Designating Prime Fishing Areas in Virginia: Considerations and Recommendations

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A. Introduction

The objective of this report is to determine whether, in the development of a Virginia Ocean Plan, the New Jersey concept of a Prime Fishing Area can be layered with other ocean usage areas, specifically, conservation areas, research areas, recreational fishing areas, and tourism and non-consumptive usage areas.

This report will first describe stakeholder consultation activities undertaken by the Virginia Coastal Policy Center (VCPC) students during the spring of 2023. Then it will describe the New Jersey Prime Fishing Areas, set forth in Section 7:7-9.4 of the New Jersey Administrative Code (N.J.A.C.). It will continue by studying the approaches of selected other states whose fishing policy in the context of a fully developed ocean plan could further inform Virginia's approach. It will then describe the current Virginia legal and policy context, with analysis of how the New Jersey concept could be adopted through regulation or statute, and how it might be adapted to fit Virginia's needs. The report will conclude with a series of recommendations and considerations for Virginia policymakers.

B. Stakeholder Consultation

Students at VCPC reached out to Virginia stakeholders in order to consider the suitability of adapting New Jersey's regulation to the Virginia context. The list of stakeholders, which was developed in coordination with the Program Manager of the Virginia Coastal Zone Management Program, included representatives of the conservation, scientific research, fishing, and recreational sectors. Students also contacted the New Jersey Department of the Environment for comment. A list of stakeholders interviewed is found in Appendix I to this document;[1] the raw notes have been compiled in a separate Addendum document.

The New Jersey Department of Environmental Protection initially responded on 01 March 2023 to a request for an interview by asking for a list of questions to determine which staff would be best suited to discuss its Prime Fishing Areas regulation. However, upon sending the questions both via attachment and body text of email, students received no response to 10 March and 30 March follow-up emails, and 07 April and 27 April follow-up phone calls.

Unfortunately, among recreational stakeholders, only a limited number responded to questions, whether in writing or through an interview. Some did not respond to outreach at all; others responded to initial contact, but ceased responding once given specific questions or invited to interview. The Virginia Beach Convention & Visitors Bureau did not respond to an initial 10 March email to their director of public relations; upon a follow-up phone call to the office, students were invited on 28 March to send questions to the Resort Management Team for circulation, but this also did not generate a response. Additionally, contact throughout March with a regional surfing association eventually led to contact with a Virginia chapter representative on 29 March, who expressed willingness to identify surfing locations but did not respond to a request for interview or to a list of questions sent on 05 April. Furthermore, a

[1] *See* Appendix I, List of Stakeholders Consulted, at AI-1.

representative of a Virginia Beach fishing club expressed initial willingness to answer questions on 14 March, without responding to the questions, and did not respond to a 21 March follow-up email. A representative of another Virginia fishing club expressed doubt as to whether their input would be relevant or helpful.

By contrast, conservation stakeholders generally responded positively to outreach.[2] These stakeholders spoke extensively about marine research activities that assist both conservation and fisheries management.[3] More detailed descriptions of the existing conservation and research areas off of Virginia's coast are described later in this report.[4]

One potential conflict between wind turbines off the coast of Virginia and existing offshore research is along the northern edge of the Dominion Energy Coastal Virginia Offshore Wind project site. The Virginia Institute of Marine Science (VIMS) has a long-line survey location in and adjacent to that area.[5] Depending on the wind development plan, VIMS may not be able to continue that survey.[6] Additionally, according to Jim Gartland, Associate Research Scientist in the VIMS Fisheries Department, the electromagnetic radiation from the operation of the turbines may cause the sharks to migrate away from that area, affecting the survey results.[7] A second concern is that the C/V Bigelow, and other similar research vessels, will not be able to tow gear into the wind development area due to vessel constraints.[8] The C/V Bigelow has a 30' centerboard that deploys below the hull, and its mast is higher than the length of the wind turbine blade; this could lead to dismasting if a turbine blade came into contact with the mast.[9]

Conservation and research stakeholders also indicated that climate change is having a visible impact on the distribution of marine wildlife.[10] For example, certain endangered species are being stranded on Virginia beaches, that were not stranded before; this was also noted by a recreational stakeholder.[11] In fisheries, catches have declined since 2007, but research stakeholders suggested that this is due more likely to irregularities in the North Atlantic oscillation than to overfishing.[12]

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[2] *See id.*
[3] *See* Interview with Sue Barco, Marine Consultant, Va. Dep't of Wildlife Res. (Mar. 7, 2023); Interview with James Gartland, Assoc. Research Scientist, Va. Inst. Marine Sci. (Mar. 7, 2023); Interview with Douglas Cristel, Fishery Policy Analyst, Nat'l Oceanic and Atmospheric Admin. Greater Atlantic Regional Fisheries, and Elizabeth Methratta, Fisheries and Wind Scientist, Nat'l Oceanic and Atmospheric Admin. Northeast Fisheries Science (Mar. 17, 2023).
[4] *See infra* Section E.III., Virginia: Existing Use Areas.
[5] Interview with James Gartland, *supra* note 3.
[6] *Id.*
[7] *Id.*
[8] *Id.*
[9] *Id.*
[10] Interview with Sue Barco, *supra* note 3; Interview with James Gartland, *supra* note 3; Interview with Doug Cristel and Elizabeth Methratta, *supra* note 3.
[11] Interview with Sue Barco, *supra* note 3; Interview with John Bello, Gov't Affairs Officer, Va. Saltwater Sportfishing Assoc. (Mar. 12, 2023).
[12] Interview with James Gartland, *supra* note 3.

The opinion of stakeholders regarding offshore wind development was inconsistent.[13] One research scientist at VIMS expressed concern that it would interfere significantly with planned marine research activities.[14] A conservation stakeholder indicated possible interference with bird habitat, but declined to share information that might be published.[15] A recreational fishing stakeholder acknowledged both benefits and risks of offshore wind development: turbine substructure could provide habitat and attract recreational species, but navigational disputes could lead to fishermen being shut out of the surrounding waters completely.[16]

Concerning other uses of offshore waters and bottomland, conservation and research stakeholders indicated that there is interest in dredging and sandmining in Virginia and the Chesapeake Bay, and that these activities will likely impact fisheries, a subject of ongoing research.[17] A conservation stakeholder indicated that the effects of port expansion threatened migratory species less than small, recreational vessels, which regularly strike sea turtles.[18] A recreational stakeholder acknowledged that port expansion might adversely impact fisheries, but due to perceived importance of the military factors in port expansion, believed it would be fruitless to oppose expansion.[19]

The practical effects on fisheries of climate change, offshore wind, and dredging, and the relationship between recreational fishing, port expansion, and migratory species may therefore need to be researched before siting Prime Fishing Areas and determining substantive legal obligations.

C. New Jersey's Prime Fishing Areas

I. History and Development of New Jersey Fishing Policy

The designation of New Jersey prime fishing areas has evolved over time through the use of grant-supported studies, mapping, and feedback from experienced anglers. New Jersey prime fishing area designation involved a federal Coastal Zone Management (CZM) grant-supported study that focused on interviews with experienced parties, such as charter-boat captains.[20] This study was conducted by the New Jersey Department of Environmental Protection (DEP) and resulted in the mapping of over 450 prime ocean areas favored by recreational anglers.[21] Each fishing ground was plotted on NOAA nautical charts, and the delineation was entered into DEP's

[13] *Id.*; Interview with Sue Barco, *supra* note 3; Interview with Doug Cristel and Elizabeth Methratta, *supra* note 3; Interview with John Bello, *supra* note 11.
[14] Interview with James Gartland, *supra* note 3.
[15] Interview with Sue Barco, *supra* note 3 (referencing DWR bird nesting sites whose location is not published in order to protect the sites).
[16] Interview with John Bello, *supra* note 11.
[17] Interview with Sue Barco, *supra* note 3; Interview with James Gartland, *supra* note 3; Interview with Doug Cristel and Elizabeth Methratta, *supra* note 3.
[18] Interview with Sue Barco, *supra* note 3.
[19] Interview with John Bello, *supra* note 11.
[20] *See Prime Fishing Grounds of New Jersey*, N.J. DEP'T OF ENV'T PROT. BUREAU OF GIS (July 19, 2022), https://gisdata-njdep.opendata.arcgis.com/datasets/njdep::prime-fishing-grounds-of-new-jersey/about [hereinafter *Prime Fishing Grounds*].
[21] *See id.*

Geographic Information System (GIS), which is available on its website.[22] The purpose of this mapping was to assist with fishing activity planning as well as planning and assessing ocean-related development projects.[23]

During that interview process, fishermen and captains examined the accuracy of the already-delineated prime fishing areas from the 1980s on the base map and drew their preferred changes onto the map.[24] Generally, they increased the size of the prime fishing area.[25] The revised base maps were then digitized into the New Jersey Specific Sport Ocean Fishing Grounds Coverage Map.[26] New Jersey has a program to build artificial reefs in state waters to provide habitat for fish and other marine life, as well as recreational opportunities for anglers and divers.[27] Most recently, the NJ Bureau of Marine Fisheries added the 17 artificial reef sites to the GIS Map, and updated the port navigational charts.[28]

II. The New Jersey Prime Fishing Areas Regulations, N.J.A.C. Section 7:7-9.4

The Prime Fishing Areas were established off the coast of New Jersey by regulatory amendments to the Coastal Zone Management Rules adopted in 1985.[29] The following discussion covers the main points of the regulation, including how the regulation has been interpreted and enforced.

a. Section 7:7-9.4(a): Identification of Prime Fishing Areas

1. Regulatory Text

The Prime Fishing Areas (PFA) regulation is divided into three subsections.[30] Subsection (a) defines PFAs, (b) sets forth permitted and prohibited uses of PFAs, and (c) describes the rationale behind the designation.[31] Designation of PFA status is subject to a two-part test: First, the area must have "a demonstrable history of supporting a significant local intensity of recreational or commercial fishing activity."[32] Second, it must belong to one of four geographic groups, being either 1) a coastal area off of a man-made shoreline structure; 2) a natural oceanic geographic feature with a nexus to the coastal environment, including everything from a "rock outcropping" to coral, sloughs and offshore canyons; 3) identification in the 1988 publication,

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[22] *See id.*
[23] *See id.*
[24] *See id.*
[25] *See id.*
[26] *NJ Saltwater Fishing Opportunities Map*, N.J. DEP'T OF ENV'T PROT. (Dec. 5, 2022), https://njdep.maps.arcgis.com/apps/PublicGallery/map.html?appid=79dd2d6b028349e5a9276f37e7308ab5&webmap=b6747ff3f1d84cdd81255edd45a7a6d7# (on the menu to the right of the page, click the rightmost tab with the information icon to access "About this map").
[27] *See Prime Fishing Grounds of New Jersey*, *supra* note 20.
[28] *See id.*
[29] *See* N.J. ADMIN. CODE Chpt. 7E, Chapter Historical Note, https://dspace.njstatelib.org/xmlui/bitstream/handle/10929/62752/snjac_T7_ch7e_2010_Sep_20.pdf?sequence=1&isAllowed=y ("Pursuant to Executive Order No. 66 (1978), Chapter 7E, Coastal Zone Management, was readopted as R. 1985 d.422, effective July 24, 1985.").
[30] N.J. ADMIN. CODE § 7:7-9.4.
[31] *Id.*
[32] *Id.* § 7:7-9.4(a).

"New Jersey's Recreational and Commercial Fishing Grounds of Raritan Bay, Sandy Hook Bay and Delaware Bay and The Shellfish Resources of Raritan Bay and Sandy Hook Bay" by Figley and McCloy; or 4) inclusion in the New Jersey Coastal Management Program's map, "New Jersey's Specific Sport Ocean Fishing Grounds."[33]

2. Interpretation and Competing Terminology

The fourth geographic category has produced confusion among stakeholders according to a 2021 American Littoral Society (ALS) report, which cites inconsistent use of the terms "prime fishing areas" and "prime fishing grounds," in addition to the map title's term, "sport ocean fishing grounds."[34] While the ALS report suggests that the first two terms are distinct, a 2022 New Jersey Department of Environmental Protection (NJDEP) Bureau of GIS web map, "Prime Fishing Grounds of New Jersey," suggests that all three terms are either coextensive or used interchangeably after mapping revisions in 2018.[35]

This map identifies both clearly coastal areas such as Armary Rocks or False Hook Channel on the northern New Jersey coastline, to sloughs, drop-offs, and canyons hundreds of miles offshore, hundreds of thousands of acres in area, and up to a thousand fathoms in depth, such as the Wilmington and Baltimore Canyons and Area around 28 Miles Wreck.[36] Whether coastal or oceanic, these are designated as "Ocean Prime Fishing Areas" under the "PROFILESUR" heading, and they contain a designation that often corresponds to the second geographic group (most often that of slough), as well as a brief rationale for each area's designation.[37] The web map demonstrates that these designations take into account N.J.A.C. 7:7-1.7, which requires that Coastal Zone Management Rules (Chapter 7), including 7:7-9.4, be liberally construed. [38] The map's history, interchangeable use of terms, and clear liberality of designation seem to dispute the ALS analysis, and 7:7-1.7 may mean that even if prime fishing areas and prime fishing grounds refer to different sets of areas, in practice they will likely be considered together.

b. Enforcement of N.J.A.C. Section 7:7-9.4(b)

1. Regulatory Framework

Subsection (b) prohibits two fundamental uses: 1) submarine mining "which would alter existing bathymetry to a significant degree so as to reduce the high fishery productivity;" and 2) waste disposal that does not comply with state or federal standards.[39] New Jersey has a long history of

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[33] *Id.*
[34] HELEN HENDERSON & SARA WINTER WHELAN, AMERICAN LITTORAL SOCIETY, PROTECTING OFFSHORE FISH AND FISH HABITAT IN THE MID-ATLANTIC OCEAN 8, 60-63 (Tim Dillingham & Jeff Dement eds., Jan. 2021), https://protectfish.org/wp-content/uploads/2021/03/Protecting-Offshore-Fish-01-19-21-dps-for-web.pdf [hereinafter ALS REPORT].
[35] *See Prime Fishing Grounds*, *supra* note 20.
[36] *Id.*
[37] *Id.*
[38] *See* N.J. ADMIN. CODE § 7:7-1.7.
[39] *Id.* § 7:7-9.4.

sand mining for beach replenishment, a multi-million-dollar industry[40] that can negatively affect marine ecosystems.[41] The second prohibited use covers not only coastal land use and non-discharge violations, but could also cover, by virtue of the ocean prime fishing areas, illegal vessel discharges or illicit dumping and waste disposal in the oceans.[42] This last topic is a complex area of law enforcement, which can at times involve organized and corporate crime, and federal and international law.[43]

While subsection (b) lists permitted and prohibited uses of PFAs, the regulations outlining special use areas (including PFAs) contain no mention of an enforcement mechanism.[44] However, N.J.A.C. 7:7-29.1 to -29.10 describe enforcement procedures for the Coastal Zone Management Rules.[45] This section allows the NJDEP to use a wide array of tools, including administrative orders with right to an administrative law hearing, injunctive relief, civil penalties, and, in the case of fraud or repeated violation, criminal actions in the third degree with heightened penalty amounts.[46] The fundamental basis for liability is the conduct of regulated activities without a permit.[47]

2. Illicit Activities

While New Jersey has a Bureau of Marine Law Enforcement, its activities are limited to "the waters of the State,"[48] and the State Police Marine Services Bureau focuses its activities primarily on enforcing navigational rules.[49] State jurisdiction over offshore waters is three miles from the coastline,[50] whereas the majority of the area designated as prime fishing grounds is well beyond this mark.[51] The NJDEP Coastal Management Program website indicates the Bureau of Coastal & Land Use Compliance & Enforcement as its enforcement authority;[52] however, that

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[40] Dana Difilippo, *New Federal Funding For Beach Replenishment Reignites Old Debate*, N.J. MONITOR (Jan. 31, 2022, 6:51 AM), https://newjerseymonitor.com/2022/01/31/new-federal-funding-for-beach-replenishment-reignites-old-debate/.
[41] *See* Cheryl Lyn Dybas, *Sand: A Resource That's Washing Away*, 33:1 OCEANOGRAPHY 8, 9-10 (Mar. 4, 2020), https://doi.org/10.5670/oceanog.2020.108; Kate Whiting, *Sand Mining: The Environmental Challenge You've Probably Never Heard Of*, WORLD ECON. F. (June 30, 2022), https://www.weforum.org/agenda/2022/06/global-sand-mining-demand-impacting-environment/ (citing, inter alia, *Sand, Rarer Than One Thinks*, U.N. ENV'T PROGRAMME (Mar. 2014), https://na.unep.net/geas/archive/pdfs/GEAS_Mar2014_Sand_Mining.pdf).
[42] *See* N.J. ADMIN. CODE § 7:7-9.4.
[43] *See, e.g.*, U.S. GOV'T ACCOUNTABILITY OFF., GAO/RCED-95-143, ENFORCEMENT UNDER MARPOL V CONVENTION ON POLLUTION EXPANDED, ALTHOUGH PROBLEMS REMAIN 2-10 (1995), https://www.gao.gov/assets/rced-95-143.pdf; INTERPOL, OPERATION 30 DAYS AT SEA 3.0 3, 15-17, 19 (Jan. 2022), https://www.interpol.int/en/Crimes/Environmental-crime/Pollution-crime; *MARPOL Enforcement in the United States*, BLANKROME, (May 2011), https://www.blankrome.com/publications/marpol-enforcement-united-states.
[44] N.J. ADMIN. CODE § 7:7-9.4.
[45] *Id.* §§ 7:7-29.1 to 7:7-29.10.
[46] *Id.* §§ 7.7-29.1 to 7:7-29.2, 7:7-29.5 to 7:7-29.9.
[47] *Id.* § 7:7-29.5.
[48] N.J. STAT. ANN. § 53:1-11.14.
[49] *See generally Marine Services Bureau*, N.J. STATE POLICE, https://nj.gov/njsp/marine-services/index.shtml (last visited Apr. 8, 2023).
[50] U.S. v. Maine, 469 U.S. 504, 512-514 (1985) (citing 43 U.S.C. §§ 1301(c), 1312).
[51] *Prime Fishing Grounds*, *supra* note 20.
[52] *See Coastal and Land Use Compliance and Enforcement*, N.J. DEP'T OF ENV'T PROT. COASTAL MGMT. PROGRAM: COASTAL ENF'T, https://www.state.nj.us/dep/cmp/czm_enforcement.html (last visited Apr. 8, 2023).

Bureau's own page indicates that it is primarily concerned with land use violations, and suggests that it does not rely on law enforcement to conduct active monitoring or investigations, but rather responds to reports and complaints.[53] Therefore, any illicit activity in violation of Section 7:7-9.4 is likely enforced through either U.S. Coast Guard or citizen-stakeholder reporting. (The VCPC students tried to clarify the means of enforcement with the NJDEP staff, but as discussed above, staff have not responded to the submitted questions.)

3. Prophylactic Enforcement

Materials published online by a variety of stakeholders, as well as the permitting emphasis of Subchapter 29 of the PFA regulations, suggest that the PFAs are largely enforced prophylactically during permitting processes for large projects. The ALS report suggests that the PFAs are considered at least to some extent in the planning of wind energy projects by both state and federal actors.[54] A joint study by the NJDEP and the U.S. Army Corps of Engineers on the feasibility of coastal floodwalls and pumping stations concluded that, because the project was not located in any PFA, the law was not applicable, though there was no analysis of actual impact on PFAs.[55] A 2019 letter from the Natural Resources Defense Council to the NJDEP opposing construction of a gas pipeline cited "134 acres of NJDEP sport ocean fishing grounds . . . [and] up to 573.3 acres of shallow bay waters" subject to additional sedimentation, contesting the corporate applicant's environmental impact statement.[56] The NJDEP denied the project, in part citing the Coastal Zone Management Rules (Chapter 7), though not specifically citing the PFAs, and citing a host of other environmental challenges as well as denial by New York.[57]

Of potentially greatest note is a 2015 denial by the NJDEP of a National Science Foundation research proposal, which would have conducted seismic surveys using existing drill sites to study sea level rise.[58] The NJDEP's determination of the project's inconsistency with N.J.A.C. Section 7:7-9.4 followed the principle of liberal construction. It found that

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[53] *See Bureau of Coastal and Land Use Compliance & Enforcement*, N.J. DEP'T OF ENV'T PROT.: COMPLIANCE & ENF'T, https://www.nj.gov/dep/enforcement/clue.html (last visited Apr. 8, 2023).
[54] ALS REPORT, *supra* note 34, at 74-84.
[55] RARITAN BAY AND SANDY HOOK BAY, HIGHLANDS, NEW JERSEY COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY, FINAL INTEGRATED FEASIBILITY REPORT AND ENVIRONMENTAL ASSESSMENT MAY 2020: APPENDIX A2: COASTAL ZONE ACT CONSISTENCY STATEMENT, U.S. ARMY CORPS OF ENGINEERS 4-5, 33-34 (May 2020), https://www.nan.usace.army.mil/Portals/37/docs/civilworks/projects/nj/frm/Highland%20Sandy%20Hook%20Raritan%20Bay/Appendix%20A2%20CZM%20Compliance.pdf?ver=2020-05-22-113810-177.
[56] Kimberly Ong, Natural Res. Def. Council, Comment Letter on the Water Quality Certification Application of the Northeast Supply Enhancement (NESE) Project, NJDEP File No. 0000-01-1001.3, at 16-17 (May 2, 2019), https://www.nrdc.org/sites/default/files/media-uploads/nrdc_comments_nese_pipeline.pdf.
[57] N.J. Div. of Land Use Regulation, Denial of an Application for a Freshwater Wetlands Individual Permit, Flood Hazard Area Individual Permit, Waterfront In-Water Individual Permit, Waterfront Upland Individual Permit, Coastal Wetlands Individual Permit and Water Quality Certificate, DLUR File No.: 0000-01-1001.3; LUP 200001, at 1, 4, 8, 10 (May 15, 2020), https://www.nj.gov/dep/nese/docs/20200515-njdep-nese-decision.pdf.
[58] N.J. Div. of Land Use Regulation, Federal Consistency Determination for Marine Geophysical Survey by the R/V Marcus G. Langseth in the Atlantic Ocean off New Jersey, Summer 2015 – Inconsistent, DLUR File No. 0000-14-0030.1 CDT 150001, at 1, 3-5 (Mar. 6, 2015), https://www.cleanoceanaction.org/fileadmin/editor_group1/Issues/Seismic/NJDEP_Federal_Consistency_Determination.pdf.

> [w]hile seismic surveys are not expressly prohibited pursuant to the N.J.A.C. . . . it is reasonably foreseeable that the project would affect fishery distribution, movement, migration and spawning at identified prime fishing areas. . . . In conclusion, the project is found to be inconsistent with [the] prime fishing areas rule.[59]

While the letter addressed activity that would clearly be undertaken far from the coast, it was issued by the Division of Land Use Regulation, with the Division of Coastal and Land Use Planning, Marine Fisheries Administration, Division of Fish & Wildlife, and Office of Permit Coordination and Environmental Review copied.[60] This suggests that New Jersey's interpretation and enforcement of permitting surrounding the PFAs is not carried out by an office specialized in oceanic or fishery resources, but rather through an interdisciplinary, whole-of-Department approach.

c. Analysis

The New Jersey PFA designation in N.J.A.C. Section 7:7-9.4 contains an inherent textual tension between its subsection (b) limitation to submarine mining and waste disposal, and the expansive categories of areas and enumerated rationale in subsections (a) and (c), as well as the Section 7:7-1.7 principle of liberal construction.[61] Overall, the recent history of administrative decisions suggests that this latter principle dominates but does not control.[62] The Army Corps of Engineers' assessment construes the PFAs as narrowly as the NJDEP's denial of the NSF proposal construes them broadly.[63]

The PFA designation is therefore a flexible legal tool with demonstrated use both in ocean use planning as well as in notice and comment by advocacy groups.[64] Though it states a legal premise for liability in complicated areas of marine pollution, it likely does not expand the NJDEP system of enforcement; rather, it gives the NJDEP the legal option to address those areas if resources permit.[65]

It is noteworthy that New Jersey targeted certain activities of local pertinence.[66] In issuing Section 7:7-9.4, the NJDEP did not create a comprehensive program to manage and protect fisheries, but rather a policy tailored to address issues that historically have involved the most contentious stakeholders.[67] This approach has been followed by other states, such as California, whose ocean plan addresses waste management almost exclusively, but with the notable

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[59] *Id.* at 5.
[60] *Id.* at 11.
[61] *See supra* notes 39-43 and accompanying text.
[62] *See supra* notes 54-60 and accompanying text.
[63] *See id.*
[64] *See id.*
[65] *See* N.J. ADMIN. CODE § 7:7-9.4(b) (omitting mention of a specific enforcement mechanism for PFAs beyond those outlined later in the Coastal Zone Management Rules); *see generally Marine Services Bureau*, N.J. STATE POLICE, https://nj.gov/njsp/marine-services/index.shtml (last visited Apr. 8, 2023) (identifying focus areas and allocation of resources of the Marine Services Bureau, the likely enforcement agency of PFAs).
[66] *C.f., e.g.*, Difilippo, *supra* note 40.
[67] *See, e.g.*, In re Protest of Coastal Permit Program Rules, 807 A.2d 198, 206-211 (N.J. Super. Ct. App. Div. 2002).

exception of Massachusetts, whose detailed and lengthy ocean plan attempts to go much further.[68] Following the practice of these other states, Virginia could elect to tailor its regulations piecemeal and as narrowly as required, in lieu of a more comprehensive process.

D. Other States With Multi-Use Areas

I. California

California has multiple state-wide ocean plans; specifically, the Strategic Plan to Protect California's Coast and Ocean and the Water Quality Control Plan for the Ocean Waters of California. These two plans are relatively subject-matter area specific to conservation and water quality regulation, respectively. Therefore, they represent the middle ground between New Jersey's approach of targeted regulation, and Massachusetts' approach of comprehensive, centralized planning. The California plans should still be considered ocean planning because they systemically designate areas of use and non-use on a statewide level, and they represent a strategic approach that informs subsequent monitoring, permitting, and regulatory activity.

a. The Strategic Plan for California's Oceans

California has multiple strategic plans for its oceans, one of which is the Ocean Protection Council's (OPC) Strategic Plan to Protect California's Coast and Ocean.[69] This is a comprehensive plan that outlines the state's vision and goals for ocean management and conservation.[70] The plan aims to protect and restore California's coastal and ocean ecosystems, while promoting sustainable use of ocean resources.[71] The plan identifies several priority areas, including ocean acidification, marine debris, sustainable fisheries, and coastal adaptation to climate change.[72] It also emphasizes the importance of stakeholder engagement, science-based decision making, and interagency coordination in achieving the plan's goals.[73] In addition to setting out specific actions and recommendations, the plan establishes a framework for monitoring and evaluating progress towards achieving the goals and objectives.[74] The OPC regularly reviews and updates the plan to ensure that it remains relevant and effective in achieving the state's ocean conservation and management objectives.[75]

Under the California Marine Life Protection Act (MLPA), the California Department of Fish and Wildlife (CDFW) worked with a variety of stakeholders to redesign California's system of

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[68] *See infra* notes 69-133 and accompanying text.
[69] WADE CROWFOOT ET AL., CALIFORNIA OCEAN PROTECTION COUNCIL, STRATEGIC PLAN TO PROTECT CALIFORNIA'S COAST AND OCEAN 2020-2025, https://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20191113/Draft-Revised-Strategic-Plan-for-CA-Coast-and-Ocean_11.1.19_draft-FINAL.pdf (last visited Apr. 29, 2023).
[70] *Id.* at 3.
[71] *Id.*
[72] *Id.* at 15-16, 17-18, 22-23, 27-28.
[73] *Id.* at 3, 10-11.
[74] *Id.* at 4-8.
[75] *Id.*

marine protected areas (MPAs).[76] The goal of the MLPA was to establish a comprehensive, science-based network of MPAs that would protect and conserve California's diverse marine habitats and species, while also allowing for sustainable use of marine resources.[77] OPC's Strategic Plan to Protect California's Coast and Ocean and the California Marine Life Protection Act (MLPA) and Marine Protected Areas (MPAs) are interrelated and complementary initiatives aimed at protecting and managing California's ocean and coastal resources. The MPAs established under the MLPA are an important tool for achieving the goals of the OPC's Strategic Plan by providing critical habitat protection, supporting healthy marine ecosystems, and enhancing the resilience of California's ocean and coastal environment to the impacts of climate change.

The resulting network of MPAs covers approximately 16% of California's state waters and includes 124 individual MPAs.[78] These MPAs are designed to protect a range of marine habitats and species, including kelp forests, rocky reefs, and estuaries.[79] Some MPAs prohibit all extractive activities, such as fishing and mining, while others allow for limited commercial and recreational activities.[80] Some MPAs also have different zones with varying levels of protection and allowable uses.[81] For example, the taking of invertebrates are prohibited in conservation areas.[82] In addition to the MPAs, California has enacted whale- and turtle- safe fisheries regulations: "Recreational management action may be implemented statewide or by fishing zone[s] . . . if the director demonstrates less-than-statewide action protects humpback whales, blue whales, and/or Pacific leatherback sea turtles based on best available science."[83]

MPAs are managed using a range of tools and strategies, depending on their specific goals and objectives. The management of MPAs is guided by a management plan for each individual MPA, which is developed through a collaborative process involving the CDFW, stakeholders, and the public. [84] These plans outline specific management strategies and objectives for each MPA, and are reviewed and updated on a regular basis to ensure that they remain effective and relevant over time.[85]

California's approach to ocean planning and the establishment of MPAs can provide insights and ideas for Virginia's potential establishment of a multi-use zone. For instance, Virginia can look to California's comprehensive planning approach to develop its own ocean management and conservation plan that prioritizes sustainable use of ocean resources, habitat protection, and climate change adaptation. Additionally, Virginia can take inspiration from California's collaborative approach to MPA establishment and management, involving stakeholders and the

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[76] *Marine Protected Area Network Overview*, CAL. OCEAN PROTECTION COUNCIL, https://www.opc.ca.gov/marine-protected-area-network-overview/ (last visited Apr. 30, 2023).
[77] *Marine Life Protection Act*, CAL. DEP'T OF FISH AND WILDLIFE, https://wildlife.ca.gov/Conservation/Marine/MPAs/MLPA (last visited May 5, 2023).
[78] *Marine Protected Area Network Overview*, *supra* note 76.
[79] Marine Life Protection Act, CAL. FISH AND GAME CODE § 2856(2)(A).
[80] Marine Life Protection Act, CAL. FISH AND GAME CODE § 2850 et seq.
[81] *Id.*
[82] CAL. CODE OF REGS TIT. 14, §§ 29.05, 29.20, 29.80.
[83] *Id.* § 29.80(c)(7)(C).
[84] *Marine Protected Area Network Overview*, *supra* note 76.
[85] *See California Marine Life Protection Act Master Plan for Marine Protected Areas*, CAL. DEP'T OF FISH AND WILDLIFE, www.wildlife.ca.gov/Conservation/Marine/MPAs/Master-Plan (last visited May 4, 2023).

public in the decision-making process. This can help promote transparency and inclusiveness in the planning process and help build support for the eventual implementation of the multi-use zone. Furthermore, Virginia can learn from California's management strategies and tools for MPAs, such as the development of management plans and the use of science-based decision-making. Virginia can develop its own management plans for PFAs and the multi-use zone, with clear objectives and strategies to guide the implementation of conservation and sustainable use measures. Virginia can also draw on the best available scientific data to inform decision-making and regularly review and update the management plans to ensure their effectiveness over time.

b. The Water Quality Control Plan

A 2019 update to the California Ocean Plan includes a "Water Quality Control Plan," and focuses almost entirely on comprehensively managing effluent waste on a state level to ensure high water quality.[86] Norfolk's position at the mouth of the Chesapeake Bay, its heavy industrial and military activity, and its status as a shipping hub may cause Virginia to wish to similarly harmonize its fishing and waste management policies.[87]

The Water Quality Control Plan conditions issuance of effluent waste discharge permits on a detailed assessment that the discharge would not harm shellfish harvest.[88] The specifics of California's requirement differ from Virginia's current policy for the protection of water quality in shellfish-growing waters in a few ways. For example, California articulates a policy of "maximum" rather than Virginia's "adequate" protection of shellfish resources; California requires consideration of oceanographic characteristics; and California requires not just a procedural duty of assessment, but the location of discharges away from growing areas.[89]

The California Water Quality Control Plan achieves broad protection in its State Water Quality Protection Areas.[90] This designation emphasizes the outcome of healthy waters within a protected area by requiring not only no discharge within "areas of special biological significance", but also that discharges are a sufficient distance away from the area to "assure maintenance of natural water quality conditions in these areas".[91] California's areas are in theory analogous to the second prohibition (against disposals of domestic or industrial wastes that do

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[86] STATE WATER RES. CONTROL BD., CALIFORNIA OCEAN PLAN: WATER QUALITY CONTROL PLAN 1, 4 (2019), https://www.waterboards.ca.gov/water_issues/programs/ocean/docs/oceanplan2019.pdf [hereinafter CAL. WATER QUALITY CONTROL PLAN].

[87] *Cf.* N.J. ADMIN. CODE § 7:7-9.4(b)(2) (requiring domestic and industrial waste to meet certain water quality standards when disposed in prime fishing areas); *cf. also Hazardous Waste Cleanup: BAE Systems Norfolk Ship Repair in Norfolk, Virginia*, U.S. ENV'T PROT. AGENCY (Oct. 22, 2012), https://www.epa.gov/hwcorrectiveactioncleanups/hazardous-waste-cleanup-bae-systems-norfolk-ship-repair-norfolk-virginia.

[88] CAL. WATER QUALITY CONTROL PLAN, *supra* note 86, at 13-14.

[89] *Compare id.* at 14 ("Location of waste[] discharges must be determined after a detailed assessment of the oceanographic characteristics and current patterns to assure that: . . . (3) Maximum protection is provided to the marine environment."); *with* 9 VA. ADMIN. CODE § 25-370-20. Note that Virginia's policy broadly applies to the "Department of Environmental Quality's decision making process on applications for any new industries, sewage treatment plants, housing developments, marinas, dredging, spoil disposal, bulkheading, or any other new or expanded operations that would directly or indirectly cause condemnations of shellfish growing areas." *Id.*

[90] CAL. WATER QUALITY CONTROL PLAN, *supra* note 86, at 25-26.

[91] *Id.* at 26.

not meet water quality standards) in New Jersey's Section 7:7-9.4(b). Virginia might consider creation of similar water quality protection areas in its ocean waters, which are limited to the seaside of the Eastern Shore and the Virginia Beach area.

c. Analysis

A possible advantage to California's multiple ocean plans is that they can be tailored to the administrative needs of specific regulators. The detail found in the Water Quality Control Plan gives a very clear basis for permitting decisions and monitoring. The more intangible principles of the Strategic Plan to Protect California's Coast and Ocean likewise may be more relevant to natural resource regulators, but would be more difficult to apply in the water quality permitting context. Another advantage is that each plan forms a separate basis for comprehensive regulation; therefore, if there are any difficulties, confusion, or opposition to one plan, other plans would still apply.

A conceivable disadvantage of the multiple ocean plans is that they produce fragmentation and opacity on a strategic level. There is intersection between the two plans with regard to marine fisheries, and other areas that are the focus of one plan, such as coastal climate resiliency in the Strategic Plan, that maybe impacted by the focus of the other plan. The success of multiple, and potentially even competing plans ultimately depends on the ability of the agencies involved to communicate with each other.

II. Connecticut

a. The Long Island Sound Blue Plan

The Long Island Sound Resource and Use Inventory and Blue Plan Advisory Committee were established to create an inventory of the natural resources and uses of Long Island Sound, as well as to develop a Long Island Sound Blue Plan to guide the management and use of the Sound in a sustainable manner.[92] Approved by the Connecticut General Assembly in 2021, the Long Island Sound Blue Plan is a comprehensive marine spatial planning effort that aims to balance competing uses of the Sound while protecting its ecological and cultural resources.[93] The plan was developed through a multi-year, stakeholder-driven process that involved input from a wide range of stakeholders, including commercial and recreational fishermen, environmental advocates, and coastal community members.[94] In fact, one of the key goals of the Blue Plan is to promote stakeholder engagement and collaboration in the management of the Long Island Sound.[95] The plan includes a variety of mechanisms for stakeholder input and feedback,

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[92] CONN. GEN. STAT. § 25-157t.
[93] *Long Island Sound Blue Plan*, CONN. DEP'T OF ENERGY AND ENVTL. PROT. (Dec. 30, 2022), https://portal.ct.gov/DEEP/Coastal-Resources/LIS-Blue-Plan/Long-Island-Sound-Blue-Plan-Home.
[94] CONN. DEP'T OF ENERGY AND ENVTL. PROT., LONG ISLAND SOUND BLUE PLAN 2019 1-5 to 1-7 (Sept. 2019), https://portal.ct.gov/-/media/DEEP/coastal-resources/LIS_blue_plan/blueplanfinaldraftversion12september2019pdf.pdf [hereinafter L.I. SOUND BLUE PLAN].
[95] *See id.* at 4-120 to 4-136.

including a Science and Technical Advisory Committee, a Stakeholder Advisory Committee, and public meetings and comment periods.[96]

The Blue Plan identifies areas of the Long Island Sound that are suitable for various types of activities, such as fishing, boating, and renewable energy development, and provides guidance for how these activities can be managed in a sustainable manner.[97] The Blue Plan also addresses conservation use areas,[98] including critical marine habitats, ecological resources, and cultural resources like shipwrecks and historic sites.[99] The plan includes detailed maps and data on the Sound's ecological and cultural resources.[100]

One section of note is the chapter titled, "Other Areas for Future Consideration", which includes recognizing emerging industries, potentially designating priority use areas, standardizing the notification process of Blue Plan-related projects, and improving data and mapping efforts through establishing priority research areas.[101] The chapter suggests that as new technology and opportunities emerge, the Blue Plan should consider their potential effects on the Sound's natural resources and human uses. The chapter also discusses the possibility of developing "priority use areas" to encourage similar types of uses to cluster within an area or region, creating a consistent method to notify the public or certain stakeholder groups of new projects that are being proposed in the Blue Plan policy area, and establishing priorities for potential research to fill data gaps.[102] This is relevant to Virginia's interest in creating multi-use designation areas because it highlights the importance of adapting to changing conditions and emerging industries. As Virginia develops its plan, it will need to consider the potential effects of new industries on the state's natural resources and human uses, and may want to consider the possibility of designating priority use areas or establishing priorities for potential research. The chapter's discussion of standardizing the notification process may also be relevant to Virginia's efforts to ensure that stakeholders and the public are informed about proposed projects in the policy area.

b. Analysis

The Blue Plan, which is 514 pages long, informs multiple state plans, and is the sort of top-level document that California appears to lack.[103] Unlike the California plan, the document addresses with specificity important areas such as the role of local and federal government, each individual state agency, and interstate compacts.[104] The document is not concise, but it does answer virtually every question concerning planning for use of the Sound's resources. It is notable that it was approved by Connecticut's legislature, therefore such a plan may not be possible in states with less homogenous political landscapes. Furthermore, the Plan addresses only the Long Island

[96] *See id.* at 4-120 to 5-140.
[97] *See id.* at 1-5.
[98] *See* LONG ISLAND SOUND INVENTORY AND SCI. SUBCOMM. OF THE BLUE PLAN ADVISORY COMM., LONG ISLAND SOUND RESOURCE AND USE INVENTORY 14-1 to 14-3 (Emily Hall et al. eds., 2019), https://portal.ct.gov/-/media/DEEP/coastal-resources/LIS_blue_plan/resourceanduseinventoryversion14september2019pdf.pdf.
[99] L.I. SOUND BLUE PLAN, *supra* note 94, at 3-70 to 3-119.
[100] *Id*.
[101] *Id.* at 6-185.
[102] *Id*.
[103] *See id.* at 2-34 to 2-36.
[104] *Id.* at 2-37 to 2-54.

Sound, in contrast to the Chesapeake Bay-Atlantic Ocean division of Virginia's waters. Virginia policymakers should closely monitor the implementation of the Blue Plan, one of the more recent initiatives among states, to see whether such a comprehensive approach will be implemented successfully.

III. Massachusetts

a. History and Development of the Ocean Management Plan

The Massachusetts Ocean Management Plan was developed in response to the increasing demand for ocean uses such as renewable energy development, shipping, fishing, and tourism.[105] Formally adopted in 2009, the plan was developed through a collaborative effort between government agencies and stakeholders from various sectors, including commercial and recreational fishing, shipping, energy development, and conservation.[106] The plan was designed to provide a framework for the sustainable management of ocean uses in Massachusetts waters, with a focus on balancing economic development with environmental protection.[107]

The plan includes a variety of tools and strategies for managing ocean resources, such as mapping and data collection, permitting and review processes, and conservation measures.[108] Since its adoption, the Massachusetts Ocean Management Plan has undergone several updates and revisions.[109] The Massachusetts Ocean Science Advisory Council, which is a panel of marine and data management scientists who advise the Massachusetts Secretary of Energy and Environmental Affairs concerning implementing the Plan, has issued several reports on topics such as offshore wind energy, aquaculture, and ecosystem-based management.[110] In 2020, the Massachusetts Executive Office of Energy and Environmental Affairs announced plans to update the Plan to incorporate new scientific data and address emerging challenges, such as climate change.[111]

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[105] KATHLEEN A. THEOHARIDES, MASS. EXEC. OFFICE OF ENERGY AND ENVTL. AFFAIRS, 2021 MASS. OCEAN MGMT. PLAN at Forward (Vol. 1, Dec. 30, 2021), https://www.mass.gov/files/documents/2022/02/25/ma-ocean-plan-2021-vol-1a.pdf [hereinafter 2021 MASS. OCEAN MGMT. PLAN].

[106] *Id.*; *see also 2021 Massachusetts Ocean Management Plan*, MASS. OFFICE OF COASTAL ZONE MGMT., https://www.mass.gov/service-details/2021-massachusetts-ocean-management-plan (last visited May 4, 2023) (providing links to work group documents, which identify a range of stakeholders participating in each work group).

[107] 2021 MASS. OCEAN MGMT. PLAN, *supra* note 105, at Forward.

[108] 301 MASS. CODE REGS. 28.01 et seq.

[109] *See Previous Versions of the Massachusetts Ocean Management Plan*, MASS. OFFICE OF COASTAL ZONE MGMT., https://www.mass.gov/info-details/previous-versions-of-the-massachusetts-ocean-management-plan (last visited Apr. 29, 2023).

[110] *Ocean Science Advisory Council*, MASS. OFFICE OF COASTAL ZONE MGMT., https://www.mass.gov/service-details/ocean-science-advisory-council (last visited Apr. 29, 2023) ("The SAC assists with: reviewing data sources and identifying other viable data, assisting in the development of the Baseline Assessment and characterization of the Massachusetts Ocean Management Planning Area, identifying "big picture" questions to improve understanding of the natural systems and/or human uses and influences, and helping to formulate a long-term strategy for addressing information gaps.").

[111] Press Release, Baker-Polito Administration Launches Process to Update Massachusetts Ocean Management Plan, Mass. Exec. Off. of Energy & Envtl. Affairs (July 1, 2020).

b. Fishery Management in the Massachusetts Ocean Management Plan

The original, 2009 Massachusetts Ocean Management Plan established a prohibited area, renewable energy areas, and multi-use areas.[112] The prohibited area was a marine conservation sanctuary. Multi-use areas grouped aquaculture with sand mining, community-scale renewable energy, and submarine cables.[113] While Massachusetts has statutory and regulatory licensing, catch, and conservation laws, it has no protected, limited-use fishing areas similar to those of New Jersey.[114] Therefore, in designating use-areas, Massachusetts focuses on renewable energy to the greatest extent.

A state-wide aquaculture policy is a novel addition to Massachusetts' December 2021 Ocean Management Plan, which concentrates on shellfish, specifically.[115] The Ocean Plan does not seek directly to create a new permitting system for multi-use areas; instead, it seeks to create new methods and criteria for existing fishery permitting and siting procedures and to coordinate fisheries policy with policy regarding other uses through a uniform vision, body of data, and greater synergies between departments.[116]

c. Regulatory Ambitions for Offshore Wind in Federal Waters

Massachusetts' 2009 plan proposed designation of wind energy areas in federal waters, and aspirationally characterized the 3-mile state jurisdiction as "an artificial constraint to considerations of technology, economics, and environmental and social benefits and impacts" when considering state regulation of projects in federal waters.[117] To this end, it announced Massachusetts' consultation with the federal government to coordinate federal leases with state environmental goals.[118]

The 2021 plan adopted a more circumspect tone regarding jurisdiction, acknowledged that most offshore wind development will occur in federal waters, and canceled the two major planned wind energy areas.[119] However, its technical chapter on energy indicated that it was still in consultation with the federal government as a stakeholder, and suggested that it retained leverage over projects both where cables must pass through its territorial waters, and where energy producers operate in the state.[120] Therefore, while the Massachusetts plans are notable for the

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[112] EXEC. OFF. OF ENERGY & ENV'T AFF., 1 MASS. OCEAN MGMT. PLAN 15, 17 (Dec. 31, 2009), http://public.dep.state.ma.us/EEA/eeawebsite/mop/final-v1/v1-complete.pdf [hereinafter 2009 MASS. OCEAN MGMT. PLAN].
[113] *Id.* at 17.
[114] *See* MASS. GEN. LAWS ANN. ch. 130, §§ 1-106; 322 MASS. CODE REGS. 1.01-16.11.
[115] 2021 MASS. OCEAN MGMT. PLAN, *supra* note 105, at 38.
[116] *See* 301 CMR 28.05; *see also* 2021 MASS. OCEAN MGMT. PLAN, *supra* note 105, at 37-38.
[117] 2009 MASS. OCEAN MGMT. PLAN, *supra* note 112, at 15-17, 103.
[118] *Id.* at 17.
[119] 2021 MASS. OCEAN MGMT. PLAN, *supra* note 105, at 5-6 (removing the Gosnold Wind Energy Area and the Martha's Vineyard Wind Energy Area as designated management areas that had been set forth in prior versions of the Ocean Plan).
[120] *See id.* at 35-37; *see also* EXEC. OFF. OF ENERGY & ENV'T AFF., 2 2021 MASS. OCEAN MGMT. PLAN 36-37 (Dec. 30, 2021), https://www.mass.gov/files/documents/2022/02/25/ma-ocean-plan-2021-vol-2a.pdf.

attention given to wind energy, they should not be mistaken for exercises of full legislative power over the development of offshore wind.

d. Massachusetts Fishery Law Outside Its Ocean Plan

The Massachusetts Division of Marine Fisheries (DMF) is responsible for managing commercial fishing zones and providing information on regulations, licensing, and other related matters.[121] These commercial fishing zones are established based on the species being targeted, fishing gear used, and other factors. For example, there are designated zones for lobster fishing, scallop fishing, and groundfish fishing.

Massachusetts has designated fisheries conservation and management areas,[122] including lobster management and other designated recreational fishing areas.[123] Massachusetts also has a Right Whale Conservation Plan that includes a number of measures aimed at reducing threats to right whales from human activities such as commercial fishing, shipping, and recreational boating. These measures include enhanced monitoring and reporting requirements for fishing gear and vessel movements, the establishment of new speed zones in certain areas to reduce the risk of ship strikes, and the development of new technologies to reduce the impact of fishing gear on whales.[124]

Coastal herring fishing zones are designed to protect herring spawning areas and reduce the bycatch of herring and other species during fishing operations. These buffer zones are established by the New England Fishery Management Council (NEFMC) under the authority of the Atlantic Herring Fishery Management Plan, which is a federal management plan overseen by the National Oceanic and Atmospheric Administration (NOAA) Fisheries. While the buffer zones are part of a larger federal management plan, they are established within state waters and are enforced by the Massachusetts Division of Marine Fisheries.[125] During the buffer zone period, commercial fishermen are required to use modified fishing gear and adhere to specific regulations to reduce the amount of bycatch of herring and other species.[126] Recreational fishermen are also required to adhere to regulations during this period to prevent the accidental capture of herring.[127]

Other state implementation of federal regulations includes the Cod Conservation Zones (CCZ)[128] and Recreational Fishing Reef Boundaries.[129] The history and process that led to the designation of these areas can be traced back to the decline of the Atlantic cod population in the 1990s. In 1994, the New England Fishery Management Council (NEFMC) developed the Northeast

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[121] *See* 322 MASS. CODE REGS. 8.01.
[122] 322 MASS. CODE REGS. 6.01 et seq.
[123] 322 MASS. CODE REGS. 6.33.
[124] MASS. DIV. OF WHALE FISHERIES, 2020 MASS. RIGHT WHALE CONSERVATION PLAN 8-11 (Mar. 6, 2020), https://www.mass.gov/doc/massachusetts-right-whale-conservation-plan-2020/download.
[125] 322 MASS. CODE REGS. 9.01 et seq.
[126] 322 MASS. CODE REGS. 9.30.
[127] *Id*.
[128] 322 MASS. CODE REGS. 8.07.
[129] 322 MASS. CODE REGS. 8.09.

Multispecies Fishery Management Plan[130], which included measures to protect cod and other groundfish species. The NEFMC also established Recreational Fishing Reef Boundaries, which were intended to protect important reef habitats in the Gulf of Maine.[131] These boundaries limited recreational fishing for certain species, including cod, in designated areas.[132]

The establishment of both the CCZ and the Recreational Fishing Reef Boundaries[133] involved extensive public consultation and input from stakeholders, including fishermen, environmental groups, and government agencies. The decision-making process was complex and involved weighing the needs of different groups against the need to protect cod and other groundfish species.

Virginia's exploration of multi-use area designation shares similarities with Massachusetts' approach to managing its commercial fishing zones and designated conservation and management areas. The multi-use areas in Virginia need to be designed to balance the needs of various ocean uses, including commercial and recreational fishing, shipping, and offshore energy development, while also conserving and protecting marine resources. Similarly, Massachusetts has established various fisheries conservation and management areas, including buffer zones which were created to protect important fish habitats and conserve fish populations.

However, the multiple regulatory bodies involved in managing ocean resources can add complexity and challenges to the process. Massachusetts' buffer zones for herring fishing, for example, are established under the Atlantic Herring Fishery Management Plan overseen by NOAA Fisheries, but as mentioned earlier, they are enforced by the Massachusetts Division of Marine Fisheries within state waters. The establishment of the conservation zones and Recreational Fishing Reef Boundaries also involved extensive public consultation and input from various stakeholders, including fishermen, environmental groups, and government agencies. Thus, managing ocean resources requires collaboration and coordination among multiple regulatory bodies and stakeholders to balance the needs of different ocean uses while ensuring the conservation and protection of marine resources.

E. Opportunities for Establishing Multi-Use Areas in a Virginia Ocean Plan

As Virginia considers developing its first Ocean Plan, led by the efforts of the Coastal Zone Management Program, it is worthwhile to consider the potential for using such a plan to establish multi-use areas that accommodate research, conservation, recreational uses, and commercial fishing. The time may not be right for Virginia to design a comprehensive ocean plan, such as in Connecticut, a multi-sector plan such as in Massachusetts, or even a sector-specific ocean plan such as in California; so the New Jersey approach of designing expansive regulation could represent the most practical option. Virginia could either enact statutes or adopt regulations to accomplish this goal. Statutes would allow the most flexible approach in creating new multi-use

[130] Northeast Multispecies Fishery Management Plan, 50 C.F.R. 648 et seq.
[131] 322 MASS. CODE REGS. § 8.09.
[132] *Id.*
[133] 322 C.M.R. §§ 8.07; 8.09.

areas, but would need to survive the legislative adoption process. New regulation is the most expedient option for new management, but it is strictly subject to existing grants of regulatory authority by the legislature to specific state agencies. In order to understand what is possible in the short term, it is therefore necessary to examine current regulatory authority in detail.

I. Regulation Within the Territorial Sea

A Virginia PFA-type designation could be created based upon additional statutory authority in Title 28.2 (Fisheries and Habitat of the Tidal Waters). The titular term of art, "tidal waters," stands in contrast to the statutory language of "territorial sea" used in Virginia Code § 28.2-100 et seq.[134] Although the term "tidal waters" is not defined in the Code[135] – and the federal and Virginia cases on the topic of tidal waters tend to address either distinctions between inland fresh waters and oceanic salt waters,[136] or industrial and sewage pollution cases in coastal cities[137] – the Code does provide clarity that the Virginia Marine Resources Commission (VMRC) has jurisdiction over Virginia's territorial sea, defined as three nautical miles from low tide.[138]

The most pertinent areas of Title 28.2 concerning fisheries grant broad regulatory powers: "The Commissioner [of Marine Resources] may: 1. Investigate all matters affecting the seafood industry; and 2. Provide for the development of programs designed to enhance and improve commercial and sport fisheries in Virginia's tidal waters"[139] and "[t]he [Marine Resources] Commission may: 1. Adopt regulations, including those for taking seafood, necessary to promote the general welfare of the seafood industry and to conserve and promote the seafood and marine resources of the Commonwealth."[140] Therefore, within Virginia's territorial sea, the VMRC is already authorized to adopt regulations for the broad purpose of conserving and promoting commercial and recreational marine resources, as long as such regulations are adopted according to the procedures in Code sections 28.2-209 to -215.[141] However, it would be wise to seek legislative amendments to Title 28.2 to assign PFA designation to VMRC by statute, rather than

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[134] VA. CODE ANN. § 28.2-100 (defining "territorial sea" as "the waters within the belt, three nautical miles wide, that is adjacent to Virginia's coast and seaward of the mean low-water mark").
[135] *See id. See also* § 28.2-200.
[136] *See, e.g.,* Am. Dredging Co. v. Selleck, 556 F.2d 180, 181 (3d Cir. 1977) (discussing that the U. S. Army Corps of Engineers has permitting authority over development projects, including the installation of a floodgate, in navigable waters. Navigable waters include "tidal waters" which, at common law, are defined by the ebb and flow of the tide.).
[137] *See, e.g.,* Old Dominion Land Co. v. Warwick Cnty., 200 S.E. 619, 621 (Va. 1939) (discussing how the authority to pass laws pertaining to the emptying of sewage in tidal waters lies with the Commonwealth of Virginia, not with individual localities, so long as there is no complaint of nuisance or harm to public health).
[138] VA. CODE ANN. §§ 28.2-100 to -101. Specifically, Code § 28.2-101 states, "The jurisdiction of the Commission shall include the Commonwealth's territorial sea and extend to the fall line of all tidal rivers and streams except in the case of state-owned bottomlands where jurisdiction extends throughout the Commonwealth. The Commission shall have jurisdiction over all commercial fishing and all marine fish, marine shellfish, marine organisms, and habitat in such areas. In waters of the Albemarle and Currituck watersheds, the Commission's fisheries management jurisdiction is limited to the recreational and commercial harvest of blue crabs."
[139] *Id.* § 28.2-202.
[140] *Id.* § 28.2-201.
[141] *See id.* §§ 28.2-209 to -215 (essentially following in the footsteps of the Administrative Process Act, VA. CODE ANN. §§ 2.2-4006 to -4030).

relying upon regulation, so that the agency's authority and responsibilities are clear. Should the Commonwealth desire to create specific multi-use areas, where commercial and recreational fishing are expressly allowed as well as scientific research and tourism, then additional authorizing provisions likely would be needed under Subtitle III (Habitat), in which specific protections are currently enacted for submerged lands,[142] wetlands,[143] coastal primary sand dunes and beaches,[144] and ungranted shores of the sea, marsh and meadowlands.[145]. If the VMRC were to adopt a policy of active monitoring and enforcement of such areas, it could make use of the Virginia Marine Police, which may "[e]nforc[e] marine fishery and habitat conservation laws and regulations"[146] subject to funding by General Assembly appropriation.[147]

Currently adopted VMRC regulations can be very specific, for example prescribing the season and method of taking of a single species in a particular body of water.[148] Some of the broader regulations establish a comprehensive and detailed scheme to manage all takings of a popular species, for example Striped Bass.[149] The vast majority of the regulations are a species-by-species set of catch limits, seasons, and equipment limitations.[150] Separate and aside from sanctuaries, several fishery management areas establish conceptual and stylistic precedent for a broader area-based regulation such as a PFA.[151] In expanding regulation to such a designation, the VMRC therefore has two primary options: 1) model a broad set of PFAs across the entire territorial sea, coextensive with existing areas and most similar to the New Jersey regulation; or 2) continue to adopt management-area regulations on a piecemeal basis, but with more expansive legal limitations and requirements in the multi-use areas.

II. Regulation Beyond the Territorial Sea

Under the Magnuson-Stevens Fishery Conservation and Management Act, a state may regulate fishing vessels outside its territorial sea if the vessels are registered to the state and the regulations are consistent with federal and regional (interstate compact) fishery management plans.[152] Outside fishing vessels, Virginia must rely on the same interstate and federal negotiations as Massachusetts.[153] Like Massachusetts, Virginia does have leverage over energy infrastructure passing through its territorial sea,[154] as well as businesses that operate in-state. Virginia law already provides for offshore renewable energy easements through the VMRC with the approval of both the Attorney General and the Governor; it further requires a coastal energy

[142] VA. CODE ANN. §§ 28.2-1210 to -1213.
[143] *Id.* §§ 28.2-1300 to -1320.
[144] *Id.* §§ 28.2-1400 to -1420.
[145] *Id.* §§ 28.2-1500 to -1514.
[146] *Id.* § 28.2-106.
[147] *Id.* § 28.2-108.
[148] *See, e.g.*, 4 VA. ADMIN. CODE § 20-10-20.
[149] *See e.g., id.* §§ 20-252-10 to 20-252-30.
[150] *See e.g., id.* §§ 20-490-10 to 20-540-60.
[151] *See, e.g., id.* §§ 20-10-10 to 20-10-30, 20-80-10 to 20-80-40, 20-480-10 to 20-480-30, 20-566-10 to 20-566-50.
[152] 16 U.S.C. § 1856(a)(3).
[153] *See supra* notes 117-120 and accompanying text.
[154] VA. CODE ANN. § 28.2-1208(A).

management plan.[155] Virginia also can enforce its approved enforceable policies through its Coastal Zone Management Program if a proposed project will impact natural resources in the Commonwealth's designated coastal zone.[156] Virginia could have further opportunity for dialogue with the Bureau of Ocean Energy Management[157]and through the Ocean Policy Commission.[158] The Commission is tasked with coordinating action on coastal and ocean policy between federal agencies, and is required to obtain information and advice from state, tribal, and local governments.[159]

III. Existing Use Areas

As Virginia continues to develop its offshore wind energy industry, there is a growing need to identify and manage potential areas of overlap with existing marine uses. These uses include conservation areas, research areas, commercial and recreational fishing areas, and non-consumptive recreation and tourism use areas. To properly manage these areas, it is important to understand the nature of each use and its associated regulations and management plans. This section will provide an overview of each of Virginia's existing use areas and the relevant management measures. By gaining a comprehensive understanding of the existing use areas, decision-makers can better identify potential areas of overlap and develop effective management strategies to minimize conflicts and promote sustainable use of Virginia's offshore resources.

a. Conservation Areas

Conservation areas are an important aspect of marine resource management in Virginia. The Virginia Artificial Reef Zone is a designated area in state waters where artificial reefs have been constructed to provide habitat for fish and other marine species. This zone is open to recreational fishing and is managed by the VMRC.[160] The Artificial Reef Zone Program aims to create a habitat for fish that closely resembles their natural environment. This supports fish populations, provides opportunities for recreational fishing, and enhances the marine ecosystem. Virginia currently has 23 artificial reef sites, with 18 inshore (marked by yellow VMRC buoys) and 5 offshore.[161]

Understanding the essential fish habitat and the impact of fishing gear on the seafloor is critical to managing and protecting Virginia's marine resources, especially in designated conservation areas such as the Virginia Artificial Reef Zone. MARCO provides data that Virginia could use to

[155] *Id.* §§ 28.2-120(A), (E).
[156] *Federal Consistency*, VA. DEP'T OF ENVTL. QUALITY, https://www.deq.virginia.gov/permits-regulations/environmental-impact-review/federal-consistency (last visited May 5, 2023).
[157] *See generally*, *Virginia Activities*, BUREAU OF OCEAN ENERGY MGMT., https://www.boem.gov/renewable-energy/state-activities/virginia-activities (last visited Apr. 12, 2023).
[158] *See* Exec. Order No. 13,840, 83 Fed. Reg. 29,431 (June 19, 2018).
[159] *Id.* §§ 2, 4-5.
[160] 4 VA. ADMIN. CODE §§ 20-755-10 et seq. ("Pertaining to Artificial Reefs").
[161] *Artificial Reef Program*, VA. MARINE RES. COMM'N, https://www.mrc.virginia.gov/vsrfdf/reef.shtm (last visited Apr. 25, 2023).

aide in identifying and designating conservation areas.[162] The MARCO data portal[163] shows an overlay of essential fish habitat (EFH)[164] for 39 species, including black sea bass, butterfish, squid, scup, flounder, mackerel, quahog and surf clam. Data layers visualize the proposed and current passive acoustic monitoring (PAM).[165] The portal also displays common sighting areas for sea turtles, such as leatherbacks and loggerheads—both above average in spring and summer (traffic areas, wind farm proposed areas, etc.). [166] North Atlantic Right Whale Seasonal Management Areas also are mapped on the data portal,[167] as well as ocean disposal sites, sand resource areas, and beach nourishment projects.[168] Of particular note is the Seafloor Habitat[169] data which shows results from the Northeast Fishing Effects Model. This includes the vulnerability of the seabed to each of six bottom-tending fishing gear types (bottom trawl, scallop dredge, hydraulic clam dredge, longline, gillnet, and trap).[170] A higher habitat disturbance percentage suggests that the seafloor in that location is more vulnerable to that fishing gear.[171]

b. Research Areas

There are three primary research surveys that occur off of the Virginia coast.[172] The first is the North East Area Monitoring and Assessment Program (NEAMAP), a federal survey that occurs offshore.[173] The second is complementary to the NEAMAP survey, and is conducted by the Virginia Institute of Marine Science (VIMS) in cooperation with a commercial fishing vessel, the Henry Bigelow.[174] This is an inshore, trawl net survey that covers all species except sharks, and is a stratified, random design survey whose location changes slightly each trip.[175] The third survey, the Virginia Shark Monitoring and Assessment Program (VASMAP), is a long-line survey that monitors shark populations, and has been ongoing since 1973.[176] In the long-line survey, VIMS samples 14 fixed locations along the Virginia portion of the continental shelf

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[162] *See, e.g.,* Appendix III (an example of an overlay map of Virginia identifying multiple use areas, created using the MARCO data portal).
[163] *Mid-Atlantic Ocean Data Portal*, MID-ATLANTIC REG'L COUNCIL ON THE OCEAN, https://portal.midatlanticocean.org (last visited Apr. 25, 2023).
[164] *See* 16 U.S.C. § 1802(10) (defining "essential fish habitat" as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity").
[165] *See* Samuel R. P.-J. Ross et al., *Passive Acoustic Monitoring Provides a Fresh Perspective on Fundamental Ecological Questions*, 37 FUNCTIONAL ECOLOGY 959, 960-963, 967-968 (Apr. 2023), https://doi.org/10.1111/1365-2435.14275 (describing the utility of passive acoustic monitoring).
[166] *Mid-Atlantic Ocean Data Portal*, *supra* note 163.
[167] *Id*.
[168] *Id.*
[169] *Data Catalog 62 – Seafloor Habitat*, MID-ATLANTIC REG'L COUNCIL ON THE OCEAN, https://portal.midatlanticocean.org/data-catalog/SeafloorHabitat/ (last visited May 5, 2023).
[170] *Id.*; *see also* MICHELLE BACHMAN ET AL., NE. FISHERIES SCI. CENTER, THE EFFECTS OF FISHING ON NORTHEAST U.S. SHELF ECOSYSTEMS: AN EVALUATION OF ASSESSMENT APPROACHES AND SUPPORTING DATA 10-18 (May 22, 2020), https://d23h0vhsm26o6d.cloudfront.net/Fishing_Effects_Northeast_Report_edited-May-22-2020.pdf.
[171] *See New England Fishery Management Council's Northeast Fishing Effects Model Maps and Data Available*, NE. OCEAN DATA (June 2, 2020), https://www.northeastoceandata.org/new-england-fishery-management-councils-northeast-fishing-effects-model-maps-and-data-available/.
[172] Interview with James Gartland, *supra* note 3.
[173] *Id.*
[174] *Id*.
[175] *Id*.
[176] *Id*.

(roughly from Paramore Island off the Eastern Shore of Virginia to the Virginia-North Carolina line, and out to Triangle Wreck) every month from June through September.[177] The results show trends in shark populations.[178]

c. Overlapping Uses

As Virginia's marine habitats face changes due to offshore wind development projects, it is important to consider the potential impact on overlapping use areas, such as those important for fisheries and protected species.[179] Offshore wind development projects will change marine habitats, directly and indirectly. Hydrodynamic, oceanographic, and atmospheric processes are changing as a result of offshore development, and these process changes will alter habitats.[180] These alterations could have distribution effects of where fisheries settle. This has implications for Virginia's surf clam and scallop fisheries.[181] Some NOAA models suggest larval distribution patterns change after turbine installation.[182] Recommendations for monitoring activities relevant to fishery impact surveys from offshore wind development can be found at the Responsible Offshore Science Alliance.[183]

The monitoring of North Atlantic Right Whales is an important consideration in state ocean planning, as their detections overlap with the proposed renewable energy projects and can have significant implications for their protection. MARCO data layers show PAM detections of North Atlantic Right Whales since 2010, which adjoin and overlap with BOEM active renewable energy leases and proposed offshore wind energy projects.[184] The Right Whale detections also converge with coastal Virginia offshore-wind pilot turbine locations, test areas, and cables.[185] This is an important consideration for Virginia decision makers because it underscores the potential impact of renewable energy projects on the critically endangered North Atlantic Right Whales, which are known to frequent the waters off the Virginia coast. Monitoring their movements and ensuring their protection is vital to maintaining the health and sustainability of the marine ecosystem and the fishing industry.

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[177] *Id.*
[178] *Id.*
[179] *See*, *e.g.*, Appendix III (example of a map created using the MARCO Data Portal depicting overlapping uses off Virginia's coast).
[180] Interview with Doug Cristel and Elizabeth Methratta, *supra* note 3.
[181] *Id.*
[182] *Id.*
[183] RESPONSIBLE OFFSHORE SCIENCE ALL., OFFSHORE WIND PROJECT MONITORING FRAMEWORK AND GUIDELINES 2-17 (Mar. 2021), https://www.rosascience.org/wp-content/uploads/2022/09/ROSA-Offshore-Wind-Project-Montioring-Framework-and-Guidelines.pdf.
[184] *Mid-Atlantic Ocean Data Portal*, *supra* note 163.
[185] *Id.*

F. Recommendations for Virginia

I. Multi-Use Areas

Compared to other states, the Virginia stakeholders interviewed for this report are numerous and have relatively diverse interests, and are all centered around the relatively small Norfolk-Hampton Roads-Virginia Beach area.[186] An offshore area dedicated exclusively to fishing might therefore elicit a higher degree of opposition from more stakeholders.[187] The New Jersey PFAs are in theory multi-use areas, but research indicated that the prohibited uses can suffer from inconsistent interpretation, such as in the contrast between the NSF and Army Corps of Engineers examples.[188]

Virginia could elect to explicitly define permitted uses within a multi-use zone, such as in the Massachusetts plan.[189] Virginia should carefully consider the name and terminology of such a multi-use zone. Allusion to fisheries or to protection, when the zone is in reality multi-use except for a few prohibited uses, might lead to confusion and risk opposition among stakeholders. Sand mining, dredge fishing, and trawling may conflict with the goals of a multi-use area that includes conservation and research, as these are highly disruptive uses and do not have the same level of political support as uses such as offshore energy, shipping, conservation, military activity, or tourism.[190] Multi-use areas can also layer uses and may be easier to implement with current area designations, such as for coral reefs or marine research.[191]

II. Consideration of Impacts

New Jersey's Army Corps example demonstrates a potential challenge with implementing its law, because it did not appear to treat impacts on the PFAs with the same weight as it did in the NSF example.[192] Virginia should require consideration of impacts on the overall areas, in addition to uses within the areas themselves; this would accord with the approach in the California water quality areas.[193] Virginia will have to choose how to allocate this burden, namely to what extent and which party should consider impacts to fisheries within prime fishing or multi-use areas.[194]

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[186] *See, e.g.*, U.S. COAST GUARD, PORT ACCESS ROUTE STUDY (PARS): APPROACHES TO THE CHESAPEAKE BAY, VA FINAL REPORT, DOCKET NO. USCG-2019-0862, at 11-22, 34-35, 38-39, 53-54 (2021), https://www.navcen.uscg.gov/sites/default/files/pdf/PARS/USCG_2019_0862_PARS__FINAL_REPORT.pdf.
[187] *See* Interview with John Bello, *supra* note 11.
[188] *See supra* notes 54-60 and accompanying text.
[189] 2021 MASS. OCEAN MGMT. PLAN, *supra* note 105, at 10-11.
[190] *See* Cheryl Lyn Dybas, *supra* note 41, at 8, 9-10; Kate Whiting, *supra* note 41. *See also* Interview with Sue Barco, *supra* note 3 (noting that there are 10 years of intense dredging upcoming in the Chesapeake Bay that could have ocean planning impacts); Interview with James Gartland, *supra* note 3 (noting that the University of Delaware is running a project off of Virginia Beach regarding the impacts of sandmining and dredge removal on fish populations and habitats).
[191] *See* 2021 MASS. OCEAN MGMT. PLAN, *supra* note 105, at 10-11; *supra* notes 179-185 and accompanying text.
[192] *Compare* U.S. Army Corps of Engineers, *supra* note 55, at 4-5, 33-34; *with* N.J. Div. of Land Use Regulation, *supra* note 58, at 3-5.
[193] *See* CAL. WATER QUALITY CONTROL PLAN, *supra* note 86, at 25-26, 28, 44-45.
[194] *Cf., e.g., id.* at 49-55.

In the development of offshore wind sites, Virginia could consider requiring wind companies to demonstrate in their applications, through a form of environmental assessment or environmental impact statement, no significant impact to fisheries within such an area.[195] The Commonwealth could also require consideration of impacts to fisheries in its approval process.[196] Both the State and offshore wind developers should be required to monitor and evaluate actual impacts in order to further data-gathering initiatives.[197] Virginia might consider further defining criteria during consideration of impacts, for example, to particular fish species, the amount of traffic in the area, or particular sources of data to be consulted.[198]

III. Accounting for Future Trends

As Virginia moves forward with ocean planning and offshore energy development, it is important to consider the potential impact on existing uses and overlapping areas, including vessel traffic and protected species habitats. The U.S. Coast Guard's Port Access Route Studies (PARS) will be crucial in determining how these projects can be implemented without compromising the safety and efficiency of maritime transportation. The U.S. Coast Guard (USCG) is required to conduct PARS before establishing new or modifying existing fairways.[199] Vessel monitoring systems (logbook data) show maritime traffic concentrations that overlap not only with the offshore wind areas, but also with the USCG proposed designation areas (e.g., port approaches, international entry and departure transit areas, and Precautionary Areas[200]). Maritime transportation patterns will be altered by offshore wind sites, a factor considered in the Atlantic Coast PARS,[201] which includes the Port of Virginia and Chesapeake Bay area. The USCG will need to consider where and how those routes can accommodate existing uses without compromising the siting of the turbines.

It is equally important for Virginia to consider future trends in hydrodynamic, oceanographic, and atmospheric processes, and their potential impact on designated ocean use areas. Changing ocean currents, air temperature, wind patterns, the melting of sea ice, and their interactions can lead to changes in the size, location, and temperature of the cold pool in the ocean.[202] Changes in the stratification of the cold pool can have significant effects on the distribution and abundance of species in surrounding waters.[203] These changes will impact PFA siting. For example, the cold pool is the mechanism by which the Atlantic Mackerel and Herring migrate up the Atlantic Coast, and squid travel onto the Continental Shelf—a factor that is especially relevant to the Hampton Roads offshore squid fleet.[204]

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[195] *Cf., e.g., id.* at 25-26, 28, 44-45.
[196] *Cf., e.g., id.* at 99-103; N.J. Div. of Land Use Regulation, *supra* note 58, at 3-5.
[197] *Cf.* CAL. WATER QUALITY CONTROL PLAN, *supra* note 86, at 57-58, 79-93.
[198] *Compare, e.g.*, 4 VA. ADMIN. CODE 20-10-20, 20-490-10 to 20-540-60, 20-252-10 to 20-252-30; *with* U.S. COAST GUARD, *supra* note 186, at 34-39, 42-44.
[199] *See* 46 U.S.C. §§ 70003, 70006; *see also* U.S. COAST GUARD, *supra* note 188, at 7 (2021).
[200] *Ships' Routeing*, INT'L MARITIME ORG., https://www.imo.org/en/OurWork/Safety/Pages/ShipsRouteing.aspx (last visited May 2, 2023) (defining "precautionary area" as "an area within defined limits where ships must navigate with particular caution and within which the direction of flow of traffic may be recommended").
[201] *See* U.S. COAST GUARD, *supra* note 188, at 21, 42, 44; *see also supra* notes 182-187 and accompanying text.
[202] Interview with Doug Cristel and Elizabeth Methratta, *supra* note 3.
[203] *Id.*
[204] *Id.*

Scientists anticipate changes to the ocean and its resources from offshore wind development, climate change, and ocean acidification –and the interaction amongst all of these factors.[205] The dynamic nature of the ocean and its uses necessitates a Virginia Ocean Plan that is an evolving document. Designated ocean use areas require continuous re-evaluation and updates that reflect future trends in climate change, environmental processes, and emerging industries. For example, there is preliminary evidence that shows the turbine structures themselves will create shifts in the PFAs. Data from the Block Island wind development project in Rhode Island waters shows that recreational fishing has congregated around those structures due to fish congregating below the turbines.[206]

In the designation process for these use areas, Virginia should both attempt to predict these changes through modelling,[207] as well as design a monitoring and evaluation plan, whether as state agency internal policy or as an actual regulatory or statutory requirement.[208]

Virginia should also keep abreast of nearby federal developments outside its territorial sea.[209] The USCG is currently re-evaluating marine fairways on the approach to the Chesapeake Bay.[210] Virginia should submit comment to these federal regulation adoption processes, and otherwise coordinate with federal authorities that do not directly regulate fisheries such as the USCG, the Department of Commerce, the Bureau of Ocean Energy Management, or the Department of Defense to ensure this designation would not prejudice the development and designation of multi-use areas.[211]

G. Conclusion

While the VMRC already regulates fishing in Virginia tidal waters, its regulations do not designate areas of use and non-use on a systemic level across all state waters, including the territorial sea; they do not address planning for, establishing and enforcing multi-use areas; and they are not based upon a higher-level, strategic state-level document that informs future management. Such a plan may be desirable from the point of view of conservation, research, and recreational stakeholders, but other stakeholders and economic and political interests may oppose its development. To initiate such a strategic approach, the Virginia legislature could provide

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[205] *See* Interview with Sue Barco, *supra* note 3 (noting that scientists are already seeing timing changes of various species migrations and hatchings over the past couple of decades, as well as an increase in the number of manatee and sea turtle strandings); Interview with James Gartland, *supra* note 3 (noting that species are moving northeast with limited species replacing them).

[206] Interview with Doug Cristel and Elizabeth Methratta, *supra* note 3.

[207] *See* Interview with James Gartland, *supra* note 3 (noting that VIMS has done some modelling work on the North Atlantic Oscillation).

[208] *Cf.* CAL. WATER QUALITY CONTROL PLAN, *supra* note 86, at 57-58, 79-93.

[209] *See generally* Consolidated Port Approaches and International Entry and Departure Transit Areas Port Access Route Studies (PARS) Integral to Efficiency of Possible Atlantic Coast Fairways, 87 Fed. Reg. 55449, 55449-55450 (Sept. 9, 2022).

[210] *Id*.

[211] *Cf. id. See, e.g.*, U.S. COAST GUARD, *supra* note 186, at 12-13, 53-54 (Virginia commented on this round of PARS, which is now closed; however, if Virginia chooses to adopt a PFA-style regulation, it should adjust its commentary on future federal regulations to ensure harmony between both planned laws.).

additional authority to VMRC to establish a regulatory framework that takes into account multiple stakeholders' interests and provides for shared use of resources, especially when considering proposals for very disruptive activities in Virginia's territorial sea.

H. Appendix I:

List of Stakeholders Consulted

Conservation Stakeholder 1

Susan Barco, Marine Consultant — 07 March 2023 12:00-12:30
Department of Wildlife and Recreation

Research Stakeholder 1

James Gartland, Associate Research Scientist — 07 March 2023 10:00-10:30
VIMS Fisheries Science Dept

Research Stakeholder 2

Douglas Cristel, Fishery Policy Analyst — 17 March 2013 11:00-11:45
NOAA Greater Atlantic Regional Fisheries

Elizabeth (Lisa) Methratta, Fisheries and Wind Scientist
NOAA Northeast Fisheries Science

Recreational Stakeholder 1

John Bello, Government Affairs Officer
Virginia Saltwater Sportfishing Association — 12 March, 2023. 7:00 PM

I. Appendix II:

Stakeholder Questions: Conservation

1. What recommendations do you have as we incorporate data (ocean uses and wildlife) into prime fishing area (PFA) designation decision-making?
2. What concerns exist where stakeholder usage overlap with regards to usage area designation? For example:
    a. Commercial Fishing Industry
    b. Port of Virginia
    c. Military usage
    d. Recreational fishers/anglers
    e. Tourism/non-consumptive users
    f. Off-shore development/sandmining/wind energy farms
    g. Conservation (migratory pathways, marine sanctuaries)
    h. Research (increased data/monitoring of species in/around wind farms)?
3. If the Commonwealth designates PFAs/conservation area, what type of assessment and monitoring would you expect or recommend? Example activity-impact categories:
    a. Commercial fisheries, particularly dredge fisheries?
    b. Off-shore energy development?
    c. Sandmining?
    d. Military usage?
    e. Recreational fishers/anglers?
    f. Tourism/non-consumptive users?
    g. Conservation (migratory pathways, marine sanctuaries)?
    h. Other activities?
4. What flexibility can we include in the plan for variables like climate change? For example:
    a. While there are typically specific areas that consistently provide optimum fishing grounds, it is important to keep in mind the increasingly dynamic nature of the processes that cause this (e.g., fish habitat, water temp, etc.)
    b. Keep in mind shifting data as climate change evolves (migration of species/foraging grounds, distribution patterns, fishing grounds, etc.) and modify shipping lanes/other CG fairways accordingly.
5. What best management practices exist to account for issues surrounding human created geopolitical boundaries (e.g., regional, federal/state, etc.) when addressing environments that do not necessarily conform to those rules?
6. What other relevant stakeholders within the ocean wildlife conservation field should we contact?

Stakeholder Questions: Research

1. What type of data collection, species monitoring, or other research exists in areas that are relevant to the designation of Prime Fishing Areas (PFA)? For example, areas of longline or trawl surveys off of the Virginia coast.
2. If the Commonwealth designates PFAs, what type of assessment and monitoring would you expect or recommend in these areas/zones? Potential activity-impact categories:
    a. Commercial fisheries, particularly dredge fisheries
    b. Off-shore energy development
    c. Sandmining
    d. Military usage
    e. Recreational fishers/anglers
    f. Tourism/non-consumptive users
    g. Conservation (migratory pathways, marine sanctuaries)
    h. Other activities
3. What concerns exist where stakeholder usage overlap with regards to PFA designation? For example:
    a. Commercial Fishing Industry
    b. Port of Virginia
    c. Military usage
    d. Recreational fishers/anglers
    e. Tourism/non-consumptive users
    f. Off-shore development/sandmining/wind energy farms
    g. Conservation (migratory pathways, marine sanctuaries)
    h. Research (increased data/monitoring of species in/around wind development)?
4. What flexibility can we include in the plan for dynamic nature of climate change?
    a. While there are typically specific areas that consistently provide optimum fishing grounds, it is important to keep in mind the increasingly dynamic nature of the processes that cause this (e.g., fish habitat, water temp, etc.)
    b. Keep in mind shifting data as climate change evolves (migration of species/foraging grounds, distribution patterns, fishing grounds, etc.) and modify shipping lanes/other USCG fairways accordingly.
5. Are there other relevant stakeholders within the science and research field with whom we should speak about research usage areas? Stakeholders in other coastal states with designated fishing/habitat/management areas or similar zones

Stakeholder Questions: Recreational Fishing

1. Please describe your organization and its activities. What are the interests of your average member, and what do they do on the ocean?
2. Could you describe any general concerns about trends in ocean use, that negatively impact the activities and interests of your organization?
3. Are there any issues with maritime navigation that your members are experiencing?
4. Could you describe your organization's/membership's relationship with and interest in use, management, and conservation of ocean fisheries?
5. Does your membership observe any specific activities that might threaten the health of ocean fisheries?
6. How could your organization work with other ocean users to achieve a sustainable balance of interests and uses?
7. Do you hear from non-Virginia contacts about other states' ocean management (e.g. NJ)? Are there positive or cautionary lessons for Virginia in developing ocean policies?
8. Please add anything else you would like us to consider when researching management of ocean fisheries or developing a concept of prime fishing areas.

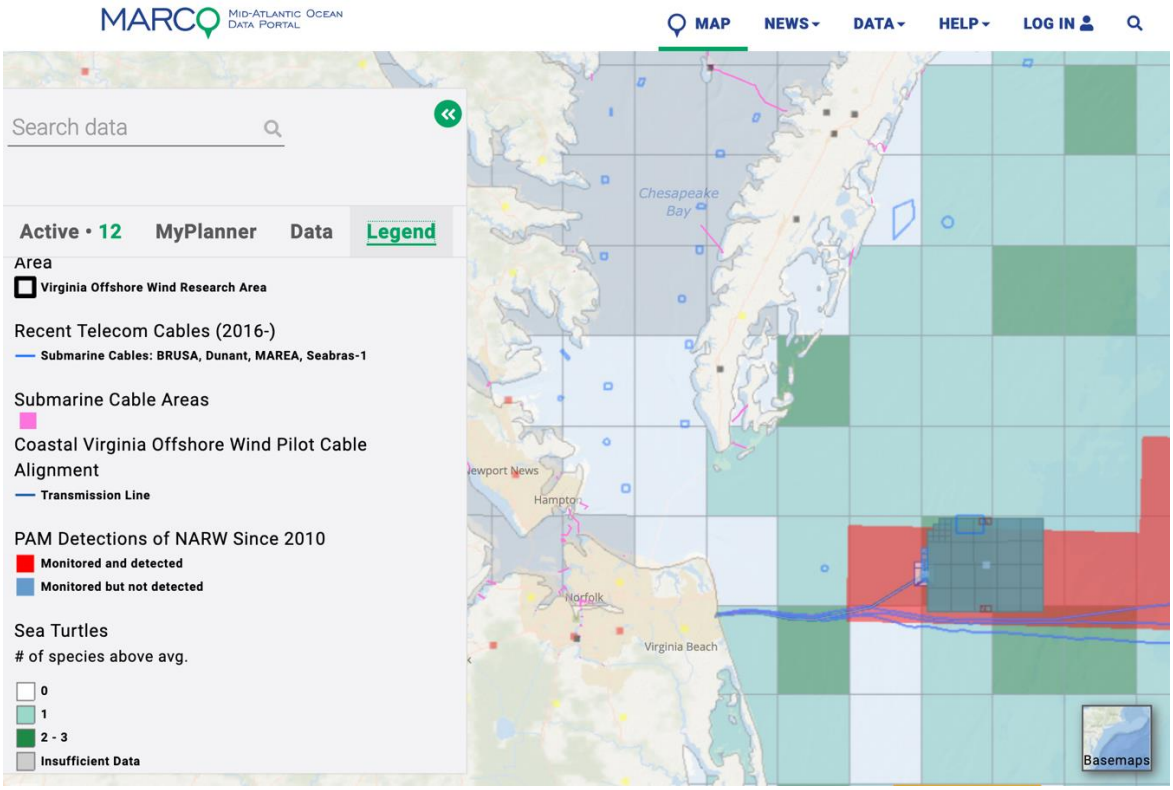
Questions Sent to Tourism/Non-Consumptive Use Stakeholders

1. Please tell us about your organization, its mission, its membership/clientele, and its relationship with the ocean.
2. What sorts of activities do your membership/clientele engage in on the waters, and what sorts of concerns do you hear from them on a regular basis?
3. Can you speak to any concerns about ocean uses in general, that conflict with the mission of your organization?
4. How do you see your organization and the interests of your membership/clientele in relation to use, management, and conservation of fisheries?
5. Are there other groups you work with that are or would be affected by changes in use or regulation of the ocean, and whose well-being would affect your own organization?
6. Are there any issues with maritime navigation, related to your organization, that you would like to bring to our attention?
7. Do you hear from contacts out of state about different relationships, whether governmental, corporate, or general public, with management of the ocean and its resources? Is there any example or cautionary tale that you think the state of Virginia should look to?
8. Please add anything else you would like us to consider when researching use ocean resources, particularly with regard to different stakeholders, fisheries, or navigation.

J. Appendix III:

MARCO Data Portal: Overlay of Important Virginia Usage Areas

This image layers cable areas, marine wildlife density, and renewable energy siting.



Source: MARCO [data portal]

This image depicts the Port of Virginia and state coastal waters, and highlights the importance of overlapping uses and potential conflicts that decision-makers need to consider when planning ocean use designation in Virginia. It showcases submarine cable areas, offshore wind pilot cables, NARW detections, above average detections of sea turtle species, and Virginia Offshore Wind Research Areas.

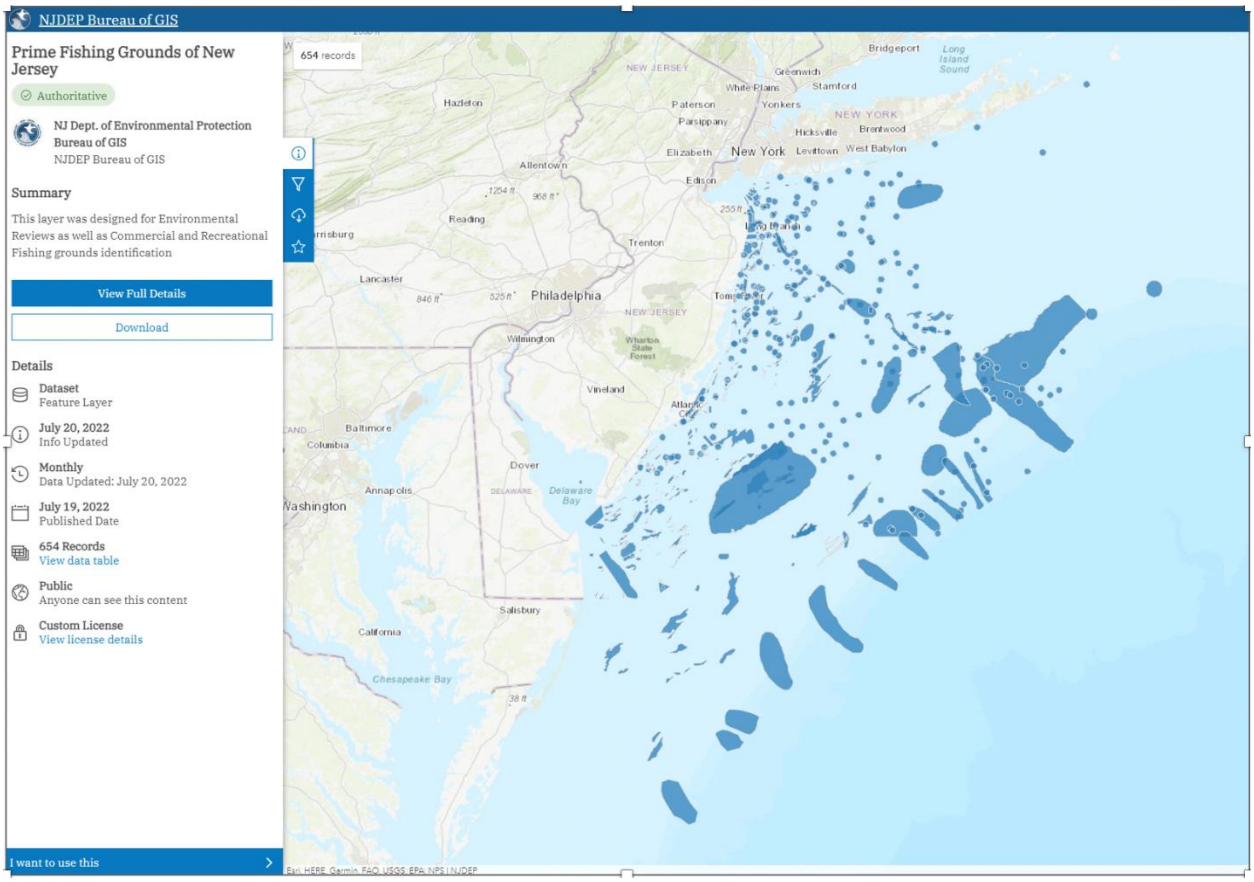
K. Appendix IV

Addendum: Use Area Maps

This addendum includes the following use area maps: New Jersey Prime Fishing Grounds and Artificial Reef Sites, California Marine Protected Areas (MPAs), Connecticut ecological resource inventory maps and human activity maps, a Massachusetts ocean uses map, and a Virginia coastal and ocean uses map. Where available, links to interactive web viewers are included.

New Jersey Prime Fishing Grounds

The New Jersey Department of Environmental Protection Bureau of GIS hosts the Prime Fishing Grounds of New Jersey map, which was "designed for Environmental Reviews as well as Commercial and Recreational Fishing grounds identification".[212] There is an additional data layer of Artificial Reef Sites, which can be accessed: https://gisdata-njdep.opendata.arcgis.com/datasets/njdep::artificial-reef-sites-of-new-jersey/explore



[212] New Jersey Department of Environmental Protection, Prime Fishing Grounds of New Jersey, https://gisdata-njdep.opendata.arcgis.com/datasets/njdep::prime-fishing-grounds-of-new-jersey/explore (last visited May 2, 2023).

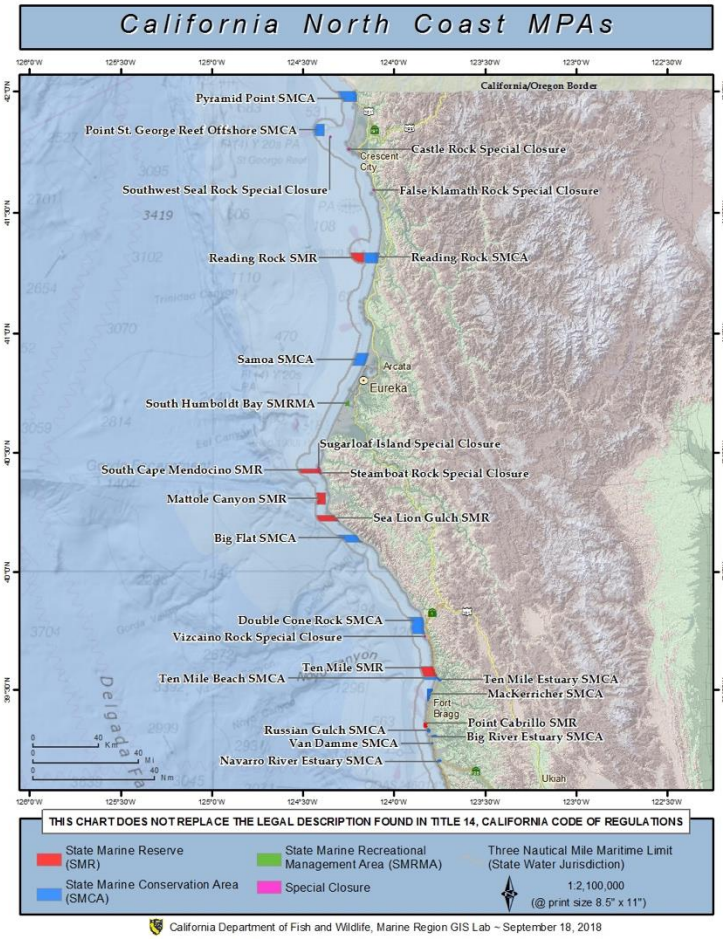
California[213]

California Department of Fish and Wildlife has recently created a marine and coastal data viewer called MarineBIOS. This interactive tool can be used to reference relevant marine resource planning data such as specific habitat information, and boundaries and regulations of MPAs.

The Water Quality Control Plan for Ocean Waters of California contains maps of the ocean, coast, and islands in Appendix VIII (pp. 106-109). These maps depict various items such as NPDES ocean outfalls, adopted special closure MPAs, and areas of special biological significance.

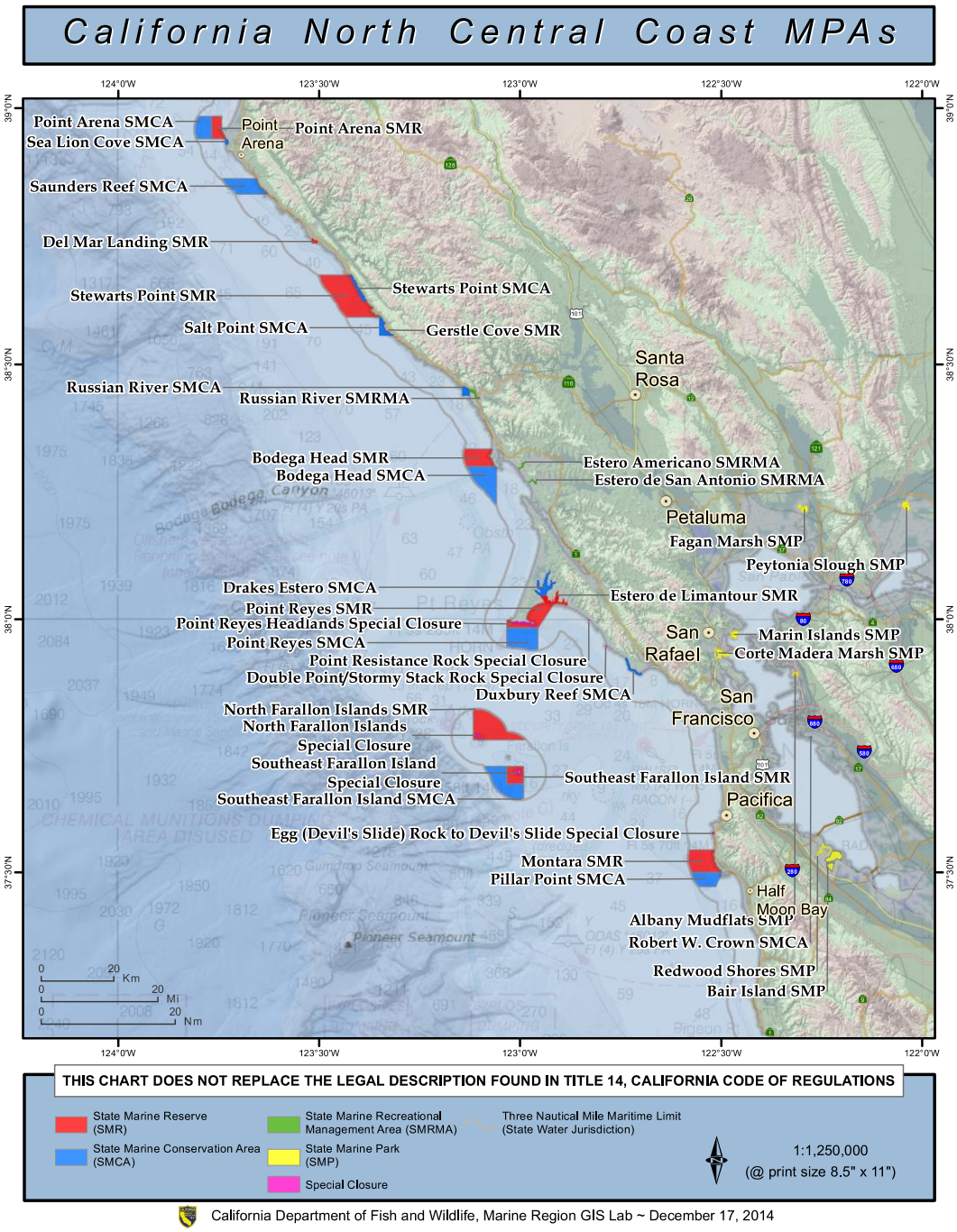
The following maps depict California Marine Protected Areas (MPAs), including Northern California MPAs, North Central California MPAs, San Francisco Bay, Central California MPAs, and Southern California MPAs. To view maps of individual MPAs, please see: https://wildlife.ca.gov/Conservation/Marine/MPAs

California/Oregon Border to Alder Creek near Point Arena (Mendocino County)

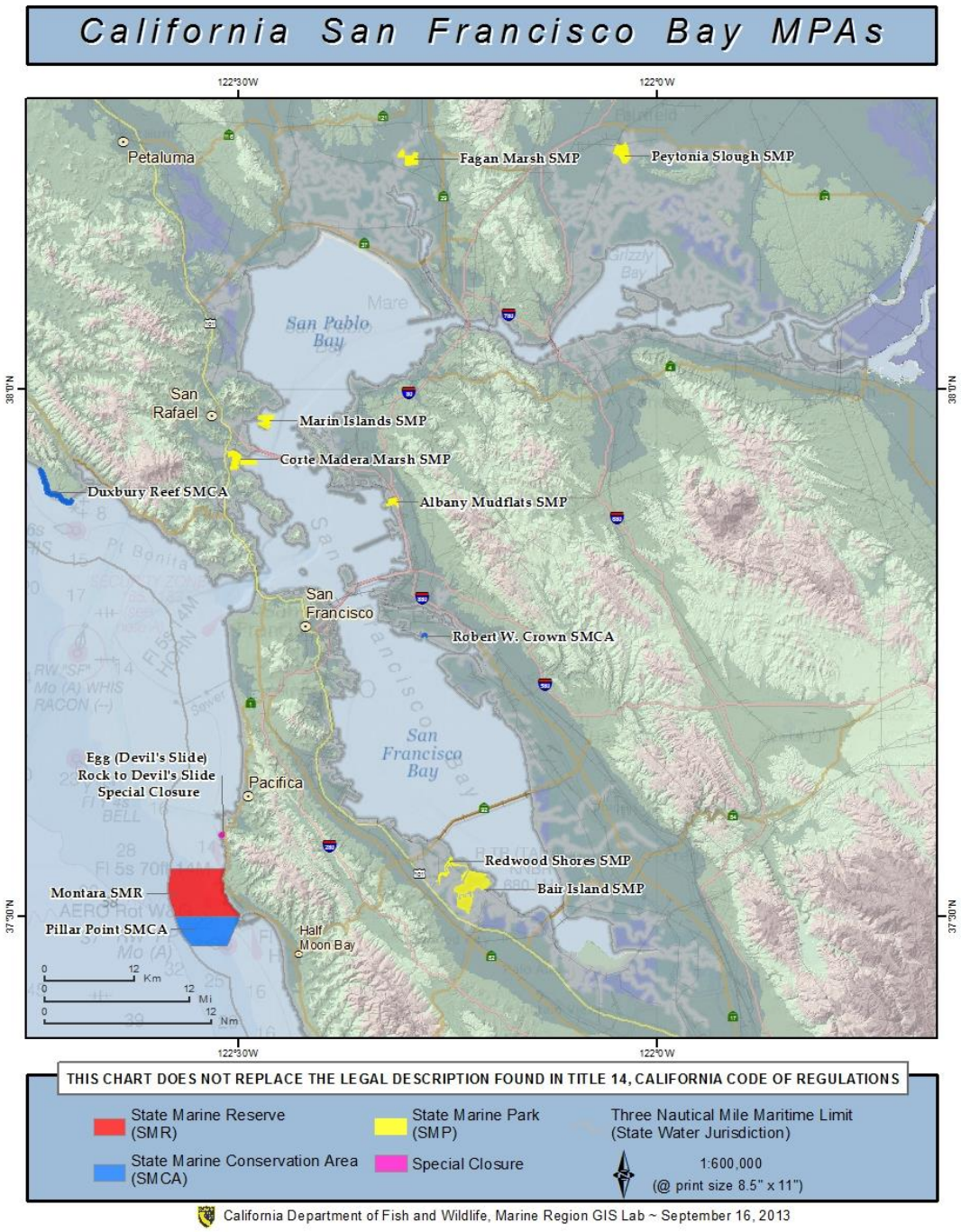


[213] California Department of Fish and Wildlife, Marine Protected Area (MPA) Planning Process: Historical Information, https://wildlife.ca.gov/Conservation/Marine/MPAs/Planning-Process#587613674-mpa-planning-process-historical-information (last visited May 2, 2023).

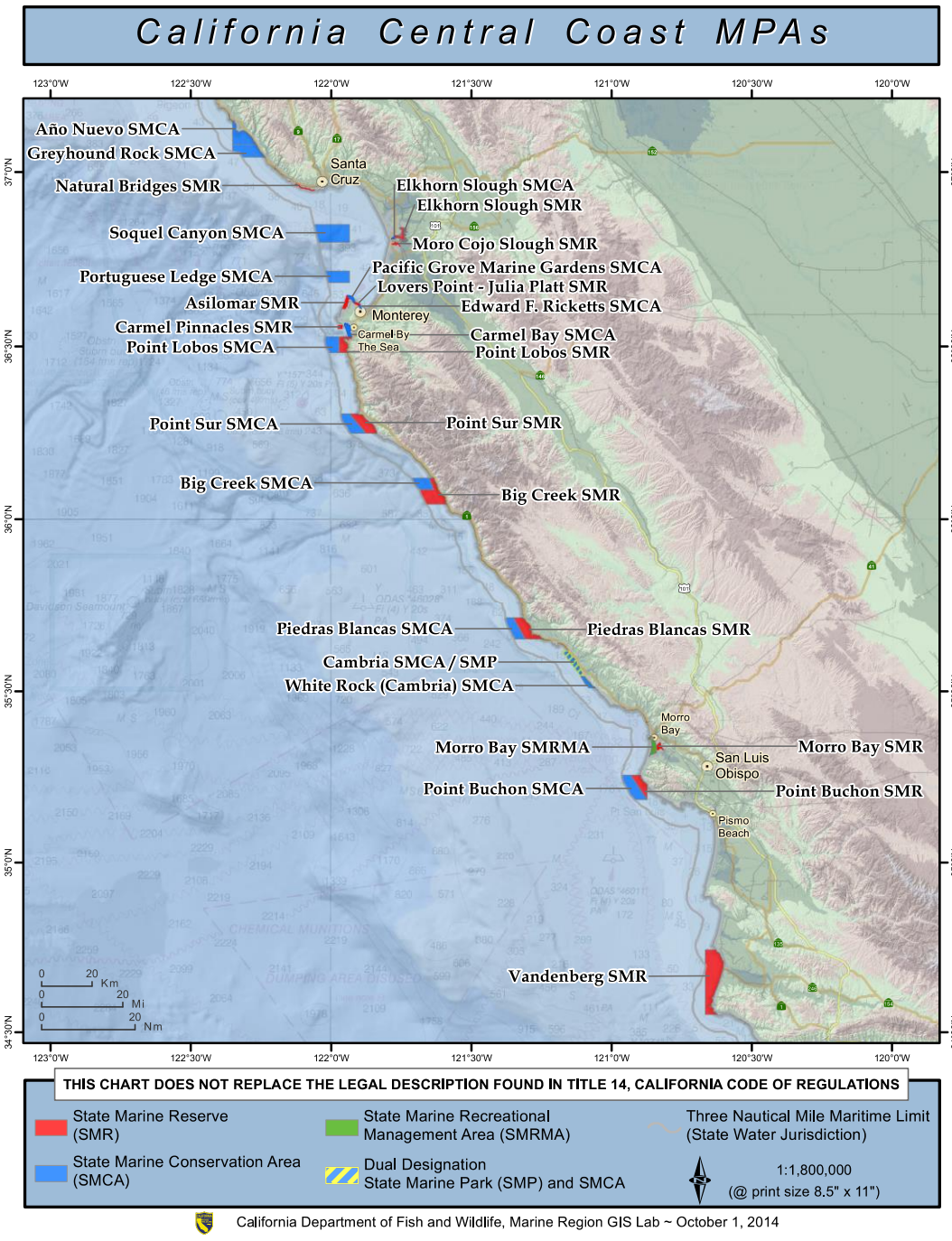
Alder Creek near Point Arena (Mendocino County) to Pigeon Point (San Mateo County)



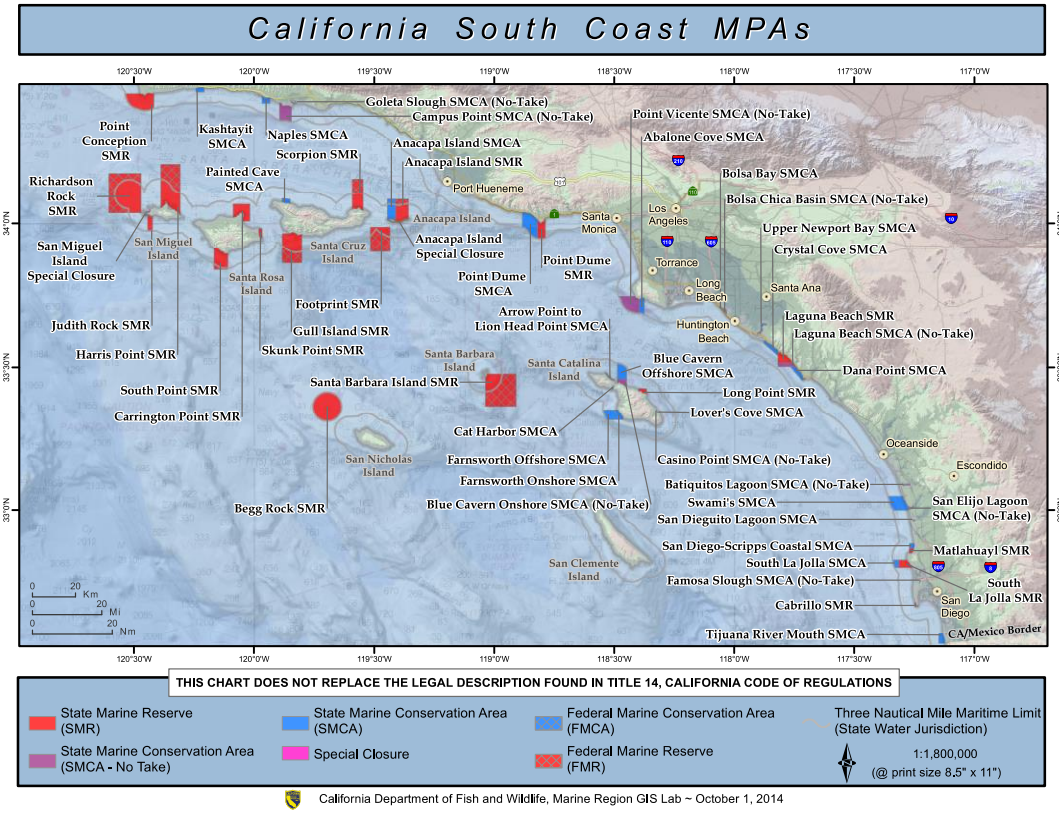
Established prior to 2007 within San Francisco Bay



Pigeon Point (San Mateo County) to Point Conception (Santa Barbara County)



Point Conception (Santa Barbara County) to the California-Mexico Border



Connecticut[214]

The Long Island Sound Blue Plan design and planning process consisted of two phases. The first phase involved collecting data to create an ecological and human use inventory, as well as generating maps that were examined by specialists and stakeholders to ensure accuracy and appropriateness. The second phase focused on creating Blue Plan policies that would be implemented through current State permit processes, with the aim of reducing conflicting uses of natural resources and human activity. The Connecticut Environmental Conditions Online (ECO) Blue Plan Viewer depicts priority areas within the sound, including those designated as "Ecologically Significant Areas" (ESAs) and "Significant Human Use Areas"(SHUAs).

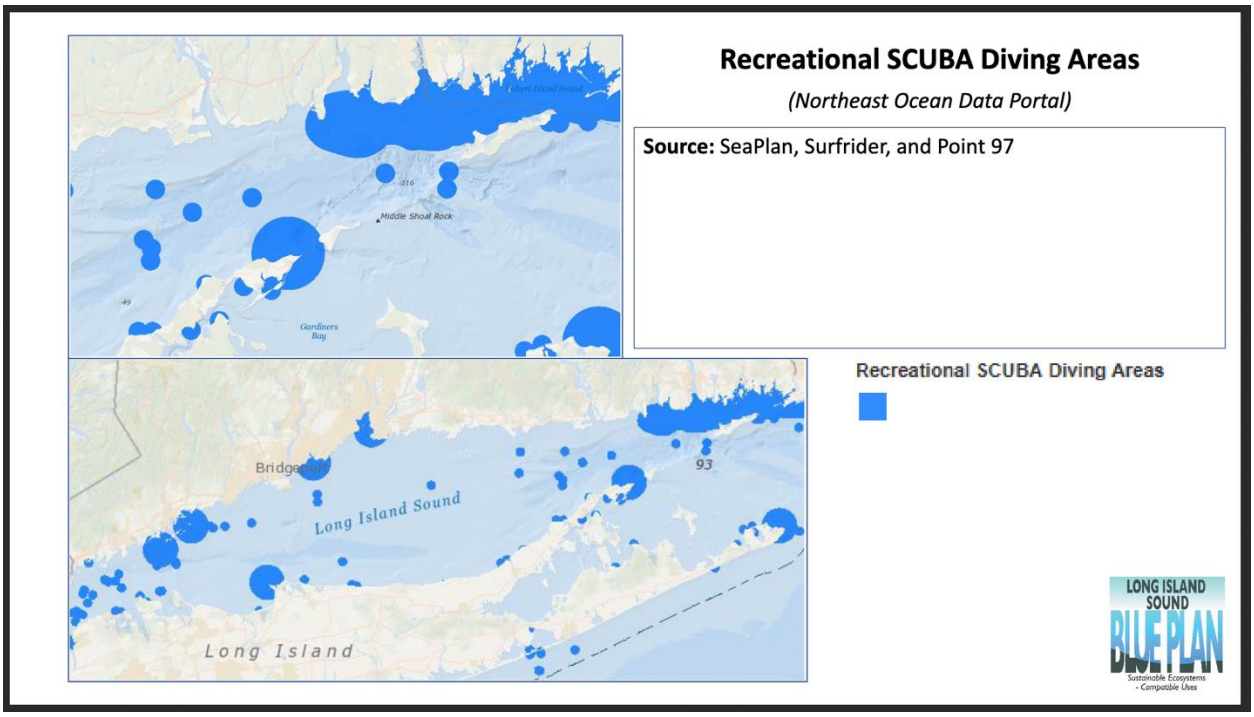
The Connecticut Department of Energy and Environmental Protection website contains relevant inventory "map books" used to create the Blue Plan.[215] List of map books:

1. Energy and Telecommunications pdf
2. Marine Transportation, Navigation, and Infrastructure pdf
3. Non-Consumptive Recreation pdf
4. Recreational Boating pdf
5. Recreational Fishing/Waterfowl Hunting pdf
6. Recreational Diving/SCUBA I pdf
7. Recreational Diving/SCUBA II pdf
8. Aquaculture pdf
9. Charter and Party Boat Fishing pdf
10. Commercial Fishing pdf
11. Historic and Archaeological pdf
12. Research and Education pdf
13. Fish, Shellfish, and Zooplankton pdf
14. Benthic Biological Habitat pdf
15. Benthic Physical Habitat pdf
16. Marine Mammals and Sea Turtles pdf
17. Birds pdf

For example, the following image was extracted from the Recreational Diving/SCUBA II map book, and depicts recreational SCUBA diving areas. Following each image in the different map books is a description that includes the blue plan sector category, a summary description of the data layer, and a source link to the data portal from which the map was created.

[214] Connecticut General Assembly. (2015). An Act Establishing a Comprehensive Long Island Sound Blue Plan. https://www.cga.ct.gov/2015/ACT/pa/pdf/2015PA-00066-R00HB-06839-PA.pdf

[215] Connecticut Department of Energy and Environmental Protection, Introductory Webinar for Blue Plan Ecological Interested Parties, https://portal.ct.gov/DEEP/Coastal-Resources/LIS-Blue-Plan/Introductory-Webinar-for-Blue-Plan-Ecological-Interested-Parties#addhu (last visited May 2, 2023).



Recreational SCUBA Diving Areas

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

Blue Plan Sector(s): Recreation & Tourism > SCUBA & Recreational Diving

Summary Description: The Recreational SCUBA Diving Areas layer is a composite of data collected through several method which include outreach to the SCUBA diving community and mining existing data sources. Data were collected as part of the Northeast Coastal and Marine Recreational Use Characterization Study which was conducted by SeaPlan, the Surfrider Foundation, and Point 97 under the direction of the Northeast Regional Planning Body. Sources include the following:

•State-based online GIS data portals: Data were downloaded from the New York State Geographic Information Gateway and the Massachusetts Ocean Resource Information System (MORIS)

•SCUBA guides: Authoritative guides published either online or in print which provide coordinates of sites or detailed descriptions of site locations

•Online survey data: Data obtained using an online mapping and survey tool which collected information on the location and characteristics of SCUBA sites from diving experts from March – May 2015

•PGIS workshop data: Data obtained during in-person PGIS (participatory geographic information systems) mapping workshops held in the spring of 2015. Workshop participants used an electronic stylus pen to digitize SCUBA areas on a projected GIS-based map, which allowed the features to be automatically saved and then attributed with information the participants shared during the concurrent session.

•Other: Data were obtained through other sources, such as phone conversations with SCUBA experts, or derived from a spatial dataset which hasn't been published or otherwise been made publically available.

To address data confidentiality and site sensitivity concerns, site-specific areas mapped online or in person were generalized by applying a buffer to the center point of the mapped area. A buffer was also applied to points derived from outside research

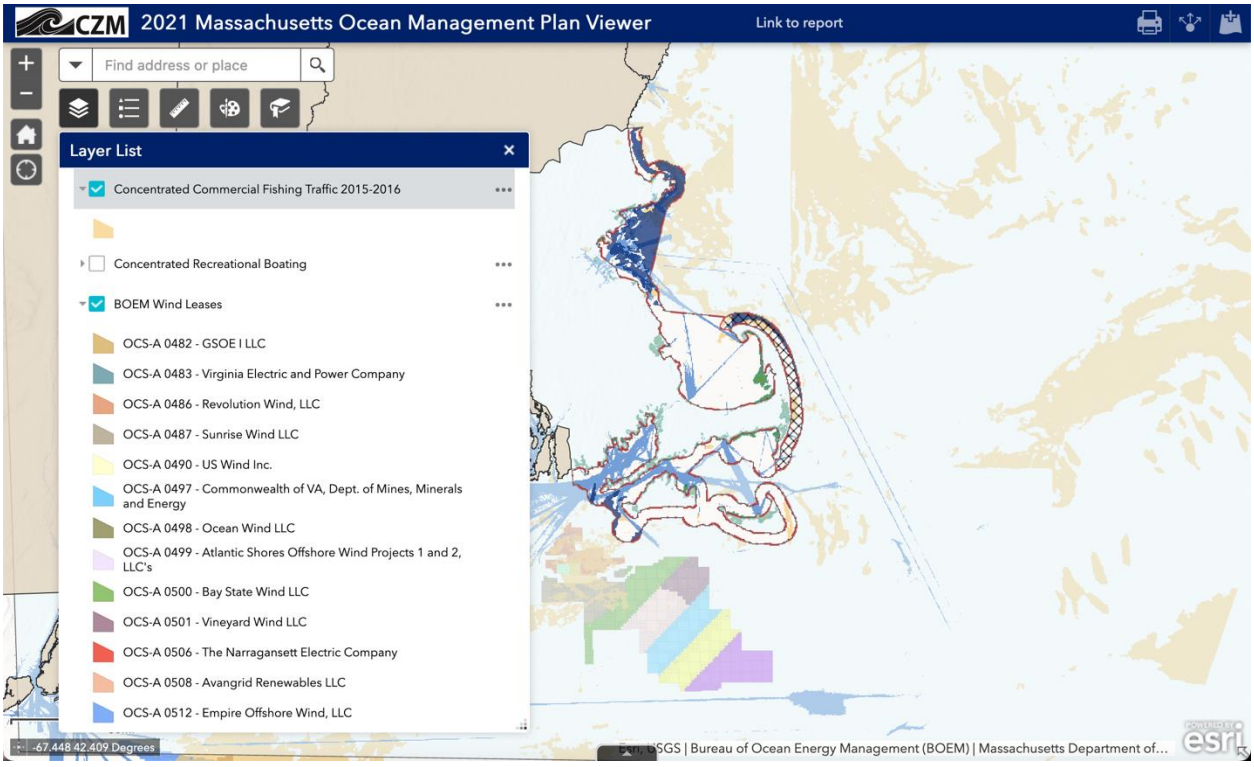
Full Description: http://www.northeastoceandata.org/files/metadata/Themes/Recreation/RecreationalSCUBADivingAreas.pdf

Access Instructions: Go to http://www.northeastoceandata.org/data-explorer/. Recreation > Recreational SCUBA Diving Areas

Massachusetts

The 2021 edition of the Massachusetts Ocean Management Plan includes updated maps that identify areas with special, sensitive, or unique resources, as well as water-dependent uses. It also features an up-to-date evaluation of the current state and trends in ocean conditions, and a Science Framework designed to advance important ocean management objectives in the coming five years. The OMP regulations are codified as of 2021.[216] There are several management areas defined within the OMP; those are "prohibited areas", "wind energy areas", and "multi-use areas".[217] Massachusetts also has an ArcGIS interactive map, Massachusetts Ocean Resources Information System (MORIS) which contains all spatial data from the 2021 OMP[218].

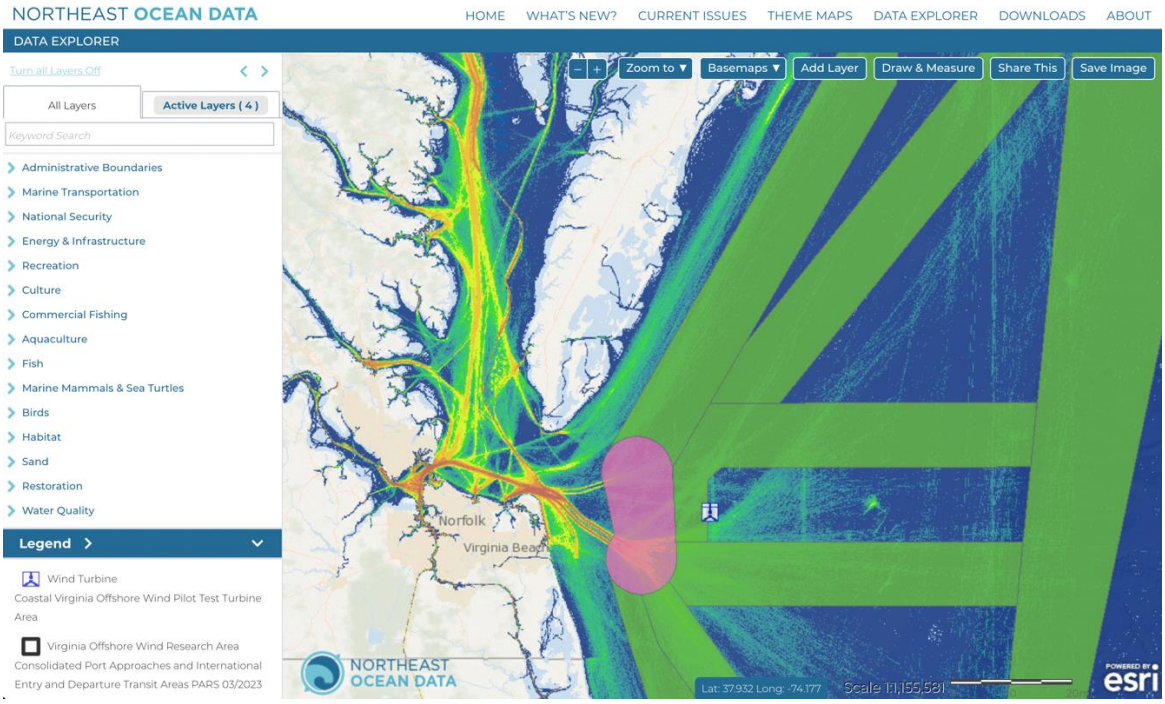
The image below, captured from the MORIS viewer, depicts several layers of ocean uses off the Massachusetts coast. Layers shown include BOEM wind leases (southern portion of the map), prohibited areas (red and black cross-hash marks), important fish resources (navy blue, northern portion of the mpa), concentrated commerce traffic (lighter blue paths/routes), and concentrated commercial fishing traffic (widespread light orange/tan areas). Again, these are only a sample of the available layers. The viewer, linked above, is interactive and can be zoomed in for specificity.



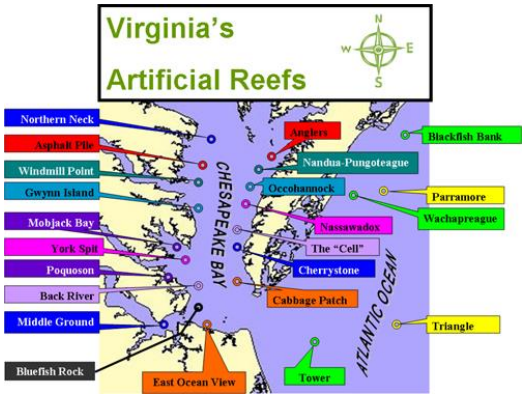
[216] 301 CMR 28: Massachusetts Ocean Management Plan (Mass. 2018), available at https://www.mass.gov/doc/301-cmr-28-ocean-management-plan/download (last visited May 2, 2023).
[217] 301 CMR 28.04 (Mass. 2018), available at https://www.mass.gov/doc/301-cmr-28-ocean-management-plan/download (last visited May 2, 2023).
[218] CZM Massachusetts Ocean Resource Information System, Massachusetts Ocean Management Planning Area 2, ArcGIS Hub, https://czm-moris-mass-eoeea.hub.arcgis.com/datasets/massachusetts-ocean-management-planning-area-2/explore (last visited May 2, 2023).

Virginia

The image below, captured from the Northeast Ocean Data Explorer[219], depicts several layers of ocean uses off of the Virginia coast. Layers shown include marine transportation commercial traffic (green, yellow, orange traffic patterns), consolidated PARS transit areas (fairways in green, precautionary areas in pink), and energy infrastructure (wind turbine and research squares, see legend), Again, these are only a sample of the available layers. The viewer, linked in the footnote, is interactive and includes additional layers and sublayers.



Virginia's artificial reef sites are depicted below, and VMRC hosts a more detailed satellite map of sites[220].



[219] Northeast Ocean Data Portal, https://www.northeastoceandata.org/ (last visited May 2, 2023).
[220] Virginia Marine Resources Commission, Artificial Reefs Interactive Map, https://webapps.mrc.virginia.gov/public/maps/artificial_reefs.php (last visited May 2, 2023).