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ACCOUNTING FOR CLIMATE CHANGE IN UNITED STATES' REGIONAL OCEAN PLANNING: COMPARING THE OBAMA AND TRUMP NATIONAL OCEAN POLICIES TO A CLIMATE-FORWARD APPROACH

Taylor Goelz*

INTRODUCTION

In 2010, President Obama signed Executive Order 13547, *Stewardship of the Ocean, Our Coasts, and the Great Lakes*, which established the first detailed United States National Ocean Policy (“NOP”) to guide the management and sustainable use of the United States’ ocean, coasts and Great Lakes.¹ The goal of this comprehensive policy was to compel government at all levels (federal, state, local and in coordination with Tribal governments) to better coordinate and think holistically about U.S. ocean and coastal management, in terms of the impacts to ecosystem health (e.g., sustainability of fisheries) as well as human health (e.g., honoring the U.S.’s maritime heritage, supporting sustainable ocean uses and access).² Crucially, the Obama NOP highlighted the need to “. . . provide for adaptive management to enhance our understanding of and capacity to respond to climate change. . . .”³

One of the ways in which the Obama NOP endeavored to foster adaptive management and planning for the benefit of climate change was through its directive to establish Regional Planning Bodies (“RPBs”) in nine regions of the United States.⁴ These bodies were directed to bring together federal agencies, states, and federally recognized Tribes to better coordinate ocean planning and management in these regions and take into consideration regional-level needs and objectives.⁵ During the Obama Administration, both the Northeast⁶ and Mid-Atlantic RPBs developed final Ocean Plans for their regions, which were accepted at the national level.⁷

In 2018, the Trump Administration revoked the Obama era NOP and instituted its own NOP through Executive Order 13840, *Executive Order Regarding the Ocean Policy to Advance the Economic, Security, and Environmental Interests of the United States*.⁸ This revised national strategy emphasizes economic and security interests and opportunities regarding the nation’s ocean and coasts; ecosystem health and wellbeing is not a high priority within this policy, and the term “climate change” is not used.⁹ The Trump NOP disbanded the RPBs, negated the Northeast and Mid-Atlantic Ocean Plans that had been submitted and approved, and removed requirements for federal participation in any ongoing regional ocean planning endeavors.¹⁰ Agencies are allowed to continue working on regional ocean plans, but it is no longer required.¹¹

While there are many differences between these NOP’s, this article will aim to compare the two policies in terms of their approach to regional ocean planning, specifically how these policies incorporate climate resilience into regional ocean planning. Throughout this article, “marine spatial planning” and “regional ocean planning” will be used interchangeably, since the RPB approach is a specific example of the application of marine spatial planning. Section I will provide a background on climate change’s impacts on the ocean and the role that marine spatial planning (“MSP”) could play in increasing climate resilience. Section II will provide a brief background of the history of marine spatial planning in the U.S. up until the Obama Administration. Section III will describe and compare the Obama and Trump NOP’s in terms of their regional ocean planning initiatives. Section IV will compare these two policies to an “ideal” standard, e.g., what would climate-resilient regional ocean planning look like in the U.S.? Finally, Section V concludes that despite the success of regional ocean planning in the Northeast and Mid-Atlantic, further regional ocean planning efforts are stalled by lack of federal investment and coordination. The hope of creating climate-forward marine spatial planning relies on a renewed federal mandate for U.S. regions to partake in regional ocean planning. As this paper will demonstrate, the framework for climate-resilient ocean and coastal planning exists within the U.S. Despite current federal resistance, existing regional ocean planning bodies still have significant power to set an example and take a climate-resilient marine spatial planning approach to protect elements of both ecosystem and human health and wellbeing.

I. CLIMATE CHANGE AND THE OCEAN

The global impacts of climate change have been increasingly realized since the first Intergovernmental Panel on Climate Change (“IPCC”) Assessment Report was released in 1990.¹² The discussion of climate change impacts since this time, however, has been largely restricted to terrestrial ecosystems, e.g., increased rainfall, more severe wildfires, longer and more substantial droughts, etc. The discussion shifted to focus on the

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unique impacts of climate change on the ocean with the 2019 release of the IPCC Special Report on the Ocean and Cryosphere in a Changing Climate.¹³ The Report highlights several ocean-specific climate impacts, including rising sea levels, ocean acidification, marine animal biomass and fish catch decline, and risks to low-lying islands and coasts.¹⁴ When considering these and other climate change impacts on the ocean, it's important to understand that climate change will both exacerbate current stresses to the ocean (e.g., increase likelihood of outbreaks of marine disease) and create new, additional stresses (e.g., rising sea surface temperatures).¹⁵

The IPCC report highlighted challenges that climate change specifically creates for national and international ocean governance. For example, as fish species move due to warming waters, previously agreed upon fisheries management and governance structures will need to be amended.¹⁶ The reduction of sea ice in the Arctic has implications for shipping corridors and global trade agreements.¹⁷ Sea level rise will infringe on the ability of citizens to recreate at public beaches, resulting in necessary changes to coastal zoning laws.¹⁸ Climate change will require “ambitious adaptation” through “transformative governance” in order to reduce risks.¹⁹

One of the suggested policy and legal mechanisms by which countries can be more adaptive with their coastal and ocean governance is through marine spatial planning. Derived from land use planning and municipal zoning laws, marine spatial planning is a “place-based regulation of allowable ocean uses” that outlines where in ocean and coastal spaces certain activities are allowed.²⁰ There are many goals to MSP, including spatially separating mismatched or misaligned uses of the ocean (e.g., swimming areas overlapping shipping lanes) and reducing competition and crowding, but MSP is notable because of its innate environmental goals.²¹ Core to most all MSP initiatives is the inclusion of ecosystem health, habitat, and biodiversity protection considerations into plans.²² This is accomplished through special protections and even the restriction of human use or access in certain ocean regions.²³ Despite the inclusive, holistic perspective of MSP, the applicability of this approach to consider climate change in ocean and coastal management is not guaranteed. The concept of marine spatial planning was not originally derived with climate change in mind, and thus, it does not necessarily contain the features that would make this governance approach transformative.²⁴ With certain adaptations, however, many countries around the world have addressed climate change adaptation and resilience within the context of marine spatial planning.²⁵ The level of incorporation of climate concerns and the success of many of these plans is yet to be determined, but these examples demonstrate that incorporating climate concerns into MSP is possible from a single ecosystem-based level (e.g., Great Barrier Reef, Australia) to an international level (European Union Marine Spatial Planning Framework).²⁶

II. MARINE SPATIAL PLANNING IN THE UNITED STATES

While many countries have adopted marine spatial planning into their ocean and coastal management strategies, broad applications of MSP have been limited in the U.S. and hampered by the “complex mosaic of legal authorities” that constitutes U.S. ocean and coastal law and policy.²⁷ U.S. waters are divided into sections of state and federal jurisdiction, which can make comprehensive planning and determination of appropriate ocean uses more difficult. State waters, where coastal states have jurisdiction over ocean and coastal management, were designated through the Submerged Lands Act of 1953.²⁸ Control extends out three nautical miles from shore for all states, except Texas and the Gulf Coast of Florida, which, for historical reasons, have state waters that extend out to nine nautical miles.²⁹ State control over these waters, however, is not absolute; the U.S. federal government has jurisdiction in state waters in matters related to commerce regulation, navigation, power generation, national defense, and international affairs.³⁰ From the state waters boundary, federal jurisdiction extends out to 200 nautical miles from the shore, making up the boundaries of the U.S. Exclusive Economic Zone.³¹ Despite this legal separation, states and the federal government have often tried to work together on ocean management issues, like through the management of highly migratory fish species, which affect multiple states or transcend state/federal boundaries.³²

While this federal-state division has worked well for business-as-usual ocean and coastal management, experts acknowledged in the early 2000s that a more comprehensive governance approach was necessary as ocean and coastal spaces became more utilized and conflicts continued to occur.³³ The need for a comprehensive, transformative governance approach only increases when considering the complexities of climate change.³⁴ The multi-scale nature of the impacts of climate change on the ocean and coasts means that existing governance systems will need to transform at every level, from local to federal.³⁵

Over the last 20 years, the U.S. federal government has attempted to create more order in ocean and coastal management, to varying degrees of success. The idea of national ocean planning originated under the George W. Bush administration with the Oceans Act of 2000, which created a Commission on Ocean Policy and directed this Commission to create a report on the state of U.S. ocean and coastal management.³⁶ The subsequent report, *An Ocean Blueprint for the 21st Century*, recommended “balanced and practical proposals for the establishment of a comprehensive and coordinated ocean policy for our nation.”³⁷ While climate change was mentioned throughout the report, the emphasis within the report was on increasing our understanding of the impacts of climate change, not on creating climate resilient policies.³⁸ Regarding ocean and coastal planning, the report called for the creation of regional ocean councils to focus on ocean and coastal opportunities and concerns at a regional level.³⁹ Some of the prescribed functions

of these regional councils highlighted a role for regional stakeholders and priorities in ocean and coastal planning.⁴⁰ Lastly, the report highlighted the need for a more coordinated approach for management of federal waters.⁴¹

III. OBAMA AND TRUMP ADMINISTRATION NATIONAL OCEAN POLICIES - REGIONAL PLANNING APPROACH

The W. Bush Administration set the stage for national ocean planning in the U.S. and recognized that more coordination would be necessary at the regional and federal levels as the U.S. ocean space became more crowded. This charge was taken up by both the Obama and Trump Administrations, but with key differences in terms of their approach, objectives, and goals of U.S. ocean and coastal management. Critically, however, neither approach made climate resilience a central organizing component in either federal or regional ocean planning efforts.

A. REGIONAL OCEAN PLANNING AND CLIMATE RESILIENCE UNDER OBAMA'S NATIONAL OCEAN POLICY

The Obama Administration created the first-ever NOP through Executive Order 13547.⁴² Executive Orders are not law, but they have been utilized by every president since George Washington to manage operations and set direction for the federal government.⁴³ As defined in Article II of the Constitution, the president, as Chief Executive and administrative director, has the ability to “issue instructions and orders to executive officers concerning the performance of their duties.”⁴⁴ In this instance, E.O. 13547 used Obama’s executive power, aiming to improve interagency collaboration related to ocean use and planning. Critically, however, the NOP’s directive of interagency cooperation and collaboration in the U.S. ocean space did not “create any new regulations, supersede current regulations, or modify any agency’s established mission, jurisdiction, or authority... [and] [did] not redirect congressionally-appropriated funds, or direct agencies to divert funds from existing programs.”⁴⁵ The legal foundation, then, of the Obama NOP was tenuous; although Executive Orders are codified under Title 3 of the Code of Federal Regulations, they can be overturned by subsequent administrations (as occurred in this instance when the Trump Administration came into office).⁴⁶

This push for improved coordination under the Obama NOP was a recognition of the need for more comprehensive ocean and coastal planning *and* an awareness of differing regional objectives and circumstances within the U.S. These dual emphases were enacted through the creation of Regional Planning Bodies (“RPBs”).⁴⁷ The Obama NOP established nine regions for targeted coastal planning covering all the U.S. ocean and coastal space.⁴⁸ Five regions established RPBs in 2012: the Pacific Islands, West Coast, Caribbean, Northeast, and Mid-Atlantic.⁴⁹ Four regions proposed as potential planning areas by the National Ocean Council (“NOC”), the South Atlantic, Great Lakes, Gulf of Mexico, and Alaska/Arctic region, chose to not establish separate RPBs, but instead continued to pursue regional planning through existing bodies.⁵⁰ The goal of the RPBs was to bring together federal, state, local, and Tribal governments

along with fishery management councils, ocean users, and scientists to accomplish more collaborative coastal and marine spatial planning and, specifically, create marine plans for their regions.⁵¹ The regional focus of these groups was intended to help avoid the development of a “one-size-fits-all” federal ocean approach and plan; the guidelines for the to-be-developed plans were flexible and RPBs were encouraged to consider specific regional challenges, describe ideal future conditions, provide direction specifically to federal agencies, and develop their own goals and accomplishments.⁵² Plans developed at the regional levels through RPBs were subject to public comment and were required to be approved by the NOC to obtain a national consistency certification.⁵³ Crucially, these plans would not supersede any federal management actions or direct the action of federal agencies; the plans were envisioned as coordination and planning tools, not as sets of legally enforceable policies.⁵⁴

Plans from the Northeast and Mid-Atlantic regions were developed and approved by the NOC in 2016.⁵⁵ One of the most significant accomplishments of these plans was the development of Northeast and Mid-Atlantic data portals, where thousands of layers of data were made publicly available to visualize and make more explicit the many uses of the ocean (e.g., marine life distributions, fishing grounds, recreational areas, shipping lanes, proposed renewable energy sites, etc.).⁵⁶ The increased availability of data and a more holistic approach to coastal management described in both plans, however, did not translate to climate resilient management strategies. This disconnect between recognition of the implications of marine spatial planning for addressing climate change and yet not using MSP to actively consider climate-resilient planning strategies had been evident since the release of Executive Order 13547; neither the E.O. nor the Regional Ocean Plans were “clear regarding precisely how ocean zoning can contribute to climate change adaptation and increased resilience.”⁵⁷

Both Regional Ocean Plans discussed the impacts of climate change, but discussion primarily focused on the need to gather more data to understand ocean and coastal impacts of climate change.⁵⁸ For example, within the Mid-Atlantic Plan, the RPB highlighted the impact that climate change is having on marine species and habitat distributions.⁵⁹ The RPB further recognized that shifts caused by climate change would need to be represented on their regional maps, but there was no concrete discussion of any direct management adjustments that would need to be undertaken due to these shifts.⁶⁰ The Northeast Plan did mention the need to “provide for adaptive management to enhance our understanding of and capacity to respond to climate change.”⁶¹ The actions outlined in the plan, however, were restricted to recommendations to gather more data for the purpose of improving scientific forecasting models for decision making.⁶² Thus, while climate change was mentioned in the Northeast and Mid-Atlantic Regional Ocean Plans, the primary management “need” or action was restricted to suggesting that more data collection is needed versus implementing adaptive management.

Despite the limited action-focused discussion on climate change in the Obama era Regional Ocean Plans, these plans and the coordination and collaboration behind them represented a step forward in U.S. regional ocean planning. For the first time, federal agencies were required to work with state, local, and tribal partners to accomplish ocean management goals based on human *and* ecosystem health requirements.⁶³ These advancements were hindered, but not completely derailed, by the issuance of the Trump Administration's NOP.

B. REGIONAL OCEAN PLANNING AND CLIMATE RESILIENCE UNDER TRUMP'S NATIONAL OCEAN POLICY

The Trump Administration NOP differs in many significant ways from the approach under the Obama Administration. These changes have had direct impacts on MSP and regional ocean planning efforts in the U.S. Once in office, President Trump rescinded Obama's Executive Order 13547 with his own Executive Order 13840. One of the most significant changes from the Obama era E.O. was the reorganization of the Ocean Policy Committee (formally the National Ocean Council under Obama); the number of subcommittees was reduced and all work was organized through two subcommittees: the Subcommittee on Ocean Science and Technology and the Ocean Resources Management Subcommittee.⁶⁴ Critically, Trump's E.O. outlining his administration's priorities for U.S. ocean and coasts does not mention the phrase "climate change".⁶⁵ In fact, none of the major proposed initiatives under the Trump NOP, specifically the White House Summit on Partnerships in Ocean Science and Technology and the Presidential Memorandum directing federal agencies to map the U.S. Exclusive Economic Zone, uses the phrase "climate change".⁶⁶ Instead, all facets of the Trump NOP prioritize economic and security interests related to the ocean over environmental interests and concerns.⁶⁷ These revised priorities extend to the changes made to regional ocean planning efforts under the Trump NOP.

Trump's executive order lessened the emphasis on collaboration and coordination between federal agencies and state, local, and tribal partners related to ocean and coastal management.⁶⁸ While federal agency involvement in interagency and inter-jurisdictional management actions was not prohibited under the new executive order, the lack of administration support for these time consuming, but important, processes "has stalled efforts for more inclusive and comprehensive marine planning."⁶⁹ This piece-meal approach to ocean and coastal management resulted in two significant changes to the regional ocean planning efforts initiated under the Obama Administration (other than eliminating any mention of climate change). First and most significantly, the five Regional Planning Bodies established for Pacific Islands, West Coast, Caribbean, Northeast, and Mid-Atlantic regions under the Obama Administration NOP were eliminated, with the White House claiming these bodies were "duplicative" and "unnecessary" from the federal level.⁷⁰

Due to the retreat of the federal government, regional ocean planning since 2018 has been driven by the states and progress continues to be made. For example, when the Northeast Regional

Planning Body was dissolved by the Trump executive order, the former RPB members were absorbed into the Northeast Regional Ocean Council Ocean Planning Committee ("NROCOPC").⁷¹ The NROCOPC's Work Plan for 2019-2020 discusses the committee's actions and strategic priorities, including hosting ocean planning meetings twice a year to identify and advance regional ocean planning and management priorities, including the impacts of climate change.⁷² Regions like the Northeast and the Mid-Atlantic where these regional planning networks had already existed prior to the Obama Administration have been able to continue regional planning efforts despite the Trump E.O. Other areas, however, were using federal support to drive the creation of regional ocean planning efforts and the lack of this support has been a major setback to comprehensive, climate-forward, ocean planning.⁷³

The second significant change related to regional ocean planning under the Trump Administration was that the two Regional Ocean Plans submitted by the Mid-Atlantic and Northeast regions and approved by the Obama Administration were nullified.⁷⁴ While these plans were not action-focused in terms of incorporating climate resilience, they represented the first federally recognized and endorsed attempts to plan more holistically within the U.S.'s ocean and coastal space. Under the Trump NOP, there is no replacement for these plans. The new Trump OPC is instead focused on data gathering and sharing.⁷⁵ This emphasis is the reason why the ocean data portals created in association with the Northeast's and Mid-Atlantic's Regional Ocean Plans were not eliminated; the OPC is using these portals as a way to support the Administration's emphasis on regional data sharing.⁷⁶ While data sharing can support regional MSP, these efforts by the Trump OPC are not intended to help advance these processes.

Thus, the federal progress in regional ocean planning that was made under the Obama Administration's NOP has been almost completely halted; any current leadership on ocean and coastal planning is occurring at the regional or state level. While the Obama regional ocean planning did mention climate change and efforts to incorporate impacts of climate change into regional plans (e.g., recognition that fish habitats will shift), these discussions were preliminary; there were no concrete actions outlined for how MSP could become more climate-resilient within regional ocean planning. If ocean and coastal planning efforts in the U.S. are to facilitate a management approach that would truly constitute transformative governance in the sense of the IPCC Oceans Report, these efforts need to be more climate-forward.⁷⁷ Approaches to create more climate-forward regional ocean planning exist through shifts in MSP approaches, including building in flexibility through anticipatory and dynamic zoning, increasing the use of protected areas in the ocean, and better incorporating local coastal actors into the MSP sphere.

IV. CREATING AND IMPLEMENTING CLIMATE-FORWARD AND RESILIENT REGIONAL OCEAN PLANNING IN THE UNITED STATES

Although climate change impacts on the ocean are felt on a global scale, implementing climate-forward ocean and coastal spatial planning within the U.S. is most appropriate at the regional level.⁷⁸ A regional perspective allows the differing impacts of climate change (e.g., fish species shifts, warming ocean temperatures) to be better understood and accounted for within planning and management. The regional scope also matches the legal, policy, and management authority of the area impacted and limits the fragmentation of habitats and ecosystems in terms of management jurisdiction.⁷⁹ A regional perspective also allows for the incorporation and consideration of multiple types and scales of knowledge. In creating the data portal for the Northeast Region, the Northeast Ocean Plan specifically highlighted the importance of incorporating tribal data on the impacts of changing conditions on marine habitats and resources that are of importance to tribes.⁸⁰ Duff (2017) highlighted the important role that local actors play in regional ocean planning, discussing how local authorities may better understand what management plans or policies would be acceptable in the local context and how they can provide data on the local impacts of climate change.⁸¹

A. DYNAMIC AND ANTICIPATORY ZONING

All the tools for climate-resilient coastal and marine spatial planning exist within the basic structure of the RPBs developed under the Obama Administration. The scopes of the RPBs are broad enough, all relevant stakeholder groups are involved, and there is a focus on data sharing and coordination to develop a comprehensive approach to ocean management.⁸² To make MSP in the U.S. more climate-resilient, however, the motivation behind MSP must be transformed. Instead of viewing MSP and regional ocean planning in general as an approach to deal with conflicting uses of ocean space, it must be viewed as a mechanism to implement flexible, adaptive, and comprehensive climate policies and plans. The idea of adaptive MSP is itself contradictory; zoning in the coastal and ocean space is meant to help reduce conflict and promote clarity by setting concrete boundaries on where different uses of the ocean and coasts are allowed/prohibited.⁸³

Dynamic ocean zoning, where shifts in zones are part of their design, is one suggested method that can maintain the clarity of different allowed uses while planning for climate-related shifts.⁸⁴ The complexity and fluidity of ocean and coastal areas makes dynamic zoning a reasonable option even without considering climate change; the non-static nature of ocean spaces calls for a more flexible approach that is not necessary in traditional land-based zoning scenarios. Additionally, dynamic zoning in ocean spaces already exists and is being used to enhance endangered species protections and reduce fisheries bycatch.⁸⁵ For example, protected species like turtles migrate throughout the year, meaning that areas where long-line fishers interact with turtles shifts both temporally and spatially.⁸⁶

Dynamic ocean governance systems could use the known data about what factors trigger turtle migration (e.g., temperature and chlorophyll levels) and automatically open and close fisheries based on this information to reduce bycatch and protect the species.⁸⁷ Similar mechanisms could be put into marine zoning plans to incorporate known or predicted environmental or human use impacts or shifts due to climate change.

Comprehensive, enforceable ocean zoning is currently limited within the United States. Asking the existing efforts to be dynamic is an even greater challenge. Marine spatial planning efforts, like the Obama Administration's NOP, provide suggestions for ocean use, but do not create ocean zones, are not enforceable, and do not place new legal requirements or restrictions on agencies.⁸⁸ The multi-tiered nature of ocean governance in the U.S. makes comprehensive zoning and enforcing any such zones more challenging. Existing zoning attempts have tended to focus on a single sector, such as Rhode Island's Special Area Management Plan (SAMP), which attempted to streamline the regulation process and create zones for offshore wind turbines (itself, an effort to include climate considerations in the state's ocean planning efforts through alternative energy development).⁸⁹ Even this SAMP, however, is not completely enforceable and manageable by Rhode Island itself because the SAMP area extends up to 27 miles beyond Rhode Island's EEZ, far beyond the 3 mile state water boundaries.⁹⁰ The creation of the SAMP also was not dynamic; it took two years for the plan to be created and submitted to federal agencies, and three additional years to publish the report.⁹¹ Rhode Island, however, has utilized two mechanisms to ensure that the goals and guidelines of the SAMP are honored outside of state waters; the federal consistency requirements and Geographic Location Description (GLD) options within the Coastal Zone Management Act (CZMA).⁹² These two mechanisms could provide potential climate-related ocean zoning, although the dynamic nature of both of these processes is still questionable.

The federal consistency requirement of the CZMA requires that "federal actions that are reasonably likely to affect any land or water use or natural resource of the coastal zone be consistent with enforceable policies of a State's federally-approved coastal management program."⁹³ Essentially, any federal activities that impact a state's coastal management plan can be reviewed by the states for consistency, giving the states a strong voice in federal agency decision making.⁹⁴ The power of the states during these federal consistency reviews, however, has oftentimes been tested and can result in years-long legal cases where consistency is contested.⁹⁵ The dynamism of federal consistency proceedings could be increased if states create state federal consistency lists (which identify which federal agencies, licenses, permits or financial assistance activities will be subject to federal consistency reviews if they occur in state waters) or GLD's (where states can extend their entire coastal zone plan into federal waters if there are "reasonably foreseeable" coastal effects from this area of ocean on the state, thus making all federal activities subject to consistency reviews, even outside

state waters).⁹⁶ Within federal consistency processes, states need to outline effects from federal activities that are beyond general assertions and assumptions; a state needs to “describe a causal connection of how an impact outside the coastal zone could result in a coastal effect.”⁹⁷

There are causal linkages that states could use to consider climate change impacts under federal consistency/GLD’s requirements, but the assurance of success is far from guaranteed. Following the *Massachusetts v. Environmental Protection Agency*, 549 U.S. 497 (2007), argument, coastal states could argue “any federal activity that allows for an increase in greenhouse gas emissions is inconsistent with existing priorities contained in approved coastal management plans.”⁹⁸ For a more direct link, states could also focus on the threat of offshore oil and gas drilling operations to coastal management priorities beyond emissions (e.g., Deepwater Horizon).⁹⁹ While dynamic zoning for climate change seems far off in U.S. ocean planning, there are existing mechanisms by which states in particular can begin asserting their local capacity to adapt and plan for climate change if federal disinterest continues.

In addition to legal mechanisms, existing data portals created through the RPBs already collect and share essential fundamental ocean variable data, which would allow dynamic zoning to be established across a region.¹⁰⁰ Future regional planning efforts, however, would need to be more progressive in their data usage beyond data informing scientific models to characterize and predict the impact of climate change within the region; RPBs under Obama recognized the usefulness of data to plan for climate change, but were hesitant to make decisions without more and better data.¹⁰¹ The rapid pace of climate change limits the logic behind this reasoning. In order to be most effective in accounting for impacts of climate change, governments and policy makers have to become more comfortable with working with best available data when setting predictive dynamic zoning policies and determining the zones themselves (both in terms of the geographic location and the time frame). The combination, however, of dynamic zoning with anticipatory zoning is one proposed mechanism that aims to balance using data for current decision making versus planning and adapting for the future.

Viewed through the lens of climate-forward marine spatial planning, anticipatory zoning allows RPBs or other similar bodies to zone an area based on anticipated future needs/impacts/realities.¹⁰² Combined with dynamic zoning, this approach could allow RPBs to use available data to anticipate where climate change impacts are likely to influence fisheries, shipping lanes, recreation areas, etc., but have the freedom to continue to update predicted zones based on newly available data or model predictions. Craig (2012) outlines the National Oceanic and Atmospheric Administration’s (NOAA) Arctic fishery policy as an example of how anticipatory zoning is implemented and how it can be designed while considering climate change. In 2009, NOAA’s North Pacific Fisheries Management Council established a Fisheries Management Plan (FMP) for federal Arctic waters around Alaska.¹⁰³ Within this FMP, the Council

specifically ruled that this Arctic Management Area would be closed to commercial fishing until there was enough information to initiate a planning process.¹⁰⁴ The ruling, which effectively created a no-take zone, anticipates that there will be a time in the future that Arctic fisheries will be commercially viable and is planning for that reality. The FMP later links these commercial fishery changes directly to climate change and states that any future considerations by the Council regarding commercial fishing will need to include analyses of “the synergistic effects of fishing under climate change scenarios,” highlighting the dynamic nature of the zoning actions.¹⁰⁵ The usefulness of anticipatory zoning for climate-forward marine spatial planning could extend beyond fisheries. Coastal development policies could rezone coastal areas when taking into account sea level rise predictions, limiting future development in areas that will likely be inundated in the future.¹⁰⁶ Shifting wind patterns and ocean currents could influence the siting and zoning of wind turbines, especially considering the time scale necessary to approve and build these projects.¹⁰⁷ This adaptive and flexible zoning approach could also be used to plan for stricter protections in ecologically valuable ocean spaces (e.g., areas of high biodiversity, essential fish habitat, endangered or protected species’ habitat) or ocean spaces that are particularly vulnerable to climate change (e.g., coral reefs or estuaries).¹⁰⁸

B. MARINE SPATIAL PLANNING TO PROTECT VALUABLE AND VULNERABLE OCEAN SPACES FROM CLIMATE CHANGE IMPACTS

Not all ocean areas or ecosystems will not feel the impact of climate change equally; certain ocean spaces have been found to be more susceptible to climate change impacts.¹⁰⁹ Another approach that could make marine spatial planning more climate-resilient would be to disproportionately add protections to the most vulnerable of ocean spaces, establishing marine protected areas (MPAs) or other strict protections (e.g., no-discharge areas) to maintain, and possibly restore, these ecosystems.¹¹⁰ The determination of what areas or ecosystems will “survive” from this climate-focused zoning protection could derive from consideration of both ecosystem services (e.g., areas of high biodiversity, species richness, presence of endangered species, natural resilience to climate change) and economic benefits (e.g., coral reef contributions to tourism of a region in addition to their unique susceptibility to climate change impacts).¹¹¹

Governments and nonprofits have supported the idea of climate-resilient MPAs, both arguing that protecting the most vulnerable areas could preserve these ecologically and economically valuable areas and provide opportunities for place-based governance and decision-making.¹¹² Thus, within a regional approach to MSP in the U.S., there are opportunities for individual autonomy in determining what areas would benefit from additional protection and these more restrictive zones can be incorporated into or necessarily adjust existing plans. The federal government, however, could provide coordination, consistency, and help regions establish goals through the existing National System of Marine Protected Areas of the United States

of America.¹¹³ Created through an Executive Order under President George W. Bush, the purpose of the National System is to “strengthen and connect the nation’s diverse marine protected area programs...to more effectively protect the nation’s natural and cultural marine heritage and living marine resources.”¹¹⁴ While the Framework for the National System mentions the benefits of a connected MPA network for climate resilience, climate is not a driver or focus.¹¹⁵ The MPA Center, which organizes the National System, could help regional planning efforts create room in MSP for resilience planning using MPAs by setting targets/creating metrics for what these areas should look like in the future (i.e., five year, ten year, twenty year time frames).¹¹⁶ These targets, however, will necessarily need to take into consideration local perspectives to be most effective and useful. Increasing the role of local actors into the MSP process is the final approach considered in this paper on how MSP can be more climate-resilient.

C. INCORPORATING LOCAL PERSPECTIVES FOR CLIMATE-RESILIENT MARINE SPATIAL PLANNING

Throughout the MSP literature and the accounts from MSP practitioners, the value of the planning process, the act of collaborating, thinking through possible solutions, and working together to create a more holistic vision of the use of ocean space, is emphasized over the resulting plans.¹¹⁷ Considering this in the context of climate-forward MSP in the U.S., it is crucial to include a wide range of individuals who are addressing climate change from different perspectives into the planning process. Despite the key role they play on the front lines of ocean-related climate adaptation and resilience, local interests have been underrepresented in previous regional planning initiatives.¹¹⁸ Including local perspectives is essential if MSP is to become more climate-forward.

Although both the Mid-Atlantic and Northeast Ocean Plans discussed the value of incorporating local perspectives, the importance of local perspectives and knowledge was related primarily to understanding recreational uses of ocean spaces.¹¹⁹ Any further role for local voices and perspectives in regional ocean planning was not clear.¹²⁰ A natural framing for the incorporation of local perspectives within a climate-forward regional ocean planning perspective is providing insight into how climate change is differentially impacting their local communities (e.g., levels of sea level rise, areas where harmful algal blooms are common). Knowledge of local impacts of climate change is essential for the development of any ocean

planning tools or management plans to help these plans be less reactionary (e.g., future overlap of a popular recreation site with new fish migration patterns, or shipping and navigation lanes).¹²¹ Literature on creating planning tools for climate change emphasize the need to have local information and input on usefulness, and regional ocean planning could put this emphasis into practice to enhance the depth of regional ocean plans and provide local stakeholders with a greater voice.¹²² Additionally, related to protecting “valuable” ecosystems with marine protected areas, regional ocean planning could “institutionalize asking state, regional, local groups whether and how certain ocean expanses might be afforded greater environmental protection,” e.g., determining what ocean spaces localities feel they need to protect and suggestions for how to accomplish that based on local knowledge.¹²³ Although the addition of local perspectives might delay planning efforts, it will help bring an applied climate resilience and adaptation focus to these otherwise broad, overarching, and lofty regional ocean plans.

V. CONCLUSION

The use of regional ocean planning and coastal and marine spatial planning in general has advanced drastically over the last twenty years in the United States. Governments at the local, state, regional, and national level have recognized that a holistic planning approach allows the U.S. to make the most of its expansive exclusive economic zone from both an ecological and economic perspective. While this holistic planning perspective had begun to address climate change under the Obama Administration, any further incorporation of climate change into MSP has been hampered by a lack of federal interest and investment in regional ocean planning overall from the Trump Administration. Regional ocean planning efforts cannot be expected to create forward looking climate-focused ocean plans when they lack support and participation from the federal government in regional ocean planning efforts. Creating climate-forward MSP in the U.S. relies first on a renewed federal mandate for regions to partake in regional ocean planning. Additionally, the focus on planning, data, collection, and modeling is not consistent with the ever pressing need to begin implementing climate solutions through policies or ocean zoning as the climate changes in front of our eyes. With the proper support and a more aggressive legal implementation, there is no reason why MSP cannot be a governance tool to promote climate-focused U.S. ocean and coastal policies and plans.



ENDNOTES

¹ Exec. Order No. 13,547, 75 Fed. Reg. 43023 (July 22, 2010).

² *Id.* at 43023-24.

³ *Id.*

⁴ National Ocean Council, *National Ocean Policy Implementation Plan*, 3-4, 22-24, (April 2013), https://obamawhitehouse.archives.gov/sites/default/files/national_ocean_policy_implementation_plan.pdf.

⁵ *Id.* at 23-24.

⁶ Northeast Regional Planning Body, *Northeast Ocean Plan*, (2016), https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/NortheastOceanPlan_October2016.pdf.

⁷ Mid-Atlantic Regional Planning Body, *Mid-Atlantic Regional Ocean Action Plan*, (2016), https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/MidARegionalOceanActionPlan_November2016.pdf.

⁸ Exec. Order No. 13,840, 83 Fed. Reg. 29431 (June, 22 2018).

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