Center for American Progress

Elevating Ocean-Based Climate Solutions

An Opportunity for U.S. Nonfederal Diplomacy

By Gwynne Taraska and Margaret Cooney August 16, 2018

When the Trump administration announced its intention to withdraw from the Paris Agreement on climate change, U.S. nonfederal actors—including states, cities, and businesses—launched alliances and initiatives to express their support for the agreement.[1] This nonfederal climate movement, once largely a reactive communications exercise, is increasingly engaging in international climate diplomacy.[2]

One opportunity for the U.S. nonfederal climate movement to lead and advance the global climate effort is to champion ocean-based climate solutions. Ocean and climate issues are inextricably linked—highly protected marine reserves, for example, can sequester carbon and protect coastlines—yet international climate forums have often overlooked the ocean-climate relationship.

Integrating the ocean into mainstream climate diplomacy

Better integration of ocean issues would unlock progress in the international climate effort, given the causal connections between ocean health and climate change. Greenhouse gas emissions are increasing ocean temperatures, with a cascade of physical and socioeconomic effects, including sea level rise, coastal flooding, redistribution of fish stocks, food insecurity, displacement of coastal and island communities, degradation of ocean ecosystems, and loss of human livelihoods.[3] Carbon dioxide emissions are also driving ocean acidification, which further threatens marine species and degrades food webs.[4]

At the same time, ocean ecosystems can affect climate change and the resilience of human communities and economies. Mangrove forests, seagrass meadows, and salt marshes, for example, can capture and store significantly more carbon than terrestrial forests while also defending coastlines from storms and flooding.[5] Protecting and restoring these ecosystems is therefore an essential strategy for mitigating and adapting to climate change.[6]

To date, climate agreements have sparingly recognized the role that the ocean can play in addressing climate change. The U.N. Framework Convention on Climate Change (UNFCCC) mentions the ocean among ecosystems that serve as carbon sinks.[7] Similarly, the Paris Agreement notes "the importance of ensuring the integrity of all ecosystems, including oceans" in its preamble.[8] Meanwhile, although many countries included references to the ocean in their first set of national climate goals under the Paris Agreement, they were often in the context of climate impacts rather than climate solutions.[9]

National and subnational governments, however, are increasingly recognizing the promise of ocean-based climate strategies, making it an opportune time to champion international cooperation on these issues. In 2015, Chile and France led more than 20 countries to sign the "Because the Ocean" declaration, which promotes ocean resilience and an ocean action plan under the UNFCCC.[10] In 2016, the Pacific Coast Collaborative launched the International Alliance to Combat Ocean Acidification (OA Alliance)—which now includes more than 25 national and subnational governments—in order to mitigate carbon pollution and help ecosystems and communities adapt to changing ocean chemistry.[11] In 2017, Fiji, Sweden, and a number of developed and developing countries launched the Ocean Pathway Partnership, which aims to promote ocean-based climate strategies and elevate ocean issues within U.N. climate meetings.[12] In 2018, Canada led the G-7 to endorse the Charlevoix Blueprint for Healthy Oceans, Seas, and Resilient Coastal Communities, which commits G-7 countries to advance issues such as coastal resilience and sustainable fisheries. Needless to say, a footnote clarifies that the United States "reserves on the climate related language in the Blueprint."[13]

Opportunities for U.S. nonfederal ocean-climate diplomacy

The U.S. nonfederal climate movement is well-positioned to focus on ocean-based solutions in its climate diplomacy. Several U.S. cities and states have already played a leadership role, including Washington state, California, and Oregon, which launched the OA Alliance alongside British Columbia in response to the effects of ocean acidification on oyster hatchery production. Meanwhile, other members of the U.S. Climate Alliance—the coalition of states that are committed to reducing greenhouse gas emissions and supporting the Paris Agreement—are looking for new opportunities to substantively advance the global climate effort.[14]

There are many countries that have been progressive on climate or ocean issues that could partner with U.S. nonfederal leaders on the interface. Transatlantic cooperation is possible with Germany and France, which have both recently championed causes such as marine protected areas in the Antarctic; transpacific cooperation is possible with small island states, which are on the frontlines of climate and ocean change as existential threats; and cooperation is possible throughout the Americas, where several Latin American countries, such as Chile, are promoting the inclusion of ocean-based solutions in national climate goals under the Paris Agreement.[15]

As a first step in ocean-climate diplomacy, U.S. state and local governments can join existing coalitions such as the OA Alliance or the Ocean Pathway Partnership. They can also fully integrate ocean issues into their climate summits in order to ensure that they do not reinforce old silos but instead set a global precedent. The Global Climate Action Summit in September 2018, for example, overlooked the ocean-climate relationship in its original program but subsequently created a "land and ocean stewardship" theme among more traditional themes such as clean energy and climate finance.[16] The summit also issued an "Ocean-Climate Action Agenda" to guide the integration of ocean issues in future climate diplomacy.[17] As U.S. states and cities continue to host these meetings, they can make ocean-based climate solutions a standard focus for programming and commitments.

More broadly, international ocean-climate cooperation and joint commitments can focus on the following areas.[18]

Reversing the loss of "blue carbon" ecosystems

Blue carbon ecosystems, such as mangrove forests, kelp beds, seagrass meadows, and salt marshes, are efficient carbon sinks. Mangrove forests, for example, can store up to four times more carbon than other tropical forests.[19] These ecosystems, however, are under threat. Over the past 50 years, mangrove forests have declined by up to half, and their destruction has caused significant carbon emissions.[20] International cooperation and commitments can focus on advancing blue carbon restoration targets; financing the protection of coastal ecosystems domestically and internationally; and incorporating blue carbon strategies into climate goals, including national climate goals under the Paris Agreement.[21]

Addressing ocean acidification

Carbon dioxide emissions increase not only global temperatures but also ocean acidity. Since the beginning of the industrial revolution, the ocean has absorbed approximately 40 percent of carbon dioxide emissions, with the acidity of surface water increasing 26 percent during that timeframe.[22] This threatens marine species, ecosystems, and economies, as illustrated by the 2005 collapse of oyster production in the Pacific Northwest.[23] International cooperation and commitments can focus on creating and implementing region-specific ocean acidification action plans. This is the current mission of the OA Alliance, which motivates governments to chart strategies for sustaining coastal communities and livelihoods. As with national climate goals created for the Paris Agreement, acidification action plans can be diverse, reflecting the challenges and opportunities of each region. Elements of these plans can include reducing local drivers or exacerbators of acidification, such as agricultural runoff;

restoring blue carbon ecosystems in order to temper local acidification; and devoting resources to scientific research to better understand acidification and its physical and socioeconomic effects.[24]

Creating and managing marine protected areas

Marine protected areas (MPAs) can play an important role in mitigating and adapting to climate change. Well-managed and well-enforced MPAs can preserve coral reefs, seagrass beds, mangrove forests, and other coastal ecosystems, many of which can help prevent coastal erosion and act as carbon sinks and storm buffers.[25] MPAs can also help ensure food security by aiding in the recovery of exploited fish populations.[26] International cooperation and commitments can focus on the designation of new highly to fully protected MPAs and the expansion of MPA networks across country lines.[27] They can also focus on the research, monitoring, and full range of enforcement activities necessary to maximize the climate, environmental, and socioeconomic benefits of these areas.[28]

Promoting food security

Increasing ocean temperatures, shifting currents, and ocean acidification are endangering already stressed ocean ecosystems and are causing dramatic changes in fisheries productivity, species abundance, and stock locations.[29] With seafood being a major source of protein for more than 3 billion people, global food security hinges on the ability to sustainably manage fisheries and aquaculture operations into the future.[30] International cooperation and commitments can focus on ending overfishing; defending against illegal, unreported, and unregulated fishing; and protecting key fishing habitats. They can also focus on financing alternative job training in order to sustain economies that face the depletion of local fisheries. As aquaculture increases as an alternative to wild-capture fisheries, it is important to ensure that operations use sustainable feed and are sited and managed to prevent pollution and avoid fish escapes.

Collaborating on green ports and reducing shipping emissions

Ports are major energy consumers and greenhouse gas emitters. Outdated technology and infrastructure, energy inefficiency, and lack of vessel travel planning all contribute to unnecessary emissions.[31] Meanwhile, the shipping industry itself is a growing source of carbon emissions. Without additional efforts, it could account for 17 percent of global carbon emissions by 2050.[32] To combat this, the International Maritime Organization aims to reduce international shipping emissions by at least 50 percent from 2008 levels by midcentury.[33] International cooperation and commitments can

focus on promoting "green port" initiatives, such as implementing sound environmental management for dredging projects and offering a docking discount for vessels that use more environmentally friendly engines; incentivizing emissions reductions through coastal emissions standards; and promoting operational and technological options that can drive decarbonization, such as the "slow steaming" practice of reducing ship speed and thereby reducing fuel consumption.[34]

Supporting "green infrastructure" for coastal protection

Healthy ocean and coastal ecosystems, including coral reefs, mangroves, and dunes, provide invaluable services to coastal communities, which is why they are referred to as "green infrastructure." Coral reefs, for example, reduce ocean wave energy, protecting coastlines from flooding.[35] Without reefs, global flooding would increase in area by nearly 70 percent, affecting approximately 80 percent more people and more than doubling annual damages.[36] Mangroves and seagrasses similarly help protect coastlines from flooding; they also stabilize sediment, reducing coastal erosion.[37] With approximately 40 percent of the global population living in coastal areas, protecting and restoring these ecosystems is a key strategy for global climate preparedness.[38] International cooperation and commitments can focus on green infrastructure for coastal protection domestically and internationally, with an emphasis on particularly vulnerable regions such as small island states. They can also support multilateral efforts, such as the Adaptation Fund, that implement coastal resilience projects.[39]

Cooperating on survival plans for climate-threatened marine species

Many marine species are highly migratory, traveling great distances between exclusive economic zones and into the high seas. However, changes in ocean temperatures, currents, and acidity are causing more species to travel farther from their native habitats, with some species extending or altogether moving their habitable ranges poleward.[40] Meanwhile, conservation efforts for climate-threatened marine species can be complicated by a lack of regulatory framework for ocean areas beyond national jurisdiction (ABNJs). International cooperation and commitments can focus on the development and implementation of survival plans for transboundary marine species. In order to facilitate the conservation and management of highly migratory marine species in ABNJs, these efforts can also support the development and implementation of a U.N. high seas commission.

Conclusion

Despite the significant role that the ocean plays in mitigating and adapting to climate change, the ocean is still not a mainstream topic for climate diplomacy. By widely pursuing cooperation on ocean-based climate solutions, the U.S. nonfederal climate movement could drive better integration of ocean and climate policy globally, which could be the next major step forward in the international climate effort.

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Endnotes

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