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Legislative Hearing on Ocean-Based Climate Solutions
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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 towards 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 OBCSA 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 OBCSA 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 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 OBCSA 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 OBCSA 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.