “levees”—common features to Reclamation projects—are clearly targeted for investigation in other sections of this bill.

3. Clarity and Practicality

The proposed strategic plan contains elements that appear to be vague, subjective, and/or unrealistic. For example, the plan proposes to study measures that “protect and restore habitats, waters, and organisms that are long-term carbon sinks or will be subject to habitat change as a result of climate change and development.” Presumably, climate change will impact the entire globe, which theoretically will impart some degree of change on habitat everywhere. A study of this scope would

appear to be a near-impossible task to achieve. Similarly, it will be a technically challenging and expensive task to quantify “co-benefits,” including “flood risk reduction, habitat restoration for endangered and threatened species, maintenance of biodiversity,¹ water quality improvements, habitat maintenance and creation, cycling of nutrients other than carbon, commercial and recreational fishing and boating benefits.”

Section 701 addresses conservation of marine mammals adversely affected by climate change by amending the Marine Mammal Protection Act to develop climate impact management plans for marine mammals that are highly threatened by climate change. These management plans must include strategies for mitigating the direct and indirect effects of climate change on the marine mammal population and encouraged to be integrated into Marine Mammal Protection Act conservation plans or ESA recovery plans.

Again, this section is vague, and we believe could create opportunities for litigious challenges to inland irrigated agriculture. For example, the bill proposes that a list of marine mammal species and population stocks in U.S. waters will be developed, for which climate change, “alone or in combination or interaction with other factors,” has “more than a remote possibility” of resulting in a decline in population abundance, of impeding abundance or population recovery, or of reducing carrying capacity. That list shall include any species or population stock listed under the ESA, and any other species or population stocks, for which impacts have “more than a remote possibility of occurring within 100 years” (*emphasis added*).

This criteria does not appear to carry any sense of priority. In simpler prose, it might as well say, “Add all marine species to the list.” A task of this magnitude will surely affect already budget strapped agencies that interact closely with Western agricultural irrigators, including the Departments of Commerce and the Interior, NOAA, and USFWS.

We truly question the need to create new processes and planning groups to tackle pressing fisheries and marine mammal issues. Instead, existing collaborative programs that have proven successful should be given emphasis and perhaps be used as templates to duplicate that success elsewhere.

4. *Environmental Litigation in the West*

Before discussing other concerns with this bill, it would be useful to set the stage and provide some background that drives our perspective. The federal government’s significant presence in the West already presents unique challenges for Alliance members. This is particularly true with respect to the reach of federal environmental laws. Consider implementation of the ESA, which impacts the management of land and water throughout the West. For example, federal water supplies that were originally developed by Reclamation primarily to support new irrigation projects have, in recent years, been targeted and reallocated to other uses. The result is that these once-certain water supplies have now been added to the long list of existing “uncertainties.”

Given the nature of water storage and delivery, Alliance members are often directly impacted by the implementation of federal environmental laws like the ESA. The ESA has at times been interpreted to empower federal agencies to take action intended to protect listed species without consideration of the societal costs of such action, even when it is not clear that the action taken will actually yield conservation benefits for the particular species. And the ESA and other environmental laws have many times been used to reallocate and diminish water supplies traditionally developed for irrigated agriculture in litigation by groups known for their litigious focus and not on helping species in trouble through collaboration.

We emphasize here that not all conservation non-governmental organizations (NGOs) should be lumped into the same category as these activist groups that rely on litigation to drive their agenda.

The Alliance has worked hard to create the Western Agriculture and Conservation Coalition, a collaborative effort with the goal of finding ways to improve the environ-

¹Speaking of biodiversity, while this term appears 14 times in the bill, it is defined nowhere. The Convention on Biological Diversity defines biological diversity or biodiversity as “the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems (United Nations).” This widely accepted definition has been criticized by many for being too vague and in need of clarification. While most ecologists downplay this vagueness, there are at least three concerns regarding its actual application: 1) it can impair the coordination of conservation actions; 2) hide the need to improve management knowledge; and 3) cover up incompatibilities between disciplinary assumptions. We recommend that this term be removed, or defined in a manner that resolves these three concerns.

ment, protect Western irrigated agriculture, and keep farmers and ranchers in business. Other members of our Coalition include The Nature Conservancy, Farmers Conservation Alliance, California Farm Bureau Federation, Environmental Defense, Wyoming Stockgrowers, Trout Unlimited, Public Lands Council, and the California Agricultural Irrigation Association, to name a few.

5. Potential Risks to Inland Producers

We developed the above background section to explain why we have concerns that certain programs proposed by this bill will generate further risk and uncertainty to farmers and ranchers who rely upon federal water projects in areas like the Columbia River, Klamath River, and Sacramento-San Joaquin watershed on the West coast. Parts of the bill include vague and undefined objectives, goals, and policies. We know from experience that these types of provisions can be used by critics of irrigated agriculture as the basis for negative media or lawsuits to stop or delay federally permitted activities.

I have a specific example that illustrates this concern. Since the late 1800s, documentation from Fish and Game biologists and regulatory agencies have stated that the Piru Creek watershed in Ventura and Los Angeles Counties is not conducive to steelhead. In fact, there has never been documentation of steelhead in that watershed. The Federal Energy Regulatory Commission (FERC) submitted a Biological Assessment that supports this assertion. However, despite historical data, consistently dry conditions, natural migration barriers and assessments of the region, NMFS' Biological Opinion reaches different conclusions. It attests not only to the possibility of a steelhead resource, it also requires the construction of a very expensive fish passage structure and, since 2010, continuous water releases from United's infrastructure into lower Piru Creek, deemed critical habitat by NMFS, for fish that have never been seen there.

Elsewhere, during the last drought NMFS determined that Central Valley salmon populations would go extinct unless government agencies change their water operations in California. In a draft biological opinion, NMFS concluded that the southern resident population of killer whales might go extinct because its primary food source—salmon—is imperiled by California's network of dams and canals. Similar linkages between these orcas and potato farmers (located hundreds of miles from the Pacific Ocean) were contemplated as a biological opinion was being drafted by NMFS for the Klamath Irrigation Project, located in the high desert of southern Oregon. Farmers in the Columbia Basin, east of the Cascades, fear that linkages made by some between Puget Sound orcas and dams located hundreds of miles away on the Snake River will be used to someday remove those dams.

The bill opens the possibility of further emphasizing such questionable relationships. Further, it sets up new processes where requested federal permits would be subject to additional consultation processes prior to any formal consideration.

For example, Section 102 calls for the development of a national map of coastal blue carbon ecosystems and a description of these ecosystem conditions. Among many things, one of the required descriptions is "any upstream restrictions detrimental to the watershed process and conditions, including dams, dikes, and levees." Lumping in these features as "detrimental" is overly broad, inaccurate, and establishes a bias before the descriptions are even developed. Identifying "any" upstream pollution sources that threaten the health of each ecosystem also appears to be subjective and unrealistic. For example, in the Columbia River estuary, how far upstream would such an analysis extend? Canada?

Sec. 103 requires a report that includes an assessment of "Federal agency actions that have historically caused and presently cause great adverse effects on such ecosystems." As described previously, "blue carbon ecosystems" are defined as areas that "have the capacity to sequester carbon from the atmosphere for a period of not less than 100 years." This type of open-ended definition could lead to the designation of large areas of blue carbon ecosystems up and down the Pacific coast. This would provide critics of Reclamation and federal water projects with a new means of linking alleged environmental damage to federal actions undertaken hundreds of miles inland.

Section 107 directs the Administrator of NOAA to develop criteria for and designate "coastal carbon areas of significance" (CCAS) and ensure conservation of CCAS using Department of Commerce programs and resources. This section of the bill raises many concerns. First, the criteria are vague. For example, one criterion says that CCAS should provide for "long-term storage and sequestration of significant amounts of ecosystem carbon." "Long-term" and "significant amounts" are not defined and appear to be subjective. A larger concern is the new requirement that federal agencies proposing actions that may harm CCAS are required to notify NOAA, which would consult with the action agency to assess "adverse impacts." The

action agency is prohibited from taking the proposed action if an alternative exists that fulfills the purpose of the proposed action without harming CCAS. If no feasible alternative exists, the action agency is to take measures to mitigate the impact and to create carbon storage offsets for unavoidable impact.

Section 308 addresses essential fish habitat (EFH) and requires new consultation and mitigation process for any activity that would have an adverse effect on EFH. In our November 2020 testimony, we noted that a spokesperson with the Maine Coast Fishermen's Association had expressed concerns that this bill would "fundamentally undermine" the Magnuson-Stevens Act, and particularly the existing regional council system. Our concerns with this section are similar to those previously expressed for the CCAS. Significant changes are made to the current EFH consultation process. It would replace the current consultation requirement between the Secretary of Commerce and another federal agency and replace it with a requirement that if any action by a federal agency may have an adverse effect on EFH, that agency would be required, through consultation with the Secretary of Commerce, to avoid the adverse effects. To the extent that adverse effects could not be avoided, the agency would be required to "minimize and mitigate" the adverse effect based on the recommendations of the Secretary of Commerce.

On the West Coast, many of our members' federal water supplies are impacted by federal management decisions associated with salmon. The 2014 Pacific Council's Salmon Fishery Plan includes specific types or areas of habitat within EFH based on several considerations. Because other areas of the bill underscore the "detrimental" aspects of dams and other federal water resources infrastructure to these ecosystems, this section provides a whole new set of tools for litigious critics of Western irrigated agriculture and federal infrastructure to use in the courtroom.

We were pleased to see that troubling language² in the earlier legislation has been removed. However, we reassert our concern that the entire bill be reevaluated to ensure that standards for scientific and commercial data that are used to make decisions are established. Relatively greater weight should be given to data that have been field-tested or peer-reviewed. The former requirement would help clarify when such things as "personal observations" or mere folklore are considered by the agencies to be reliable enough to make decisions with potentially profound effects.

In summary, the federal consultation requirements associated with the proposed CCAS, the vague terminology, and deemphasis on quantification provisions—however well intended they may be—represent yet another layer of red tape and uncertainty to Western irrigators working in watersheds that drain to the Pacific Ocean.

Conclusion

American family farmers and ranchers for generations have grown food and fiber for the world, but we will have to muster even more innovation to continue to meet this critical challenge. That innovation must be encouraged by our government rather than stifled with new federal regulations and uncertainty over water supplies for irrigated farms and ranches in the rural West.

We appreciate that Chairman Grijalva has made some encouraging changes that are reflected in the current bill. This is clearly major legislation with lofty goals, but in our view, there is plenty of room for additional improvement. There are some provisions we can support; but there are many which would benefit from additional scrutiny. We urge Congress to consider farmers, ranchers and water managers like me not as obstacles, but as partners in developing thoughtful climate policies, including ocean policies based on sound science. We hope you will consider these comments and those from other producer organizations as you further refine this legislation.

We remain committed to working with your Committee and the Congress to share our concerns and perspectives. Thank you for this opportunity to present this testimony to you today.

Mr. HUFFMAN. Thank you very much.

We will now bring this back to the Members for their questions. I will start by recognizing myself for 5 minutes, and I would like to begin with Ms. Graudins.

²Section 121(D): "... the lack of quantitative information shall not be a basis for a determination that a species or population stock is not adversely impacted by climate change, along or in combination or interaction with other factors."

My colleague, Garret Graves, made the very valid point that the climate crisis is a global problem and that we should be looking for solutions and emission reductions all over the world. And he brought up the large emissions in China as something that call out for our attention. I don't disagree with that, but I think we should do all of it.

And the interesting thing about the blue carbon solutions we have been discussing today is that in some ways for the local communities that are affected by blue carbon protection and restoration, there are layers of benefits potentially that might make this an even more attractive climate solution. Could you speak a little bit about the co-benefits that might inure to local communities from pursuing these projects?

Ms. GUTIÉRREZ-GRAUDINŠ. Thank you for the question. Yes, I think it is important that given that this is a global problem, we look at all the solutions as somebody had spoken about all the tools in the tool kit. We can talk about, as Dr. Johnson spoke about, what some of these areas that are the best for conservation for blue carbon offer in terms of protection to climate change and sea level rise. I think that we can talk about how that relates to local economy, whether people are interested in coming to experience these areas. Other than that, I would probably have to refer to someone with a little bit more direct experience to that.

Mr. HUFFMAN. I appreciate that.

I will turn to Dr. Johnson next and certainly invite her thoughts on this, but I also want to ask about fishery disasters. This is something that in California and in my district, I have come to know all too well. We have seen the frequency of fishery disasters increasing because of algae blooms.

Other large-scale ecosystem changes that we are seeing include the collapse of kelp forests all along the north coast, the loss of bull kelp due in part to ocean heat waves, and we have lost our red abalone and the red urchin fishery as well.

How does this legislation we are talking about today ensure that our fisheries, fishing and coastal communities and managers, are prepared to adapt and respond to these events? And also, ultimately rather than just providing relief for the disasters, how do you think this legislation helps tackle the biggest climate drivers that are causing these disasters in the first place?

Dr. JOHNSON. So, the No. 1 driver of our climate disaster is greenhouse gas emissions. The elements of the Ocean-Based Climate Solutions Act that rein in those emissions, including dramatically restricting drilling offshore and including protecting and restoring coastal ecosystems, which Ms. Gutiérrez-Graudinš and I both mentioned, can absorb up to four times what a forest on land can in its soils.

Those kinds of ocean-based climate solutions can be a significant part of our national and global solutions and our contribution to meet our responsibility to the global community, because the United States is the largest historical emitter of greenhouse gases.

So, even though China is the No. 1 emitter at this moment, we do have this overall responsibility for our contribution to the problem.

And the specifics that you mentioned I think are really important because when we think about the effects of a warming and acidifying ocean, the ocean has absorbed over 90 percent of the heat that we have trapped by burning fossil fuels and emitting greenhouse gases.

And, obviously, that has led the ocean to warm dramatically. And if the ocean hadn't absorbed all that heat, the atmosphere would be something like many dozens of degrees hotter than it currently is.

The ocean has also absorbed around 30 percent of the carbon dioxide we have emitted which has led to ocean acidification. And all of these marine species, just like species on land, have a fairly narrow range of comfort zone when it comes to temperature. So, when waters warm by a few degrees, fish start fleeing for the poles. Things which can't move like coral reefs, like kelp forests, are really damaged where they are. And that heat can exacerbate other things like the spread of disease in the ocean, et cetera.

So, it is important to think of all of these things holistically at an ecosystem level and think about what we do have the control and opportunity to manage.

Mr. HUFFMAN. Thank you very much, Doctor.

I see that Chair Grijalva has returned. I will pass the virtual gavel back to him and yield back.

The CHAIRMAN. Thank you very much.

Let me now recognize Representative Bentz for his questions. Sir, you are recognized.

Mr. BENTZ. Thank you, Mr. Chair.

Mr. Guardado, do you think the Bureau of Reclamation should be included in the blue carbon interagency working group?

Mr. GUARDADO. I have a lot of respect for the Bureau. This is in their wheelhouse when you are talking about infrastructure and supply. So, I think, any level of their involvement would only assist in the right direction. Yes.

Mr. BENTZ. Thank you. And I think that is what we kind of heard from the Assistant Director. You also shared your concern regarding some of the definitions used in H.R. 3764, particularly, the definition of blue carbon ecosystem, and you highlighted the phrase "have the capacity" to be such an ecosystem, and you noted that that is open to interpretation. Can you share more why this definition is of particular concern to you?

Mr. GUARDADO. Yes. Thank you, Congressman. It is the open-ended language. Rather than being assistive in the process, it becomes weaponized. We have been experiencing, trying to figure out what to the maximum extent practicable even means. The language of "more than remote possibility and other purposes" I don't think is going to help us get to balanced solutions.

Giving the NOAA more flexibility, more jurisdiction, and more authority to keep those things open-ended just creates litigation. We don't get anywhere. It creates delays. And when there are delays, we spend a lot of money in litigative circumstances. So, our main concern is to dial back in to more specifics and not keep these languages open-ended.

Mr. BENTZ. Thank you. Before I ask you my last question, I just wanted to thank you for your excellent testimony. A lot of work went into it, and I really appreciate the effort.

Now to the question. You testified that NOAA is imposing fish restoration measures on your water district that are not workable. Those requirements are related to the Endangered Species Act. This bill doesn't directly impact the Agency's ESA responsibilities and instead is focused on other activities related to fish restoration. Based on your experience, what causes you concern about giving NOAA more responsibilities under this legislation?

Mr. GUARDADO. Yes. More concern over greater authorities because, frankly, in our neck of the woods in the West, NOAA has not been transparent or forthcoming. For example, when steelhead went on the endangered species list in 1997, to date, we have a facility that over this span of time, we have only observed 12 steelhead, and 1 of those 12 steelhead have died in our facility. Fish and Wildlife was present, and they deemed that fish a hatchery fish, not a natural fish, because it had a disease on its face that was common to hatcheries. Our staff clipped the fins. Soon thereafter, NOAA confiscated those fins, confiscated the fish. To date, we still have not received the genetic results because that is what we were going to try to figure out despite several Freedom of Information Acts. So, as a result, we have a jeopardy biological opinion.

If NMFS has it their way, and NOAA, we will be putting in a \$200 million hard ramp in the middle of the river, a new fish passage when we already have an existing one with evidence through our videos that fish do pass. But 12 fish since 1997, only 1 dying in our facility that is speculative, their open-ended authority, their vast jurisdiction and over-reaching regulation is causing a tremendous strain on our rate payers that are going to have to bear the cost of a \$200 million fish passage structure when one already exists.

Mr. BENTZ. Thank you so much.

With that, Mr. Chair, I yield back.

The CHAIRMAN. The gentleman yields.

Let me recognize our colleague, Representative Lowenthal for his questions. Sir, you are recognized.

Mr. LOWENTHAL. Thank you, Mr. Chair. It is good to see you back again, and I also want to thank Representative Huffman for his outstanding leadership in your absence.

My questions go to Senator Lee and Dr. Elizabeth Johnson. In both of your testimonies, you highlighted the impacts of plastics on the marine environment. This is a critical issue for me which is why I introduced the Break Free From Plastic Pollution Act, a bill that would implement and extend the producer responsibility program, a national bottle deposit program, minimum recycled content standards, bans the export of unrecycleable plastic waste, and so much more. The bill seeks to shift the burden of plastic pollution and waste away from the taxpayers and on to the producers. This bill will reduce plastic waste, create a circular economy, and protect the environmental justice communities from the production of these products.

My first question is to Dr. Johnson. Can you explain how policies addressing extended producer responsibility can help address the issue of plastics entering the environment and our oceans?

Dr. JOHNSON. Thank you for this question. I will admit this is not a core area of my expertise, but I think it is important to recognize just at the broadest picture that the vast majority of plastics are made from fossil fuels and that as the demand for gasoline, et cetera, declines because we start to transition to renewable energies, we have a situation where there is this increase in the construction of facilities to produce plastics as an alternative use for that which results in the siting of those often in lower income communities or communities of color as you mentioned and the resulting detrimental effects on air quality and, therefore, public health.

And, right now, what we have is companies that are creating all this single use plastic, and citizens and taxpayers are bearing the brunt of the costs of the disposal and recycling and cleanup of all that waste. And the United States is the largest contributor to ocean plastic pollution of any nation, so we definitely have a responsibility to get that right.

And if companies were responsible for the products they created for the full life cycle of those products, that would certainly make a difference, incentivize greater recycling, reduce the creation of virgin plastics, increase the value of plastics, frankly, so that people saw it as a resource and not something to use a single time and throw away.

Mr. LOWENTHAL. Thank you. For someone who started off by saying you don't know very much about it, you gave a comprehensive and complete answer. Thank you very much.

Senator Lee, can you elaborate on what Dr. Johnson said, why it is important to shift the cost burden to cleaning up plastic pollution away from taxpayers and on to the producers?

Mr. LEE. Thank you for the question, Congressman. I think it is just, first, an issue of fairness. We ought to have a system in which people aren't going to be saddled with cost even though they do their part to avoid throwing something in a river that ends up in the ocean or on a beach.

Where I come from, every beach in Hawaii is littered with plastic. The No. 1 and No. 2 beaches regularly ranked around the country, Kailua and Lani Kai, you put your hand in the sand and you come out with sand and tons of microplastic.

On a beach just up the highway, there is a beach we have thousands of pounds of plastic and other marine debris we are regularly collecting. This is what has to be dealt with. We can't not pay to clean this up because it affects our economy, it affects our way of life, and it ends up in our storm drains clogging things up, and our state and county governments end up footing the bill, which goes on to taxpayers.

Mr. LOWENTHAL. Yes.

Mr. LEE. But there is opportunity. It can create new jobs.

Mr. LOWENTHAL. I want to follow up on that—why then, if the taxpayers are paying for it, state and local governments are paying for it, they don't have the resources to do it, they finally end up with these large beach cleanups, with lots of volunteers, which just

deals with literally the surface, why have we let the producers get away with this for so long? They don't pay anything.

Mr. LEE. I think that is where it comes down to our obligation to our taxpayers to make sure that we act in their interest. We set up policies and regimes that make sure that their voices are accounted for so they are not the ones that are going to be unfairly saddled with this, raising their cost of living. We have the opportunity to do that as elected leaders, and I think that is an obligation that I feel, and it sounds like, I think, that is part of the discussion here today.

Mr. LOWENTHAL. Thank you so much.

With that, I yield back.

The CHAIRMAN. The gentleman yields.

The Chair recognizes Representative Gohmert for his 5 minutes. Sir, you are recognized.

Let me recognize Mr. Stauber. Sir, you are recognized for 5 minutes. When Mr. Gohmert gets online, he will be recognized as well.

Mr. STAUBER. Thank you very much, Mr. Chair.

Ms. Gutiérrez-Graudiņš, thank you for joining us today. In your testimony, you applaud this Blue New Deal legislation toward the goal of reducing greenhouse gas use. As you may be aware, 80 percent of America's steel originates as taconite in my district. Miners harvest the iron ore, and it then gets shipped from ports in my district across Saint Lawrence Seaway through the Soo Locks and to steelmaking facilities across the rest of the Midwest.

The steelmaking process in the United States is the cleanest in the world. The so-called Ocean-Based Climate Solutions Act levees incredible burdensome reporting requirements on those that use our waters for transportation. In fact, every vessel, over 5,000-gross tons in the bill, would be forced to comply with standards set by the European Union.

The Mesabi Miner, a Great Lakes iron ore carrier, has a carrying capacity of 63,300-gross tons alone. This will undoubtedly hamper our clean domestic steelmaking and instead empower our rivals to produce more steel, hurting the miners in my district and steelworkers nationwide while ironically creating more greenhouse gas emissions globally.

Do you agree or disagree that moving America to further rely on foreign steel, as this is what the Blue New Deal would inevitably accomplish, leads to an increase in greenhouse gas emissions?

Ms. GUTIÉRREZ-GRAUDIŅŠ. Thank you for the question. I will have to say, this is news to me. I am not very familiar with the steel production or the fact that, as you mentioned, the U.S. steel is the cleanest steel in the world. I would welcome some more information on that.

I really don't think there is—I don't see that connection personally. I think this is obviously something that can be discussed. Do I support broad climate action, yes, I would welcome more information on the steel specifically and how you make that connection.

Mr. STAUBER. With your regulation and pushing of this piece of legislation, you weren't aware that the Great Lakes ships iron ore that makes 80 percent of the steel in our Nation, knowing full well

that the European Union would set the standards? Did you not know that?

Ms. GUTIÉRREZ-GRAUDINŠ. I did not know that it was specifically your district, and I should qualify, the cleanest steel in the world, that is something I will admit I did not know, so I welcome more information on that.

I understand that we talked about advancing the reporting requirements of vessels. I don't know if that is what you are referring to. Yes, we do need to know what the emissions are, and I think that is the first step in terms of taking action, but, frankly, I welcome more information specifically as it relates to your district.

Mr. STAUBER. Ma'am, I would give you as much information as you want with respect to the union workers of my district that mine the iron ore and have been for 135 years, and we do it best, and we make 80 percent of the steel. And we are on the verge of getting into critical minerals, which is going to help us in our alternative sources of energy.

So, continuing on, this Blue New Deal would regulate any "upstream structure." The Mississippi River begins in Minnesota's 8th Congressional District and ends in the Gulf of Mexico; therefore, my district is part of this broad ecosystem map. Will this bill require NOAA to list a Federal dam system of the Mississippi River in Leech Lake, Lake Winnibigoshish, or Pokegama Lake as part of this map?

Ms. GUTIÉRREZ-GRAUDINŠ. I think we are going to have to submit more information to you in writing, if that is OK. As I understand it, what is it exactly that you are referring—maybe I am not understanding your question. What is it exactly you are referring to in the Blue New Deal?

It would not actually regulate upstream structures, just map them. I think this is a point that Chair Grijalva made before specifically to that. So, maybe if you explain it specifically as it relates to Blue New Deal; otherwise, we would probably have to give you more information in writing.

Mr. STAUBER. OK. Last question, so you are saying that this legislation will not regulate any upstream?

Ms. GUTIÉRREZ-GRAUDINŠ. Correct. This is exactly what the Chair just said, said that it doesn't compel them.

Mr. STAUBER. No, I know.

Ms. GUTIÉRREZ-GRAUDINŠ. It just maps them.

Mr. STAUBER. OK. Thank you very much for your time, and we will have to get back with you for additional answers.

Back to you, Mr. Chair. Thank you.

The CHAIRMAN. The gentleman yields.

The Chair recognizes Representative McEachin.

Sir, you are recognized for 5 minutes.

Mr. McEACHIN. Thank you, Mr. Chairman, and, as always, thank you for your continued leadership on this issue as well as so many others.

Today's conversation is both critical and timely. As we all know, our oceans play a significant role, arguably the most significant role in combating and addressing our climate crisis.

According to the United Nations, our oceans are the single largest contributor of our planet's oxygen and are the main source for food for over 1 billion people worldwide. Most of the world's biodiversity lives within our oceans, as well as 40 million individuals globally rely on ocean-based industries for employment.

To put it simply, we cannot leave a healthy and sustainable planet for our children and grandchildren without ensuring the protection and preservation of our oceans. As such, we must enact bold, transformative policy, such as the Ocean-Based Climate Solutions Act, that will protect our ocean's coastal communities and rich wildlife.

Dr. Johnson, in your testimony, you speak about how ocean conservation is intimately linked with the well-being of communities of color and low-income communities. As you know, the communities of color make up nearly half the U.S. coastal population. Consequently, many of these individuals are at risk of sea-level rise, environmental degradation caused by offshore drilling, and more.

The Ocean-Based Climate Solutions Act aims to promote justice and equitable climate change mitigation by prioritizing benefits for frontline and fence-line communities. These policies include prioritizing resilience projects in at-risk communities and improving and expanding coastal access points for environmental justice communities.

Doctor, can you speak to the important role that ocean conservation plays in protecting environmental justice communities, and how would these policies set out in the Ocean-Based Climate Solutions Act protect frontline and fence-line communities?

Dr. JOHNSON. Thank you, Congressman, for this question and also for all of your work co-sponsoring the Environmental Justice for All Act, which I see as very much related to this ocean-based climate solutions work.

And I guess, I would say, I hope there are no fence-line communities in the ocean. Once we start building fences in the ocean, we have really lost to the plot. But I think, obviously, when it comes to coastal communities that are at risk because of climate change, we are talking about sea-level rise. We are talking about stronger and wetter storms. We are talking about heat waves combined with that. We are talking about flooding.

We know that, for example, in New York, where I am from and where I live, low-income housing, public housing is often built in flood zones, so that when things like Superstorm Sandy hit, it is low-income communities and communities of color, who are hit the hardest, and that is certainly not something that is specific to New York City.

This also makes me think of the need to address managed retreat, which is something that is included in this bill. Because of sea-level rise, some people, some communities are going to have to move out of harm's way because certain places will no longer be safe, inhabitable, and making sure that we set up that transition in a way that takes care of everybody, people who did not have very much of a hand in causing the climate crisis, who are now displaced because of it.

We are at a stage where we will have climate refugees more and more within the United States, and that is certainly a justice issue, among other things. We notice the same thing also, as you mentioned, with access to coast lines, which is something that I know Ms. Gutiérrez-Graudiņš works on, as well as just access to healthy seafood and clean water for recreation.

So, certainly, when it comes to the ocean, environmental justice doesn't stop at the shore, and it is really important to consider the implications of how we implement various ocean climate solutions.

Mr. MCEACHIN. It is interesting that you say that. I just literally, while I was waiting for my turn to speak to this panel, received a report about a portion of my district where the refugees, as you pointed out, are just baked in. It is just a matter of how many refugees I am going to have, not if. If we do certain things, we can hold the number down; if we don't do anything, the numbers become staggering.

Quickly though, in your testimony, you also spoke about the Ocean Justice Forum that you and others are convening to ensure the justice is infused into our Nation's ocean climate policies. Can you elaborate further, and how can Congress be helpful in uplifting and championing this work? Oh, and by the way, don't forget to thank the Chair for the Environmental Justice Act. I am just Robin, he is Batman.

Dr. JOHNSON. I love a dynamic duo situation. Very quickly, the Ocean Justice Forum is a collaboration with Azul, Ms. Gutiérrez-Graudiņš' organization, with the Gulf Coast Center for Law and Policy, as well as the Center for American Progress to bring together a few dozen ocean conservation groups to come up with a Federal policy agenda that will make sure justice is at the heart of our ocean climate policy.

Thank you for asking what you might be able to do, and I think having the Committee welcome our suggestions and perhaps a hearing specifically on the intersection of ocean justice and climate and ocean policy could be a very important way to continue this discussion and make sure that we are developing and implementing policies that meet the mark.

Mr. MCEACHIN. Thank you. And thank you for all your hard work in this area.

Mr. Chairman, I yield back.

The CHAIRMAN. Thank you, Mr. McEachin. The gentleman yields.

I recognize Representative Moore. Sir, you are recognized for 5 minutes.

Mr. MOORE. Thank you, Chairman and everyone, for being here today.

Mr. Guardado, I have a few questions. I appreciate your comments, and I would like to ask you a couple questions, just following up on your testimony. You and I both know that farmers rely on the health of our lands for their livelihoods. Can you highlight a few ways that farmers work to contain seepage or pollution in particular?

Mr. GUARDADO. Well, you know, in our neck of the woods too, farmers and ranchers, they are some of the most innovative folks around. Many of them have had and owned family-owned land for

over 100 years, so they have had to adjust and adapt to changing circumstances.

They have been able nowadays to leverage technology to become some of the highest water efficiency irrigators anywhere. When you become self-contained like that, that is going to help any tributary runoffs. That is going to be self-contained. It is going to be more efficient. And that all comes down to, I think, more of just a local control, local application.

We have several examples where working with the governor's water resilience portfolio, that if you get the right people in the right room from a diverse set of groups, over 200 in this case, and we had large objectives that we had to meet, but we got together. We were able to develop action items, and we are moving through those right now as we speak. So, having that local control, that local application, nobody knows the landscape better than those who have been around for a while.

Mr. MOORE. Yes, I am going to pull it up to the 30,000-foot view quickly. And just to build on what you are saying, like I have not been involved in many land issues before running for office. I had to dig in deep during the campaign to understand a lot of the public land issues.

And Utah is a state that two-thirds of it is owned by the Federal Government. And that was the key thing that I learned, that the people that own the land, the people that are there sincerely are the best stewards, and this cuts through all political lines. I have met with people from all over the political spectrum on this and their willingness and their desire to be a good steward of the land. I think you have a lot of good examples of that in Utah.

I have a bunch listed here. We may not get to them as I continue on some of this questioning, but just to hit that that has been my biggest takeaway, getting on to Natural Resources Committee, which I was thrilled to do. It is such an important Committee for Utah. But just in general, the ability for them to be able to make these decisions, and our country is vastly different. I have had three rainstorms just this week in DC, and we haven't had any in Utah, right. The range of challenges that exist are so important for that.

Let me bring up voluntary conservation programs. They are critically important mechanisms through which we can manage and protect our lands. Do you agree, and if so, would you please expound on why these programs are such effective tools for land managers?

Mr. GUARDADO. Well, sure, voluntary conservation measures are a direct result because these landowners are invested. They have been around a long time. They are invested in balanced solutions. Everybody wants to succeed. The difference is, when you provide the science, you provide the data, you provide the engineering, the monitoring that moves toward that balanced solution, the key element is it being considered.

And when you just can dismiss it, with some of my testimonies I mentioned before with this kind of just arbitrary conditions, it makes it that much more difficult to get through those conservation measures. And that is why I think, again, this bill certainly has merit, but when you have this open-ended, arbitrary-type

language and statements, it prevents those landowners from actually executing some really solid balance-based solutions that carry forward for decades to come.

Mr. MOORE. In addition to addressing that language, is there anything else we can do off the top of your head to improve some of these conservation efforts, these volunteer conservation efforts?

Mr. GUARDADO. To just get the right people in the room. I think if we had like almost a third-party arbitrator that can review the science to hold people accountable, I think it becomes very apparent, very focused on what should be done to take care of a lot of these issues. There is low-hanging fruit there. There are solutions out there. We just have to move past the personal agendas that I think some of the regulatory agencies have.

Mr. MOORE. Thank you. I recently had a meeting with a group in Summit and Weber County in Ogden Valley that is doing just this, and it is all volunteer, and they are active and they are engaged, and I appreciate it. So, thank you so much.

My time is up, and I will yield back. Thanks, Chairman.

The CHAIRMAN. The gentleman yields.

Representative Soto, sir, you are recognized.

Mr. SOTO. Thank you so much, Chairman.

There is a place called the Indian River Lagoon as well as the Saint Johns River, estuaries and rivers on the East Coast of Florida, right near our district, and we have seen huge development over the years, as well as an increase in nutrient output combined with warming seas. And what happened? The seagrass that the Florida manatee rely on has been disappearing, exacerbated by climate change.

It would be great to hear from you, Dr. Johnson. We have seen this unusual mortality event among Florida manatees. Can you explain to us how you think climate change and some of these other issues are affecting these large sea mammals?

Dr. JOHNSON. Thank you for the question. I will admit, this is certainly not my area of expertise, but I think the way that you described it is really important, pointing out that there are multiple factors contributing to the negative impacts that we see on marine life.

There is pollution and runoff from the fertilizer and pesticides associated with agriculture. There are the shifts in freshwater patterns based on how we are managing water on land and the history of land transfiguration through the work of the U.S. Army Corps of Engineers. There is obviously changing climate, which is both the warming of sea water as well as it becoming more acidic.

And with manatees having seagrass as their primary food source, of course, things that affect the seagrass in turn affect the manatees. So, it is a great example of the ways in which things are complex and interconnected, and we have to think about conservation solutions on a level that accounts for that.

And I just want to thank you for your clear concern for marine mammals and for wanting to come up with solutions that will really be effective because if we don't have the heart to save the manatees, then we have sort of lost the love that drives a lot of ocean conservation work. So, thank you for that, and I am happy to provide more information if that is useful in the future.

Mr. SOTO. Thank you, Dr. Johnson. I appreciate it.

And, Chairman, thank you for including Representative Brownley's bill to direct the Secretary of Commerce to establish climate impact management plans to conserve marine mammal species.

Senator Lee, how has climate change impacted Hawaii's coral reefs? Representative Case and I have the Restoring Resilient Reefs Act. How do you see the Ocean-Based Climate Solutions Act and other of these efforts to save coral reefs critical to the future of both the quality of life, protecting species, and the economies of states like Hawaii and Florida?

Mr. LEE. I appreciate the question. I am not going to try to repeat the name of the geographic places you mentioned in the last question. I won my state's geography bee, but I am not that good. But I will add, for seagrasses, they absorb five times more carbon than regular forests, and yet they are being destroyed at a rate significantly in excess. So, we are shooting ourselves in the foot in more ways than one.

But when it comes to reefs, they are a huge part of the ecosystem too. We are seeing not only in Florida, in your area, but also in Hawaii, we are seeing 8.7 percent higher rates of acidification than we did 30 years ago. And this is huge because, coupled with warmer waters, it is destroying the ability for reefs to regrow themselves and survive.

We are seeing record reef bleaching, and that is something that is destroying any economic opportunity we have for the future because those contribute \$477 million to our economy, the tourism, fishing, our way of life. It also provides \$860 million in coastal resiliency, if there are storm surges from hurricanes and that sort of thing.

We know that these things are critical. We have to have them preserved as much as possible, and this bill would really go a long way to try to coordinate agencies, put in some resources to try to take those first steps to see what kind of steps can actually save those reefs and save the economies, jobs, and ultimately lives that are at stake that they are protecting.

Mr. SOTO. Thanks so much, Senator Lee. On this Committee, we see this tension between states like ours that are really vulnerable to climate change, that have huge tourism and agriculture economies, versus those hailing from energy states. Our jobs are affected by these issues. Our way of life is affected by these issues. And I applaud you, Chairman, for bringing these bills forward.

The CHAIRMAN. Thank you very much, Mr. Soto.

Many contributors to the legislation, and I want to thank them as well.

Representative Herrell, you are recognized for 5 minutes. The floor is yours.

Ms. HERRELL. Thank you, Mr. Chairman.

This has been a great Committee hearing, and I thank all the witnesses for coming forward and sharing with us. I feel like the Blue New Deal before us today, though, it threatens Americans' energy independence and creates billions in new spending and threatens existing onshore activity even though it is framed as an ocean-based climate bill.

And included in the bill is the carbon program that requires NOAA to create a map of any upstream restrictions detrimental to the watershed process and conditions, including dams, dikes, and levees. In addition, NOAA must submit a report to Congress that assesses the threat to blue carbon ecosystems from water storage and flood control structures.

In my district, Mr. Chairman, we are nowhere near the ocean, but it is home to a large portion of the Rio Grande watershed, which contains many dams, reservoirs, and dikes. The Rio Grande watershed is also experiencing the extreme drought that threatens several important sectors in our economy like Ag, recreation, and others.

So, these existing dams and reservoirs are more important now than ever. In fact, we need more of them. In my view, the provisions I mentioned are the first step toward the breaching of critical existing dam infrastructures across the West. I am concerned with this bill that it would have extremely detrimental impacts to the existing assets that aid farmers across my district to receive water for irrigation and allow for my constituents to recreate along the river.

My question is for Mr. Guardado. Do you share these same concerns, and if so, can you give the Committee some examples of where NOAA or another Federal agency whose primary jurisdiction is offshore has made decisions that have had negative impacts on upstream resources?

Mr. GUARDADO. Yes. Thank you, Congresswoman. As a matter of fact, we have a major conflict of interest as it relates to the marine and coast inland. The tributary that I spoke of earlier today is some 40 miles away from the ocean. Dry gaps, as I mentioned, that river is dry 9 months out of the year and, in a drought, more than that, obviously.

But we talked about steelhead trout, and there is the resident rainbow trout, and that trout is deemed as a subspecies because the rainbow trout may have the genetics to turn into a steelhead trout. We are required to provide critical habitat for a trout that may have the capability and genetics to turning into steelhead.

We have never witnessed steelhead nor trout in this particular tributary, yet, again, having to provide water releases for habitat and considering a fish passage to accommodate the species.

Ms. HERRELL. That is right.

Mr. GUARDADO. So, here is a species that we are not allowed to touch, that we have to provide expensive monetary compensation to try to mitigate, yet the California Fish and Wildlife still allow permits and fishing license for the public to fish out that exact same species up to two a day.

Ms. HERRELL. That is right.

Mr. GUARDADO. So, how are we supposed to recover in those kind of conflicts?

Ms. HERRELL. Right. And I appreciate what you are saying, and, again, I feel like this bill, while the intentions are good, I feel like it is just over-reach. And I would like to ask you one more question, because in your testimony I like that you said we really need to be working collectively, working together.

So, what would you like to see or what ideas come to mind where we can see elements of this bill for our climate and ocean policies that would actually work where we can kind of bridge that gap? Because I think in this particular bill, what we are reading right now, it is an over-reach because it is compromising industries in my district and across the country, even those that are not right on the ocean.

Mr. GUARDADO. Thank you. Yes, it is that balanced approach, getting the right people in the room. We have a model for it. We had climate change as one of the topics in the resiliency portfolio that I spoke of earlier, sea water intrusion, over drafting, all these things you need the right people in the room.

If we follow the science, good, sound engineering, that will prevail all day every day. It is when those are ignored and then misinterpreted with open-ended language that gets us into trouble and creates the cost that you were speaking of to the constituents unnecessarily. The model is out there. This can be done, and I believe that.

Ms. HERRELL. Great. Thank you.

Mr. Chairman, or is that Chairman Batman? No, I am kidding, but I think that my time is almost up, and so I will yield back. And thank you, again, to all the witnesses and, Mr. Chairman, for putting this together. Thank you.

The CHAIRMAN. Chairman Batman, huh. I am more Green Lantern kind of stuff. But, anyway, recognizing myself, if there are no other Members, and thanking all the witnesses.

And let me ask a kind of general question. This blueprint with the Ocean-Based Climate Solutions Act, there have been some comments and some recommendations that have been pointed out that certainly merit consideration, Bureau of Reclamation's involvement, the mapping issue that is brought up again and again. But, overall, let me, if I could, Dr. Johnson, Ms. Gutiérrez-Graudiņš, and Senator Lee, a general question. This whole discussion is premised on that the last 4 years didn't exist and that we are all of a sudden beginning some process that is going to be viewed as a threat or detrimental to economic interest and local issues.

I think that we are operating under the premise that there is an urgency here, an urgency to begin to move, an urgency to do the best parts of this piece of legislation and move it forward. And I want to ask you about that urgency and the topic as being the role of oceans in climate, in addressing the climate crisis, but also in the ever-increasing climate crisis that we are facing here globally and certainly in our country.

So, talk about the need to move forward as opposed to be stuck in a place where nothing is done, which many times some of the recommendations I heard today is about leaving things as is, presuming there is no problem. Well, there is a problem, and it is a huge issue, and I want whatever reaction you might have in terms of the Committee moving forward on this piece of legislation and others dealing with the climate crisis. I can begin with Ms. Johnson, then Ms. Gutiérrez-Graudiņš, and Senator Lee for whatever time we have left. Thank you.

Dr. JOHNSON. Thank you for this question. I think, as a marine biologist, it has been very frustrating to see the ocean left out of

pretty much all major climate legislation, so this is very needed and overdue, and thank you for making sure that this gets the attention that it deserves.

And while there is always bits of room for improvement, I think I mentioned I would love to see more support for regenerative ocean farming in the bill, but overall, it really does hit the mark on a broad range of topics. And this work could not be more urgent, from reducing greenhouse gas emissions by reducing offshore drilling to protecting blue carbon.

And we have talked at length about the value of coastal ecosystems in absorbing so much more carbon per acre than happens on land. We give so much attention to trees and not enough attention to wetlands, marshes, seagrasses, and mangroves.

And I think it is important to also remember that this really is an economic issue. If we ignore it, if we do nothing, there are lives at stake. There are certainly millions of jobs at stake and billions of dollars at stake. So, doing nothing is a recipe for disaster. Ignoring the ocean when we think about climate solutions is a recipe for disaster.

So, I think the name of this bill alone represents a really important step forward in recognizing ocean-based climate solutions as about a fifth of the solutions to the climate crisis that we face. Also, I really appreciate the recognition of nature-based solutions, not just technology but thinking about the value of protecting and restoring ocean ecosystems, which are very much protecting us.

The CHAIRMAN. Thank you.

Ms. Gutiérrez-Graudiņš, if you want to add something to that, and obviously Senator Lee, we have a minute or so left.

Ms. GUTIERREZ-GRAUDIŅŠ. Thank you. Yes, I think it is important that we recognize the urgency of acting, that we know that ignoring the ocean is a potential huge mistake. We can't afford to make it because what is at stake is not just the environment and the health of the ocean but really the livelihood and the well-being of the communities that depend on them.

And I will say that it is important to do this mapping because, as we have heard before from Mr. Guardado, it is important that we follow the science. But how we get to the science is by getting this information, by doing this analysis, by getting this mapping, and really starting from there. Thank you.

The CHAIRMAN. Thank you. Senator?

Mr. LEE. Thanks very much. I would just throw in that, the faster we move, the less we are going to have to spend as governments dealing with this situation, because each passing year, it gets more and more expensive. And at the same time, I think there is a false dichotomy that this is going to cost money to do this when actually the investments we make are going to have an enormous return positively, both for state and federal revenues as well as job creation, economic benefit across the board that is going to benefit taxpayers from coast to coast and beyond. I think that is something that makes this sort of a no-brainer in a way where we can move forward benefiting all around. So, thank you for the opportunity to comment this afternoon.

The CHAIRMAN. And thank you to all the witnesses for your testimony. It is very much appreciated. And the conversation reminds me of the conversation back home in Arizona relative to the Colorado River, the subsidence of that water level, Lake Mead, Lake Powell, the subsidence and the seven basin states that depend on the river for water, and you find discussions within my state of basically everything will be all right, we just have to somehow muscle through this crisis.

All the science, all the facts are saying it is a mega drought. It is going to have economic and human consequences and life consequences on the region, and something has to be done beyond doing nothing. I think this is a kind of issue where sticking one's head in the sand is not a solution; it is making the situation even worse.

I appreciate all the comments and appreciate the suggestions that were made to the legislation by my colleagues, and we will be looking at those as well.

With that, the meeting is adjourned, and thank you very much for the hearing.

[Whereupon, at 6:32 p.m., the Committee was adjourned.]

[ADDITIONAL MATERIALS SUBMITTED FOR THE RECORD]

Submission for the Record by Rep. Grijalva

NATIONAL PARKS CONSERVATION ASSOCIATION

June 22, 2021

Re: NPCA Position on Legislation before the U.S. House Natural Resources Committee

Dear Representative:

Since 1919, National Parks Conservation Association (NPCA) has been the leading voice of the American people in protecting and enhancing our National Park System. On behalf of our more than 1.6 million members and supporters nationwide, I write to share our thoughts on H.R. 3764, the Ocean-Based Climate Solutions Act, ahead of a legislative hearing held by the U.S. House Natural Resources Committee scheduled for June 22nd, 2021. H.R. 3764 is comprehensive legislation that builds on knowledge and recommendations from recent national and international scientific reports and includes components and themes of the ocean-focused bills also included in the hearing.

H.R. 3764—Ocean-Based Climate Solutions Act: NPCA strongly supports this legislation, which harnesses the power of oceans to provide solutions to the climate crisis. Rising temperatures, melting glaciers, flooding, shoreline erosion, sea-level rise, extreme storms, coral bleaching and more are impacting America's national parks today, altering iconic landscapes, ecological processes, cultural resources, infrastructure assets and recreational opportunities. With 88 coastal parks in the National Park System covering more than ten percent of America's coastline, national parks need to be part of the climate solution.

NPCA supports H.R. 3764 and the accompanying ocean-related bills that provide important steps to protect and restore the ecological integrity and resiliency of coastal national parks, where natural landscapes and historical and cultural structures are on the front lines of climate change impacts.

This legislation will:

- **Substantially reduce greenhouse gas emissions.** NPCA recognizes that H.R. 3764 calls for reducing greenhouse gas emissions by advocating for stricter emissions standards of vessels, increasing appropriately sited renewable energy sources and energy efficiency such as offshore wind energy, and preventing the expansion of offshore oil exploration and drilling.
- **Protect the ocean's natural ability to store carbon and mitigate climate change, by conserving and restoring coastal "blue carbon" ecosystems, including mangroves, seagrass beds and salt marshes.** NPCA prioritizes restoring "blue carbon" ecosystems such as Everglades and Biscayne National Parks, Cape Cod and Point Reyes National Seashores, and Gateway National Recreation Area, and recognizes this legislation advances policies that enhance the ecological health of parks by restoring wetlands, mangroves and living shorelines to better withstand the worsening impacts of sea level rise and more intense storms.
- **Implement adaptation strategies to increase ocean protection resiliency to the unavoidable impacts of climate change. This includes strongly protecting at least 30 percent of the ocean in areas where marine wildlife can thrive, as well as promoting sustainable fisheries management, pollution reduction, ocean habitat restoration and ocean planning.** NPCA supports the goal of 30x30 and the creation of a 30x30 task force to focus on potential oceanic areas that deserve protection, building on the legacy of Presidents Bush and Obama to establish marine national monuments through the Antiquities Act to improve the health of national parks and the wildlife they support, particularly in sensitive habitats such as coral reefs which harbor the highest diversity of any ecosystem. For example, at Dry Tortugas and Channel Islands National Parks, scientists have found that fully protected marine reserves are contributing to bigger and more abundant sea life within protected areas.

Thank you for your consideration of our views. Please contact Sarah Gaines Barmeyer at [REDACTED] if you have any questions or concerns.

Sincerely,

CHRISTINA HAZARD,
Legislative Director

Submission for the Record by Rep. Westerman

STRONGER AMERICA THROUGH SEAFOOD

June 21, 2021

Chairman Raúl M. Grijalva
House Committee on Natural
Resources
Washington, DC 20515

Ranking Member Bruce Westerman
House Committee on Natural
Resources
Washington, DC 20515

Dear Chairman Grijalva and Ranking Member Westerman:

I am writing to express concern with aquaculture provisions of H.R. 3764, *the Ocean-Based Climate Solutions Act*. The section titled "Ocean Aquaculture Research and Policy Program" establishes a program for offshore aquaculture which would be limited to seaweed and shellfish only. Unfortunately, this falls short of what is needed for the U.S. to leverage the many environmental, societal, and economic benefits of offshore aquaculture. Instead, what America needs now is a comprehensive plan for managing and permitting U.S. offshore aquaculture, including finfish, that preserves existing environmental safeguards and minimizes impacts to existing ocean-based industries, much like what is envisioned in the 116th Congress' **Advancing the Quality and Understanding of American Aquaculture (AQUAA) Act**, H.R. 6191 and its bipartisan Senate companion, S. 4723.

Wild fish harvests are and always will be an important part of the seafood supply. There is, however, a significant environmental and social opportunity for aquaculture to supplement wild harvests in both domestic and international markets.

Aquaculture is one of the fastest growing sustainable forms of food production and has the unique potential to improve food security and nutrition, enhance coastal resiliency, create quality jobs, help restore species and habitats, and ensure that seafood (both wild-caught and farmed) continues to be an important part of the global food supply.

The **environmental benefits** of offshore aquaculture include water conservation, lessened emissions and greater animal protein production using little space. Offshore aquaculture requires no land, minimal fresh water and a relatively small amount of space to provide abundant, healthful seafood. Since fish are cold blooded and grown in water where the effects of gravity are lessened, they can convert feed to edible protein much more efficiently than warm blooded animals produced on land. Plus, farming in the ocean is *three-dimensional*, allowing much more animal protein to be produced in the same areal footprint.¹

During the past 30 years, management practices and scientific innovation have reduced, eliminated, or minimized many of the environmental risks at responsibly managed farms.² And, new coastal planning and siting tools are already available to assist managers, coastal planners and businesses in identifying suitable sites for marine aquaculture that avoid environmentally sensitive habitats and reduce spatial conflicts with existing ocean uses like fishing, shipping and energy development.

Unfortunately, domestic aquaculture is currently constrained by disjointed federal leadership and numerous regulatory hurdles, including overlapping jurisdiction of federal, state and local governments, and the absence of an efficient and affordable permitting process, particularly in U.S. federal waters.

To overcome these regulatory hurdles and lay the groundwork for strengthening the U.S. aquaculture industry, AQUAA authorizes NOAA to clarify a pathway for permitting offshore aquaculture operations which meet robust National Standards for Sustainable Offshore Aquaculture which, like the National Standards for commercial fishing outlined in the Magnuson Stevens Act, are guiding principles for growing coastal economies, protecting ecosystems, and avoiding conflict among stakeholders. AQUAA leverages modern siting and monitoring technologies to mitigate potential environmental impacts. It also provides for strict federal enforcement and includes a process for public input which ensures that coastal communities and states are considered prior to permitting new operations. In short, AQUAA provides much-needed regulatory certainty for U.S. marine farmers while also preserving the environment, local economies, and public health.

In addition to increasing our supply of healthful and sustainable American-raised seafood, growth of domestic aquaculture is an opportunity to revitalize the seafood industry which has been hard hit by the effects of COVID-19. As America rebuilds from the COVID-19 pandemic, creating a new American seafood source will have rippling effects throughout many areas of the country. Increased aquaculture production will lead to increased demand for American-grown crops such as soybeans, corn and peas which can be used in plant-based fish feed, will open up new markets to heartland farmers and lessen dependence on the uncertainty of foreign trade relationships.

For these reasons, I encourage the Committee to support comprehensive offshore aquaculture legislation, like the AQUAA Act, instead of the limited research and policy program included in H.R. 3764. For the U.S. to responsibly expand the aquaculture industry and tap into the full potential that aquaculture can provide, the AQUAA Act is the better choice.

Sincerely,

MARGARET HENDERSON,
Campaign Manager



¹World Economic forum 18 Oct 2017 Robert Jones, Global Aquaculture Strategy Lead, The Nature Conservancy <https://www.weforum.org/agenda/2017/10/how-aquaculture-can-feed-the-world-and-save-the-planet-at-the-same-time>.

²Hall, S.J., et al. Blue Frontiers: Managing the Environmental Costs of Aquaculture. Penang, Malaysia: The World Fish Center (2011).