

National Oceanic and Atmospheric Administration

CLIMATE **21** PROJECT

Transition Memo

National Oceanic and Atmospheric Administration

LEAD AUTHORS

Jean Flemma, Ocean Defense Initiative, former Subcommittee Staff Director and Senior Policy Advisor, U.S. House Committee on Natural Resources **Miriam Goldstein**, Center for American Progress

* Professional affiliations do not imply organizational endorsement of these recommendations

Contents

EXECUTIVE SUMMARY	1
Summary of Recommendations	2
THE MEMO	
1. Management, Budget, and Structure	3
2. Key Program Opportunities and Recommendations	7
3. Cross-Cutting Priorities and Relationships	12
4. Miscellaneous Recommendations	14
APPENDICES	
Appendix A: NOAA Organization and Budget	17

This memo is part of the **Climate 21 Project**, which taps the expertise of more than 150 experts with high-level government experience, including nine former cabinet appointees, to deliver actionable advice for a rapid-start, whole-of-government climate response coordinated by the White House and accountable to the President.

The full set of Climate 21 Project memos is available at climate21.org.

CLIMATE **21** PROJECT

Transition Memo

National Oceanic and Atmospheric Administration

Executive Summary

NOAA's mission is to understand and predict changes in climate, weather, the ocean, and coasts; share that knowledge and information with federal agencies, states, and the public; and conserve and manage coastal and marine ecosystems and resources. As a primary source of timely and authoritative scientific data and information about climate, and with its ancillary website, Climate.gov, NOAA promotes the public understanding of climate science and climate-related events and is the lead agency for the National Climate Assessment.

Because of its roles as a collector and provider of scientific information and data and as a resource manager and regulator, NOAA plays a critical part in furthering climate mitigation as well as climate adaptation and resilience efforts in the United States. Housed within the Department of Commerce, NOAA is led by the Under Secretary for Oceans and Atmosphere/NOAA Administrator (Administrator) and had a \$5.3 billion discretionary budget and 11,000 FTEs in 2020, representing 60 percent of the department's budget. However, since NOAA was established 50 years ago, more than one Secretary of Commerce has been appointed with little or no knowledge of the NOAA portfolio. Given its essential role as a climate information agency, it will be very important for the new Secretary to be a champion for NOAA and its climate data and services.

NOAA's goal in a new administration should be to expand and make climate data, products, and services even more easy to access and use, provide climate-related support to state and local governments as well as to the private sector, and connect people making specific adaptation and planning decisions with the tools and resources they need. At the same time, NOAA should expand both mitigation and adaptation opportunities for coastal communities and fisheries by expanding coastal resiliency and blue carbon habitat restoration efforts, and by establishing a mandate for climate-ready fisheries.

Although there was an effort to undermine the integrity of NOAA's climate science late in the current administration that will need to be remedied under new leadership, the agency is generally trusted by the public and should build on this to expand the services they provide.

This memo provides the incoming NOAA Administrator and senior leaders with opportunities to maximize the agency's contributions to an aggressive administration-wide climate change policy effort. This memo focuses on measures that will either generate positive near-term impacts or set the agency up to develop and implement a broader first-term climate agenda.

CLIMATE **21** PROJECT

Transition Memo

National Oceanic and Atmospheric Administration

TOP RECOMMENDATIONS: MANAGEMENT, BUDGET, AND STRUCTURE

- Nominate a NOAA Administrator early (Transition/Day 1)
- Establish a NOAA Climate Council to ensure collaboration across line offices (Day 1)
- Convene a Day 1 all-hands meeting to reinvigorate morale among NOAA personnel (Day 1)
- Restore scientific integrity of NOAA and the Department of Commerce (100 days)
- Propose increased funding for:
 - Climate observations, predictions, and forecasts and the computation needed to improve them;
 - The development and dissemination of climate products and services;
 - NOAA habitat protection, restoration and resilience programs that store carbon and protect coastal communities (100 days)
 - National Marine Fisheries Service (NMFS) Science Centers to support climate-ready fisheries management, national climate assessments, and the environmental reviews needed to expand offshore renewable energy siting

TOP RECOMMENDATIONS: KEY PROGRAM OPPORTUNITIES

- Issue a Day 1 Administrator's order on climate change to:
 - Establish a NOAA Climate Council
 - Require each line office to develop a near-term climate rapid response plan and five-year research spending plan
 - Announce an initiative to expand and enhance NOAA's climate products and services, working closely with end users such as cities, states, federal agencies, and the private sector to better assess risks and opportunities and make informed decisions
- Expand and enhance climate observations, predictions, and forecasts
- Expand and elevate NOAA habitat protection, restoration and resilience programs to protect blue carbon and increase resilience for coastal communities.
- Issue an Administrator's order directing NMFS to prioritize integrating climate science into fisheries management decisions and increase funding for the science needed to support those efforts (100 Days)
- Elevate, realign and reinvigorate the Marine Protected Area (MPA) program with a focus on climate adaptation, mitigation and resilience (*Day 1*)
- Support the development of offshore renewable energy (100 days and ongoing)

TOP RECOMMENDATIONS: INTERAGENCY PRIORITIES AND RELATIONSHIPS

- Assert NOAA's commitment to serve all communities in the U.S.
- Re-establish NOAA's role and leadership internationally (100 Days)
- Rebuild relationships with Capitol Hill (100 Days)
- Reestablish the focus of NOAA as an Earth systems agency (100 Days)

Management, Budget, and Structure

NOAA has been neglected by the administration during the last four years, and as such there are a number of urgent rebuilding opportunities for the new administration to take on from Day 1. Most pressingly, NOAA has been without Senate-confirmed leadership for the entire Trump administration. Career staff face morale issues due to the lack of leadership and working for an administration that denies climate change and distrusts science. It has also been the target of repeated, but unsuccessful proposals to slash its budget, including programs focused on climate change. A new administration must make sure nominating a NOAA Administrator, expanding climate research and services, and restoring NOAA's scientific integrity are among its highest priorities. To further strengthen NOAA's leadership role in addressing the climate crisis, the new administration should establish a NOAA Climate Council and explicitly encourage career staff to work across traditional line office silos to further climate priorities.

MANAGEMENT AND BUDGET OVERVIEW

The current administration has repeatedly proposed large decreases in the NOAA budget, including cutting or eliminating significant programs related to climate change and coastal restoration. Each time Congress has ignored those proposals. In 2020, NOAA's budget sustained only about a 1% cut in appropriations overall, with the decrease in funding attributed to a decline in satellite acquisition costs for NESDIS. In fact, every other line office in the agency saw an increase in funding in 2020.

The NOAA budget is extremely "line itemed," the result of years of delineation by appropriators who supported specific programs and sought to limit the agency's spending flexibility to protect those programs. Therefore, any perceived effort to shift funding away from existing programs and toward the overwhelming need to target climate change mitigation, adaptation, and resilience will be challenging, particularly when the agency already has significant resources targeted at climate change. Instead, new leadership should think collaboratively with line offices about how to direct existing programs toward addressing the climate challenge and also look for increases, where possible, to enhance climate priorities. Those increases are discussed in more detail in several places in the following memo. Given the nature of the budget cycle, shifting or increasing funding for climate change priorities will need to be quickly and carefully navigated.

- **Fiscal Year 2021:** By the time a new administration takes office, FY2021 funding will likely have already been agreed to by Congress. Because of the nature of the NOAA budget, reprogramming is incredibly difficult. The higher priority should be engaging line offices in the climate goals of the new administration, working through existing programs and the development of climate research and action plans.
- **Fiscal Year 2022:** The new Administrator should look to incorporate the highest priorities of the climate research spending plans put forward by each line office (more details below) and the highest priorities for expanding climate products and services into the FY2022 budget request, which will likely be submitted in March.
- Fiscal Year 2023: As soon as the FY2022 budget request is submitted, the agency should begin the longerterm effort to expand funding for:
 - Climate observations, predictions, forecasts, and computation: The agency should assess the current state of NOAA's observations, predictions, and forecasting assets, recommended upgrades and expansions, and opportunities to eliminate any redundancies and reduce costs.

- Expanded and enhanced climate products and services.
- Coastal blue carbon and ocean habitat resilience, protection, and restoration.
- NMFS Science Centers to support climate ready fisheries management, national climate assessments, and the environmental reviews needed to expand offshore renewable energy siting.

Outside the regular budget process, should a larger economic recovery package be considered in the early months of a new Congress, the new administration should support the investment of \$3 billion in shovel-ready coastal restoration projects to be administered by NOAA. A similar program was authorized in HR 2, The Moving Forward Act, which passed the House of Representatives this year. Such a program would restore habitats that mitigate climate change; create as many as 45,000 jobs in communities from the Gulf Coast and the Great Lakes to rural Maine and coastal Alaska; restore important fisheries' habitats, benefiting commercial and recreational fishermen; and protect coastal communities from rising sea levels and intensifying hurricanes and storms.

STRUCTURAL AND ORGANIZATIONAL OPPORTUNITIES

Nominate a NOAA Administrator early (Day 1 or earlier)

As noted, NOAA has been without Senate-confirmed leadership for the entire Trump presidency. The first candidate for Administrator (Barry Myers) was not formally nominated until October of 2017, and after two years, his name was withdrawn from consideration. Since January of 2017 then, NOAA has been led by an acting Administrator. The current acting Administrator, Neil Jacobs, was formally nominated for the position, but he has found himself involved in a scandal known as "SharpieGate" and investigated by both the Commerce Department inspector general and the National Academy of Public Administration.

There is general agreement that strong agency leadership needs to be restored early in the next administration, in order to send a message regarding the importance of science and the role of NOAA in advancing the new administration's climate agenda. During President Obama's transition, the nominee for NOAA Administrator was among the first set of nominees put forth as part of a science team to send a similar signal.

Appoint experienced political appointees and senior policy advisors (100 Days)

There are limited political appointee slots in NOAA including the Administrator's slot.¹ Choosing appointees who are committed to the new administration's climate change agenda is important, of course, but it is equally important that they also understand and respect the need to empower career leadership at NOAA, work productively with Capitol Hill, and build relationships with other agencies. (See appendices for a description of some of those political slots and their importance for achieving climate change goals.)

Among these political slots, the Administrator has typically had between three and five senior policy advisors on his or her executive team. The Administrator should appoint seasoned advisors who are experienced and knowledgeable on climate policy and science. These senior policy advisors can also serve as liaisons to the Climate Council (see below) and to the line offices.

Establish NOAA Climate Council to ensure collaboration across the line offices (Day 1)

Each of NOAA's six line offices has a role to play in advancing some aspect of a new administration's climate agenda, but the work can too easily become siloed. Establishing a NOAA Climate Council on Day 1 would send a positive message that collaboration on climate change across line offices is encouraged and expected.

¹ The number of political appointee slots in past administrations was 18, but this number can change based on administration.

The Climate Council should be chaired by the Administrator, with general oversight and regular operation delegated to the Deputy Administrators for Conservation and Management and for Environmental Observation and Prediction. Its membership should also include senior policy advisors to the Administrator and the Assistant Administrators of each line office. Empowering and vesting career line office Assistant Administrators in the administration's goal of acting quickly and aggressively to tackle climate change will be key to cultivating agency commitment to action.² The Council should also include the senior policy advisor to the Secretary of Commerce, who is responsible for NOAA.

Some have suggested that a new administration should commit to establishing a new line office or National Climate Service within NOAA, but there is not universal agreement on this concept. Proponents felt it would be an effective way to combine all of the climate functions of the agency into a single line office. Others express concern that significant time could be spent, and possibly lost, on winning approval for such a reorganization both within the existing line offices and with Congress. A NOAA Climate Council can be established immediately to integrate the climate work of the existing line offices and to rapidly deploy NOAA resources while the possibility of establishing a climate service is assessed.

Restore scientific integrity at NOAA and the Department of Commerce (100 Days)

From severe weather warnings to predictions of sea level rise, decision makers and the public need to trust NOAA's information products. Historically, they have. Unfortunately, the actions of some NOAA and Commerce political appointees during Hurricane Dorian—documented in the recent reports from the Department of Commerce inspector general and the National Academy of Public Administration and popularly known as "SharpieGate"—did lead to concerns about the dangerous long-term implications of political interference in NOAA's weather forecasting, climate predictions, and other scientific information and analyses they provide. Of further concern is the recent appointment of a well-known climate denier to a senior position in NOAA headquarters as well as the appointment of a known climate skeptic to be chief scientist (and the removal of the acting chief scientist who had initiated the scientific integrity investigation into SharpieGate).³

NOAA does have a scientific integrity policy that was adopted during the Obama administration in response to a March 9, 2009, presidential memorandum. But during the SharpieGate investigation and in a recently suspended investigation into possible political interference in a biological opinion developed around North Atlantic right whales with respect to seismic testing, gaps in the current policy became clear. First, while the acting Administrator of NOAA was found to have violated the agency's own scientific integrity policy, there were no penalties for that violation and therefore, nothing to preclude it from happening in the future. Second, the IG investigation found that employees at the Department of Commerce also violated the NOAA scientific integrity policy, but that the policy did not actually apply to them. Given the relationship between the department and the agency, there is, again, nothing to preclude this from happening in the future. Finally, the suspension of the right whale investigation would appear to indicate that political interference can actually stop an investigation into political interference, which is also of significant concern.

To ensure the ongoing integrity of NOAA's science as all agencies work quickly to address the extreme challenges posed by climate change, the new administration must address the lack of penalties for violating the policy, ensure investigations cannot be suspended without cause, and ensure that the Commerce Department is covered by a similar policy, either independently or by applying the NOAA policy to Commerce employees. Further, there will be a need to ensure climate deniers hired in political slots do not remain in the agency.

² As noted, there are six line offices. One has a politically appointed Assistant Administrator (Fisheries), while the remaining offices are led by career staff.

³ <u>https://www.washingtonpost.com/weather/2020/09/13/noaa-hires-david-legates-climate/</u>;

https://www.washingtonpost.com/weather/2020/09/21/noaa-chief-scientist-maue/

Reinvigorate NOAA personnel and inspire to action: All-Hands Meeting (Day 1)

There has not been the level of brain drain at NOAA that some other agencies have experienced, but SharpieGate and the lack of a confirmed Administrator for four years has led to morale issues that will need to be overcome. The Obama administration held a NOAA all-hands meeting shortly after taking office in January, a measure that was well-received by career staff and should be replicated. By reaffirming the commitment to science-based decision making to staff and calling them to rally behind the fight to address climate change, the new Administrator can set the tone on Day 1.

There are NOAA career staff who are ready to lead on climate, but a clear directive indicating climate change is a priority, instead of something to keep under the radar, will be important. Further, as noted, staff should be encouraged to work across line offices to solve the climate challenges facing our country. Without that explicit challenge, the tendency will be to conduct business as usual. The Administrator should fill empty career leadership positions with respected managers, including some line offices where Assistant Administrators are currently designated as acting, and senior career staff should be considered as partners in establishing and implementing a progressive climate change agenda.

Finally, sending the Assistant Secretaries for Conservation and Management and for Environmental Observations and Predictions on a listening tour of regional and local NOAA offices around the country would provide an opportunity to address some of the remaining morale challenges left in the wake of the current administration.

Establish a pipeline for recruiting new staff, retain senior staff, and diversify NOAA

Enticing the "best and brightest" to join the federal government is key to finding innovative solutions to fighting climate change. A generational shift in science staff is underway, with many current career employees nearing retirement age (as with much of the federal government). However, it should not be difficult to recruit recent graduates to the fight against climate change because of the advantages of federal service (e.g., interesting work, job security, the struggling economy), if there was a clear and rewarding pathway to do so and if there was a robust conversation on the role of government scientists.

To bring in new staff, the existing fellowship programs, such as the Sea Grant Knauss fellowship and the AAAS Science and Technology Policy fellowship, could be expanded and the fellows retained as permanent staff. For existing staff, rotating opportunities between departments could improve both retention and skills. NOAA's education program is also a key asset that allows the agency to train the specialized expertise that it requires, such as seafloor mapping.

Senior career staff have valuable expertise, but they are exhausted and depleted. However, many senior officials can likely be enticed to stay on in a new administration if there is the prospect of important and valuable work to address the climate crisis.

Finally, the NOAA workforce lacks diversity. The new Administrator must implement concrete steps to diversify the workforce and ensure outreach to currently underserved communities, many of which are on the front lines of the climate crisis.

$2 \underset{\text{and Recommendations}}{\text{Key Program Opportunities}}$

To compensate for four years of climate-denial by the current administration, there are a number of policy actions NOAA's leadership must take in the first 100 days of a new administration. First and foremost, the new Administrator should issue a climate change order on Day 1 to make clear the agency's role in leading the fight against climate change and to establish a Climate Council. Additionally, NOAA leadership must expand and enhance the agency's climate products and services and its ability to observe, predict, and forecast; expand and elevate NOAA habitat protection, restoration and resilience programs to protect blue carbon and increase resilience for coastal communities; modernize NOAA's fisheries management policies to better address climate change; elevate, realign and reinvigorate the Marine Protected Area program with a focus on climate adaptation, mitigation and resilience; and ensure NOAA is a constructive partner in offshore wind permitting activities.

OPPORTUNITIES AND RECOMMENDATIONS

Administrator's Order on Climate Change (Day 1)

The new Administrator should issue a Climate Change Order on Day 1, setting a tone for the agency regarding the leadership role it will take in advancing a progressive climate change agenda in the U.S. The order should, among other things:

- Establish a NOAA Climate Council. The Administrator's order should establish the NOAA Climate Council, as outlined in the previous section.
- Charge each line office with developing a climate change "rapid response plan." These plans will outline the actions each line office will implement over the next two years to move the U.S. toward achieving the administration's overarching climate goals and toward NOAA's own specific goals for mitigation, adaptation, and resilience. The rapid response plans should be done in the first 100 days, and specifically require that each line office detail how they will work collaboratively across the line offices to implement their plans to address the greatest climate change challenges facing our country, from sea level rise and flooding to drought and wildfires.
- **Require each line office to develop a five-year climate research spending plan.** These plans would identify the gaps in understanding the changing climate system, the estimated tools and costs required to address those gaps (e.g. more ocean observations, more computing power), and proposals for potential NOAA products and services that could be developed to inform decision makers. The plans should be done in 30 days so that highest priorities may be incorporated into the President's 2022 budget request.
- Announce a climate products and services initiative. The initiative will include a series of climate resources roundtables with senior career representatives from each line office, senior policy advisors to the Administrator, and a broad suite of stakeholders who have a need for the products and services the agency can provide. Outreach should include organizations such as the National Governors Association, the National Leagues of Cities, and the National Conference of Mayors, and representatives from business, including the reinsurance industry and others stakeholders, to establish a process for assessing on a regular basis the tools they need in order to incorporate adaptation measures into their planning and decision-making processes.

Expand and enhance climate observations, predictions, and forecasts

NOAA has enormous climate science assets, including the observational assets deployed by NESDIS, the critical climate modeling done by OAR, and the invaluable predictions provided by the NWS. NOAA is the lead agency and repository for greenhouse gas emissions for the globe, and the lead agency on the National Climate Assessment in the U.S. The National Center for Environmental Information within NOAA is the world's largest provider of weather and climate data.

Through ocean observation systems, satellites, and other data collection and monitoring programs, NOAA's charge is to provide the information that decision makers need at the federal, state, and local level to plan for climate change. However, while NOAA can produce reliable weather forecasts as far as 10 days out, climate forecasting capabilities are not comparable. The agency has a clear need to improve both climate and weather forecasting capabilities with more lead time and to more accurately forecast extreme weather events. There is also an urgent need to improve climate predictions on a 3-, 5-, 10-, and even 50-year time scale to make those predictions useful for decision-makers.

Prioritizing observation needs to improve these forecasts and predictions will be an important aspect of the fiveyear research spending plan required in the Administrator's order on climate change. More specifically, the plan should identify observational requirements both inside and outside of NOAA, and future gaps in both research and operational observations that will need to be addressed.

While NOAA has just finished a period of expanding satellite capabilities, some additional data collection tools will warrant more spending in the immediate future.⁴ This includes increasing sensors and tide gauges to get better resolution of coastal zones and adding some additional instruments on satellites that are already deployed or being deployed to expand the kinds of information currently collected.

Investment is also needed to increase the use of unmanned systems, such as drones, underwater gliders, and eDNA sensors, which are changing the ability to collect information and observations, allowing the collection of more and richer data at a lower cost than manned systems. Drones also provide rapid assessment capabilities after a disaster that planes cannot provide.

NOAA should also invest in more modeling and computer power to provide more reliable and precise predictions and forecasts for both weather and climate on short- and longer-term time scales. Although NOAA has just signed a contract to triple their computer power, there is general agreement that additional power will enhance these capabilities.

Expand and enhance NOAA's climate products and services portfolio

NOAA's climate information work is among the agency's most important contributions to federal climate change programs, its products and services should be expanded to deliver that information in useful formats for decision makers. Transmitting these data in user-friendly packages will be key to the adaptation efforts that federal agencies, states, cities, and local communities must undertake to prepare for the inevitable impacts of climate change, including sea level rise, drought, and more intense storms.

NOAA's existing model for this, the six Regional Climate Centers (RCCs), are charged with supporting the development and delivery of a wide range of place-based climate science and information products and services to help people make informed decisions. The RCCs play a primary role in integrating the work within NOAA and among partners engaged in developing and delivering climate services at the regional level, including the Regional Integrated Sciences and Assessment (RISA) programs.

⁴ NOAA has a range of options available for expanding data collection beyond launching new satellites including contracting commercial satellites to deploy the sensors that they need, adding additional sensors to NOAA's own satellites, or buying some data from private satellite operators.

It was the Northeast RISA, for example, that worked with partners to co-create a heat vulnerability index with the New York City Department of Health and Mental Hygiene. The index helps city decision makers target resources to NYC's most heat-vulnerable neighborhoods for investment in cooling and adaptation strategies, including tree planting, cool roofs, and cooling centers for better extreme heat preparedness. These kinds of products and services will only become more important in the coming years, but several regions of the country are not currently covered by RISAs, however, and currently three of the six RCC lack permanent directors.

Not only do RISAs need to be expanded to all parts of the country, and the RCC director positions filled, but NOAA also needs to commit to expanding these kinds of services to provide more localized predictive climate products, including vulnerability assessments for municipalities and cities (for things such as sea level rise, extreme heat, and drought), as well as ecological predictions and forecasts. To do this, the agency will need to work more regularly with states, cities, municipalities, and other end users (as noted in the recommendation regarding the Administrator's order on climate change above) to identify the tools needed and develop them based on regular input in product development.

As an example, the report accompanying the 2021 Commerce, State, Justice appropriations bill in the House specifically directed NOAA to initiate and accelerate efforts to create a National Coastal Data Information System that combines existing observations, modeling, predictions, products and services into an integrated framework for producing and maintaining authoritative and timely data, maps and information services that quantify and communicate coastal flood risk to the U.S. states and territories; develop and strengthen partnerships with coastal communities and other federal agencies to better assess information gaps and needs; and produce new information products and services, targeted to end-user needs, that allow coastal communities across the U.S. to plan for coastal flood risk now and in the future.

Expand and elevate NOAA habitat protection, restoration and resilience programs to protect blue carbon and increase resilience for coastal communities

NOAA has several programs geared toward protecting and restoring habitat for sustainable fisheries and related marine ecosystems, but these programs have additional benefits, including mitigating climate change. Many of the coastal blue carbon ecosystems that provide fisheries habitat—salt marshes, seagrass beds, and mangroves—remove up to four times more carbon from the atmosphere per acre than land-based ecosystems. Habitat protection and restoration also protects coastal communities threatened by the sea level rise and more extreme weather events resulting from climate change that tend to hit "first and worst" in communities of color. Direct investing in coastal resiliency and improved natural infrastructure will save lives and money.

Restoration and resiliency work can also directly stimulate the economy, which may be particularly important as a new administration seeks to facilitate the recovery of the economy in the aftermath of the pandemic. In 2017, a NOAA analysis found that stimulus-supported coastal restoration projects created 15 jobs per million dollars spent.

Programs that fund protection, restoration and resiliency work include the Coastal Zone Management Grants (CZMA; \$77 million in 2020), Habitat Conservation and Restoration Program (\$58 million in 2020), and the National Coastal Resilience Fund (NCRF; \$33 million in 2020). As the new administration considers where to increase funding for climate change mitigation, adaptation, and resilience, these programs should be prioritized.

There is a significant backlog of ocean and coastal restoration projects nationwide that could be undertaken immediately with adequate funding. In 2017, the NCRF received more than 167 proposals for projects totaling more than \$135 million, but it was only able to award funding to 19 projects totaling \$13.8 million. There is political support for expanding these programs in Congress as well. CZMA, NCRF, and the Habitat Conservation and Restoration Program all received funding increases in the 2021 appropriations bill passed by the House. And while NCRF is currently funded with appropriations, Senator Sheldon Whitehouse (the original sponsor of the fund) has been seeking a permanent source of funding. The House has also passed an authorization for \$3 billion for a coastal and ocean restoration grants program that might ultimately find its way into a larger infrastructure package to rebuild the U.S. economy in the aftermath of COVID-19 (noted earlier in this memo).

As a means of prioritizing habitats for protection and restoration, NOAA should produce, update annually, and maintain a national map and inventory of coastal blue carbon ecosystems, establishing and identifying Coastal Carbon Areas of Significance to ensure their protection and enhancement and to provide guidance to relevant federal agencies. Further, the new administration should codify a strong federal "no net blue carbon loss" policy. Both of these concepts were recommended by the Select Committee on the Climate Crisis and are found in an ocean-based climate solutions bill that was introduced in the House of Representatives in October.

Finally, NOAA should consolidate all of its climate-related grant programs in one easy-to-find location on its website and work to ensure these programs are complementary to maximize blue carbon protection and restoration efforts.

Establish a mandate for climate-ready fisheries and increase funding needed to support management in a changing climate (100 Days)

Climate change is already disrupting fisheries and fishing communities around the U.S. As the geographic ranges of fish stocks shift due to changing water temperatures, fisheries along the east and west coast are moving north, leading to increased interactions with protected species and allocation conflicts among fishermen. Climate change also changes the abundance of fish stocks, and heat waves and algal blooms impact fish populations. Further complicating matters, stocks that have been overfished will be less able to adapt to climate change while sustainably managed fisheries will have a better chance of adapting. The current management systems in both state and federal waters do not adequately factor climate change into the decision-making process, threatening the sustainability of commercial and recreational fisheries that generate more than \$200 billion in sales and 1.7 million jobs.

To address this, the NOAA Administrator should issue an order directing the National Marine Fisheries Service (NMFS) to work with other lines offices in the agency as appropriate to support the integration of climate science and the impacts of climate change on fisheries, ecosystems, and communities into climate-responsive management options. Additionally, NMFS should issue more comprehensive agency guidance to regional fishery management councils and their science and statistical committees on best practices for incorporating climate change considerations into the science and management process. As noted earlier, increasing funding for NMFS Science Centers can provide the additional surveys and stock assessments that will be needed to support climate-ready fisheries management.

Implement an administrative order to elevate, realign, and reinvigorate the MPA program with a focus on climate adaptation, mitigation, and resilience (100 Days)

Marine protected areas (MPAs) represent a nature-based solution to support climate adaptation, mitigation, and resilience. MPAs that protect coastal habitats, such as barrier islands, coral reefs, mangroves and wetlands, reduce human vulnerability and provide the natural infrastructure needed to buffer against storms and sea level rise. Strongly protected MPA networks in coastal blue carbon habitats—such as mangroves, seagrasses, salt marshes—can ensure that no new emissions arise from the loss and degradation of these areas. At the same time, they stimulate new carbon sequestration through the restoration of degraded coastal habitats. And MPAs provide areas of reduced stress, improving the ability of marine organisms to adapt to climate change.

In the U.S., MPAs in federal waters are not fully capitalizing on these benefits. First, already established MPAs are not managed in a holistic manner. Marine National Monuments are managed by the National Marine Fisheries Service, and the National Marine Sanctuaries program is located within the National Ocean Service. Second, in the case of both sanctuaries and monuments, existing management plans do not always incorporate the goals of climate adaptation, mitigation, and resilience. Finally, President Trump recently rolled back protections for the only Marine National Monument in the Atlantic—the Northeast Canyons and Seamounts—undermining the adaptation and resilience benefits it provides.

The new Administrator should issue an order in the first 100 days committing NOAA to work with other relevant agencies to establish a process for protecting 30 percent of the U.S. ocean by 2030. This can be done separately or as part of the Climate Order described above. This process should include identification of places to protect biodiversity and provide climate adaptation, mitigation, and/or resilience benefits. The process should also assess existing

protected areas and recommend needed changes in management plans and management processes across line offices to maximize those benefits.

Support the development of offshore renewable energy while ensuring environmental impacts are minimized

As the country and a new administration seek to transition away from carbon-based energy production and toward renewable sources of energy, the expansion of renewable energy production is critical. Globally, offshore wind development is rapidly expanding as costs fall and governments around the world seek to meet their international commitments to reduce emissions, but the U.S. offshore wind industry has been slow to develop due to a number of factors. As of mid-2020, there are only two operational offshore wind facilities in U.S. waters, but there are as many as 30 additional projects in various stages of development.

NOAA has much of the science and information needed to help identify best places for siting offshore wind from an engineering and energy generation standpoint. NOAA is also responsible for marine resource protection under the Endangered Species Act, the Magnuson Stevens Fishery Conservation and Management Act, and the Marine Mammal Protection Act. This gives them a pivotal role in assessing and regulating the cumulative impacts that will need to be addressed in order to scale up offshore wind and other offshore renewable energy projects. On the Atlantic Coast, NOAA's work will be particularly challenging given the need to protect right whales, which are so critically endangered that NOAA is legally unable to issue a take permit for even a single whale.

The new Administrator should direct NMFS and other appropriate line offices to develop a collaborative process with the Bureau of Ocean Energy Management to assess personnel needs, identify research gaps for assessing cumulative impacts, and identify other scientific research and data the agency has available and that is still needed to help support the expansion of offshore wind while minimizing environmental impacts.

In addition to endangered species and other marine ecosystem impacts, concerns have been expressed by other stakeholders, including fishermen, about potential conflicts with the expanding offshore renewable energy industry. Providing support for the Regional Ocean Partnerships that engage these different stakeholders will be one important mechanism for addressing these conflicts.

3 Cross-Cutting Priorities and Relationships

NOAA does not exist in a scientific vacuum; its very success depends on its leaders' ability to work together across line offices, within the rest of the Department of Commerce, with members of the administration and on Capitol Hill, and with the broader scientific community. Building and strengthening these relationships will be a high priority for the incoming Administrator and their team, as will building a foundation for better supporting communities of color with its work.

RECOMMENDATIONS

NOAA must serve all communities across the country

A critical aspect of serving as the environmental information agency to advance action on climate change in the U.S. will be ensuring that NOAA works equitably for communities across America. Currently, many of the communities hit first and worst by climate change are often overlooked. It is critical that the new administration and new leadership at NOAA establish a commitment to serve all communities with climate products and services, climate forecasts, and predictions.

NOAA must re-establish its role and leadership internationally

As the country's lead climate science agency, and with many staff that participate in the International Panel on Climate Change Assessment and Special Reports, NOAA has long been seen as a leader in international climate change science. At the start of the Trump administration, many countries continued to elevate and work closely with NOAA scientists participating in international fora. More recently, however, NOAA scientists are being passed over for leadership positions in international bodies, and the lack of leadership by the U.S. on climate change is leading to greater marginalization of NOAA scientists in the international community. Re-establishing the credibility and leadership of NOAA scientists internationally will be an important aspect of re-establishing U.S. leadership in the fight against climate change.

Elevate NOAA's importance in the Department of Commerce

As noted, NOAA represents 60% of the department's budget, but it is often overlooked within the department or considered a nuisance because of regulatory authorities—particularly with respect to fisheries management—that can sometimes get elevated to the secretarial level. Given the important role that NOAA will serve in advancing solutions to the climate change crisis, the Secretary of Commerce needs to be an advocate for NOAA and for the climate work it is already doing and has the potential to do. It will also be important for the Secretary to serve as an advocate within the business community for the President's climate agenda and for the climate products and services the agency can provide, many of which could be critical to businesses seeking to assess risks and investments.

In the past, the Secretary has had a senior policy advisor that served as the liaison between NOAA and the department. Making sure this role is filled by someone who has a strong understanding of NOAA programs and line offices as well as the important role NOAA has to play in advancing the President's climate change agenda will be critical.

Rebuild relationships with Capitol Hill

Every member of Congress has a connection to NOAA in their district or state, whether through the National Weather Service, the National Marine Fisheries Service, or through climate products and services the agency already provides. The lingering fight over the nomination of Barry Myers, the lack of leadership from the acting Administrator during SharpieGate, the complete abdication of agency responsibility during the review of the Pebble Mine, and the inability of the agency to distribute aid in a timely manner to the fishing industry during the COVID-19 pandemic are just a few of the issues that have hurt agency relationships with Capitol Hill. Given the vested interest that members have in NOAA and the need for the Hill to support the additional funding required to upgrade data collection, observations, and predictions; expand climate products and services; and enhance habitat protection programs, repairing these relationships early will be a priority.

One item of note in this regard will be the ongoing debate on the Hill as to whether NOAA needs to be authorized through an organic act. Originally established through an executive order 50 years ago, there have been periodic discussions over the years about whether an organic act is needed, and the idea has resurfaced in Congress this year. A new NOAA leadership team would need to engage in discussions over an organic act in the next Congress, but care will need to be exercised to ensure it does not 1) distract from advancing the administration's climate change goals or 2) is somehow written in a way that limits the agency's efforts to advance a proactive climate change agenda.

Rebuild the focus of NOAA as an Earth systems agency

Historically, there has been a divide within NOAA between the line offices perceived as the "wet side" of the agency (NMFS, OAR, and NOS) and those perceived as the "dry" side of the agency (NESDIS, NWS). That divide is enhanced by congressional oversight that is split in the House of Representatives between the Natural Resources Committee and the Science Committee, as well as the very line-itemed nature of the NOAA budget.

During the Obama administration, however, a concerted effort was made to look across programs and establish NOAA as an Earth systems agency, but progress in that approach has been lost and undermined during the current administration. This cross-cutting approach to science, data collection, management, and information sharing will be critically important as the agency expands its climate products and services focus, and it should be re-established as an overarching priority in a new administration.

4 Miscellaneous Recommendations

NOAA's success also will depend on the political savvy of its leadership. It will be important to choose an administrator and team that can navigate not only a tough Senate confirmation process but also the political obstacles that arise from a previous administration's appointees, regulatory and management issues, and a politically charged discourse around climate change.

CHALLENGES TO EXPECT

Political appointees from previous administrations can create obstacles

Although NOAA is certainly not the only agency to experience "burrowing in" by political appointees from previous administrations, it has created challenges that may be particularly relevant in a new administration seeking to actively and aggressively implement a progressive climate change agenda. Assessing whether any political employees from the Trump administration have been held over will be particularly important given the administration's views on climate change, and the recent appointments of climate change deniers and skeptics to senior political positions within the agency.

Regulatory and management issues can create political distractions

A new administration will need to be aware of and prepared to manage the highly charged political issues that will distract from the efforts to advance progress on climate change. The dual responsibilities as both a scientific information and regulatory and management agency can sometimes prove challenging to new political appointees at NOAA who do not recognize this at the outset. As one former NOAA line office Assistant Administrator noted, all 535 members of Congress own a piece of NOAA.

Particularly challenging will be the sustainable management of fisheries around the country in a changing climate. A new Administrator can expect to hear from members of both parties on fisheries regulatory issues on a regular basis. Also challenging are endangered species issues, particularly those that intersect with fisheries management or energy development. Of particular concern in the next few years will be the intersection between right whales and the lobster fishery in Maine; the need to assess and devise solutions for minimizing the cumulative impacts of offshore renewable energy on the Atlantic Coast as that industry and many states push to rapidly expand development; and the conflicts between offshore wind and other ocean stakeholders such as the fishing industry. These are just a few examples of the challenges posed by NOAA's regulatory authorities that will need to be managed effectively to ensure they do not distract from a broader climate change agenda.

POLITICAL AND OTHER QUALIFICATIONS FOR NOAA LEADERSHIP TEAM

With a limited number of political slots available in NOAA, it will be very important to purposefully build a team that is climate savvy and supportive of the new administration's climate agenda. Some of those key positions are listed here.

Under Secretary for Oceans and Atmosphere/NOAA Administrator (Senate Confirmed)

The Under Secretary/NOAA Administrator is the highest-ranking position within NOAA. The demands of the agency require a strong leader with scientific credibility and management skills who is also politically savvy. Because the Administrator is not a Cabinet-level position, the leader chosen for this position should have gravitas and be able to articulate the important role that NOAA will play in addressing the climate crisis and make the case for NOAA priorities within the Department of Commerce, at the Office of Management and Budget, and with the Cabinet.

As noted, picking a strong leader early will be particularly important as the agency has been without a confirmed Administrator since 2017.

Assistant Secretary for Conservation and Management/ Deputy Administrator (Senate Confirmed)

The Assistant Secretary for Conservation and Management provides agency-wide direction with regard to fisheries and coastal programs and direct oversight for the Assistant Administrator for Fisheries and the Deputy Assistant Secretary for International Fisheries. Given the highly political nature of many of the NMFS programs, an Assistant Secretary who can work closely with the Assistant Administrator for Fisheries to implement the conservation and management responsibilities of the agency while also managing the inevitable political pressures and complications that will arise is important and will be a critical partner for the Administrator.

Assistant Secretary for Environmental Observation and Prediction/ Deputy Administrator (Senate Confirmed)

The Assistant Secretary for Environmental Observation and Prediction provides agency-wide direction with regard to weather, water, climate, and ocean observations and forecasts. This position has oversight responsibility for, among other things, the National Weather Service, an agency with a history of significant cost overruns for satellite programs and more recently, significant management, leadership, budget, and financial control problems. When not managed, these challenges can overwhelm and undermine the other programs within the agency, particularly those programs focused on ocean and coastal resources. An Assistant Secretary who can work closely with the Assistant Administrator for the NWS to manage programs, budgets, and risks is critical to ensuring that past problems remain in the past and that the management reforms and budget controls that have been developed are fully implemented. Further, as a new administration considers the expansion of information and data collection and climate monitoring assets, someone who understands how current assets can be leveraged and built out will also be important.

Assistant Administrator for Fisheries (political, not confirmed)⁵

The Assistant Administrator for Fisheries is perhaps one of the most politically fraught jobs within an agency that is responsible for managing commercial fishery landings worth more than \$5 billion annually and recreational fisheries that add billions more to the United States economy. For that reason, the person appointed to this position must be committed to ensuring the long-term sustainability of the nation's fish stocks and protecting marine mammals and endangered species, while also having the political fortitude to withstand the constant pressures from a myriad of outside influences, including Congress, and the skill to manage these political challenges so that they do not become a distraction for the NOAA Administrator. Particularly compelling will be an Assistant Administrator who is committed to ensuring our federal fisheries management system is proactively meeting the challenges presented by climate change while also commanding the respect of a wide range of stakeholders.

Chief Scientist (political, not confirmed)

The chief scientist for NOAA drives policy and program direction for science and technology priorities for the agency. As the need to understand and plan for the impacts of climate change becomes increasingly urgent, the chief scientist will be looked to as a leader within an agency where much of this information will be both developed and needed for marine resources management. Appointing someone with an acclaimed record of research, leadership, and management in the ocean or atmospheric sciences will set the tone for career scientists within NOAA, while ensuring that the "face" of the agency has credibility on the national and international stage. As noted earlier in this memo, the Trump administration has recently filled this position with a climate skeptic, which has undermined that credibility.

Chief of Staff (political, not confirmed)

The chief of staff serves as a primary advisor to the NOAA Administrator, manages overall headquarters operations, and works to formulate and implement the policy objectives of the administration. Of highest priority is the appointment of someone who has the complete trust and respect of the Administrator and who understands the political processes for advancing the agency agenda both within the administration and Congress.

⁵ As noted, Assistant Administrators of other line offices will also be key partners, but those positions are filled by career staff.

General Counsel (political, not confirmed)

The general counsel serves as the chief legal officer for all NOAA activities and as a policy advisor to the Administrator. The person provides leadership and management of the more than 100 attorneys working on issues relating to marine fisheries management; protection of marine mammals and threatened and endangered species; coastal zone management; mitigation and restoration of natural resource damages; operation of weather and environmental satellites; monitoring oceanic, atmospheric, and climatic data; and mapping and charting U.S. waters. A general counsel with a strong record on natural resources, a commitment to full implementation of the laws that govern ocean conservation and management, and a commitment to implementing a strong climate change agenda will be extremely important.

Director, Legislative and Intergovernmental Affairs (political, not confirmed)

The director of legislative and intergovernmental affairs leads the agency's interactions with both Congress and other agencies. The position requires an individual who understands and can navigate the legislative and appropriations processes, has credibility and respect on Capitol Hill to help rebuild relationships, and who can effectively assert the authorities and the important role that NOAA will play in furthering a climate change agenda.

Director of Communications and External Affairs (political, not confirmed)

As the key spokesperson for the agency, a director of communications with a strong commitment to and understanding of the nexus between climate change and ocean policy issues will play a pivotal role in advancing a strong climate change agenda.

Senior Policy Advisors (political, not confirmed)

The NOAA Administrator typically has three to five senior policy advisors working in the Executive Office of the Administrator. In addition, the Secretary of Commerce has several, including one that is typically charged with the NOAA portfolio and will be a critical liaison between NOAA and the Secretary.

Appendix A: NOAA Organization and Budget

NOAA employs 11,000 people in the Administrator's office and across six line offices. The lines offices within NOAA are:

National Environmental Satellite, Data, and Information Service (NESDIS)

Provide secure and timely access to global environmental data and information from satellites and other sources to promote and protect the nation's security, environment, economy, and quality of life. Operate a fleet of environmental satellites that provide critical observations of earth and space.

National Marine Fisheries Service (NMFS)

Responsible for the stewardship of the nation's ocean resources and their habitat. Charged with managing productive and sustainable fisheries, the recovery and conservation of protected resources, and healthy ecosystems.

National Ocean Service (NOS)

NOS provides data, tools, and services that support coastal economies through charting, tide and water level sensors, tracking HABs, and responding to oil spills and marine debris incidents.

National Weather Service (NWS)

The NWS is responsible for building a weather-ready nation and managing the nation's weather, water, and climate data, forecasts and warnings. The six NWS regional offices manage all operational and scientific meteorological, hydrologic, and oceanographic programs of the region, including observing networks, weather services, forecasting, and climatology and hydrology. They monitor these services and adjust resources to provide the most effective weather and warning services possible. There are also nine centers for environmental prediction and local weather forecast offices spread throughout the country.

Oceanic and Atmospheric Research (OAR)

OAR provides the research foundation for understanding the complex systems that support our planet, enabling better forecasts, earlier warnings for natural disasters, and a greater understanding of the Earth. Their role is to provide unbiased science to better manage the environment, nationally, and globally. Their programs include research labs, climate, ocean exploration, ocean acidification, ocean monitoring and observation.

Marine and Aviation Operations (OMAO)

OMAO has responsibility for the operation of NOAA's research fleet and aircraft, including their hurricane hunter planes that play an integral role in hurricane and storm surge forecasting.

National Oceanic and Atmospheric Administration—Current Organizational Chart

	Under Secretary of Commerce for Oceans & Atmosphere and Administrator						
	Assistant Secretary for Conservation & Management/Deputy Administrator Deputy Assistant Secretary for International Fisheries		• Assistant Sec Prec	• Assistant Secretary for Environmental Observation & Prediction/Deputy Administrator			
	• General Counsel				• Chief Scientist		
	Acquisition a Chief Financ Human Capi	Deputy Under Secretary Juisition & Grants Chief Administrative Officer Chief Information Officer/HP man Capital Services Office of Inclusion and Civil Rights Office of Inclusion and Civil Rights					
Assistant Administrator National Marine Fisheries Service Sustainable Fisheries Protected Resources Habitat Conservation Science & Technology		Assistant Administrator National Ocean Service Coast Survey National Geodetic Survey Response and Restoration National Center for	Assistant Administrator Oceanic and Atmospheric Research Policy, Planning and Evaluation Climate Program Office National Sea Grant Cellero Densmut	Assistant Administrator National Weather Service Planning and Programming for Service Delivery Facilities Observations	Assistant Administrator National Environmental Satellite, Data & Information Service Satellite & Product Operations Satellite Applications & Personerb	• Director Office of Marine and Aviation Operations	
Constituent	Services	Coastal Ocean Science Coast Management National Marine Sanctuaries Center for Operational Oceanographic Products & Services U.S. Integrated Ocean Observing System	• Ocean Exploration and Research	Central Processing Oisserwations Science & Technology Integration Chief Operating Officer Analyze Forecast and Support Office	 Projects, Planning & Analysis National Centers for Environmental Information Geostationary Operational Environmental Satellite- R Series Office of Space Commerce Joint Polar Satellite System Satellite Ground Services System Architecture & Advance Planning 		

Budget Overview NOAA-FY2020 Enacted (Dollars in Thousands)	
National Ocean Service	817,074
Operations, Research, and Facilities (ORF)	598,956
Procurement, Acquisition, Construction (PAC)	7,500
Other	210,618
National Marine Fisheries Service	1,055,036 ¹
ORF	947,657
Other	107,379
Oceanic and Atmospheric Research	590,384 ²
ORF	548,384
PAC	42,000
National Weather Service	1,168,646 ³
ORF	1,065,701
PAC	102,945
National Environmental Satellite, Data, and Info Service	1,512,882 ⁴
ORF	260,739
PAC	1,252,143
Mission Support (includes executive leadership)	330,361
ORF	290,361
PAC	40,000
Office of Marine and Aviation Operations	373,987
ORF	244,415
PAC	98,000
Other	31,572
Adjustments, Financing, Transfers	(486,695)
TOTAL NOAA FY2020 Enacted (discretionary)	5,361,675

¹ This included \$57 million for habitat conservation and restoration.

² This included \$169.5 million for climate research.

³ This included \$230 million for weather observations.

⁴ This included \$200 million for environmental satellite observing systems.