Toward Comprehensive Regional Ocean Governance in the Mid-Atlantic: A Primer on Regional Interests, Challenges, and Approaches

Jordan Diamond & Chelsea Tu[1]

Abstract: Recent years have witnessed significant progress in the development and implementation of regional ocean governance in the Mid-Atlantic. This Article serves as an introduction to relevant priorities, concerns, challenges, and opportunities. It highlights key issues and existing and emerging management mechanisms in order to advance ongoing discussions of new approaches.

I. Introduction

As human uses of the ocean and coastal environment increase, the nation as a whole and the Mid-Atlantic states (Delaware, Maryland, New Jersey, New York, and Virginia) in particular have recognized the need for collaboration and coordination in order to maintain thriving coastal and ocean economies, as well as waterfront lands, infrastructure, and waterways, while protecting nearshore and marine resources and ecosystems. The *Mid-Atlantic Regional Ocean Governance Symposium* held at Seton Hall University School of Law on April 12, 2013, sought to contribute to the ongoing discussion in the Mid-Atlantic region between public and private managers and stakeholders about how to strengthen existing governance systems and prepare for coming changes. This primer was prepared to provide background for participant discussion; it is not intended to be a comprehensive summary of priorities, concerns, challenges, and opportunities. Rather, this article provides an overview of current coastal and marine management in the Mid-Atlantic region, highlighting the relevant national, regional, and state jurisdictions, authorities, and cooperative efforts that shape regional ocean governance. It also

[1] Jordan Diamond is the Co-Director of the Ocean Program at the Environmental Law Institute; she holds a J.D. with a Certificate in Specialization in Environmental Law from the U.C. Berkeley School of Law and a B.A. in Earth and Environmental Sciences from Wesleyan University. Chelsea Tu is the Legal Fellow for the Center for Biological Diversity in Washington D.C. She graduated in May 2013 from American University Washington College of Law, where she spent part of her Spring 2013 semester as a law clerk with the Environmental Law Institute; in addition to her J.D., she holds a B.S. in Environmental Sciences from U.C. Berkeley. This regional overview was prepared by ELI for the Symposium Steering Committee to provide Symposium participants with common background on critical regional marine management issues.

describes key ocean uses and management challenges that the region faces to set the stage for identifying potential paths forward.

II. Mid-Atlantic Ocean and Coastal Governance Framework

Ocean governance for the Mid-Atlantic Region interweaves policies, laws, jurisdictions, and regulatory entities across local, state, regional, tribal, and federal levels. The foundation of the framework is the boundary between state and federal jurisdiction: coastal states have primary responsibility for regulating the waters and submerged lands within their borders and out to three nautical miles from shore,[2] while the federal government has primary jurisdiction from the 3-nautical mile boundary out to 200 nautical miles from shore.[3] States own and have the right to use, develop, lease, and manage the lands and the natural resources underneath and within the boundaries of their coastal waters.[4]

On top of this jurisdictional foundation, the Coastal Zone Management Act (CZMA) creates a framework for integrating state and federal interests in state coastal waters. Each Mid-Atlantic state has a federally approved coastal management program, which was created in accordance with statutory priorities outlined in the CZMA, such as coastal and marine resources protection, the management of human development, and regulatory transparency and predictability.[5] Having an approved coastal management program endows each Mid-Atlantic state with consistency review authority – that is, authority to review proposed federal activities that may impact the uses or resources of the state's coastal zone to determine whether they are consistent with the state's enforceable coastal policies. If a proposed action is licensed, permitted, or funded by the federal government, the activity must be fully consistent with the state's enforceable policies; if the state objects, the Secretary of Commerce can override the objection only if the Secretary determines the activity is "consistent with the objectives of [the Act] or is otherwise necessary in the interest of national security."[6] If the proposed action is a direct federal activity, it must be consistent with enforceable policies "to the maximum extent practicable"; if the state objects, the federal agency may not proceed unless it determines either that federal law prevents the federal agency action from being consistent, or that the action is fully consistent even though the State objects.[7] States may also review a federal activity located in another state's land or waters, if the National Oceanic and Atmospheric Administration

[2] The federal government approved and confirmed state jurisdiction generally out to three miles through the Submerged Lands Act. *See* 43 U.S.C. § 1312. In the Gulf of Mexico, Texas and Florida have jurisdiction out to nine nautical miles.

[3] Exclusive Economic Zone of the United States of America, Proclamation No. 5030, 48 Fed. Reg. 10,605 (Mar. 10, 1983) (codified at 3 C.F.R. part 22 (Mar. 10, 1983)).

[4] 43 U.S.C. § 1311(a)(1).

[5] The CZMA requires states to develop comprehensive CMPs in order to receive consistency review authority and federal funding. 16 U.S.C. §§ 1454, 1455(d).

[6] 16 U.S.C. § 1456(c)(3)(A), (d); 15 C.F.R. §§ 930.50-930.66 (consistency for activities requiring a federal license or permit), §§ 930.90-930.101 (consistency for federal assistance to state and local governments).

[7] 16 U.S.C. § 1456(c)(1)(A); 15 C.F.R. §§ 930.30-930.46 (consistency for federal agency activities); *see also Federal Consistency Overview,* OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, http://coastalmanagement.noaa.gov/consistency/welcome.html (last visited Sept. 6, 2013).

(NOAA) has approved the reviewing state's list of activities that are routinely subject to interstate consistency review.[8]

This Mid-Atlantic ocean governance framework was further delineated by two major activities in 2009. First, President Obama established an Interagency Ocean Policy Task Force, the first step that led to the creation by Executive Order of the National Ocean Policy in July 2010.[9] Relevant priorities from the Order include: enhancing the sustainability of ocean and coastal economies; respecting and preserving maritime heritage; supporting sustainable use of and access to the ocean and coasts; and providing for adaptive management to respond to climate change and ocean acidification. The Order and final recommendations of the Task Force also call for the implementation of regionally based coastal and marine spatial planning, with plan development led by nine Regional Planning Bodies of federal, state, and tribal authorities. The Mid-Atlantic region is delineated as Delaware, Maryland, New Jersey, New York, Pennsylvania, and Virginia.[10]

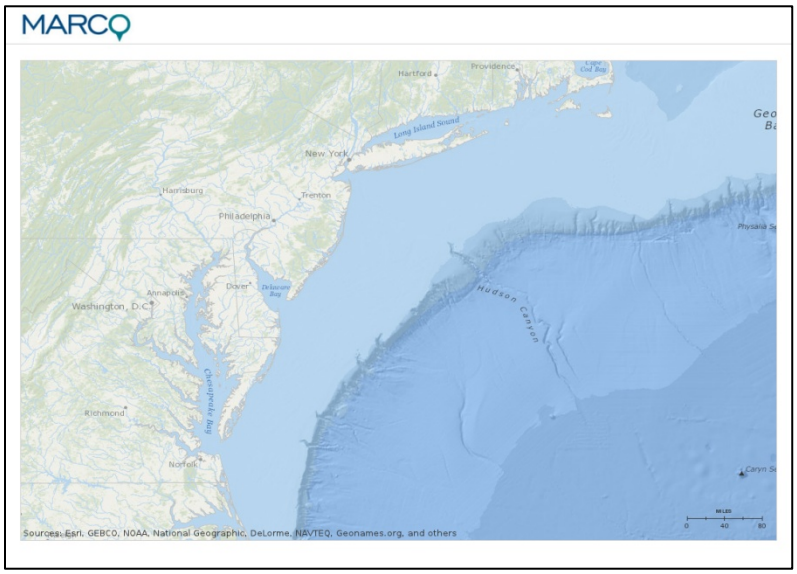

Image 1. The Mid-Atlantic region, as displayed in the Mid-Atlantic Ocean Data Portal (http://portal.midatlanticocean.org/planner/).

The second milestone of 2009 was the creation of the Mid-Atlantic Regional Council on the Ocean (MARCO). The Governors of Delaware, Maryland, New Jersey, New York, and Virginia established MARCO to "foster a cooperative and constructive relationship between the States, avoiding unintentional conflicts … [and with] great coordination lead[ing] to greater predictability and efficiency

[8] 15 C.F.R. §§ 930.150-930.156. Federal agencies, however, can override individual adverse consistency determinations under certain conditions. *See* 16 U.S.C. § 1456(c)(1)(a), (c)(3).

[9] Memorandum from President Barack Obama to the Heads of Executive Dep'ts and Agencies on Nat'l Policy for the Oceans, Our Coasts, and the Great Lakes (June 12, 2009), www.whitehouse.gov/assets/documents/2009ocean_mem_rel.pdf; Exec. Order No. 13,547, 75 Fed. Reg. 43,023 (July 22, 2010); COUNCIL ON ENVTL. QUALITY, FINAL RECOMMENDATIONS OF THE INTERAGENCY OCEAN POLICY TASK FORCE 53 (2009), *available at* www.whitehouse.gov/files/documents/OPTF_FinalRecs.pdf.

[10] *Id.*

in regulatory processes."[11] MARCO's priority actions include coastal and marine habitat protection, water quality improvement, offshore renewable energy development, and climate change adaptation.[12] Since its inception MARCO has invested significant resources in interstate coordination and planning tools, including the development of the Mid-Atlantic Ocean Data Portal, an online toolkit and resource center that aggregates data to support collaborative decision-making and planning throughout the region.[13] These efforts are supported by multiple entities including the Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS), which strives to increase knowledge and understanding of the coastal and marine environment.[14]

III. Ocean Uses and Impacts, Management Status, and Management Challenges

The Mid-Atlantic region's coastal and offshore environment includes meandering rivers, expansive estuaries, and a broad sandy continental shelf interspersed with deep submarine canyons. Its coastal and marine ecosystems provide critical nearshore and benthic habitats for a rich diversity of fish, crustaceans, birds, sea turtles, and cetaceans, as well as invertebrates such as sponges, shrimp, scallops, and deep sea corals.[15] These ocean resources sustain a spectrum of uses and activities including commercial fishing and aquaculture, recreational fishing and tourism, mineral and sand mining, shipping, military activities, offshore energy development, coastal development, and conservation and research. With the growing scope and types of uses of the Mid-Atlantic come potentially increasing impacts to the natural resources they rely on, and in turn the economic, socioeconomic, and public health of the region. The following section highlights key regional ocean uses and impacts, and the current management systems and challenges.

A. Fisheries and Aquaculture

Commercial and recreational fisheries are major economic drivers for the Mid-Atlantic region. Key Mid-Atlantic commercial species include, among many finfish and shellfish species, sea scallop, blue crab, summer flounder, menhaden, and squid, and commercial fishermen earned $527 million in landings revenue in 2011 alone.[16] Key recreational species, among others, include the summer flounder, Atlantic croaker, black seabass, and spot, and in 2011 recreational fishing generated $3.7 billion in sales revenues from fishing equipment and boat trips.[17]

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[11] MID-ATLANTIC GOVERNOR'S AGREEMENT ON OCEAN CONSERVATION 1 (June 4, 2009), *available at* http://www.midatlanticocean.org/agreement.pdf.
[12] *See generally id.*
[13] MID-ATLANTIC OCEAN DATA PORTAL, http://portal.midatlanticocean.org/portal/ (last visited July 25, 2013).
[14] MID-ATLANTIC REGIONAL ASSOCIATION COASTAL OCEAN OBSERVING SYSTEM, http://maracoos.org/ (last visited July 25, 2013).
[15] J.K. GREENE ET AL., THE NATURE CONSERVANCY, NORTHWEST ATLANTIC MARINE ECOREGIONAL ASSESSMENT: SPECIES, HABITATS, AND ECOSYSTEMS PHASE 1 (2010) *available at* http://www.nature.org/ourinitiatives/regions/northamerica/areas/easternusmarine/cover-ack-intro.pdf.
[16] NOAA, FISHERIES ECONOMIES IN THE U.S.: MID-ATLANTIC REGION 73 (2011), *available at* http://www.st.nmfs.noaa.gov/Assets/economics/documents/feus/2011/FEUS2011%20-%20Mid%20Atlantic.pdf.
[17] *Id.* at 75.

Management responsibilities of commercial and recreational fisheries, like the general management of coastal and marine environments, are divided among state and federal agencies. Under the Magnuson-Stevens Fishery Conservation and Management Act, the Mid-Atlantic Fishery Management Council (Mid-Atlantic Council)[18] manages commercial and recreational fisheries for eleven species in federal waters off the Mid-Atlantic coast according to species-specific fishery management plans.[19] State agencies manage commercial and recreational fisheries within state waters, and address interstate policy topics through the Atlantic States Marine Fisheries Commission.[20] Aquaculture in the Mid-Atlantic is primarily managed by state agencies and aquaculture associations, with federal funding and marketing support from NOAA's Aquaculture Program.

Commercial and recreational fisheries managers in the region are tasked with maintaining sustainable populations of target species while reducing bycatch (or incidental catch) of other species, such as through the use of alternative fishing gear and methods, and minimizing disturbance to benthic habitat and non-fishing areas. Indeed, both federal and state actors recognize these challenges and are addressing them through measures including restricting catch for certain declining species, incorporating bycatch prevention and monitoring measures in fishery management plans and enforcing the measures, and establishing an ecosystem and ocean planning committee to develop a better understanding of the ecological connections between fisheries and marine ecosystems.[21]

Some of the management challenges for fisheries include obtaining data for the status of and understanding the interplay between commercial and recreational target species, since many of them overlap, as well as improving collaboration among state and federal actors to manage all target species.[22] For instance, managers need but may lack funding or other resources to invest in, maintain, and coordinate collection and analysis of real-time stock status and spatial data. The difficulty in collecting data for recreational fisheries is especially prominent, which is addressed through educational and voluntary programs such as NOAA's Marine Recreational Information Program[23] and the Mid-Atlantic Council's Research Set-Aside Program.[24] In addition, the Mid-Atlantic Council is contemplating taking steps to move towards an ecosystem-based management approach, which

[18] The Council consists of 25 members (21 voting and 4 non-voting) representing State and Federal agencies as well as the public from New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina.
[19] MID-ATLANTIC FISHERY MANAGEMENT COUNCIL, *available at* http://www.mafmc.org/ (last visited July 25, 2013).
[20] MID-ATLANTIC FISHERY MANAGEMENT COUNCIL, STATE SPECIFIC MARINE FISHERY REGULATIONS, *available at* http://www.mafmc.org/regulations; *see also* ATLANTIC STATES MARINE FISHERIES COMMISSION, *available at* http://www.asmfc.org/ (last visited July 25, 2013).
[21] *See* Tom Hoff, Memorandum to Ecosystem and Ocean Planning Committee: February Council Meeting, at 3 (Jan. 21, 2011), *available at* http://static.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/51b88a1be4b0965cdfc94525/1371048475130/Tab_03_Ecosystem_Ocean_Planning_Committee.pdf.
[22] REGIONAL FISHERY MGMT. COUNCILS, US REGIONAL FISHERY MANAGEMENT COUNCILS: OPPORTUNITIES AND CHALLENGES 23-26, *available at* www.fisherycouncils.org/USFMCsections/USRFMCmafmc.pdf.
[23] *Marine Recreational Information Program*, NOAA OFFICE OF SCIENCE AND TECHNOLOGY, http://www.st.nmfs.noaa.gov/recreational-fisheries/index (last visited Sept. 6, 2013).
[24] REGIONAL FISHERY MGMT. COUNCILS, *supra* note 23.

requires an understanding of not just target and non-target species but also marine biological, physical, and chemical interactions and the cumulative impacts of all area activities.[25]

B. Offshore Energy and Renewable Energy Development

1. Offshore Oil and Gas Development

The Mid-Atlantic contains considerable non-renewable energy resource potential, notably for methane hydrates and oil and gas development. Although currently there are no approved[26] or active oil and gas explorations in the Mid-Atlantic Outer Continental Shelf (OCS), the Department of the Interior's (DOI) Bureau of Ocean Energy Management (BOEM)[27] has issued a draft programmatic environmental impact statement (PEIS) to evaluate potential significant environmental effects of geological and geophysical activities, including oil and gas, renewable energy, and rare minerals exploration development.[28]

2. Offshore Renewable Energy Development

The Atlantic OCS offers tremendous renewable energy potential.[29] Foremost among the potential renewable energy resources is offshore wind, which both federal and state actors have identified as presenting the most feasible utility-scale renewable marine energy source in the region. In 2009, the MARCO Agreement on Ocean Conservation established offshore wind development as a priority area for regional collaboration.[30] In February 2011, the Department of Energy and DOI announced a national strategy to "promote and accelerate responsible commercial offshore wind development in the U.S. in both federal and state waters."[31]

BOEM is leading federal efforts to accelerate offshore wind energy development on the Atlantic OCS, including initiatives to reduce cost and time for project approval and increasing the efficiency of

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[25] MID-ATLANTIC FISHERY MANAGEMENT COUNCIL, COUNCIL MEETING (Oct. 17, 2012), *available at* http://static.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/51657f3de4b0f2e667ba26dc/1365606205172/Council_Minutes_October_17-18_2012.pdf.

[26] *2012-2017 Lease Sale Schedule*, BUREAU OF OCEAN ENERGY MANAGEMENT, http://www.boem.gov/Oil-and-Gas-Energy-Program/Leasing/Five-Year-Program/Lease-Sale-Schedule/2012---2017-Lease-Sale-Schedule.aspx (last visited Sept. 6, 2013). Current lease sales for the 2012-17 period are located off the Gulf of Mexico and Alaska.

[27] The Bureau of Ocean Energy Management was formerly known as the Bureau of Ocean Management, Regulation, and Enforcement; before that, it was known as the Minerals Management Service.

[28] ATLANTIC GEOLOGICAL AND GEOPHYSICAL (G&G) ACTIVITIES PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (2012), *available at* http://www.boem.gov/oil-and-gas-energy-program/GOMR/GandG.aspx.

[29] MARCO, ACTIONS, TIMELINES, AND LEADERSHIP TO ADVANCE THE MID-ATLANTIC GOVERNORS' AGREEMENT ON OCEAN CONSERVATION 16 (2011), *available at* http://www.midatlanticocean.org/summary-actions.pdf.

[30] MID-ATLANTIC GOVERNOR'S AGREEMENT ON OCEAN CONSERVATION, *supra* note 11, at 3.

[31] U.S. DEP'T OF ENERGY & U.S. DEP'T OF THE INTERIOR, BUREAU OF OCEAN ENERGY MGMT., REGULATION, AND ENFORCEMENT, A NATIONAL OFFSHORE WIND STRATEGY: CREATING AN OFFSHORE WIND ENERGY INDUSTRY IN THE UNITED STATES (Feb. 7, 2011), *available at* http://www1.eere.energy.gov/wind/pdfs/national_offshore_wind_strategy.pdf.

siting and permitting for proposed projects.[32] BOEM also develops implementing regulations and conducts relevant environmental analyses for offshore wind projects. In 2010 BOEM launched the "Smart from the Start" Initiative, which seeks to streamline responsible offshore wind projects in federal waters along the Atlantic by expediting leasing, increasing regional coordination, and identifying priority Wind Energy Areas most suitable for development.[33] BOEM has identified four priority Wind Energy Areas (WEAs) in the Mid-Atlantic region off of the New Jersey, Delaware, Maryland, and Virginia coasts.[34] Mid-Atlantic states are also taking actions to realize offshore wind energy potential within state jurisdictions.[35] As just one example, in March 2013 the Maryland Legislature approved the Maryland Offshore Wind Energy Act of 2013 that authorizes a $1.7 billion subsidy over the next 20 years for offshore wind projects.[36]

Offshore wind energy development may bring significant positive ecological and economic impacts, including creating artificial habitat for marine life, generating regional revenue, and reducing dependence on fossil fuel resources. There is much to be learned, however, about the potential impacts of offshore wind development. This is the motivation behind the implementation of several demonstration projects featuring innovative technologies, including two turbines in the Virginia WEA and the Fishermen's Energy Atlantic City Windfarm off the coast of Atlantic City, New Jersey.[37] The goal is to learn more about potential impacts to other ocean uses, marine ecosystems, and/or specific marine species, to ensure they are effectively accounted for and managed. For instance, wind turbine towers, surrounding areas, and transmission lines might create area restrictions for other activities, such as fishing and shipping. Loud noises, seafloor disturbances, and increased vessel traffic—particularly during the installation phase—could affect benthic ecosystems, the location of fish and other species, and require adjustments in other activities such as commercial and recreational fishing, shipping, and tourism.[38] Coastal siting of transmission lines and support facilities may alter coastal land use and nearshore habitats.

Facing the tremendous potential of offshore wind energy in the region, federal and state managers and stakeholders are working to ensure that existing governance systems adequately balance the

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[32] *Id.* at 9-11. Governing federal legislations for renewable energy development include the Outer Continental Shelf Lands Act, Federal Power Act, and the Energy Policy Act.

[33] *Id.* at 12.

[34] *See* BOEM, Atlantic OCS Wind Energy Areas (WEAs) (2012), *available at* www.boem.gov/uploadedFiles/BOEM/Renewable_Energy_Program/Smart_from_the_Start/Wind_Energy_Areas0607.pdf.

[35] For more information about the existing state frameworks for managing offshore wind development in the Mid-Atlantic, see ENVIRONMENTAL LAW INSTITUTE (ELI), DELAWARE OFFSHORE ALTERNATIVE ENERGY FRAMEWORK REVIEW & RECOMMENDATIONS (2011), *available at* http://www.elistore.org/reports_detail.asp?ID=11417; ELI, MARYLAND OFFSHORE ENERGY FRAMEWORK (2009), *available at* http://www.elistore.org/reports_detail.asp?ID=11389; and ELI, VIRGINIA OFFSHORE ENERGY DEVELOPMENT LAW & POLICY REVIEW & RECOMMENDATIONS (2008), *available* at http://www.elistore.org/reports_detail.asp?ID=11338.

[36] Michael Dresser & Timothy B. Wheeler, *O'Malley Offshore Wind Bill Passes*, BALTIMORE SUN (Mar. 18, 2013), http://articles.baltimoresun.com/2013-03-18/news/bs-md-wind-bill-passes-20130318_1_o-malley-offshore-wind-bill-wind-legislation-maryland-ratepayers.

[37] *Offshore Wind Technology*, U.S. DEP'T OF ENERGY, http://www1.eere.energy.gov/wind/offshore_wind.html (last visited Sept. 6, 2013); *see also Fishermen's Energy Atlantic City Windfarm*, FISHERMEN'S ENERGY, http://www.fishermensenergy.com/atlantic-city-windfarm.php (last visited Sept. 6, 2013).

[38] ELI, A GUIDE TO STATE MANAGEMENT OF OFFSHORE WIND ENERGY IN THE MID-ATLANTIC REGION 9-10 (in press).

multiple interests at stake. The challenge is to understand and plan for offshore wind energy development to ensure the maximization of benefits and minimization of adverse environmental and socioeconomic impacts.[39]

C. Coastal Development

The Mid-Atlantic coast is densely developed and populated—as of 2010 over 44.3 million residents of Delaware, New York, New Jersey, Maryland, Pennsylvania, and Virginia lived in a coastal county.[40] Coastal development includes diverse uses such as industrial and residential construction, agriculture, ports and marinas, and tourism. Nearshore tourism is critical for Mid-Atlantic states; for instance, it accounts for $21.6 billion in annual economic activity for New Jersey alone.[41] The development and management of ports in New York-New Jersey, Philadelphia, Wilmington, Baltimore, and Norfolk is also significant as they are key spokes of the nation's transportation system. For instance, in 2011 the Port of Wilmington brought $365 million in business revenue, $34 million in port revenue, and employed over 4,300 people.[42] Another essential coastal use within the Mid-Atlantic region is maritime security. The U.S. Coast Guard has bases in Norfolk, Baltimore, Cape May, and Staten Island, and the Naval Station at Norfolk hosts the largest concentration of Navy personnel in the country.[43]

Coastal development along the Mid-Atlantic shoreline has increased in recent decades. With a growing population comes growing pressure on nearshore resource and habitats. There is also potentially greater need for coordination between coastal uses and activities that may depend on overlapping areas.[44]

Coastal development is managed by a complex network of local, state, and federal processes. Among the myriad applicable federal laws are the Coastal Zone Management Act, Marine Mammal Protection Act, National Environmental Protection Act, Clean Water Act, Clean Air Act, Endangered Species Act, Ports and Waterways Safety Act, Maritime Transportation Security Act, and Magnuson-Stevens Fishery Conservation and Management Act. Each Mid-Atlantic state also manages state coastal development pursuant to its own laws, policies, and regulations.

Management challenges in coastal development for the Mid-Atlantic lie in the need to accommodate the diverse and sometimes competing uses over a development-saturated coastline, while minimizing individual and cumulative impacts on each other, coastal populations, and the nearshore and marine environment. Critical issues include increasing coastal resiliency in the face of sea level rise and increased flooding and inundation events, coordinating data to support real-time

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[39] MARCO, *supra* note 29, at 16-17.

[40] NOAA & U.S. CENSUS BUREAU, NATIONAL COASTAL POPULATION REPORT: POPULATION TRENDS FROM 1970 TO 2020, at 15 (Mar. 2013), *available at* http://stateofthecoast.noaa.gov/features/coastal-population-report.pdf.

[41] NEW JERSEY COMMERCE, ECONOMIC GROWTH AND TOURISM COMMISSION, TRAVEL AND TOURISM (2013), *available at* http://www.nj.gov/njwindpanel/docs/travtour.pdf.

[42] Diamond State Port Corp., *Port Sets a New Tonnage Record*, 19(2) PORT ILLUSTRATED 1 (2012), *available at* http://www.portofwilmington.com/HTML/our_port/port_illustrated_summer_2012.pdf.

[43] *Security*, MARCO MID-ATLANTIC OCEAN DATA PORTAL, http://portal.midatlanticocean.org/learn/security (last visited Sept. 6, 2013); *see also State and County Quick Facts: Philadelphia County, Pennsylvania,* U.S. CENSUS BUREAU, http://quickfacts.census.gov/qfd/states/42/42101.html (last visited Sept. 6, 2013).

[44] *Id.*

decision-making, and minimizing conflicts between various user groups. Another key challenge is addressing the impacts of freshwater uses to saltwater resources and habitats, such as from runoff and leakage from underground storage.

D. Placed-Based Conservation

Certain parts of the Mid-Atlantic region have been designated and protected for conservation, research, or other uses.[45] Place-based conservation can help maintain resilient marine ecosystems, including stable species populations, healthy habitats, and essential ecosystem services. It can yield both economic and socioeconomic benefits, such as increased tourism (e.g., to beautiful coastal areas) and fishing (e.g., by acting as nursery areas for key species).[46] Since place-based conservation may constrain user access, it can conflict with other activities such as coastal development, shipping, commercial and recreational fishing, and offshore energy and renewable energy extraction. Depending on the type and location of the protected marine area, however, these and other activities may be allowed so long as they are conducted in a manner that aligns with the conservation goals.

In the Mid-Atlantic, place-based conservation has primarily occurred through the designation of wildlife reserves and sanctuaries, estuarine research reserves, and national seashores. Conservation has also been resource- or species-focused (e.g., eelgrass conservation in Chesapeake Bay).[47] Two deep-water canyons in the Mid-Atlantic region are part of the national system of marine protected areas: Veatch Canyon east of New Jersey and Norfolk Canyon east of Virginia.[48] NOAA's Marine Protected Area (MPA) Center, within the Department of Commerce, in cooperation with the Department of the Interior and other federal, state, tribal, and territorial agencies, works to develop and implement a national MPA system; protected areas within the system range from multi-use to no-take or no-access.[49] For instance, Veatch Canyon and Norfolk Canyon include gear restrictions to protect tilefish

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[45] Relevant federal laws include the National Marine Sanctuaries Act, National Wetlands Act, Magnuson-Stevens Fishery Conservation and Management Act, Coastal Zone Management Act, Clean Water Act, Outer Continental Shelf Lands Act, Coastal Barrier Resources Act, National Park Service Organic Act, National Wildlife Refuge System Administrative Act, National Wildlife Refuge System Improvement Act, and the Antiquities Act.

[46] *See MPA Definition*, NAT'L MARINE PROTECTED AREAS CTR., http://marineprotectedareas.noaa.gov/aboutmpas/definition/ (last visited Sept. 6, 2013); *see also* NAT'L MARINE PROTECTED AREAS CTR., MPA BROCHURE (2012), *available at* http://www.mpa.gov/pdf/mpa-center/mpa_center_brochure_october2012.pdf.

[47] CHESAPEAKE BAY PROGRAM, STRATEGY TO ACCELERATE THE PROTECTION AND RESTORATION OF SUBMERGED AQUATIC VEGETATION IN THE CHESAPEAKE BAY (2003), *available at* www.chesapeakebay.net/publications/title/strategy_to_accelerate_the_protection_and_restoration_of_sav_in_the_chesape.

[48] *Ocean Canyon Protection—Four Fish Habitat Protection Areas Make the List*, NOAA HABITAT CONSERVATION, www.habitat.noaa.gov/media/news/oceancanyoncoralscape.html (last visited Sept. 6, 2013) [hereinafter *Ocean Canyon Protection*].

[49] *Priority Ocean Areas for Protection in the Mid-Atlantic*, NATURAL RESOURCES DEFENSE COUNCIL, www.nrdc.org/water/oceans/priority/poainx.asp; *U.S. Marine Protected Areas*, NOAA, www.mpa.gov/dataanalysis/mpainventory/mpaviewer (last visited Sept. 6, 2013).

habitats, under the Magnuson-Stevens Act and relevant fishery management plans;[50] the Edwin B. Forsythe National Wildlife Refuge along parts of the New Jersey coast contains no-take areas limiting commercial fishing and restricting recreational fishing;[51] and the nearby Jacques Cousteau National Estuarine Research Reserve contains a uniform restriction for commercial and recreational fishing.[52] The Mid-Atlantic states also protect designated areas at the state level through their respective natural resources and environmental departments, often in partnership with federal counterparts.[53] MARCO is making progress in building regional partnerships for identifying and protecting priority coastal and marine conservation areas in the region.[54]

One of the key management challenges for coastal and marine conservation in the Mid-Atlantic is providing adequate funding for effective monitoring and enforcement within these areas, to control impacts from other allowable uses within and outside of the areas themselves.[55] Adapting strategies to increasing users, climate change impacts including water temperature increase and ocean acidification,[56] and emerging uses such as offshore wind energy development are also prominent challenges to conservation management in the Mid-Atlantic.

E. Coastal Climate Change Mitigation and Adaptation

The impacts of climate change—in particular sea level rise and increased storm surges, flooding, and coastal subsidence from super storms such as Hurricane Sandy—are visible and have devastated coastal ecosystems and livelihoods across the Mid-Atlantic region. Since 1990, the Mid-Atlantic coast has been a "hot spot" for sea level rise that occurs at the rate of 2 to 3.7 millimeters per year, or 4 to 5 times faster than the global average.[57] For instance, parts of Virginia such as Norfolk are already

[50] *Ocean Canyon Protection*, *supra* note 48; *see also* REGIONAL FISHERY MANAGEMENT COUNCILS, U.S. REGIONAL FISHERY MANAGEMENT COUNCILS: DECADES OF KNOWLEDGE IN COASTAL AND MARINE SPATIAL PLANNING 5, *available at* http://www.fisherycouncils.org/MSPFlier.pdf.

[51] *U.S. Marine Protected Areas*, *supra* note 49. (search for "Edwin B. Forsynthe National Wildlife Refuge").

[52] *Id.* (search for "Jacques Cousteau National Estuarine Research Reserve"); *see also* JACQUES COUSTEAU NATIONAL ESTUARINE RESEARCH RESERVE, http://www.jcnerr.org/ (last visited Sept. 6, 2013).

[53] *See, e.g.*, *Delaware National Estuarine Research Reserve*, DELAWARE DEP'T NATURAL RES. & ENVTL. CONTROL, www.dnrec.state.de.us/DNREC2000/Divisions/Soil/DNERR/index.htm (last visited Sept. 6, 2013).

[54] MID-ATLANTIC REGIONAL COUNCIL ON THE OCEAN, 2011-2012 MARCO WORKPLAN 2-3 (2011), *available at* http://www.midatlanticocean.org/2011_2012_MARCOworkplan.pdf.

[55] *See, e.g.*, Charles Wahle, Presentation, *Place Matters: Emerging US Context for Conserving Special Ocean Places* (2012), *available at* http://www.mpa.gov/pdf/fac/wahle_place_matters_emerging_context_conserving_special_places.pdf.

[56] *See* NAT'L MARINE PROTECTED AREAS CTR., MARINE PROTECTED AREAS: BUILDING RESILIENCE TO CLIMATE CHANGE IMPACTS (2013), *available at* http://www.mpa.gov/pdf/helpful-resources/mpas_climate_change_march_2013.pdf.

[57] Press Release, U.S. Geological Survey, *Sea Level Rise Accelerating in U.S. Atlantic Coast* (June 24, 2012), *available at* www.usgs.gov/newsroom/article.asp?ID=3256&from=rss_home; *see also* Tal Ezer et al., *Gulf Stream's Induced Sea Level Rise and Variability Along the U.S. Mid-Atlantic Coast*, 118 J. GEOPHYSICAL RESEARCH: OCEANS 1-13 (2013) (identifying the slowing down of the Atlantic Gulf Stream as the reason for accelerated sea level rise in the Mid-Atlantic coast).

experiencing coastal subsidence[58] as well as flooding many days of the year.[59] As sea level in the region is expected to rise another 8 to 11.8 inches by 2100,[60] the ocean will continue to inundate both the natural and built environment from conservation areas to coastal developments, resulting in a variety of severe consequences including damages to industrial and personal property, and lost revenue from inundated beaches and seashore parks. Additionally, sea level rise, coastal subsidence, as well as increasing storm surges and flooding will further damage built coastal infrastructure such as ports, sewage treatment plant, airports, and roads. These environmental and economic impacts will in turn produce negative, cascading socioeconomic and public health effects.

Traditionally, states in the Mid-Atlantic have individually planned for and addressed climate change impacts and have intensified these efforts post Hurricane Sandy.[61] Additionally, the states have recently begun to undertake collaborative planning approaches through MARCO's Agreement on Ocean Conservation.[62] The main management challenge to addressing the oceanic and coastal risks and impacts of climate change is anticipating them given the increasing unpredictability in doing so, and planning for adaptation in a manner that balances financial realities as well as existing interests including private property rights, conservation, coastal development, and maritime security considerations. Another major difficulty is protecting the most vulnerable resources and habitats as well as communicating these risks and impacts to local communities, where land use decision-making is made and on-the-ground adaptation to climate change is needed. Federal and state funding and regional coordination is needed to implement localized preventative or remedial actions such as changing municipality zoning laws to restrict coastal development, require extreme weather preparedness plans, and investing in real-time monitoring and emergency response systems to sudden storm surges and flooding.

IV. Moving Forward with Regional Ocean Governance

There are myriad ways to approach regional ocean governance. Some approaches may be tailored to overcoming specific management challenges associated with a particular use or resource, while others may be broader-reaching and cut across uses, space, and time. Overall, the foundation of regional ocean planning is coordination and collaboration between the entities involved in managing the area's uses and resources. It can be difficult to develop flexible and adaptive systems that add to the

[58] Ron Williams & John M. Keifer, Presentation to Expert Advisory Panel: Coastal Flooding Mitigation (Feb. 16, 2012), *available at* http://www.norfolk.gov/DocumentCenter/View/1748; *see also* Kevin Smith, Presentation to Storm Water Working Group: City of Norfolk City-wide Coastal Flooding Study (Feb. 29, 2012), *available at* http://va-norfolk.civicplus.com/DocumentCenter/View/1752.

[59] *See* Ctr. Coastal Res. Mgmt., Va. Inst. of Marine Sci., *Recurrent Flooding Study for Tidewater Virginia* (2013), *available at* http://ccrm.vims.edu/recurrent_flooding/Recurrent_Flooding_Study_web.pdf.

[60] Press Release, U.S. Geological Survey, *supra* note 57.

[61] *See* MARCO, HIGHLIGHTS: MOVING IN THE RIGHT DIRECTION (2011), *available at* www.midatlanticocean.org/mitrd.pdf.

[62] MARCO, *supra* note 29, at 9-10.

existing authorities of the individual entities involved without constraining them. The desired result, however, is more efficient and effective decision-making leading to robust and resilient ecosystems, communities, and economies.

The goal of the *Mid-Atlantic Regional Ocean Governance Symposium* was to provide a forum for discussing existing and innovative law and policy approaches that support MARCO priorities and move regional ocean governance forward in the Mid-Atlantic. Recent years have seen significant progress on this front, including the creation of multiple systems and organizing bodies. Hopefully, these discussions and the resulting articles contained in this special issue of the *Sea Grant Law and Policy Journal* will build upon that progress and, through identification and debate of new approaches and contributors, help materialize the region's next steps.