

## **Advances in Marine Spatial Planning: Zoning Earth's Last Frontier**

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### INTRODUCTION

In many places throughout the United States and around the world, governments have applied a zoning framework to the land in order to encourage orderly development of urban areas, protect farmlands and rural landscapes, reduce conflicts between neighboring land uses, and provide a structure for land development. Recently, coastal states in the United States have begun taking this concept to the sea. Interest in offshore wind, tidal, and wave energy development raises many questions. For example, is offshore renewable energy development feasible? Is there a market demand? What will the environmental impacts be? Beyond the questions of technology and feasibility, one question rises above the rest: Where should we put these new devices? Marine spatial planning helps answer this question.

Though vast and seemingly endless, our oceans, especially nearshore areas, are crowded places. Navigation channels and aids, fishing and crabbing grounds, recreation areas, marine sanctuaries and wildlife refuges, undersea cables, dredged material disposal sites, and even viewsheds all claim their portion of the sea and seafloor. Coastal communities have a strong interest in protecting these existing ocean uses while exploring the opportunity for new renewable energy sources.

Marine spatial planning offers a method to identify existing resources and create the “space” for development of new resource uses in the ocean.<sup>1</sup> In order to facilitate offshore renewable energy

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<sup>1</sup> Executive Order 13,547 by President Barack Obama explains that marine spatial planning “identifies areas most suitable for various types or classes of activities in order to

siting, several states, including Rhode Island, Massachusetts, and Oregon, have undertaken efforts to map existing uses and designate areas suitable for marine renewable energy devices. This paper will explore the background and legal framework of ocean regulation before examining the processes and results of the efforts of these three coastal states. Part I provides an overview of the legal framework of ocean management internationally and domestically within the United States. Part II discusses the marine spatial planning efforts of three U.S. states, Massachusetts, Rhode Island, and Oregon, and compares their processes and outcomes. Part III reviews some common themes from the marine spatial plans of these states and suggests some elements that can be carried through to future marine spatial planning efforts.

## I BACKGROUND

Over half of the worldwide population lives and works within 120 miles of the ocean.<sup>2</sup> Nationally, over half of the U.S. population lives in coastal watershed counties.<sup>3</sup> Approximately one half of the nation's gross domestic product is generated in those counties and in adjacent ocean waters.<sup>4</sup> The ocean is valuable as a highway for transporting goods and people, as a fisheries resource and source of economic revenue, jobs, and food, and as a tourism and recreation destination. As a result, governments have set boundaries within the world's oceans with attendant legal authority and agency responsibility.

### *A. Overview of Ocean Control—EEZ, Territorial Seas, State Waters*

Under international law, our oceans are divided into territories, each governed by different bodies and subject to different rules.

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reduce conflicts among uses, reduce environmental impacts, facilitate compatible uses, and preserve critical ecosystem services to meet economic, environmental, security, and social objectives." Exec. Order No. 13,547, 75 Fed. Reg. 43,023 (July 19, 2010).

<sup>2</sup> As of 1998, about 3.2 billion people live within coastal areas. Don Hinrichsen, *The Coastal Population Explosion*, in TRENDS AND FUTURE CHALLENGES FOR U.S. NATIONAL OCEAN AND COASTAL POLICY 27, 27. (1999), available at [http://oceanservice.noaa.gov/websites/retiredsites/natdia\\_pdf/ctrends\\_proceed.pdf](http://oceanservice.noaa.gov/websites/retiredsites/natdia_pdf/ctrends_proceed.pdf).

<sup>3</sup> U.S. COMM'N ON OCEAN POLICY, AN OCEAN BLUEPRINT FOR THE 21ST CENTURY 2–3 (2004), available at [http://www.opc.ca.gov/webmaster/ftp/pdf/docs/Documents\\_Page/Reports/U.S.%20Ocean%20Comm%20Report/FinalReport.pdf](http://www.opc.ca.gov/webmaster/ftp/pdf/docs/Documents_Page/Reports/U.S.%20Ocean%20Comm%20Report/FinalReport.pdf).

<sup>4</sup> When considering economies throughout coastal watershed counties, economic contributions exceed \$4.5 trillion, and account for some sixty million jobs. *Id.* at 2.

Internationally, the closer to the shore, the more authority the coastal nation has. Domestically, the closer to the shore, the more coastal states control the sea.<sup>5</sup> Beginning from the coast,<sup>6</sup> every coastal country has sovereignty over an adjacent belt of sea, not to exceed twelve nautical miles, called the territorial sea.<sup>7</sup> The coastal country exercises sovereignty over its territorial sea, the air space above it, and the seabed and subsoil beneath it.<sup>8</sup> Ships of any nation may pass through the territorial sea under the right of innocent passage.<sup>9</sup> A coastal country may not hamper innocent passage and, further, must give notice of any known danger to navigation within its territorial sea.<sup>10</sup> However, a coastal country may take necessary steps to prevent passage that is not innocent, may adopt laws and regulations relevant to innocent passage, and may prescribe sea lanes and other sea traffic schemes for safe navigation within the territorial sea.<sup>11</sup> The United States claimed a twelve nautical mile territorial sea in 1988.<sup>12</sup>

Beyond the territorial sea, in an area known as the contiguous zone, a coastal country may exercise control necessary to “prevent infringement of its customs, fiscal, immigration or sanitary laws and regulations within its territory or territorial sea.”<sup>13</sup> The United States currently claims a contiguous zone extending from twelve to twenty-four nautical miles offshore.<sup>14</sup>

The United Nations Convention on the Law of the Sea sets forth the legal regime of the exclusive economic zone (EEZ), an area beyond and adjacent to the territorial sea not to exceed two hundred

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<sup>5</sup> See *id.* at 70.

<sup>6</sup> These jurisdictional lines extend from the *baseline*—normally the low water line along the coast as marked on charts officially recognized by the coastal nation. United Nations Convention on the Law of the Sea art. 3-16, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter UNCLOS]. The more precise boundaries of state territorial waters are discussed in Part I.B.2 below.

<sup>7</sup> *Id.* art. 2-3.

<sup>8</sup> *Id.* art. 2.

<sup>9</sup> *Id.* art. 17.

<sup>10</sup> *Id.* art. 24.

<sup>11</sup> *Id.* art. 21-22, 25.

<sup>12</sup> Proclamation No. 5928, 54 Fed. Reg. 777 (Dec. 27, 1988).

<sup>13</sup> UNCLOS, *supra* note 6, art. 33. The contiguous zone may not exceed twenty-four nautical miles from the territorial baseline (coastline).

<sup>14</sup> Proclamation No. 7219, 64 Fed. Reg. 48,701 (Aug. 2, 1999).

nautical miles from the coastline.<sup>15</sup> Within the EEZ, the coastal country has:

sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living of the waters . . . , the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds.<sup>16</sup>

The coastal country is also responsible for conservation of the living resources and, using best available science, shall ensure “the maintenance of the living resources in the [EEZ] is not endangered by over-exploitation.”<sup>17</sup> Within the EEZ, states have control of economic resources, but cannot prohibit legal passage or loitering.

Beyond the territorial seas, contiguous zones, and exclusive economic zones lie the high seas.<sup>18</sup> No country may claim the area comprised of the seabed and subsoil beyond the limits of national jurisdiction or the resources found there.<sup>19</sup> Almost sixty percent of the world's oceans remain high seas,<sup>20</sup> where the traditional freedoms of the high seas prevail.<sup>21</sup> Some limitations do exist; for example, U.S. citizens and people on U.S.-flagged vessels and aircraft remain subject to U.S. law on the high seas.<sup>22</sup>

### ***B. Overview of Agency Authority in United States Waters***

This Article is primarily concerned with the application of marine spatial planning by coastal states within the United States, and it will therefore focus from this point forward on the laws and regulating bodies with oversight of activities within state territorial sea waters. The Submerged Lands Act granted ownership and control of state waters to the coastal states, but specifically retained certain oversight in the federal government.<sup>23</sup> As a result, various state and federal

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<sup>15</sup> UNCLOS, *supra* note 6, art. 55, 57.

<sup>16</sup> *Id.* art. 56.

<sup>17</sup> *Id.* art. 61.

<sup>18</sup> *Maritime Zones and Boundaries*, NOAA OFF. GEN. COUNS., [http://www.gc.noaa.gov/gcil\\_maritime.html](http://www.gc.noaa.gov/gcil_maritime.html) (last visited Jan. 19, 2014) (providing a compilation of information on maritime zones and governing laws).

<sup>19</sup> UNCLOS, *supra* note 6, art. 1, cl. 1, art. 135–137.

<sup>20</sup> *See Maritime Zones and Boundaries*, *supra* note 18.

<sup>21</sup> UNCLOS, *supra* note 6, art. 87.

<sup>22</sup> U.S. COMM'N ON OCEAN POLICY, *supra* note 3, at 73.

<sup>23</sup> *See infra* Part I.A; 43 U.S.C. §§ 1311(d), 1314 (2012).

agencies apply and enforce many different laws enacted over time to govern the resources and activities within state territorial sea waters. Many federal ocean and coastal laws incorporate the jurisdictional lines discussed above, resulting in sometimes varied levels of protection for different ocean zones regardless of the ocean's ecology.<sup>24</sup>

### *1. Federal Authority*

In 1970, Congress acted on President Nixon's plan to create an agency to focus on the oceans and formed the National Oceanic and Atmospheric Administration (NOAA). Two years later, Congress passed the Coastal Zone Management Act (CZMA),<sup>25</sup> which recognized the nation's coasts as a national resource. In 1972, there was also the enactment of the Marine Mammal Protection Act,<sup>26</sup> the Federal Water Pollution Control Act Amendments (known commonly as the Clean Water Act),<sup>27</sup> and the Marine Protection, Research, and Sanctuaries Act,<sup>28</sup> which includes the Ocean Dumping Act<sup>29</sup> and the Marine Sanctuaries Program. These statutes, together with preexisting shipping laws and jurisdictional authorities, are the core laws governing U.S. management of ocean and coastal resources.

Governance of ocean waters can be itemized by location and by activity. For example, one set of laws applies to coastal management. Other laws and programs apply to management of living marine resources, pollution from land-based sources, fuels, minerals and ocean energy production, submerged cultural resources, and marine operations. The following is a sample of the potpourri of ocean resource management laws in the United States:

- Outer Continental Shelf Lands Act (OCSLA).<sup>30</sup> The OCSLA governs oil, natural gas, and mineral exploitation and extraction on the Outer Continental Shelf.

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<sup>24</sup> See U.S. COMM'N ON OCEAN POLICY, *Review of U.S. Ocean and Coastal Law: The Evolution of Ocean Governance Over Three Decades*, in AN OCEAN BLUEPRINT FOR THE 21ST CENTURY: FINAL REPORT OF THE U.S. COMMISSION ON OCEAN POLICY, app. 6, 2 (2004).

<sup>25</sup> 16 U.S.C. §§ 1451–1466 (2012).

<sup>26</sup> 16 U.S.C. §§ 1361–1423h (2012).

<sup>27</sup> 33 U.S.C. §§ 1251–1387 (2012).

<sup>28</sup> 16 U.S.C. §§ 1431–1447f, 33 U.S.C. §§ 1401–1445, 2801–2805 (2012).

<sup>29</sup> 33 U.S.C. §§ 1401–1445 (2012).

<sup>30</sup> 43 U.S.C. §§ 1331–1356 (2012).

- Comprehensive Environmental Response Compensation and Liability Act (CERCLA).<sup>31</sup> CERCLA authorizes recovery of damages from injury or loss of natural resources resulting from hazardous waste spills, leaks, disposal, or discharges, and it provides the framework for the response to these events.<sup>32</sup>
- Clean Water Act (CWA).<sup>33</sup> The CWA regulates activities affecting water quality in navigable waters of the United States, the contiguous zone, and, in some cases, extending into the EEZ.<sup>34</sup>
- Ocean Dumping Act.<sup>35</sup> This Act regulates ocean dumping of all types of materials, and its 1988 amendments specifically aimed at ending ocean dumping of sewage sludge and industrial wastes.<sup>36</sup>
- Oil Pollution Act.<sup>37</sup> Building on CERCLA and the CWA and containing many similar provisions, this law expands federal statutory liability for damages resulting from oil spilled or dumped into navigable waters.<sup>38</sup> The Act was adopted in 1990, largely in response to the Exxon Valdez spill.<sup>39</sup> The Act also creates the Oil Spill Liability Trust Fund to be used to compensate for injuries from spills.<sup>40</sup>
- Rivers and Harbors Act (RHA).<sup>41</sup> The RHA grants authority to the US Army Corps of Engineers to control potential obstructions to navigation in state waters and on the Outer Continental Shelf.<sup>42</sup>
- Marine Mammal Protection Act (MMPA).<sup>43</sup> The MMPA establishes strict prohibitions against taking, importation, or possession of marine mammals or marine-mammal products.<sup>44</sup> Regulated marine mammals include sea otters, polar bears, and all whales, seals, and sea lions.<sup>45</sup>

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<sup>31</sup> 42 U.S.C. §§ 9601–9675 (2012).

<sup>32</sup> *Id.* § 9607.

<sup>33</sup> 33 U.S.C. §§ 1251–1377 (2012).

<sup>34</sup> *See id.* § 1251.

<sup>35</sup> *Id.* §§ 1401–1445.

<sup>36</sup> *See* Ocean Dumping Ban Act, Pub. L. No. 100-688, §§ 1001–08 (1988).

<sup>37</sup> 33 U.S.C. §§ 2701–2762 (2012).

<sup>38</sup> *See id.* §§ 2701–2720.

<sup>39</sup> *Oil Pollution Act Overview*, ENVTL. PROTECTION AGENCY, <http://www.epa.gov/osweroe1/content/lawsregs/opaover.htm> (last updated Jan. 10, 2014).

<sup>40</sup> 26 U.S.C. § 9509 (2012).

<sup>41</sup> 33 U.S.C. §§ 401–467 (2012).

<sup>42</sup> *See id.* § 403; 43 U.S.C. § 1333(e) (2012).

<sup>43</sup> 16 U.S.C. §§ 1361–1423h (2012).

<sup>44</sup> *See id.* § 1371.

<sup>45</sup> *See id.* § 1362(6), 1372(f), 1378.

- Endangered Species Act (ESA).<sup>46</sup> Enacted in 1973, the ESA authorizes the listing of all species determined to be endangered or threatened. An “endangered species” is defined as “any species which is in danger of extinction throughout all or a significant portion of its range.”<sup>47</sup> A “threatened species” is “any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.”<sup>48</sup> The Act regulates actions affecting endangered or threatened species or their designated critical habitat and refers to the commitments of the United States to various international agreements to conserve natural resources and wildlife.<sup>49</sup>
- Magnuson-Stevens Fishery Conservation and Management Act.<sup>50</sup> This Act controls fishing in federal waters from three to two hundred nautical miles offshore, primarily through species-specific management plans.<sup>51</sup> The Act generally preserves coastal states’ fisheries management control within the state territorial sea unless a fishery within state waters is covered by a federal fishery management plan or if the state’s program would by action or inaction adversely affect a fishery in a federal fishery management plan.<sup>52</sup>

Under the National Marine Sanctuaries Act (NMSA), the Secretary of Commerce may designate a national marine sanctuary after consultation with federal agencies and state and local affected governments and National Environmental Policy Act (NEPA)<sup>53</sup> public review.<sup>54</sup> The resources of the “areas of the marine environment which are of special national significance” are protected under the NMSA from destruction or injury.<sup>55</sup> A sanctuary resource is defined as “any living or nonliving resource of a national marine sanctuary that contributes to the conservation, recreational, ecological, historical, educational, cultural, archaeological, scientific, or aesthetic value of the sanctuary.”<sup>56</sup>

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<sup>46</sup> 16 U.S.C. §§ 1531–1543 (2012).

<sup>47</sup> *Id.* § 1532(6).

<sup>48</sup> *Id.* § 1532(20).

<sup>49</sup> *See generally id.* § 1531–1543.

<sup>50</sup> *Id.* §§ 1801–1891d.

<sup>51</sup> *See id.* § 1853.

<sup>52</sup> *Id.* § 1856.

<sup>53</sup> 42 U.S.C. §§ 4321–4370h (2012).

<sup>54</sup> 16 U.S.C. § 1433 (2012).

<sup>55</sup> *Id.* § 1431(b)(1).

<sup>56</sup> *Id.* § 1432(8).

A marine protected area is “any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.”<sup>57</sup> Marine protected areas are authorized under Executive Order 13,158 in order to “protect the significant natural and cultural resources within the marine environment for the benefit of present and future generations” by expanding the network of these areas.<sup>58</sup>

These existing laws generally do not address the ocean ecosystem as a whole, but rather consider specific activities or resources piece by piece. In addition, new and emerging uses, such as offshore renewable energy development, are not directly considered or accounted for in the existing legal and policy framework. This has led agencies to work together to identify leading authority and to coordinate permit review. For example, the offshore oil and gas leasing and permit review process is subject to Secretary of the Interior control pursuant to the OCSLA.<sup>59</sup> Within the Department of the Interior, this authority has been delegated to the Bureau of Ocean Energy Management (BOEM). However, an applicant also must comply with a variety of other federal laws, including the CZMA, NEPA, U.S. Army Corps of Engineers requirements related to navigation under the Rivers and Harbors Act, and permit requirements of the U.S. Environmental Protection Agency (or delegated state agency) under the Clean Water Act for the discharge of pollutants into the ocean and under the Clean Air Act (CAA) for certain air emissions.

New ocean uses, such as wave energy projects, trigger additional federal laws and require review and participation by even more federal agencies. Under the Federal Power Act, the Federal Energy Regulatory Commission (FERC) has authority over the siting and development of hydropower facilities, including hydrokinetic projects such as wave energy generation.<sup>60</sup> FERC and BOEM, through the Department of the Interior, have developed joint guidelines for the permitting of marine hydrokinetic energy projects on the outer

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<sup>57</sup> Exec. Order No. 13,158, 65 Fed. Reg. 34,909 (May 26, 2000), *reprinted in* 16 U.S.C. § 1431 (2012).

<sup>58</sup> *Id.*

<sup>59</sup> 43 U.S.C. § 1334(a) (2012).

<sup>60</sup> *See* 16 U.S.C. §§ 791–828c (2012).

continental shelf.<sup>61</sup> These guidelines are intended to clarify the respective jurisdiction and authority of the regulating agencies and to identify the steps towards permitting to aid potential wave energy developers in navigating the process.

Another place where federal agencies collaborate and confer is in the process of compliance with NEPA. NEPA requires all federal agencies to provide a detailed statement of the environmental impact of all “major Federal actions significantly affecting the quality of the human environment.”<sup>62</sup> Federal actions proposed or permitted that require substantial planning, time, resources, or expenditure are “major” actions for purposes of NEPA review. The purpose of NEPA is to ensure federal agencies disclose to the public and consider environmental impacts, including the direct, indirect, and cumulative impacts of an activity, before taking action.<sup>63</sup> NEPA also requires that the reviewing agency consult with any federal agency with jurisdiction or special expertise regarding any environmental impact involved.<sup>64</sup> Thus, for actions affecting ocean resources or activities, the many agencies with regulatory powers are drawn into environmental review through NEPA.

Faced with this disjointed array of laws and overlapping authorities, in 2000, Congress enacted the Oceans Act,<sup>65</sup> calling for creation of the U.S. Commission on Ocean Policy. The purpose of the Commission was to establish findings and develop recommendations for a new coordinated and comprehensive national ocean policy. The Commission released its final report on September 20, 2004.<sup>66</sup> The report recommended (1) establishing a new national ocean policy framework to improve federal coordination and effectiveness and to allow for resolution of issues at the regional level; (2) ensuring that decisions about ocean and coastal resources be based on the most current, credible, and unbiased scientific data and information; and

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<sup>61</sup> See BUREAU OF OCEAN ENERGY MGMT. & FERC, BOEM / FERC GUIDELINES ON REGULATION OF MARINE AND HYDROKINETIC ENERGY PROJECTS ON THE OCS (2012), available at <http://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics/pdf/mms080309.pdf>.

<sup>62</sup> 42 U.S.C. § 4332(2)(C) (2012).

<sup>63</sup> See *id.*; 40 C.F.R. §§ 1502.16, 1508.7, 1508.8 (2013).

<sup>64</sup> 42 U.S.C. § 4332(2)(C) (2012).

<sup>65</sup> Oceans Act of 2000, Pub. L. No. 106-256, 114 Stat. 644 (2000) (codified as 33 U.S.C. 857-19 note).

<sup>66</sup> See U.S. COMM’N ON OCEAN POLICY, *supra* note 3.

(3) strengthening programs to educate and engage the public, cultivate a broad stewardship ethic, and prepare to meet future ocean policy challenges.<sup>67</sup> The Commission's term expired on December 19, 2004, pursuant to the terms of the Act. Following the work and report of the Commission, President George W. Bush established a Committee on Ocean Policy in order to help coordinate the activities of various agencies on ocean-related matters and facilitate coordination and consultation among federal, state, tribal, and local governments as well as the private sector and other organizations.<sup>68</sup> However, that effort does not appear to have resulted in any significant recommendations or policy changes.

In 2009, President Obama sent a memorandum to the heads of executive departments and federal agencies establishing an Interagency Ocean Policy Task Force to develop recommendations for enhanced stewardship and long-term conservation and use of ocean, coastal, and Great Lakes resources.<sup>69</sup> The Task Force developed a framework for effective coastal and marine spatial planning, released in December 2009 for public comment.<sup>70</sup> In 2010, the President accepted the recommendations of the Task Force.<sup>71</sup> Similar to the recommendations of the 2000–2004 Commission, the Task Force's recommendations included “[e]nsuring a comprehensive and collaborative framework for the stewardship of the ocean, our coasts, and the Great Lakes that facilitates cohesive actions across the Federal Government, as well as participation of State, tribal, and local authorities, regional governance structures, nongovernmental organizations, the public, and the private sector.”<sup>72</sup> President Obama's Order established the National Ocean Council to carry out the enumerated policies, which include improving the resiliency of ocean

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<sup>67</sup> *See id.* at 25.

<sup>68</sup> Exec. Order No. 13,366, 69 Fed. Reg. 76,591 (Dec. 17, 2004) (revoked by Exec. Order No. 13,547, 75 Fed. Reg. 43,025 (July 19, 2010)).

<sup>69</sup> Memorandum on National Policy for the Oceans, Our Coasts, and the Great Lakes, 2009 DAILY COMP. PRES. DOC. 1 (June 12, 2009).

<sup>70</sup> *See* INTERAGENCY OCEAN POLICY TASK FORCE, COUNCIL ON ENVTL. QUALITY, INTERIM FRAMEWORK FOR EFFECTIVE COASTAL AND MARINE SPATIAL PLANNING (2009), available at <http://www.whitehouse.gov/sites/default/files/microsites/091209-Interim-CMSP-Framework-Task-Force.pdf>.

<sup>71</sup> COUNCIL ON ENVTL. QUALITY, FINAL RECOMMENDATIONS OF THE INTERAGENCY OCEAN POLICY TASK FORCE 41 (2010), available at [http://www.whitehouse.gov/files/documents/OPTF\\_FinalRecs.pdf](http://www.whitehouse.gov/files/documents/OPTF_FinalRecs.pdf).

<sup>72</sup> *Id.* at 15.

and coastal ecosystems, communities, and economies and using best available science to inform decisions affecting our oceans, coasts, and Great Lakes.<sup>73</sup> These efforts are ongoing and will hopefully dovetail with states' efforts to improve their own ocean resource management.

## 2. State Authority

States exercise sweeping control over lands beneath tidal waters, both navigable and non-navigable.<sup>74</sup> The Submerged Lands Act of 1953 granted individual coastal states ownership of lands and natural resources "beneath navigable waters" within the boundaries of the state, creating state territorial sea areas.<sup>75</sup> That title "necessarily carries with it control over the waters above them, . . . but . . . [i]t is a title held in trust for the people of the state, that they may enjoy the navigation of the waters, carry on commerce over them, and have liberty of fishing therein . . . ."<sup>76</sup> This "public trust doctrine" evolved from ancient Roman law and English common law, and it imposes on governments the obligation to protect the interests of the general public. Traditionally, these interests include navigation, fishing, and commerce. More recently, the public has begun looking to the government to protect interests in recreation, environmental protection, research, and preservation of scenic beauty and cultural heritage. Perhaps the cutting edge of the public trust doctrine is evident in a current series of cases across the nation brought by

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<sup>73</sup> Exec. Order No. 13,547, 75 Fed. Reg. 43,023 (July 19, 2010).

<sup>74</sup> See *Phillips Petroleum Co. v. Mississippi*, 484 U.S. 469 (1988). Prior to *Phillips Petroleum*, the public trust doctrine had formed the basis of several cases confirming the State's sovereignty over tidal waters. In *Shively v. Bowlby*, the Court concluded:

At common law, the title and the dominion in lands flowed by the tide were in the king for the benefit of the nation. . . . Upon the American Revolution, these rights, charged with a like trust, were vested in the original states within their respective borders, subject to the rights surrendered by the constitution to the United States.

. . .

The new states admitted into the Union since the adoption of the constitution have the same rights as the original states in the tide waters, and in the lands under them, within their respective jurisdictions.

152 U.S. 1, 57 (1894). See also *Knight v. United Land Ass'n*, 142 U.S. 161, 183 (1891) ("It is the settled rule of law in this court that absolute property in, and dominion and sovereignty over, the soils under the tide-waters in the original states were reserved to the several states, and that the new states since admitted have the same rights, sovereignty, and jurisdiction in that behalf as the original states possess within their respective borders.").

<sup>75</sup> See 43 U.S.C. §§ 1301–1315 (2012).

<sup>76</sup> *Ill. Cent. R.R. Co. v. Illinois*, 146 U.S. 387, 452 (1892).

children seeking to force their governments to take action on climate change to protect the atmosphere as a public trust resource.<sup>77</sup>

In most cases, state waters extend three nautical miles from the coastline.<sup>78</sup> Within a state's territorial sea, the federal government retains jurisdiction to regulate commerce, navigation, power generation, defense, and international affairs.<sup>79</sup> States maintain authority to manage, develop, and lease resources throughout the water column, on the seabed, and in the subsoil.<sup>80</sup> States must exercise this authority for the benefit of the public, consistent with the public trust doctrine.<sup>81</sup>

Pursuant to the Submerged Lands Act, states generally control licensing and permitting for ocean floor areas within the state's territorial sea. These would include laying underwater cable, removal, or fill within areas of coastline. States also control living marine resources within the territorial sea, giving state wildlife agencies a role in ocean management. However, the Marine Mammal Protection Act prohibits state regulation relating to the taking of any species of marine mammal unless authority has been explicitly transferred to the state.<sup>82</sup> Only two states have ever applied to have management authority transferred, but authority was not delegated in either case.<sup>83</sup> The ESA also provides for conservation agreements with states to protect listed species. Where a state's conservation program meets the

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<sup>77</sup> Initiated in May 2011, and known as Atmospheric Trust Litigation, these cases seek to force the government to plan for and take steps to halt climate change, citing the duty of the government to protect the atmosphere as a public trust resource. Lawsuits were filed in twelve states and against the federal government. For more information on the legal theory behind these cases, see Mary Wood, *Nature's Trust: Environmental Law for a New Ecological Age* (Cambridge University Press 2013).

<sup>78</sup> See 43 U.S.C. § 1312 (2012). Texas, Puerto Rico, and the Gulf Coast of Florida each claim a territorial sea extending nine nautical miles (three marine leagues) from the coast. *Id.* § 1301(b).

<sup>79</sup> *Id.* §§ 1311(d), 1314.

<sup>80</sup> *Id.* § 1311(a).

<sup>81</sup> See *id.*; *Shively v. Bowlby*, 152 U.S. 1, 49–50 (1894). For an extensive discussion of the shore-side boundary of state waters, see Courtney B. Johnson & Steven R. Schell, *Adapting to Climate Change on the Oregon Coast: Lines in the Sand and Rolling Easements*, 28 J. ENVTL. L. & LITIG. 2, 447–514 (2014).

<sup>82</sup> 16 U.S.C. § 1379(a) (2012).

<sup>83</sup> California first applied for management authority, but withdrew its application after the sea otter was listed as “threatened” under the ESA. Alaska received management authority for the walrus in 1975, but in *People of Togiak v. United States*, the court found that the transfer preempted Alaska regulation on subsistence hunting by Alaskan Natives. 470 F. Supp. 423, 424–25 (D.D.C. 1979).

requirements of the ESA, the Secretary must enter into a cooperative management agreement with the state.<sup>84</sup>

### 3. *Federal and State Control Overlap: Coastal Zone Management Act*

States also have a role in areas of federal authority through application of the CZMA. Designed “to preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation’s coastal zone for this and succeeding generations,”<sup>85</sup> the CZMA provides incentives for coastal states to voluntarily develop and conduct coastal management programs. A central component of the CZMA, the federal consistency authority, assures a state that federal agency activities, with certain exceptions, will be consistent with the enforceable provisions of state-developed and federally approved coastal management programs.<sup>86</sup>

The federal consistency provision of the CZMA provides an important tool for facilitating cooperation and coordination with federal agencies.<sup>87</sup> Federal consistency provides that federal actions that have reasonably foreseeable effects on land use, water use, or natural resources in the coastal zone must be consistent with the enforceable policies of a state’s federally approved coastal management program.<sup>88</sup> The central element of the consistency provision is the “effects test,” that is, whether the federal action will have effects on the coastal zone.<sup>89</sup>

The scope of the federal consistency provision was called into question by *Secretary of the Interior v. California*.<sup>90</sup> In that case, the U.S. Supreme Court held that outer continental shelf lease sales were not subject to the federal consistency provision of the CZMA.<sup>91</sup> At the time, the CZMA language referred to activities “directly affecting the coastal zone.”<sup>92</sup> Following that decision, major amendments to the CZMA in 1990 clarified the scope and application of the federal

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<sup>84</sup> 16 U.S.C. § 1535(a) (2012).

<sup>85</sup> *Id.* § 1452.

<sup>86</sup> *Federal Consistency Overview*, NAT’L OCEANIC & ATMOSPHERIC ADMIN., <http://coastalmanagement.noaa.gov/consistency/welcome.html> (last visited Mar. 6, 2014).

<sup>87</sup> *See* 16 U.S.C. § 1456(c) (2012).

<sup>88</sup> *Id.*

<sup>89</sup> 15 C.F.R. § 930.33(a)(1) (2013).

<sup>90</sup> 464 U.S. 312 (1984).

<sup>91</sup> *Id.* at 330.

<sup>92</sup> *Id.* at 344.

consistency provision.<sup>93</sup> The amendments eliminated categorical exemptions from consistency. Instead, the determination of “[w]hether a specific federal agency activity will be subject to the consistency requirement is a determination of fact based on an assessment of whether the activity affects natural resources, land uses, or water uses in the coastal zone of a state with an approved management program.”<sup>94</sup> The determination is made by the specific federal agency, which has to construe the term “affecting” broadly as to “includ[e] direct effects which are caused by the activity and occur at the same time and place, and indirect effects which may be caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.”<sup>95</sup>

The CZMA section 307(c)(3)(A) provides in part:

any applicant for a required Federal license or permit to conduct an activity, in or outside of the coastal zone, affecting any land or water use or natural resource of the coastal zone of that state shall provide in the application to the licensing or permitting agency a certification that the proposed activity complies with the enforceable policies of the state’s approved program and that such activity will be conducted in a manner consistent with the program.<sup>96</sup>

Federal consistency review applies for all federal licenses, permits, or approvals listed in a state’s federally approved coastal program document. For a listed activity in the coastal zone, the applicant shall submit a consistency certification to the approving federal agency and the state. In addition, the applicant must provide the state with the necessary data and information required by NOAA’s regulations to allow the state to assess the project’s effects.<sup>97</sup> If a state wants to review an unlisted activity, it must seek NOAA approval on a case-by-case basis.<sup>98</sup>

Because federal agencies retain licensing control over some activities within state waters, the CZMA and its federal consistency provision have provided significant framework and guidance for

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<sup>93</sup> Coastal Zone Act Reauthorization Amendments of 1990, Pub. L. 101-508, tit. VI, subtit. C, 104 Stat. 1388.

<sup>94</sup> H.R. Rep. No. 101-964, at 970-971 (1990).

<sup>95</sup> *Id.*; 15 C.F.R. § 930.33 (2013).

<sup>96</sup> 16 U.S.C. § 1456(c)(3)(A) (2012).

<sup>97</sup> 15 C.F.R. § 930.58(a) (2013).

<sup>98</sup> *See* 15 C.F.R. § 930.54 (2013).

states' development of marine spatial planning within their territorial seas. Marine spatial planning elements to be incorporated within a state's coastal management program must be approved by NOAA in order to qualify as enforceable provisions for consistency review.

### *C. Traditional Ocean Energy Regulation*

Traditional and existing statutes regulate energy resources in the ocean as mineral resources; because these energy sources rely on direct, point source extraction of a physical mineral (natural gas, methane, oil), they are treated in the same manner as other minerals not used for energy production (sand, gravel, manganese, placers, and gold). Due to significant spill events like the Exxon Valdez spill in 1989 and the Deepwater Horizon disaster of 2010, many offshore areas have been closed through moratoria.<sup>99</sup> Nevertheless, given our continued dependence on fossil fuel sources there is near constant pressure to reopen areas for drilling and issue lease sales in outer continental shelf areas like the North Slope of Alaska and Atlantic seaboard areas.<sup>100</sup> Many factors shape our fossil fuel energy policy, most notably the status of Middle East oil supplies, but also the fiscal impact: lease sales, royalties, and rents constitute one of the federal government's largest nontax revenue streams.<sup>101</sup> Until we collectively shift our economies and expectations away from reliance on fossil fuels, these questions will continue to plague energy policy development in the United States. Offshore renewable energy sources are not likely to provide the answer to this larger debate, but may help

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<sup>99</sup> Following the Deepwater Horizon spill in May of 2010, U.S. Secretary of the Interior Ken Salazar imposed a moratorium on all deepwater drilling. The moratorium was lifted in October of that year. Individual states have adopted moratoria against all offshore drilling in state waters. In 2010, Oregon's legislature renewed an existing moratorium on offshore drilling for an additional ten years. H.R. 3613, 75th Or. Legis. Assemb., 2010 Spec. Sess. (Or. 2010). California first banned offshore drilling in state waters after a 1969 oil spill at Santa Barbara. The California Coastal Sanctuary Act of 1994, prohibits new leases of state offshore tracts. CAL. PUB. RES. CODE §§ 6240–6244 (West, Westlaw through ch.3 of 2014 Reg. Sess.). Massachusetts's Ocean Sanctuaries Act contains similar limitations. *See* Mass. Gen. Laws Ann. ch. 132A, § 12B-16E, 18 (West, Westlaw through ch. 38 of the 2014 Ann. Sess.).

<sup>100</sup> *See Alaska Outer Continental Shelf Permits*, ENVTL. PROTECTION AGENCY, <http://yosemite.epa.gov/R10/airpage.nsf/permits/ocsap/> (last visited Feb. 20, 2014).

<sup>101</sup> According to the U.S. Government Accountability Office, oil and gas royalties accounted for about \$9 billion in 2009 and \$10.1 billion in 2010 and 2011. *GAO-13-283, HIGH-RISK SERIES: AN UPDATE* (U.S. Gov't Accountability Office), Feb. 2013, at 76.

replace and reduce the use of coal and natural gas in power plants for coastal communities.

The federal government controls continental shelf oil and gas resources beyond the limits of state territorial waters pursuant to the OCSLA. Currently, the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) authorizes oil and gas leasing on the Outer Continental Shelf (OCS). The OCSLA establishes a four-stage administrative process: “(1) formulation of a five year leasing plan by the Department of the Interior; (2) lease sales; (3) exploration by the lessees; (4) development and production.”<sup>102</sup> In the first stage, BOEMRE must prepare a five-year leasing plan showing the size, timing, and location of leasing activities. The five-year program is subject to public comment and review. In the second stage, BOEMRE must first complete a detailed combination of investigating, consulting, and reporting requirements<sup>103</sup> in addition to complying with NEPA and the ESA. BOEMRE “must also consult with the governor of any affected state, . . . and accept the governor’s recommendations if [it] believes that they strike a reasonable balance between the national interest and the well-being of the citizens of the affect state.”<sup>104</sup> After lease sales are completed, lessees must submit an exploration plan and environmental report, both of which are subject to further review. The lease sale in itself does not entitle the purchaser to proceed with exploration, but rather to submit plans to conduct those activities. BOEMRE completes a final round of review prior to development. “If [the lessee’s] plans, when ultimately submitted, are disapproved, no further exploration or development is permitted.”<sup>105</sup>

The Deepwater Port Act of 1974<sup>106</sup> establishes a licensing system for ownership, construction, operation, and decommissioning of deepwater port structures located beyond the U.S. territorial sea in the EEZ. The Act authorizes the Secretary of Transportation to issue licenses, subject to approval of the governors of the adjacent coastal states. The Act also requires environmental review consistent with NEPA. Most of these deepwater ports are located in the Gulf of

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<sup>102</sup> *Sec’y of the Interior v. California*, 464 U.S. 312, 337 (1984).

<sup>103</sup> *See* 43 U.S.C. § 1346 (2012).

<sup>104</sup> *Tribal Vill. of Akutan v. Hodel*, 869 F.2d 1185, 1187 (9th Cir. 1989).

<sup>105</sup> *Sec’y of the Interior*, 464 U.S. at 339.

<sup>106</sup> 33 U.S.C. §§ 1501–1524 (2012), *amended by* Maritime Transportation Security Act of 2002, Pub. L. No. 107-295, 116 Stat. 2066 (2002).

Mexico, though there are three located off the northeastern seaboard (one in operation, one approved, and one under review) and three off the coast of California (one under review, one disapproved, and one withdrawn/cancelled).<sup>107</sup>

#### *D. Offshore Renewable Energy Regulation*

Renewable energy sources do not involve the same extraction methods as oil and gas; nevertheless, they do involve a certain level of exploration and development. At the very least, these technologies occupy space in the ocean and by their very presence may conflict with the consumption and management of other ocean resources or other potential uses of ocean areas.

##### *1. Ocean Thermal Energy Conversion*

In 1980, Congress passed the Ocean Thermal Energy Conversion Act (OTECA).<sup>108</sup> Ocean thermal energy conversion (OTEC) uses the difference in temperature between the deep cold waters and the warm surface waters to generate electricity. According to NOAA, the technology is “potentially viable in tropical areas where the year-round temperature differential between the deep cold and warm surface waters is greater than 20 degrees Celsius (36 degrees Fahrenheit).”<sup>109</sup> When the OTECA was passed, “it was envisioned that OTEC technology would be producing 10,000 megawatts (MW) of electricity by 1999 which would power approximately ten million homes.”<sup>110</sup> The OTECA directed the Administrator of NOAA to create a system for regulation of ocean thermal conversion and the Coast Guard to develop rules to protect the environment from adverse effects of thermal conversion facilities and to ensure their safe operation.<sup>111</sup> The Office of Ocean and Coastal Resource Management is the component of NOAA that licenses OTEC projects.<sup>112</sup>

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<sup>107</sup> *Deepwater Ports Map*, U.S. DEPARTMENT OF TRANSP., [http://www.marad.dot.gov/ports\\_landing\\_page/deepwater\\_port\\_licensing/dwp\\_map/dwp\\_map.htm](http://www.marad.dot.gov/ports_landing_page/deepwater_port_licensing/dwp_map/dwp_map.htm) (last visited Feb. 20, 2014).

<sup>108</sup> 42 U.S.C. §§ 9101–9168 (2012).

<sup>109</sup> *Ocean Thermal Energy Conversion*, NAT’L OCEANIC & ATMOSPHERIC ADMIN., <http://coastalmanagement.noaa.gov/programs/otec.html> (last visited Feb. 20, 2014).

<sup>110</sup> *Id.*

<sup>111</sup> 42 U.S.C. § 9112 (2012).

<sup>112</sup> *Ocean Thermal Energy Conversion*, *supra* note 109.

However, according to NOAA, the agency did not receive any applications for OTEC facilities.<sup>113</sup> It is likely that the high investment risk of developing this technology coupled with the relatively low prices of fossil fuels contributed to the limited interest in moving OTEC projects forward.<sup>114</sup> As a result, in 1996, NOAA rescinded its regulations implementing the OTECA.<sup>115</sup> The fate of OTEC may be a valuable lesson to emerging offshore renewable energy industries and the agencies that regulate them.

## 2. Offshore Wind and Wave Energy

Regulation of offshore wind development within state waters is permitted by the U.S. Army Corps of Engineers. Under section 10 of the Rivers and Harbor Act, the Corps has authority to issue permits for wind farms on the OCS as an obstruction to navigation.<sup>116</sup> The section 10 process includes an interagency review, coordinated by the Corps, and a public interest review. In federal waters, the Bureau of Ocean Energy Management is the primary permitting agency. BOEMRE also has authority to issue a lease, easement, or right-of-way for wave energy development on the OCS. Generally, FERC has exclusive jurisdiction to issue licenses for hydrokinetic projects in all U.S. waters.<sup>117</sup> FERC's jurisdiction over OCS hydrokinetic projects is limited by agreement with BOEMRE: FERC issues licenses and exemptions for hydrokinetic projects, while BOEMRE retains exclusive jurisdiction to lease OCS lands and over energy production and transmission from nonhydrokinetic projects.<sup>118</sup>

Of course, as outlined in Part I.B.1, many other federal agencies have some measure of oversight, control, or authority over energy projects.

There has been very little litigation of offshore renewable energy projects to date, but the few cases that have been decided demonstrate

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<sup>113</sup> U.S. COMM'N ON OCEAN POLICY, *supra* note 24, 108.

<sup>114</sup> *Id.*

<sup>115</sup> See 61 Fed. Reg. 21,073 (May 9, 1996) (removing 15 C.F.R. Part 981).

<sup>116</sup> Section 4(f) of the OCSLA extended authority of the Secretary of the Army under section 10 of the RHA to the OCS. U.S. COMM'N ON OCEAN POLICY, *supra* note 24, at 108.

<sup>117</sup> 16 U.S.C. § 797 (2012). FERC has jurisdiction to issue licenses for up to fifty years to construct, operate, and maintain non-federal hydrokinetic energy projects. *Id.* § 799.

<sup>118</sup> Memorandum of Understanding Between the U.S. Dep't of the Interior & Fed. Energy Regulatory Comm'n (Apr. 9, 2009), available at <http://www.ferc.gov/legal/mou/mou-doi.pdf>.

the breadth of the agencies involved in these projects. For example, *Town of Barnstable v. FAA* involved a challenge to a proposal by Cape Wind Associates for 130 wind turbines in Nantucket Sound, which, “[i]f constructed[,] would be the nation’s first offshore wind farm.”<sup>119</sup> The petitioners challenged the Federal Aviation Administration’s (FAA) issuance of Determination of No Hazard, pursuant to 49 U.S.C. § 44718(b)(1), to decide whether the project would “result in an obstruction of the navigable airspace or an interference with air navigation facilities and equipment or the navigable airspace.”<sup>120</sup> After confirming that the petitioners had standing to bring the challenge, the court determined that the FAA improperly applied its own handbook and failed to “adequately explain its result.”<sup>121</sup> In dictum, the court noted: “While of course the wind farm may be one of those projects with such overwhelming policy benefits (and political support) as to trump all other considerations, even as they relate to safety, the record expresses no such proposition.”<sup>122</sup> This statement indicates the court’s recognition of the undercurrent of support to the review of the offshore wind proposal, balanced with a refusal by the court to substitute its judgment for that of the responsible agency.

New ocean uses, including nonmineral sources of energy, without a specific existing legal management system highlight the fact that so many federal agencies have authority. But no one agency has specific authority to comprehensively manage a new category of uses, such as offshore renewable energy, while taking into account the myriad existing ocean uses.<sup>123</sup> Coastal and marine spatial planning is one of nine national priority objectives identified in the implementation strategy for the National Ocean Policy to help address this problem.<sup>124</sup>

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<sup>119</sup> 659 F.3d 28, 30 (D.C. Cir. 2011). More details about this project are set forth in a case dealing with the state’s regulatory power for offshore wind projects. *See Alliance to Protect Nantucket Sound, Inc. v. Energy Facilities Siting Board*, 932 N.E.2d 787 (Mass. 2010).

<sup>120</sup> *Town of Barnstable*, 659 F.3d at 30.

<sup>121</sup> *Id.* at 34 (citing *Pub. Citizen v. FAA*, 988 F.2d 186, 197 (D.C. Cir. 1993)).

<sup>122</sup> *Id.* at 33.

<sup>123</sup> U.S. COMM’N ON OCEAN POLICY, *supra* note 24, at 109.

<sup>124</sup> The nine priority objectives are (1) ecosystem-based management; (2) coastal and marine spatial planning; (3) inform decisions and improve understanding; (4) better coordinate and support Federal, State, tribal, and local and regional management; (5) resiliency and adaptation to climate change and ocean acidification; (6) regional ecosystem protection and restoration; (7) water quality and sustainable practices on land; (8)

The Task Force's final recommendations define Coastal and Marine Spatial Planning (CMSP):

CMSP is a comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean, coastal, and Great Lakes areas. CMSP identifies areas most suitable for various types or classes of activities in order to reduce conflicts among uses, reduce environmental impacts, facilitate compatible uses, and preserve critical ecosystem services to meet economic, environmental, security, and social objectives. In practical terms, CMSP provides a public policy process for society to better determine how the ocean, coasts, and Great Lakes are sustainably used and protected—now and for future generations.<sup>125</sup>

While setting out a national agenda for marine spatial planning, the Council has recognized that marine planning efforts are already well underway in several states and regions. The national framework proposes creation of nine regional planning areas: Northeast, Mid-Atlantic, South Atlantic, Great Lakes, Caribbean, Gulf of Mexico, West Coast, Pacific Islands, and Alaska/Arctic. Each region will have a regional planning body consisting of federal, state, and tribal representatives to develop regional goals, objectives, and plans. Ideally, a regional coastal and marine spatial plan resulting from a planning process involving federal and state partners would help minimize federal-state conflicts arising during the “federal consistency” process under the CZMA.<sup>126</sup>

## II

### MARINE SPATIAL PLANNING CASE STUDIES

In many cases, innovation towards development of offshore renewable energy sources has created the impetus for state marine spatial planning efforts. Today, entrepreneurs are exploring and developing methods and equipment to harness the energy of offshore

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changing conditions in the Arctic; and (9) ocean, coastal, and Great Lakes observations, mapping, and infrastructure. See National Ocean Council, *Frequently Asked Questions on the Draft National Ocean Policy Implementation Plan*, THE WHITE HOUSE, [http://www.whitehouse.gov/sites/default/files/microsites/ceq/faqs\\_for\\_national\\_ocean\\_policy\\_priority\\_objectives\\_and\\_the\\_implementation\\_plan.pdf](http://www.whitehouse.gov/sites/default/files/microsites/ceq/faqs_for_national_ocean_policy_priority_objectives_and_the_implementation_plan.pdf) (last visited Mar. 6, 2014).

<sup>125</sup> COUNCIL ON ENVTL. QUALITY, *supra* note 71, at 41.

<sup>126</sup> NAT'L OCEAN COUNCIL, LEGAL AUTHORITIES RELATING TO THE IMPLEMENTATION OF COASTAL AND MARINE SPATIAL PLANNING 4 (2011), *available at* [http://www.whitehouse.gov/sites/default/files/microsites/ceq/cmstp\\_legal\\_compendium\\_2-14-11.pdf](http://www.whitehouse.gov/sites/default/files/microsites/ceq/cmstp_legal_compendium_2-14-11.pdf).

waves and currents, offshore winds, and ocean thermal energy conversion to generate electricity. These projects do not involve extraction of a physical resource, but instead transfer energy from one form to another in the way traditional hydroelectric power generation works to convert a river's flow to electricity. Considered a type of hydroelectric energy, marine wave energy and other "hydrokinetic" projects are regulated by FERC, the agency also responsible for permitting hydroelectric dams.<sup>127</sup> However, if we have learned anything from the years of science on dams and fisheries, it is that even a nonextractive power source can have significant and detrimental impacts on the environment.<sup>128</sup> A logical approach includes application of the precautionary principle to the regulation of offshore renewable energy development, particularly questions of siting, for this exciting new energy source. This Part will explore the history and the future of marine spatial planning in the United States and review a few states' efforts at marine spatial planning within their territorial seas.

Marine spatial planning can be defined as "a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that are usually specified through a political process."<sup>129</sup>

The goal of marine spatial planning is not to create a one-time plan, but rather to establish a continuing, iterative process of adaptive planning. A constructive marine spatial plan provides context for single-sector planning, e.g., fisheries management, but should not

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<sup>127</sup> See 16 U.S.C. § 797(e) (2012). See also MINERALS MGMT. SERV. & FERC, GUIDANCE ON REGULATION OF HYDROKINETIC ENERGY PROJECTS ON THE OCS (2009), available at <http://www.pcouncil.org/wp-content/uploads/mms080309.pdf>.

<sup>128</sup> Hydroelectric and impoundment dams have been the center of many landmark cases in the United States. Perhaps the most well-known is the Tellico Dam on the Little Tennessee River that was the center of an Endangered Species Act controversy involving the snail darter. *Tenn. Valley Auth. v. Hill*, 437 U.S. 153 (1978). Hydropower dams also have been at the center of controversies over water pollution. See *S.D. Warren Co. v. Me. Bd. of Env'tl. Prot.*, 547 U.S. 370 (2006). Hydroelectric dams have also raised issues at the intersection of fish habitat, energy law, and tribal treaty rights, such as on the Columbia River in Washington, Oregon, and Idaho. See, e.g., *Nw. Env'tl. Def. Ctr. v. Bonneville Power Admin.*, 117 F.3d 1520 (9th Cir. 1997); *Confederated Tribes & Bands of Yakima Indian Nation v. FERC*, 746 F.2d 466 (9th Cir. 1984).

<sup>129</sup> CHARLES EHLER, & FANNY DOUVÈRE, MARINE SPATIAL PLANNING: A STEP-BY-STEP APPROACH TOWARD ECOSYSTEM-BASED MANAGEMENT 18 (RACHEL DAHL ed., 2009), available at <http://unesdoc.unesco.org/images/0018/001865/186559e.pdf>.

replace those management mechanisms.<sup>130</sup> Marine spatial planning contrasts with traditional and existing ocean management tools in that it is a future-oriented process that offers (1) a way to address conflicts between ocean users and between users and the environment and (2) management strategies to protect ocean ecosystem services.<sup>131</sup> The federal government is initiating marine spatial planning efforts in nine regions throughout the coastal and Great Lakes states.<sup>132</sup> In the meantime, three states have already completed a planning process. The plans of Massachusetts, Rhode Island, and Oregon are compared here.

### *A. Massachusetts Ocean Management Plan*

Wind energy is the primary offshore renewable energy source of interest in Massachusetts.<sup>133</sup> The Massachusetts Oceans Act of 2008

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<sup>130</sup> *Id.* For example, the Magnuson-Stevens Fisheries Act aims to establish a “national program conservation and management of . . . fishery resources.” 16 U.S.C. § 1801(a)(6) (2012). The Act acknowledges that “direct and indirect habitat losses . . . have resulted in a diminished capacity to support existing fishing levels,” and establishes essential fish habitat for the protection of fish spawning, breeding, feeding, or growth. 5 U.S.C. §§ 1801(a)(2), 1802(10) (2012). This single-sector approach is no less valid or important in light of a marine spatial plan, but instead must be considered by and incorporated into successful marine planning.

<sup>131</sup> EHLER & DOUVÈRE, *supra* note 129, at 19.

<sup>132</sup> The nine identified regions are: Northeast, Mid-Atlantic, South Atlantic, Caribbean, Gulf of Mexico, Great Lakes, West Coast, Alaska/Arctic, and Pacific Islands. *See* COUNCIL ON ENVTL. QUALITY, *supra* note 71, at 53. The National Ocean Council has released a handbook to guide the establishment of regional planning bodies and planning actions throughout the nation. NAT’L OCEAN COUNCIL, MARINE PLANNING HANDBOOK (2013), *available at* [http://www.whitehouse.gov/sites/default/files/final\\_marine\\_planning\\_handbook.pdf](http://www.whitehouse.gov/sites/default/files/final_marine_planning_handbook.pdf).

<sup>133</sup> In 2008, Massachusetts’ legislature enacted two laws to encourage renewable energy in the state. The Green Communities Act, 2008 Mass. Acts 308, mandates that fifteen percent of the state’s electric load be served by renewable energy by 2020. The Global Warming Solutions Act, 2008 Mass. Acts 1154, requires steep, economy-wide reductions in greenhouse gas emissions. To implement these laws, Governor Patrick called for 2,000 megawatts of wind power by 2020 in Massachusetts or adjacent state and federal waters. Press Release, Office of the Governor, Governor Patrick Sets New Goals for Wind Power (Jan. 13, 2009), *available at* <http://www.mass.gov/governor/pressoffice/pressreleases/2009/new-goals-for-wind-power.html>. The Massachusetts Plan acknowledges that large-scale wave and tidal power facilities are unlikely within the near future, although at least three tidal power pilot projects are under development. 1 EXEC. OFFICE OF ENERGY & ENVTL. AFFAIRS, COMMONWEALTH OF MASS., MASSACHUSETTS OCEAN MANAGEMENT PLAN: MANAGEMENT AND ADMINISTRATION, at 2-1 (2009), *available at* <http://www.mass.gov/eea/waste-mgmt-recycling/coasts-and-oceans/mass-ocean-plan/final-massachusetts-ocean-management-plan.html> [hereinafter MASSACHUSETTS OCEAN MANAGEMENT PLAN].

sets out the framework for development of a comprehensive ocean management plan that supports ecosystem health and economic vitality, balances current ocean uses, and considers future needs. The Oceans Act includes specific requirements for the ocean management plan, addressing values such as the public trust, sound management practices, biodiversity, fostering sustainability, and preserving public access and public participation.<sup>134</sup> The plan was completed in December 2009, incorporated into the state's existing coastal management plan, and enforced through the state's regulatory and permitting processes, including the Massachusetts Environmental Policy Act (MEPA)<sup>135</sup> and the state's waterways law.<sup>136</sup>

### *1. Background*

On May 28, 2008, Massachusetts Governor Deval Patrick signed the Oceans Act,<sup>137</sup> requiring the Secretary of Energy and Environmental Affairs (EEA) to develop a comprehensive ocean management plan.<sup>138</sup> Major components of the Oceans Act include use of comprehensive science-based planning to assure long-term protection and sustainability, an explicit statement that the ocean management plan is not intended to alter fisheries policy, and allowance for "appropriate scale" offshore renewable energy facilities in state waters consistent with the ocean management plan.<sup>139</sup>

The Oceans Act provided for the creation of the Ocean Advisory Commission to advise the Secretary in developing the ocean management plan.<sup>140</sup> The seventeen-member commission included

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<sup>134</sup> See Massachusetts Oceans Act, 2008 Mass. Acts 173, 173–174 (codified at MASS. GEN. LAWS ANN. ch. 21A, § 4C (West, Westlaw through ch. 38 of the 2014 2d. Ann. Sess.)).

<sup>135</sup> MASS. GEN. LAWS ANN. ch. 30, §§ 61–62I (West, Westlaw through ch. 38 of the 2014 2d. Ann. Reg. Sess.).

<sup>136</sup> MASS. GEN. LAWS ANN. ch. 91 (West, Westlaw through ch. 38 of the 2014 2d. Ann. Reg. Sess.).

<sup>137</sup> Massachusetts Oceans Act, 2008 Mass. Acts 173.

<sup>138</sup> Press Release, Office of the Governor, Governor Patrick Signs Law Creating First-in-the-Nation Oceans Management Plan Balancing Preservation, Uses (May 28, 2008), available at <http://www.mass.gov/governor/pressoffice/pressreleases/2008/oceans-bill-signing.html>.

<sup>139</sup> *Overview of the Ocean Planning Process*, EXEC. OFFICE OF ENERGY & ENVTL. AFFAIRS, <http://www.mass.gov/eea/waste-mgmt-recycling/coasts-and-oceans/mass-ocean-plan/overview-of-the-ocean-planning-process.html> (last visited Mar. 6, 2014).

<sup>140</sup> MASS. GEN. LAWS ANN. ch. 21A, § 4C(c)(i) (West, Westlaw through ch.38 of the 2014 2d. Ann. Reg. Sess.).

state legislators, agency heads, an expert in offshore renewable energy development, and representatives from both a commercial fishing organization and an environmental organization.<sup>141</sup> The Act also called for an Ocean Science Advisory Council of nine scientists with expertise in the marine sciences and data management.<sup>142</sup> These scientists reviewed data sources, helped develop the baseline assessment and characterization of the ocean planning area, identified questions to improve understanding of natural systems and human influences, and contributed to a long-term strategy for addressing information gaps.<sup>143</sup>

Regarding marine planning, the Oceans Act provided:

A component of an ocean management plan which does not have as its primary purpose the regulation of commercial or recreational fishing but which has an impact on such fishing shall minimize negative economic impacts on commercial and recreational fishing. Prior to inclusion in an ocean management plan, a component with such a reasonably foreseeable impact shall be referred to the division of marine fisheries, which shall, in writing and in a timely and efficient manner, evaluate the component for its impact on commercial and recreational fishing and, if possible, develop and recommend to the secretary any suggestions or alternatives to mitigate or eliminate any adverse impacts.<sup>144</sup>

## 2. Process

The Massachusetts Ocean Management Plan (Massachusetts Plan) was the product of over eighteen months of public process.<sup>145</sup> The department cover letter for the Massachusetts Plan states that the draft plan, published in June 2009, was the product of “18 public meetings, 90 stakeholder consultations, and countless hours on the part of private citizens and state officials alike.”<sup>146</sup> Following the draft plan

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<sup>141</sup> *Ocean Advisory Commission*, EXEC. OFFICE OF ENERGY & ENVTL. AFFAIRS, <http://www.mass.gov/eea/waste-mgmt-recycling/coasts-and-oceans/mass-ocean-plan/ocean-advisory-commission.html> (last visited Mar. 6, 2014).

<sup>142</sup> MASS. GEN. LAWS ANN. ch. 21A, § 4C(d) (West, Westlaw through ch. 38 of the 2014 2d. Ann. Reg. Sess.).

<sup>143</sup> *Ocean Science Advisory Council*, EXEC. OFFICE OF ENERGY & ENVTL. AFFAIRS, <http://www.mass.gov/eea/waste-mgmt-recycling/coasts-and-oceans/mass-ocean-plan/ocean-science-advisory-council.html> (last visited Mar. 6, 2014).

<sup>144</sup> MASS. GEN. LAWS ANN. ch. 21A, § 4C(k)(2) (West, Westlaw through ch.38 of the 2014 2d. Ann. Reg. Sess.).

<sup>145</sup> Telephone Interview with Bruce Carlisle, Dir., Mass. Office of Coastal Zone Management (Oct. 18, 2013).

<sup>146</sup> MASSACHUSETTS OCEAN MANAGEMENT PLAN, *supra* note 133, at the cover letter.

publication, a five-month public review period resulted in “over 300 written comments and hours of testimony in five public hearings and 25 informational meetings.”<sup>147</sup> The Massachusetts Plan was adopted on December 31, 2009, and incorporated stronger protections for critical marine life and habitats and identified areas suitable for renewable energy development.<sup>148</sup>

As a result of the framework set out in the Oceans Act, the Massachusetts Plan identifies four primary goals for the plan:

- (1) Balance and protect the natural, social, cultural, historic, and economic interests of the marine ecosystem through integrated management . . .
- (2) Recognize and protect biodiversity, ecosystem health, and the interdependence of ecosystems . . .
- (3) Support wise use of marine resources, including renewable energy, sustainable uses, and infrastructure . . .
- (4) Incorporate new knowledge as the basis for management that adapts over time to address changing social, technological, and environmental conditions.<sup>149</sup>

The Massachusetts Plan contains management and administration provisions as well as a baseline assessment and science framework.<sup>150</sup> Management provisions identify use areas, special, sensitive, and unique areas for protection, and the management measures that will be implemented in each area. The baseline assessment catalogues the current knowledge of natural resources, human uses, and other ecosystem components of Massachusetts ocean waters.<sup>151</sup>

The Oceans Act also includes a requirement that the Massachusetts Plan be reviewed every five years.<sup>152</sup> This review is intended to provide an opportunity to consider the progress and performance of the plan’s implementation. In 2013, the state initiated its first five-year review, finding that advancements of the science and data priorities have been positive, but that more coordinated efforts and

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<sup>147</sup> *Id.*

<sup>148</sup> *Id.*

<sup>149</sup> *Id.* at 1-3 to 1-4.

<sup>150</sup> See *Final Massachusetts Ocean Management Plan*, EXEC. OFFICE OF ENERGY & ENVTL. AFFAIRS, <http://www.mass.gov/eea/waste-mgmt-recycling/coasts-and-oceans/mass-ocean-plan/final-massachusetts-ocean-management-plan.html> (last visited Mar. 6, 2014).

<sup>151</sup> MASSACHUSETTS OCEAN MANAGEMENT PLAN, *supra* note 133, at 1-4.

<sup>152</sup> MASS. GEN. LAWS ANN. ch. 21A, § 4C(h) (West, Westlaw through ch. 38 of the 2014 2d. Ann. Reg. Sess.).

resources are needed to continue building the information base underlying the plan's management framework.<sup>153</sup>

### 3. Management

The Massachusetts Plan creates three management areas within the state's waters: Prohibited, Renewable Energy, and Multi-Use.<sup>154</sup> Each area is subject to a different set of criteria and standards with a commensurate level of review and protection for marine resources.

The Prohibited Area coincides with the Cape Cod Ocean Sanctuary.<sup>155</sup> The Prohibited Area simply prohibits those uses, activities, and facilities that are expressly prohibited by the Ocean Sanctuaries Act.<sup>156</sup> These include the construction of any structure on the seabed or subsoil, drilling or removal of sand, minerals, gases or oils, dumping of wastes, commercial advertising, or waste incineration on vessels within the boundaries of an ocean sanctuary.<sup>157</sup> With respect to renewable energy development, the Ocean Sanctuaries Act, and in turn the Massachusetts Plan, allows "appropriate-scale renewable energy facilities" in areas other than the Cape Cod Ocean Sanctuary where certain requirements are met.<sup>158</sup>

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<sup>153</sup> EXEC. OFFICE OF ENERGY & ENVTL. AFFAIRS, COMMONWEALTH OF MASS., DRAFT REVIEW OF THE MASSACHUSETTS OCEAN MANAGEMENT PLAN, at v (2013), *available at* <http://www.mass.gov/eea/docs/eea/oceans/draft-ma-ocean-plan-review-5-22-13.pdf>.

<sup>154</sup> MASSACHUSETTS OCEAN MANAGEMENT PLAN, *supra* note 133, at 2-1.

<sup>155</sup> *See* MASSACHUSETTS OCEAN MANAGEMENT PLAN, *supra* note 133, 2-1 fig.2-1. The Cape Cod Ocean Sanctuary is one of five ocean sanctuaries in Massachusetts' territorial sea. MASS. GEN. LAWS ANN. ch. 132A, § 13(a) (West, Westlaw through ch.38 of the 2014 2d. Ann. Reg. Sess.). Massachusetts protects ocean sanctuaries "from any exploitation, development, or activity that would significantly alter or otherwise endanger the ecology or the appearance of the ocean, the seabed, or subsoil thereof, or the Cape Cod National Seashore." *Id.* § 14.

<sup>156</sup> MASSACHUSETTS OCEAN MANAGEMENT PLAN, *supra* note 133, at 2-1.

<sup>157</sup> Mass. Gen. Laws Ann. ch. 132A § 15(1), (3)–(6) (West, Westlaw through ch. 38 of the 2014 2d. Ann. Reg. Sess.).

<sup>158</sup> *Id.* § 15(2). In areas other than the Cape Cod Ocean Sanctuary, renewable energy development may be allowed where

- (i) the renewable energy facility is otherwise consistent with an ocean management plan;
- (ii) siting of all such facilities shall take into account all relevant factors, including but not limited to, protection of the public trust, compatibility with existing uses, proximity to the shoreline, appropriateness of technology and scale, environmental protection, public safety and community benefit; and
- (iii) in municipalities where regional planning agencies have regulatory authority, a regional planning agency shall define the appropriate scale of offshore renewable energy facilities and review such facilities as developments of regional impact, and the applicant may seek review of the regional planning agency's development of

Thus, consistent with the Ocean Sanctuaries Act, the Massachusetts Plan does not allow for renewable energy development within the Prohibited Area.

The Multi-Use Area covers remaining expanses of the planning area not designated as a Prohibited Area or a Renewable Energy Area and is open to all uses, activities, and facilities allowed under the Ocean Sanctuaries Act.<sup>159</sup> Uses and activities within the Multi-Use Area are managed by siting and performance standards rather than by spatial designation. The siting and performance standards apply to projects that are required to develop Environmental Impact Reports (EIR) under MEPA.<sup>160</sup> MEPA was revised to include ocean plan projects at the EIR level and exclude only small projects, such as a single anchor buoy.<sup>161</sup>

Siting and development standards for special, sensitive, or unique marine and estuarine life and habitat (SSU) and for commercial fishing, recreational fishing, and areas of concentrated recreational activity “direct development away from high value resources and concentrations of existing water-dependent uses.”<sup>162</sup>

Within SSU areas, the Massachusetts Plan adopts a precautionary set of standards. Specifically, the permitting agency “shall presume that the location of a project outside an SSU area represents a less environmentally damaging practicable alternative (LEDPA) than a location within an SSU area.”<sup>163</sup> “The presumption may be overcome by: (1) a clear demonstration that no LEDPA exists or that the project will cause no significant alteration of the resource, or (2) a

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regional impact determination, but not its determination of appropriate scale, pursuant to the authority of the energy facilities siting board to issue certificates of environmental impact and public interest pursuant to section 69K to 69O, inclusive, of chapter 164.

<sup>159</sup> MASSACHUSETTS OCEAN MANAGEMENT PLAN, *supra* note 133, at 2–3. The uses allowed include aquaculture, cables and pipelines, extraction of sand and gravel for beach nourishment, community-scale wind energy facilities of appropriate scale, and wave and tidal energy facilities of appropriate scale. *Id.* See also MASS. GEN. LAWS ANN. ch. 132A, § 15(2) (West, Westlaw through 2014 2d. Ann. Sess.).

<sup>160</sup> Some states, like Massachusetts, Washington, and California, have adopted their own state versions of the National Environmental Policy Act. Sometimes referred to as “little NEPAs,” these acts provide a review of state-level action comparable to that of major federal actions under NEPA.

<sup>161</sup> Interview with Bruce Carlisle, Director, Mass. Office of Coastal Zone Management (Oct. 18, 2013). See also Section 11.03(7) of the MEPA regulations.

<sup>162</sup> MASSACHUSETTS OCEAN MANAGEMENT PLAN, *supra* note 133, at 2-3.

<sup>163</sup> *Id.* at 2-4.

demonstration of clear and convincing evidence that the SSU area maps do not accurately characterize the resource or use.”<sup>164</sup> In reviewing whether alternatives are practicable, the Massachusetts Plan adopts a standard very similar to that of the CWA section 404.<sup>165</sup> That is, an alternative is practicable if “it is available and capable of being done after taking into consideration cost, existing technology, and logistics with respect to the purpose of the Activity.”<sup>166</sup> Further, projects within an SSU “must demonstrate that the public benefits associated with the proposed project clearly outweigh the public detriments to the SSU resources.”<sup>167</sup> Finally, SSU area projects “must demonstrate that they have taken all practicable steps to avoid damage to the SSU resource and that there will be no significant alteration of the SSU resource.”<sup>168</sup>

Siting and performance standards for areas of concentrated recreational activity, commercial fishing, and recreational fishing areas also require an EIR under MEPA and “shall, to the maximum extent practicable, avoid, minimize, and mitigate impacts to the existing use areas specified” on adopted ocean management use maps.<sup>169</sup>

Finally, Renewable Energy Areas allow for the development of commercial and community-scale wind energy facilities as well as wave and tidal energy facilities.<sup>170</sup> Based on the presence of a suitable wind resource and water depth and the absence of conflicts with other uses and sensitive resources, the Massachusetts Plan establishes two Wind Energy Areas designated for commercial-scale wind energy facilities.<sup>171</sup> The Wind Energy Areas, which comprise two percent of the planning area, were identified through an environmental screening process<sup>172</sup> and are subject to additional baseline feasibility analysis,

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<sup>164</sup> *Id.* The second option is intended as a fail-safe rather than as a principle avenue for development. Interview with Bruce Carlisle, Director, Mass. Office of Coastal Zone Management (Oct. 18, 2013).

<sup>165</sup> See 40 C.F.R. § 230.10(a)(2) (2013).

<sup>166</sup> 301 MASS. CODE REGS. 28.04(2)(b)(2) (2014).

<sup>167</sup> MASSACHUSETTS OCEAN MANAGEMENT PLAN, *supra* note 133, at 2-5.

<sup>168</sup> *Id.*

<sup>169</sup> *Id.*

<sup>170</sup> *Id.* at 2-1.

<sup>171</sup> *Id.* at 2-1 to 2-2.

<sup>172</sup> *Id.* Appendix 3 to the Plan describes the environmental screening process for wind energy. The review established criteria for categories of exclusion of wind energy, including a buffer from development and near-coast activities, high concentrations of

which might include wave climate and sub-seafloor geology.<sup>173</sup> Projects developed in the Wind Areas are subject to review under MEPA and all other relevant local, state, and federal requirements.<sup>174</sup> The intent of designating the Wind Energy Areas “is to signify that, based on the rigorous environmental screening under the ocean management plan, the area is presumptively suitable for” commercial-scale wind energy development.<sup>175</sup> Three additional locations passed the environmental screening process, but, due to potential significant technical limitations and cumulative impacts, were not proposed for designation as part of the Massachusetts Plan.<sup>176</sup>

### ***B. Rhode Island Special Area Management Plan***

Rhode Island law requires that the state preserve, protect, develop, and restore the coastal resources for the present and future generations through comprehensive long-range planning and management, using preservation and restoration of ecological systems as the primary guiding principle to measure and to regulate environmental alteration of coastal resources.<sup>177</sup> Rhode Island has a federally approved Coastal Resource Management Program pursuant to the CZMA.<sup>178</sup>

The Rhode Island Special Area Management Plan (Ocean SAMP) is a management tool for a study area of approximately 1,467 square miles that includes portions of Block Island Sound, Rhode Island

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marine birds and whales, water-dependent marine uses, and regulated airspace. *Id.* app.3, at 3-1.

<sup>173</sup> *Id.* at 2-2.

<sup>174</sup> *Id.*

<sup>175</sup> *Id.*; see 301 MASS. CODE REGS. 28.04(1)(b) (2014). The Gosnold Wind Energy Area is designated for commercial wind energy development, and the designation is to signify that the area is presumptively suitable for commercial-scale wind. See MASSACHUSETTS OCEAN MANAGEMENT PLAN, *supra* note 133, at 2-2. The Martha’s Vineyard Wind Energy Area is designated for wind energy development, the scale of which will be determined by the Martha’s Vineyard Commission. *Id.*

<sup>176</sup> *Id.*

<sup>177</sup> R.I. GEN. LAWS ANN. § 46-23-1(a)(2) (West, Westlaw through ch. 534 of the 2013 Reg. Sess.).

<sup>178</sup> *Ocean and Coastal Management in Rhode Island*, NAT’L OCEANIC & ATMOSPHERIC ADMIN., <http://coastalmanagement.noaa.gov/mystate/ri.html> (last visited Feb. 21, 2014); *Coastal Zone Enhancement Program*, NAT’L OCEANIC & ATMOSPHERIC ADMIN., <http://coastalmanagement.ncaa.gov/enhanc.html> (last visited Feb. 21, 2014).

Sound, and the Atlantic Ocean.<sup>179</sup> The Rhode Island Coastal Resources Management Council, the state's coastal management agency, led the process and formally adopted the Ocean SAMP on October 19, 2010.<sup>180</sup>

As a federally recognized coastal management and regulatory tool, the Ocean SAMP uses the best available science to provide “a balanced approach to considering the development and protection of [Rhode Island's] ocean-based resources.”<sup>181</sup> The intent of the Ocean SAMP is to provide a comprehensive understanding of the coastal areas and ocean ecosystems “[u]sing the best available science and working with well-informed and committed resource users, researchers, environmental and civic organizations, and [the government].”<sup>182</sup> The Ocean SAMP also sets forth enforceable policies for federal consistency under the CZMA and recommendations for a comprehensive ecosystem-based management approach to development of ocean resources.<sup>183</sup>

### *1. Background*

Several prior actions set the stage for Rhode Island's current marine spatial planning.<sup>184</sup> In 2004, the Rhode Island General Assembly passed the Renewable Energy Standard mandating that sixteen percent of electrical power come from renewable sources by 2019.<sup>185</sup> Governor Donald Carcieri added a mandate that offshore wind provide fifteen percent of the state's power by 2020.<sup>186</sup> In 2007, the Office of Energy Resources determined that in order to achieve this goal, the state should invest in offshore wind farms. With these

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<sup>179</sup> JENNIFER MCCANN ET AL., RHODE ISLAND OCEAN SPECIAL AREA MANAGEMENT PLAN § 140, at 9 (2010), available at <http://seagrant.gso.uri.edu/oceansamp/documents.html> [hereinafter OCEAN SAMP].

<sup>180</sup> *Id.* at the cover letter. NOAA approved the plan on July 22, 2011. *NOAA Approves Rhode Island Plan for Offshore Energy Development, Job Creation and Ocean Stewardship*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (July 22, 2011), [http://www.noaa.gov/stories2011/20110722\\_rhodeisland.html](http://www.noaa.gov/stories2011/20110722_rhodeisland.html).

<sup>181</sup> OCEAN SAMP, *supra* note 179, § 150, at 11.

<sup>182</sup> *Id.* § 110, at 3.

<sup>183</sup> *Id.*

<sup>184</sup> *See generally* OCEAN SAMP, *supra* note 179, § 150, at 11–12.

<sup>185</sup> R.I. GEN. LAWS ANN. §§ 39-26-1 to -10 (West, Westlaw through ch. 534 of the 2013 Reg. Sess.).

<sup>186</sup> Senate Bill 2082A requires 3% renewable energy by 2007 and 16% by 2019. S. 2082A, 2004 Gen. Assemb., Jan. Sess. (R.I. 2004). *See also* OCEAN SAMP, *supra* note 179, § 150(3), at 11.

mandates came a need to develop a comprehensive management and regulatory tool to engage the public and provide a framework for appropriate siting of offshore renewable energy. In developing the Ocean SAMP as this tool, the goals were to (1) streamline cumbersome federal and state permitting processes, (2) promote a balanced approach to development and protection of ocean resources, (3) study and gather ocean-based scientific data and technologies to support the permitting processes, and (4) foster a well-informed and committed public.<sup>187</sup>

## 2. *Process*

The Ocean SAMP describes its goals as to (1) “foster a properly functioning ecosystem that is both ecologically sound and economically beneficial,” (2) “promote and enhance existing uses,” (3) “encourage marine-based economic development that considers” the needs of local communities and the “state’s overall economic development, social, and environmental needs and goals,” and (4) develop “a framework for coordinated decision-making between state and federal management agencies.”<sup>188</sup>

In developing the Ocean SAMP, the Rhode Island Coastal Resources Management Council applied guiding principles: transparency, stakeholder involvement, regard for existing ocean users, incorporation of best available science, and principles of adaptive management.<sup>189</sup> These principles were applied within a framework that allowed for technical advisory committee review and public comment on each draft chapter as it was prepared.<sup>190</sup> A series of eighteen stakeholder meetings occurred between October 2008 and January 2011, with participation by representatives from fisheries groups, conservation organizations, marine trades and unions, tribal agencies, historical societies, utilities, recreation groups, tourism councils, chambers of commerce, and local governments.<sup>191</sup>

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<sup>187</sup> OCEAN SAMP, *supra* note 179, § 150(3), at 11.

<sup>188</sup> *Id.* § 130(4), at 6–7.

<sup>189</sup> *Id.* § 130(5), at 7–8.

<sup>190</sup> See *Public Review Process for the Ocean Special Area Management Plan for Rulemaking*, RHODE ISLAND SEA GRANT (Oct. 15, 2009), [http://seagrants.gso.uri.edu/oceansamp/pdf/documents/doc\\_rulemaking\\_process\\_10.15.09.pdf](http://seagrants.gso.uri.edu/oceansamp/pdf/documents/doc_rulemaking_process_10.15.09.pdf).

<sup>191</sup> See *CRMC Ocean Special Area Management Plan Stakeholder Group* (Mar. 9, 2010), [http://seagrants.gso.uri.edu/oceansamp/pdf/stakeholder/sh\\_list\\_march2010.pdf](http://seagrants.gso.uri.edu/oceansamp/pdf/stakeholder/sh_list_march2010.pdf).

The Ocean SAMP includes chapters to address each of the identified existing important uses and resources, including cultural and historic resources, fisheries resources and uses, recreation and tourism, marine transportation, navigation and infrastructure, global climate change, renewable energy, and other future uses. In framing and drafting each chapter, subcommittees collected data on existing uses. For example, within the recreation and tourism section, developers identified use areas, infrastructure, and patterns for recreational boating, cruise ship tourism, and shore-based recreation.<sup>192</sup> Similar assessments and mapping efforts were completed for fisheries uses, marine transportation, and cultural and historic resources.

The Ocean SAMP acknowledges the need for progress assessment and monitoring of the plan and its implementation over time through an adaptive management approach.<sup>193</sup> The Ocean SAMP itself will be reviewed at least every five years from adoption and continue to involve the public in implementing the plan.

### *3. Management*

The result of the Ocean SAMP process was the designation of a “Renewable Energy Zone” within the Rhode Island territorial sea at Block Island, determined to be the most suitable area for offshore renewable energy development.<sup>194</sup> The Ocean SAMP provides that the state may approve offshore renewable energy development elsewhere within state waters, “where it is determined to have no significant adverse impact on the natural resources or human uses of the Ocean SAMP area.”<sup>195</sup> Finally, the Ocean SAMP designates Areas of Particular Concern<sup>196</sup> and Areas Designated for Preservation.<sup>197</sup>

The Ocean SAMP sets out general policies, goals, and principles as well as regulatory standards for development within each marine zone. The general standards address impacts to fisheries, cultural and

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<sup>192</sup> See OCEAN SAMP, *supra* note 179, §§ 600–650, at 4–53.

<sup>193</sup> *Id.* § 1130(3), at 9.

<sup>194</sup> *Id.* § 1160.1(2), at 26.

<sup>195</sup> *Id.*

<sup>196</sup> *Id.* § 1160.2, at 31.

<sup>197</sup> *Id.* § 1160.3, at 43. Areas Designated for Preservation are also identified in the federal Coastal Zone Management Act and associated CFRs. See, e.g., 15 C.F.R. § 923.22 (2013).

historic resources, and visual landscape.<sup>198</sup> Applicable to all development, the Ocean SAMP requires the evaluation, consideration, and mitigation of potential adverse impacts to commercial or recreational fisheries. The state “shall prohibit” any other uses or activities that would result in significant long-term (defined as more than one or two seasons) negative impacts to the state’s commercial or recreational fisheries.<sup>199</sup> “Mitigation” of fisheries impacts is defined as “a process to make whole those fisheries user groups that are adversely affected by proposals to be undertaken, or undertaken projects, in the Ocean SAMP area.”<sup>200</sup> The Ocean SAMP specifically states that mitigation “shall not be designed or implemented in a manner that substantially diminishes the effectiveness of duly adopted fisheries management programs.”<sup>201</sup> In addition, the plan requires that applicants for large-scale offshore development establish and maintain an account or other mechanism to cover the costs of negotiating mitigation measures.<sup>202</sup>

Areas of Particular Concern (APC) are those that have “high conservation value, cultural and historic value, or human use value.”<sup>203</sup> These areas were designated by reviewing data on habitat, cultural and historic features, and human use and include (1) areas with unique or fragile physical features, or important natural habitats; (2) areas of high natural productivity; (3) areas with features of historical significance or cultural value; (4) areas of substantial recreational value; (5) areas important for navigation, transportation, military, and other human uses; and (6) areas of high fishing activity.<sup>204</sup> More specifically, the APCs identified in the Ocean SAMP include historic shipwrecks, offshore dive sites, glacial moraines, navigation and infrastructure areas, and several heavily used recreational boating and sailboat racing areas.<sup>205</sup>

All offshore development and any portion of a proposed project “shall be presumptively excluded from” APCs.<sup>206</sup> The exclusion is

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<sup>198</sup> OCEAN SAMP, *supra* note 179, § 1160.1(9), (12), (14), at 29–30.

<sup>199</sup> *Id.* § 1160.1(6), at 29.

<sup>200</sup> *Id.* § 1160.1(8), at 29.

<sup>201</sup> *Id.*

<sup>202</sup> *Id.* § 1160.1(6)–(9), at 29.

<sup>203</sup> *Id.* § 1160.2(1), at 31.

<sup>204</sup> *Id.*

<sup>205</sup> *Id.* § 1160.2(3), at 32–40.

<sup>206</sup> *Id.* § 1160.2(2), at 31–32.

rebuttable only by showing by clear and convincing evidence “that there are no practicable alternatives that are less damaging in areas outside of the APC, or that the proposed project will not result in a significant alteration to the values and resources of the APC.”<sup>207</sup> The cost to the applicant will not be considered as part of the practicability analysis.<sup>208</sup>

Areas Designated for Preservation (ADP) are afforded additional protection beyond that for APCs based on scientific evidence that large-scale offshore development in these areas “may result in significant habitat loss.”<sup>209</sup> The state “shall prohibit any Large-Scale Offshore Development, mining and extraction of minerals, or other development” that has been found to conflict with the intent and purpose of the ADP.<sup>210</sup> The current ADP includes the entire area of state waters within the twenty-meter contour, which plays a significant role for foraging habitats to avian species.<sup>211</sup> The Ocean SAMP notes that current evidence suggests the “potential for permanent habitat loss as a result of offshore wind energy development.”<sup>212</sup> Therefore, the entire twenty-meter contour is protected “until further research allows the Council and other agencies to make a more refined determination.”<sup>213</sup> The Ocean SAMP also prohibits offshore development within areas designated as critical habitat under the ESA.<sup>214</sup>

Notably, the Ocean SAMP includes a chapter on global climate change, including observed trends and changes and projections for future impacts such as sea level rise, flooding, storminess, precipitation, and ocean acidification.<sup>215</sup> The Ocean SAMP addresses the ecological impacts of climate change and the implications of climate change for human uses such as marine transportation and related infrastructure as well as fisheries resources and uses. Importantly, the Ocean SAMP acknowledges that these conditions

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<sup>207</sup> *Id.* It is notable that this standard requires only one showing or the other. *Compare id.* to Oregon’s plan, *infra* note 227, requiring an applicant to show both.

<sup>208</sup> *Id.*

<sup>209</sup> *Id.* § 1160.3(1), at 43.

<sup>210</sup> *Id.* However, underwater cables are exempt from the prohibition. *Id.*

<sup>211</sup> *Id.*

<sup>212</sup> *Id.*

<sup>213</sup> *Id.*

<sup>214</sup> *Id.* § 1160.3(3), at 45.

<sup>215</sup> *See id.* §§ 300–350.2, at 5–56.

and available information will continue to change over time, and management must be adaptive in response:

The Ocean SAMP is a tool for adaptive management, suited to address long-term and evolving phenomena such as climate change. Among some of the notable potential impacts of current and future climate change are an accelerated rate of erosion and deterioration of the state's recreational beaches, flooding damage and loss of coastal infrastructure associated with Ocean SAMP uses, fatigue (weakening) and more severe damage to offshore installations and marine vessels, and the introduction of invasive species to the Ocean SAMP marine ecology. With advanced planning, the harm and costs associated with these potential impacts can be reduced and may be avoided.<sup>216</sup>

Putting this observation into practice, the Ocean SAMP includes a regulatory standard requiring that public infrastructure projects "shall provide an analysis of historic and projected (medium and high) rates of sea level rise and shall at minimum assess the risks for each alternative on public safety and environmental impacts resulting from the project."<sup>217</sup>

The Ocean SAMP notes that adaptive management "requires careful implementation, monitoring, evaluation of results, and adjustment of objectives and practices."<sup>218</sup> In concert with this theoretical statement, the Ocean SAMP sets out monitoring requirements for offshore development, including the opportunity to require, where appropriate, systematic observations of recreational boating intensity as well as monitoring of coastal processes and physical oceanography, underwater noise, benthic ecology, avian species, commercial and recreational fishing, and cultural and historic resources, among others.<sup>219</sup> The Ocean SAMP also requires a biological assessment to be performed at least four times: before construction, during construction, and at two different intervals during operation.<sup>220</sup>

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<sup>216</sup> *Id.* § 300(8), at 6.

<sup>217</sup> *Id.* § 350.2(1), at 56.

<sup>218</sup> *Id.* § 1130(1), at 9.

<sup>219</sup> *Id.* § 1160.9, at 71.

<sup>220</sup> *Id.* § 1160.9(3)(i), at 72.

### ***C. Oregon Territorial Sea Plan***

Oregon adopted a robust land use planning system beginning in 1973. Senate Bill 100 laid the groundwork for uniform statewide land use planning by requiring that every city and county develop a comprehensive land use plan consistent with identified statewide planning goals. The nineteen statewide planning goals address issues including citizen involvement (Goal 1), forest lands (Goal 4), public services and infrastructure (Goal 11), and urbanization (Goal 14).<sup>221</sup> The last four goals address coastal and estuarine resources,<sup>222</sup> with Goal 19 setting guidelines for ocean resources. Goal 19, together with implementing statutes and regulations, sets the framework for ocean resource use and development, including marine spatial planning efforts in Oregon.<sup>223</sup> In addition, the Oregon Ocean Resources Management Act of 1987 spawned the task force that created the Ocean Resources Management Plan in 1989.<sup>224</sup> The plan was adopted by the Land Conservation and Development Commission in 1990 and led to the legislature authorizing the creation of the Ocean Policy Advisory Council (OPAC) and the Territorial Sea Plan (TSP) in 1991.<sup>225</sup> Oregon's marine spatial planning process was affected through its TSP, finalized and adopted by the state agency in January 2013.<sup>226</sup>

#### ***1. Background***

Oregon Statewide Planning Goal 19 sets forth the goal “[t]o conserve marine resources and ecological functions for the purpose of providing long-term ecological, economic, and social value and benefits to future generations.”<sup>227</sup>

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<sup>221</sup> OR. ADMIN. R. 660-015-0000 (2013).

<sup>222</sup> OR. ADMIN. R. 660-015-0010 (2013) (each subsection representing Estuarine Resources, Coastal Shorelands, Beaches and Dunes, and Ocean Resources).

<sup>223</sup> See *id.*; OR. DEP'T OF LAND CONSERVATION & DEV., OREGON'S STATEWIDE PLANNING GOALS & GUIDELINES: GOAL 19: OCEAN RESOURCES, *available at* <http://www.oregon.gov/LCD/docs/goals/goal19.pdf>.

<sup>224</sup> OR. DEP'T OF LAND CONSERVATION & DEV., THE NEED FOR AN OCEAN PLAN 5.

<sup>225</sup> Or. Dep't of State Lands, *Land Management: Territorial Sea*, OREGON.GOV, [http://www.oregon.gov/dsl/LW/Pages/territorial\\_sea.aspx](http://www.oregon.gov/dsl/LW/Pages/territorial_sea.aspx) (last visited Mar. 6, 2014).

<sup>226</sup> Or. Dep't of Land Conservation & Dev., *Territorial Sea Plan Advisory Committee Rulemaking*, OREGON.GOV, <http://www.oregon.gov/LCD/pages/terrseaplanadcomm.aspx> (last visited Mar. 6, 2014).

<sup>227</sup> OR. DEP'T OF LAND CONSERVATION & DEV., *supra* note 223.

To carry out this goal, all actions by local, state, and federal agencies that are likely to affect the ocean resources and uses of Oregon's territorial sea shall be developed and conducted to conserve marine resources and ecological functions for the purpose of providing long-term ecological, economic, and social values and benefits and to give higher priority to the protection of renewable marine resources—i.e., living marine organisms—than to the development of non-renewable ocean resources.<sup>228</sup>

Goal 19 thus places the highest priority on protection of living marine organisms over development of nonrenewable ocean resources. The implementation requirements of Goal 19 require that agencies first protect and restore renewable ocean resources while also promoting beneficial use of ocean renewable resources such as navigation, food production, and aesthetic enjoyment where such uses do not adversely affect identified renewable resources. The implementing statutes likewise prioritize protection of living ocean organisms while striking a balance with promoting innovation and development of renewable ocean resources.<sup>229</sup>

Within the framework of Goal 19, Oregon's TSP sets out specific ocean resource management tools. The Planning Goals, TSP, and related statutes and regulations comprise Oregon's Coastal Management Program. Oregon's program was approved in 1977, making it the second state in the nation to be approved under the CZMA.<sup>230</sup>

In 1991, the Oregon Legislature created OPAC to ensure the conservation and responsible development of Oregon's ocean resources.<sup>231</sup> OPAC consists of a variety of ocean stakeholders, local governments, and state agencies and is responsible for advising state agencies on ocean policy issues. OPAC developed the original TSP in 1994. More recently, OPAC has been responsible for recommending

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<sup>228</sup> *Id.*

<sup>229</sup> See OR. REV. STAT. §§ 196.420(1), (2), (5) (2013) ("It is the policy of the State of Oregon to: (1) . . . [give] clear priority to the proper management and protection of renewable resources over nonrenewable resources; (2) Encourage ocean resources development which is environmentally sound and economically beneficial to adjacent local governments and to the state; . . . (5) Encourage research and development of new, innovative marine technologies to study and utilize ocean resources.").

<sup>230</sup> See OCEAN POLICY ADVISORY COUNCIL, OR. DEP'T OF LAND CONSERVATION & DEV., OREGON TERRITORIAL SEA PLAN, pt. 1, § D.4 (1994), available at [http://www.oregon.gov/LCD/OCMP/Pages/Ocean\\_TSP.aspx](http://www.oregon.gov/LCD/OCMP/Pages/Ocean_TSP.aspx). The Territorial Sea Plan was not part of the original coastal program approved in 1977; it was adopted by Oregon in 1994. See *id.*

<sup>231</sup> OR. REV. STAT. §§ 196.438–.443 (2013).

marine reserve designations and TSP amendments. To carry out the latter, OPAC designated a TSP Advisory Committee to evaluate and recommend necessary changes to the TSP to accommodate and regulate wave energy siting. Ultimately, Oregon's state planning agency, the Department of Land Conservation and Development (and Land Conservation and Development Commission), is responsible for adopting amendments to the TSP.

## 2. Process

Beginning in 2006, wave energy developers began showing a sincere interest in developing wave energy off Oregon's coast.<sup>232</sup> Companies began applying for permits from FERC to establish a "hold" on particular ocean sites for possible future development.<sup>233</sup> At one point, there were ten preliminary permit applications to FERC for wave or tidal energy project sites in Oregon.<sup>234</sup> In 2007, Oregon adopted its Renewable Portfolio Standard, setting goals for renewable energy resources including biomass, geothermal, hydropower, solar, tidal, wave, and wind to increase to twenty-five percent by 2025.<sup>235</sup>

In 2008, the State of Oregon entered into a Memorandum of Understanding (MOU) with FERC regarding coordinated environmental review and planning for wave energy development

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<sup>232</sup> Applications for FERC permits at locations off the Oregon coast include two 2006 applications from Ocean Power Technology, one at Reedsport for 200 buoys at full build-out, the other at Coos Bay for 200-400 buoys, and a 2007 application from Douglas County for a development at the mouth of the Umpqua River. See *Wave Energy Applications off Oregon*, OR. OCEAN INFO., <http://oregonocean.info/index.php/ocean-energy/sites/187-wave-energy-applications-off-oregon> (last visited Mar. 6, 2014).

<sup>233</sup> One of these licenses proceeded through the FERC settlement process to address concerns that would parallel the issues addressed more comprehensively through the TSP amendment process. See REEDSPORT OPT WAVE PARK, LLC, OREGON TERRITORIAL SEA PLAN PROJECT RESOURCE INVENTORY REEDSPORT OPT WAVE PARK FERC PROJECT NUMBER 12713 (2011), available at [http://www.oregon.gov/lcd/ocmp/docs/public\\_notice/p-12713\\_tsp\\_analysis.pdf](http://www.oregon.gov/lcd/ocmp/docs/public_notice/p-12713_tsp_analysis.pdf). In order to avoid rehashing the same concerns for each individual license, agencies placed a priority on addressing the issues in a comprehensive plan. OR. DEP'T OF LAND CONSERVATION & DEV., STATEMENT OF NEED AND FISCAL IMPACT (2009), available at [http://www.oregon.gov/LCD/docs/rulemaking/tspac/tsp\\_statement\\_of\\_need\\_and\\_fiscal\\_impact\\_091109.pdf](http://www.oregon.gov/LCD/docs/rulemaking/tspac/tsp_statement_of_need_and_fiscal_impact_091109.pdf).

<sup>234</sup> E-mail from Paul Klarin, Marine Affairs Coordinator, Or. Dep't of Land Conservation & Dev. To author (Oct. 21, 2013) (on file with author) (e-mail).

<sup>235</sup> See *A Renewable Portfolio Standard (RPS) for Oregon*, OR. DEP'T OF ENERGY, [http://www.oregon.gov/ENERGY/RENEW/Pages/RPS\\_home.aspx](http://www.oregon.gov/ENERGY/RENEW/Pages/RPS_home.aspx) (last visited Mar. 6, 2014); see also OR. REV. STAT. §§ 469A.005–.210 (2013).

within Oregon's territorial sea.<sup>236</sup> The MOU acknowledges Oregon's planning authority and FERC's licensing authority:

The parties acknowledge that Oregon intends to prepare a comprehensive plan for the siting of wave energy projects in the Territorial Sea of Oregon. If Oregon develops and files with the Commission a comprehensive plan (Oregon Plan) for the siting of wave energy projects in the Territorial Sea of Oregon under section 10(a)(2)(A)(ii) of the FPA and 18 C.F.R. 2.19, the Commission will, in issuing any preliminary permit, pilot project license, or other license for a wave energy project in Oregon's Territorial Sea, consider the extent to which the proposed project is consistent with the Oregon Plan. In addition, the Commission will consider any terms and conditions that are recommended by Oregon under section 10(a)(3) of the FPA to ensure consistency with the Oregon Plan.<sup>237</sup>

During the same period, Oregon was considering the establishment of marine reserve areas within the Oregon territorial sea.<sup>238</sup> Oregon's marine reserves are areas "protected from all extractive activities, including the removal or disturbance of living and nonliving marine resources, except as necessary for monitoring or research to evaluate reserve condition, effectiveness, or impact of stressors."<sup>239</sup>

Simultaneously with the MOU, Oregon Governor Ted Kulongoski signed Executive Order 08-07 directing the state planning agency, the Land Conservation and Development Commission, to revise the TSP to establish a framework for location and operation of ocean-based energy power generation facilities and marine reserves in the Oregon territorial sea.<sup>240</sup> The Order acknowledges that both marine reserves

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<sup>236</sup> Memorandum of Understanding Between the Fed. Energy Regulatory Comm'n & the State of Or. (2008), *available at* <http://www.ferc.gov/legal/mou/mou-or-final.pdf>.

<sup>237</sup> *Id.*

<sup>238</sup> Consideration of marine reserves in Oregon began around 2000, resulting in a first OPAC report to the Governor titled REPORT AND RECOMMENDATION TO THE GOVERNOR: OREGON AND MARINE RESERVES on August 16, 2002. This report was followed by further study and a status report, titled OPAC OREGON COAST NATIONAL MARINE SANCTUARIES PROPOSAL: STATUS REPORT, on December 15, 2006, and a MARINE RESERVES LISTENING & LEARNING REPORT in 2008. The above reports are available at *Timeline: Oregon First Considers Marine Reserves*, OR. OCEAN INFO., [http://www.oregon.ocean.info/index.php?option=com\\_content&view=category&layout=blog&id=240&Itemid=142](http://www.oregon.ocean.info/index.php?option=com_content&view=category&layout=blog&id=240&Itemid=142) (last visited Jan. 26, 2014).

<sup>239</sup> OCEAN POLICY ADVISORY COUNCIL, OREGON MARINE RESERVE POLICY RECOMMENDATIONS 1 (2008), [http://www.oregon.gov/LCD/OPAC/docs/resources/opac\\_marrespolrec\\_081908.pdf](http://www.oregon.gov/LCD/OPAC/docs/resources/opac_marrespolrec_081908.pdf).

<sup>240</sup> Or. Exec. Order No. 08-07 (Mar. 26, 2008), [http://www.oregon.gov/gov/docs/executive\\_orders/eo0807.pdf](http://www.oregon.gov/gov/docs/executive_orders/eo0807.pdf).

and wave energy siting may potentially have significant effects on coastal communities and ocean users. “The State must adopt a comprehensive, thoughtful approach to planning marine reserve designations and wave energy siting that balances the needs of Oregon’s coastal communities and ocean users with opportunities for continued economic development.”<sup>241</sup> The state recognized that it could establish itself as a leader in the development of ocean renewable energy and thereby bolster economic development in coastal communities, increase manufacturing opportunities for metal fabricators in Oregon, and increase the visibility and reach of Oregon’s existing renewable energy industry.<sup>242</sup>

Between 2008 and 2013, Oregon undertook the process of amending its TSP. Building from a stakeholder involvement process developed through the state’s Marine Reserves process,<sup>243</sup> the Department of Land Conservation and Development brought together representatives of state and federal agencies, fishermen, electric utility and power providers, local governments, conservation groups, and environmental, recreational, and individual members of the public for planning meetings through a TSP Advisory Committee and TSP Working Group, which were created as rulemaking advisory committees to the Land Conservation and Development Commission.<sup>244</sup>

The initial amendment to the TSP adopted broad goals for how the state would address wave energy development.<sup>245</sup> These goals were set forth in a new “Part Five” of the TSP and were based directly in Goal 19 policies. This amendment stage, completed in 2010, laid the

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<sup>241</sup> *Id.* at 1.

<sup>242</sup> See *Wave Energy in Oregon*, OR. OCEAN INFO., <http://oregonocean.info/index.php/ocean-energy/about/46-wave-energy-in-oregon> (last visited Jan. 26, 2014).

<sup>243</sup> Oregon passed its Marine Reserves Bill (SB 1510) on February 19, 2012, directing the Oregon Department of Fish and Wildlife to restrict fishing and all extractive activities in ocean waters at three Marine Reserve sites: Cape Falcon, Cascade Head, and Cape Perpetua. S. 1510, 76th Or. Legis. Assemb., 2012 Reg. Sess. (Or. 2012). The marine reserves are intended to protect marine habitat and boost fish populations, with a positive indirect effect on fisheries. Harvest restrictions began on January 1, 2012, for two Pilot reserve sites at Redfish Rocks and Otter Rock. See *Marine Reserves*, OR. OCEAN INFO., [http://www.oregonocean.info/index.php?option=com\\_content&view=article&id=419&Itemid=138](http://www.oregonocean.info/index.php?option=com_content&view=article&id=419&Itemid=138) (last visited Mar. 6, 2014). Harvest restrictions begin in 2014 for Cape Perpetua and Cascade Head, and 2016 for Cape Falcon. *Id.*

<sup>244</sup> The TSPAC would make recommendations to OPAC, which in turn recommended to the planning agency LCDC for adoption.

<sup>245</sup> See OR. ADMIN. R. 660-036-0005 (2013).

groundwork for later amendments to add specific standards and application processes to the plan. The TSP articulated principles to be applied in order to carry out the state's Goal 19 policy to maintain and protect living marine organisms from adverse effects of renewable energy facility development. These principles, broadly stated, were to (1) avoid adverse effects to the "integrity, diversity, stability and complexity of the marine ecosystem and coastal communities and give priority to conservation and use of renewable marine resources," (2) minimize effects by "limiting the degree or magnitude of the action and its implementation," (3) "rectify or mitigate the effects that occur during the lifetime of the [facility]" through monitoring and adaptive management, and (4) require decommissioning and removal of facility and structures in order to restore the natural characteristics of each site.<sup>246</sup> These broadly framed goals would need to be fleshed out in order to provide meaningful requirements and guidance for both the public and developers of offshore renewable energy in Oregon.

The 2010 amendments also developed a concept for a Joint Agency Review Team in order to streamline the review process for applications as well as basic outlines for gathering baseline information for monitoring and adaptation efforts and a phased development approach. The TSP also articulated basic requirements for adaptive management plans, including that they account for variable conditions in the marine environment, change in the status of resources, new information provided by monitoring of the project, data from research and other sources, new technologies that would better protect resources, fisheries or other use conflicts, and unanticipated cumulative effects.<sup>247</sup> This version of Part Five anticipated the development of maps identifying areas appropriate for marine renewable energy development.

The process of identifying appropriate areas for marine renewable energy development began a new phase in the overall TSP process. Again relying on stakeholder involvement, Oregon developed an interactive mapping system, Oregon Marine Map, which shows existing ocean uses and sensitive areas in data layers. For example, Marine Map contains data layers that identify navigation and tow lanes, undersea cable routes, rocky reefs and bird nesting areas,

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<sup>246</sup> OREGON TERRITORIAL SEA PLAN, *supra* note 234, pt. 5(a)(1), at 3.

<sup>247</sup> *Id.*

marine reserves and protected areas, and high-use fishing areas.<sup>248</sup> Once the mapping process was nearing completion, work began on the development of more specific standards and criteria for the various development areas as well as clarifications on process and review. In total, the amendments involved thirty meetings of the TSP Working Group, eleven meetings of the TSP Advisory Committee, and seven meetings of OPAC, along with periodic briefings to the Land Conservation and Development Commission.<sup>249</sup> As may be expected, some of the most difficult work was in identifying areas as appropriate for marine renewable energy exploration and development. The Land Conservation and Development Commission adopted the final Part Five amendments, “Use of the Territorial Sea for the Development of Renewable Energy Facilities or Other Related Structures, Equipment or Facilities,” on January 24, 2013.<sup>250</sup>

### 3. Management

As originally envisioned, the Oregon TSP would identify three areas or zones for wave energy development, similar to the Massachusetts Plan discussed above in Part I.A.<sup>251</sup> These three zones were often discussed in terms of traffic lights: red, yellow, and green. “Red” zones would mean no development. “Yellow” areas would require additional review and criteria in order to ensure protection of resources in the area. And “green” areas would be those identified as being the best prospects for development with the least amount of conflicting uses or sensitive habitat areas. Over time, as the public process progressed, it became apparent that three segments would not be enough to capture the various needs of ocean users and resources. In the end, Oregon’s TSP adopted six different area designations. From most protective to most developable, they are: (1) Renewable Energy Exclusion Areas, (2) Proprietary Use and Management Areas, (3) Resources and Uses Conservation Areas, (4) Resources and Uses Management Areas, (5) Renewable Energy Facility Suitability Study

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<sup>248</sup> OR. MARINE MAP, <http://oregon.marinemap.org> (last visited Mar. 6, 2014).

<sup>249</sup> OREGON TERRITORIAL SEA PLAN, *supra* note 234, pt. 5 app. C.

<sup>250</sup> *See id.* pt. 5.

<sup>251</sup> *See* PAUL KLARIN & ANDY LANIER, OR. DEP’T OF LAND CONSERVATION & DEV., OPAC RECOMMENDATION: DRAFT COMPREHENSIVE PLAN FOR TSP AMENDMENT (2012), available at [http://www.oregon.gov/LCD/docs/rulemaking/tspac/Draft\\_Plan\\_OPAC\\_recommend.pdf](http://www.oregon.gov/LCD/docs/rulemaking/tspac/Draft_Plan_OPAC_recommend.pdf).

Areas, and (6) Renewable Energy Permit Areas.<sup>252</sup> Each of these areas has different standards for wave energy development.<sup>253</sup>

As one would expect, Oregon will not accept applications for marine renewable energy (MRE) development within Renewable Energy Exclusion Areas.<sup>254</sup> These are designated special management areas and include dredged material disposal sites, marine reserves, and marine protected areas. Oregon also adopted Proprietary Use and Management Areas (PUMA), wherein there are authorized uses and special management designations such as undersea fiber-optic or scientific instrumentation, cable corridors, and navigation channels.<sup>255</sup> Applications for development within a PUMA will be accepted only if the use is determined to be legally permissible, compliant with authorized uses of the area, and has been agreed to by the authorized users. In sum, this designation helps protect the interests of existing ocean use permit holders for particular uses.

At the other end of the spectrum are Renewable Energy Permit Areas (REPA). These areas already contain authorizations for development of MRE testing, research, or facilities. The TSP caps the total of REPA authorized sites at two percent of the territorial sea. Applications for development within REPAs must comply with the requirements of the regulating agency authorization for each site. These include the Reedsport Ocean Power Technologies site and the Northwest National Marine Renewable Energy Center testing site off Newport.<sup>256</sup>

Between these two extremes, there are three categories of use designations with varying levels of protective standards and criteria. At the most permissive is the Renewable Energy Facility Suitability Study Area (REFSSA), within which MRE development is anticipated to have the lowest potential adverse effects on inventoried marine resources and uses within state waters. Proposals for

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<sup>252</sup> OREGON TERRITORIAL SEA PLAN, *supra* note 234, pt. 5 app. B, at 33–34.

<sup>253</sup> *Id.* pt.5(B)(4)(g), at 14–22.

<sup>254</sup> *Id.*

<sup>255</sup> *Id.*

<sup>256</sup> The purpose of the Northwest National Marine Renewable Energy Center (NNMREC) is to conduct experimental MRE device testing. *Id.* pt. 5(E) at 27–28. The data and information gathered from the testing site will help inform later assessments of the environmental effects of MRE devices, as well as understanding the amount of energy produced by various devices. *Id.* There is also approval for a Mobile Ocean Test Berth Site at Newport. *Id.* This site will allow the short-term experimental testing of MRE devices, without connection to the electricity grid. *Id.*

development within REFSSAs must comply with the basic requirements for development set forth in Part Five of the TSP, including resource and use inventory, assessment requirements, and other applicable regulations. Oregon capped total REFSSA designation at five percent of the territorial sea.<sup>257</sup>

One step more protective than the REFSSA is the Resources and Uses Management Area (RUMA). RUMAs include important or significant ecological resources and areas that are economically important to commercial fishing, recreational fishing, or individual ports.<sup>258</sup> As a result, these areas require additional review. In addition to the standard requirements for development applicable in REFSSAs, an application for development within a RUMA must also demonstrate that the project “will have no significant adverse effects on inventoried marine resources and uses” based on specific standards adopted for protecting those resources and uses.<sup>259</sup>

The highest protection area, other than the exclusion areas and proprietary use areas, is the Resources and Uses Conservation Area (RUCA). RUCA designates inventoried important, significant, or unique (ISU) ecological resources or significantly important economic fishing areas.<sup>260</sup> ISUs are identified resources to be given the highest level of protection from the effects of MRE development. ISU areas include the discrete location of the resources and buffer areas, intended to provide adequate room for species to forage and for protection from disturbance. ISUs include rock habitat, pinniped haulout areas, seabird nesting colonies, and estuary and river mouths.<sup>261</sup>

The TSP recognizes that within RUCAs, “there is a high potential that most types of [MRE development] would have significant adverse effects” on inventoried marine resources and uses within the area.<sup>262</sup> In addition to the requirements applicable in REFSSAs and RUMAs, applications for development within RUCAs must demonstrate that there will be no reasonably foreseeable adverse effects on inventoried resources and uses in that area, as determined

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<sup>257</sup> *Id.* pt. 5 app. B.

<sup>258</sup> *Id.*

<sup>259</sup> *Id.*

<sup>260</sup> *Id.*

<sup>261</sup> *Id.* pt. 5, § B.4.g.3(a)(iii).

<sup>262</sup> *Id.* pt. 5 app. B.

by the standards adopted for each of the special resources and uses in the area.

The TSP Part Five Special Resources and Uses Review Standards include fisheries use protection standards, ecological-resources protection standards, recreational resources standards, visual resource protection standards, and a set of standards that apply exclusively to PUMAs. These are the additional standards that apply to inventoried resources and uses within the designated areas. For example, the ecological resources protection standards section articulates specific standards for development within conservation areas, such as RUCAs, and specific standards for development within management areas, such as RUMAs. Within both conservation areas and management areas, an applicant must demonstrate “no significant adverse effect” on areas that provide intense foraging for several important species or on ecological resources of concern.<sup>263</sup> Adverse effect is defined in the TSP Part Five as including “degradation in ecosystem function and integrity (including but not limited to direct habitat damage, burial of habitat, habitat erosion, reduction in biological diversity) or degradation of living marine organisms (including but not limited to abundance, individual growth, density, species diversity, species behavior).”<sup>264</sup>

The more stringent conservation area standards presumptively exclude development within inventoried ISU resource areas. The presumption may be overcome by a demonstration that there is no practicable alternative site outside an ISU that is less environmentally damaging and that the project will have no reasonably foreseeable adverse effects on ISUs.<sup>265</sup> In evaluating practicability of alternatives, the state will not consider cost as a factor.<sup>266</sup> The practicable

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<sup>263</sup> “Ecological Resources of Concern” include critical marine habitats (including but not limited to critical habitat areas designated under the Endangered Species Act); other important marine habitats, fish and shellfish stocks and other biologically important species; recreationally or commercially important finfish or shellfish species; planktonic and benthic flora and fauna; marine species migration routes; and other elements important to the marine ecosystem, including structure, biological diversity, species density, biological productivity, and representative species assemblages. *Id.* pt. 5, § B.4.g.3(a)(v).

<sup>264</sup> *Id.* § B.4.g.3(a)(i).

<sup>265</sup> *Id.* pt. 5, § B.4.g.3(b)(i)(a)(1)–(2).

<sup>266</sup> *Id.* This requirement generally mirrors that of the Rhode Island Ocean SAMP § 1160.2.2; however, the Oregon plan requires both the showing of no practicable alternative and no impact, while Rhode Island’s plan requires a showing of only one or the other. Compare *id.* with OCEAN SAMP, *supra* note 179, § 1160.2(2), at 31–32.

alternative analysis is not new, but on this point Oregon's standard differs from other existing examples, as discussed in more detail below.

Finally, Oregon's TSP Part Five does not specifically set forth a discussion of climate change or address marine spatial planning's role in climate change adaptation the way Rhode Island's Ocean SAMP does. However, the Oregon plan does at least require an analysis of cumulative effects, which includes "taking into account the effects of existing and future human activities and the regional effects of global climate change."<sup>267</sup>

### III

#### LOOKING FORWARD: WHAT CAN FUTURE MARINE SPATIAL PLANNING PROCESSES LEARN FROM THOSE ALREADY COMPLETED?

Although the exact regulatory tools adopted by each state differ, the overall concepts of identifying existing uses and resources and developing mechanisms to reduce conflicts with new uses appear consistent across marine spatial planning efforts. In comparing the three states' marine spatial planning processes and resulting frameworks, a few themes emerge, including concepts of precaution, adaptive management, and public trust. These thematic principles and the challenges of their implementation to standards and criteria will likely be carried forward as more states and the federal government pursue similar planning. If we keep these ideas in the forefront, we will likely find ways to improve upon the frameworks developed by these pioneering states and help address human uses and natural environmental resources of the ocean in the future.

##### *A. Precaution*

Very few environmental laws mention precaution, though several create systems that implement that approach.<sup>268</sup> For example, the ecosystem based approach of the ESA, designating critical habitat areas for the protection of a species, is based on the idea that the best way to protect a species is to preserve everything within its habitat range, even though each specific interaction within that area may

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<sup>267</sup> OREGON TERRITORIAL SEA PLAN, *supra* note 234, pt.5, § B.4.e.4.

<sup>268</sup> One section of the Clean Air Act has been held to be precautionary, though that statute does not use the word. *See Ethyl Corp. v. EPA*, 541 F.2d 1, 13 (D.C. Cir. 1976).

have unknown results. Similarly, the ESA's requirement to use best available science in evaluating the effects of a proposed action can be said to be precautionary because the reviewing agency must give "the benefit of the doubt to the species."<sup>269</sup> However, none of the United States' environmental laws that could be said to incorporate precautionary principles explicitly incorporate "precautionary" language.<sup>270</sup>

Oregon's presumptive exclusion for areas identified for highest protection is consistent with the policy of Statewide Goal 19 to apply the precautionary approach with regard to marine resource development. Unlike most environmental laws, including the marine spatial plans adopted by Rhode Island and Massachusetts, Oregon's TSP Part Five explicitly articulates a precautionary approach. "When confronting significant uncertainty regarding the potential adverse effects of the proposed project, a regulating agency shall apply the precautionary approach in decision-making."<sup>271</sup> All three states' plans include a presumptive exclusion of development from protected areas, a standard that puts the precautionary approach into action.

However, the presumption for exclusion can be overcome. A similar example is found in the CWA section 404 provisions for activities within wetlands. Section 404 of the CWA authorizes the Secretary of the Army, through the Corps, to issue permits for the discharge of dredged or fill material into "navigable waters," including wetlands, when certain conditions are met.<sup>272</sup> In reviewing a section 404 permit application, the Corps must follow rules developed by the EPA and the Corps under section 404(b) of the CWA,<sup>273</sup> which are known as the "404(b)(1) Guidelines" and codified at 33 C.F.R. § 320.4.

The 404(b)(1) Guidelines prohibit the Corps from issuing any permit if there is "a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so

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<sup>269</sup> *Conner v. Burford*, 848 F.2d 1441, 1454 (9th Cir. 1988).

<sup>270</sup> These could include, in addition to the Endangered Species Act, the Marine Mammal Protection Act, the Magnuson-Stevens Fishery Conservation and Management Act. For a discussion of the precautionary principle in U.S. law see J. Rodney Allen, *The United States' Application of Precaution in Managing Living Marine Resources*, 26 INT'L J. MARINE & COASTAL L 643-66 (2011).

<sup>271</sup> OREGON TERRITORIAL SEA PLAN, *supra* note 234, pt. 5, § B.4.g.

<sup>272</sup> 33 U.S.C. § 1344 (2012).

<sup>273</sup> *Id.* at (b).

long as the alternative does not have other significant adverse environmental consequences.”<sup>274</sup> Where a discharge is proposed for a wetland, “all practicable alternatives to the proposed discharge” that do not involve a discharge to a wetland “are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise.”<sup>275</sup> In addition, if the activity associated with a discharge to a wetland is not water-dependent, “practicable alternatives that do not involve [wetlands] are presumed to be available, unless clearly demonstrated otherwise.”<sup>276</sup> An alternative “is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.”<sup>277</sup>

In issuing a permit under section 404 of the CWA for a nonwater dependent project, the Corps is working within the context of certain presumptions mandated by the regulations. The Corps is first to presume that “practicable alternatives that do not involve [wetlands]”<sup>278</sup> exist for the project. Next, the Corps must presume that these alternatives “have less adverse impact on the aquatic ecosystem.”<sup>279</sup> These presumptions hold unless “clearly demonstrated otherwise.”<sup>280</sup> In rejecting practicable alternatives under the CWA, “it is not sufficient for the Corps to consider a range of alternatives to the proposed project: the Corps must rebut the presumption that there are practicable alternatives with less adverse environmental impact.”<sup>281</sup> The presumption is “very strong.”<sup>282</sup> Some courts have held that the Corps may not issue a section 404 permit unless the applicant “with independent verification by the [Corps], . . . provide[s] detailed, clear and convincing information *proving*” that an alternative with less adverse impact is impracticable.<sup>283</sup> In sum, by imposing a

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<sup>274</sup> 40 C.F.R. § 230.10(a) (2013); *id.* § 230.12(a)(3)(i).

<sup>275</sup> *Id.* § 230.10(a)(3).

<sup>276</sup> *Id.*

<sup>277</sup> *Id.* § 230.10(a)(2) (This provision, allowing consideration of cost as an element of practicability, was not adopted by Oregon in the Territorial Sea Plan).

<sup>278</sup> *Id.* § 230.10(a)(3).

<sup>279</sup> *Id.*

<sup>280</sup> *Id.*

<sup>281</sup> *Greater Yellowstone Coalition v. Flowers*, 321 F.3d 1250, 1262 n.12 (10th Cir. 2003).

<sup>282</sup> *Nat'l Wildlife Fed'n v. Whistler*, 27 F.3d 1341, 1344 (8th Cir. 1994).

<sup>283</sup> *Greater Yellowstone Coalition v. Flowers*, 359 F.3d 1257, 1269 (10th Cir. 2004) (quoting *Utahns for Better Transp. v. U.S. Dep't of Transp.*, 305 F.3d 1152, 1186 (10th

presumption of protection, the rules place the burden on an applicant to overcome the presumption with clear evidence.

Oregon also adopted the “reasonably foreseeable” standard for adverse effects on ISUs. Several existing statutes and regulations use the term “reasonably foreseeable” with regard to impacts, emissions, or future projects. These include federal laws such as NEPA and the Clean Air Act. However, the term is not easily defined and has been the subject of litigation. One example of the use of the term “reasonably foreseeable” effects can be found in regulations relating to NEPA, which require that agencies discuss “reasonably foreseeable significant adverse effects” where “there is incomplete or unavailable information.”<sup>284</sup> “For the purposes of this section, ‘reasonably foreseeable’ includes impacts which have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.”<sup>285</sup> In *Ground Zero Center for Non-Violent Action v. U.S. Department of the Navy*, the Ninth Circuit Court of Appeals determined that because the regulation applies only where there is “incomplete or unavailable information,” the Navy’s detailed study of the risk of accidental explosion and determination that the risk was extremely remote, grounded in the record, was sufficient under NEPA.<sup>286</sup> The “rule of reason” standard is applied in the same way as the “arbitrary and capricious” review of an agency action,<sup>287</sup> which asks whether the agency

relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be

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Cir. 2002)) (emphasis in original); *see also* *Sierra Club v. Van Antwerp*, 719 F.Supp.2d 58, 69 (D.D.C. 2010) (“Where the presumptions applies, the permit applicant bears the burden by providing ‘detailed, clear and convincing information *proving* that an alternative with less impact is impracticable.’”) (emphasis in original).

<sup>284</sup> 40 C.F.R. § 1502.22 (2013).

<sup>285</sup> *Id.*

<sup>286</sup> 383 F.3d 1082, 1091 (9th Cir. 2004).

<sup>287</sup> *Ctr. for Biological Diversity v. U.S. Forest Serv.*, 349 F.3d 1157, 1166 (9th Cir. 2003).

ascribed to a difference in view or the product of agency expertise.<sup>288</sup>

A “clear error of judgment” occurs when an agency offers an explanation that “runs counter to the evidence before the agency.”<sup>289</sup> The language of the federal rule has been mirrored in at least one existing Oregon law. Oregon statutes regulating chemical mining provide that an environmental evaluation of the mining shall include “[a]n analysis of the reasonably foreseeable impacts of an activity including catastrophic consequences, even if the probability of occurrence is low, if the analysis is supported by credible scientific evidence, and is not based on pure conjecture and is within the rule of reason.”<sup>290</sup>

Another example can be found in Clean Air Act regulations, which use the term “reasonably foreseeable” with respect to air emissions. The rule defines “indirect emissions” of pollutants as those “that are caused . . . by the Federal action . . . but occur at a different time or place as the action; [t]hat are reasonably foreseeable.”<sup>291</sup> The rule also defines “reasonably foreseeable” emissions as “projected future direct and indirect emissions that are identifiable at the time the [agency’s] determination is made; the location of such emissions is known and the emissions are quantifiable.”<sup>292</sup> In *South Coast Air Quality Management District v. FERC*, the plaintiff argued that there was sufficient detail about a gas project for FERC to analyze the effect of its burning.<sup>293</sup> Plaintiffs pointed to available information, including the amount of gas the pipeline will transfer, the purchasers and shippers of the gas, the expected emissions from the gas’s consumption, and the environmental harm.<sup>294</sup> The court determined that the information available was not significant.<sup>295</sup> Specifically, while the total maximum capacity of the pipeline was known, the actual amount that would be carried was not known and would be

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<sup>288</sup> *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

<sup>289</sup> *Id.*

<sup>290</sup> OR. REV. STAT. § 517.979(3)(a) (2013).

<sup>291</sup> 40 C.F.R. § 93.152 (July 6, 2010).

<sup>292</sup> *Id.*

<sup>293</sup> 621 F.3d 1085, 1101 (9th Cir. 2010).

<sup>294</sup> *Id.*

<sup>295</sup> *Id.*

determined based on availability and demand.<sup>296</sup> And because blending or conditioning of gases may occur within the pipeline system, the expected emissions “and resulting environmental harm that may occur are equally unknown.”<sup>297</sup> The court concluded that the emissions that may result from the gas project were not “reasonably foreseeable within the definition provided” by the EPA’s regulations.<sup>298</sup>

Other federal laws use the term “reasonably foreseeable” outside of an environmental or conservation context. For example, sentencing guidelines allow federal judges to consider a victim’s loss in sentencing, limited to “the reasonably foreseeable pecuniary harm that resulted from the offense.”<sup>299</sup> “Reasonably foreseeable pecuniary harm” is defined as pecuniary harm “that the defendant knew or under the circumstances, reasonably should have known, was a potential result of the offense.”<sup>300</sup> These examples show that although the reasonably foreseeable standard is precautionary in theory, in practice it has proven to be difficult to effectively implement.

### ***B. Adaptive Management***

All existing ocean planning incorporates some version of adaptive management. Adaptive management is:

[a] type of natural resource management in which decisions are made as part of an ongoing science-based process. Adaptive management involves testing, monitoring, and evaluating applied strategies, and incorporating new knowledge into management approaches that are based on scientific findings and the needs of society. Results are used to modify management policy, strategies, and practices.<sup>301</sup>

At base, adaptive management is a system of two elements: a monitoring system to measure key indicators and current conditions

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<sup>296</sup> *Id.*

<sup>297</sup> *Id.*

<sup>298</sup> *Id.*

<sup>299</sup> UNITED STATES SENTENCING COMM’N, 2011 FEDERAL SENTENCING GUIDELINES: CHAPTER 2—OFFENSIVE CONDUCT, § 2B1.1 Commentary (2011), *available at* [http://www.ussc.gov/Guidelines/2011\\_Guidelines/Manual\\_HTML/2b1\\_1.htm](http://www.ussc.gov/Guidelines/2011_Guidelines/Manual_HTML/2b1_1.htm).

<sup>300</sup> *Id.*

<sup>301</sup> Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management, 65 Fed. Reg. 202, 62,571 (Oct. 18, 2000).

and a response element that enables modification of key indicators.<sup>302</sup> Adaptive management is not a new concept, having been discussed in detail by C.S. Holling in 1978.<sup>303</sup> Agencies have incorporated the concept into environmental management of resources such as watersheds,<sup>304</sup> forestry,<sup>305</sup> and salmon recovery.<sup>306</sup> It seeks to replace a more typical management approach of “informed trial and error” where the best available information forms the basis of a risk-averse, “best guess” management strategy modified over time as new information alters the “best guess.”

However, attempts to adopt and implement adaptive management strategies do not always achieve the desired results. For example, the Chesapeake Bay Program’s adaptive management measures lacked a comprehensive activity plan, a single set of strategies for achieving the program’s goals, and a framework to organize these parts into a cohesive whole.<sup>307</sup>

The Northwest Forest Plan’s Adaptive Management Areas (AMA), adopted in 1994, allow an opportunity to evaluate the effectiveness of adaptive management over time. The Forest Service recognizes the role of AMAs as places where testing and validation occur. Current standards and guidelines are the best judgment of the most judicious

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<sup>302</sup> Ray Hilborn & John Sibert, *Adaptive Management of Developing Fisheries*, 12 MARINE POL’Y 112, 115, 118 (1998).

<sup>303</sup> C.S. HOLLING, ADAPTIVE ENVIRONMENTAL ASSESSMENT AND MANAGEMENT (1978).

<sup>304</sup> See, e.g., Oregon Plan for Salmon and Watersheds (calling for “active adaptive management” defined as a “process of testing alternative hypotheses through management action, learning from experience, and making appropriate change to policy and management practice”). THE STATE OF OR., OREGON COASTAL SALMON RESTORATION INITIATIVE, THE OREGON PLAN, at 11-12 to -13 (1997).

<sup>305</sup> BERNARD T. BORMANN ET AL., U.S. FOREST SERV., PNW-GTR-341, ADAPTIVE ECOSYSTEM MANAGEMENT IN THE PACIFIC NORTHWEST (1994), available at permanent.access.gpo.gov/lps116259/pnw\_gtr341.pdf.

<sup>306</sup> OREGON SALMON COMMISSION, FCRPS ADAPTIVE MANAGEMENT IMPLEMENTATION PLAN: 2008-2018 FEDERAL COLUMBIA RIVER POWER SYSTEM BIOLOGICAL OPINION 8 (2009) (describing a process to “respond to results of new research and other scientific information on fish survival” by updating studies and mitigation actions “to reflect the best available scientific information and to achieve the biological performance standards and survival improvements” articulated in the previous Biological Opinion).

<sup>307</sup> See Chesapeake Bay Program, *Chesapeake Adaptive Management Model*, <http://cap.chesapeakebay.net/managementmodel.htm> (last visited Mar. 6, 2014). In response, the Program adopted Kaplan and Norton’s Five-stage Model of Adaptive Management. See Robert S. Kaplan & David P. Norton, *Mastering the Management System*, HARVARD BUS. REV., Jan. 2008, at 63–77.

or appropriate action currently available. Recognizing that new information may indicate otherwise, AMAs are the places where that new information could be developed.<sup>308</sup> Adaptive management “argues that thoughtful actions, accompanied by a systematic, rigorous process in which assumptions, methods, and anticipated outcomes are identified explicitly, provide a means of encouraging informed, learning-based policy implementation.”<sup>309</sup>

Monitoring is central to the success of any plan and to an adaptive management program. Just as a clear baseline is critical for analysis of cumulative impacts,<sup>310</sup> baseline and comparative data are at the heart of the adaptive management concept. In order to verify the success of protection strategies, rigorous monitoring data review must be pursued. The states’ plans include monitoring and adaptive management, but it will be up to the responsible agencies to review the data and require meaningful responses to the information gathered.

### *C. Public Trust*

The Massachusetts Oceans Act recognizes “preserv[ing] and protect[ing] the public trust” as a principle purpose in ocean resources management.<sup>311</sup> Similarly, Oregon’s Goal 19 to “conserve marine resources and ecological functions for the purpose of providing long-term ecological, economic, and social value and benefits to future generations” is grounded in principles of the preservation of ocean resources in the public trust. Oregon’s constitution includes the territorial sea as a trust resource to be managed by the state for the “greatest benefit for the people of this state, consistent with the conservation of this resource under sound techniques of land

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<sup>308</sup> Memorandum from Curtis A. Loop, Acting Executive Director of Regional Ecosystems Office, Portland, Oregon to Elaine Y. Zielenski, State Director of Bureau of Land Management, et al., 1-2 (May 2000), *available at* <http://reo.gov/library/reports/1533ama-s-g.htm>.

<sup>309</sup> *Id.* at 2.

<sup>310</sup> *See, e.g.*, 50 C.F.R. § 402.02 (2013) defining “environmental baseline”; *see also* EPA, EPA 315-R-99-002, CONSIDERATION OF CUMULATIVE IMPACTS IN EPA REVIEW OF NEPA DOCUMENTS (1999) (describing the use of an environmental baseline to evaluate cumulative impacts), *available at* <http://www.epa.gov/compliance/resources/policies/nepa/cumulative.pdf>.

<sup>311</sup> MASS. GEN. LAWS ANN. ch. 21A, § 4C (West, Westlaw through ch.38 of the 2014 2d. Sess.).

management.”<sup>312</sup> Likewise, Rhode Island’s Ocean SAMP includes recognition of the state’s duty to protect submerged lands for the use of the public including fishing, commerce, and navigation.<sup>313</sup>

This idea, that states and our federal government will preserve and protect ocean resources for future generations, is central to marine spatial planning efforts. These processes have recognized that ocean resources and uses are vital to the health of coastal states and their economies. Whether for tourism, recreation, or fishing, ocean resources must be conserved for the long term.

The atmospheric trust litigation mentioned earlier in this paper seeks a declaration that, like our water, our atmosphere is also a public trust resource. The ultimate goal of the litigation is to spur more aggressive action towards reducing greenhouse gas emissions and controlling climate change. Whether or not the courts will recognize the atmosphere as a public trust resource remains to be seen. But through marine spatial planning, states like Oregon and Massachusetts have taken steps towards engaging more renewable energy sources and thereby protecting the atmosphere while carefully balancing the well-established requirement to protect ocean resources. In fact, Rhode Island arguably goes the furthest towards putting the public trust doctrine into practice, at least as far as recognizing and attempting to address climate change.<sup>314</sup>

Likely these plans will prove to be imperfect. For example, coordinated review by agencies with overlapping authority is in the interest of developers and regulators alike, but has proven difficult to achieve. But by engaging stakeholders in the process, seeking balance between competing interests, and setting a goal to encourage exploration of marine renewable energy sources as a way to protect these very trust resources at issue, these states have hopefully created a lasting framework for organized and careful marine renewable energy development.

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<sup>312</sup> OR. CONST. art VIII, § 5, cl. 2. The state policy to conserve ocean resources for the long-term is also set forth in Oregon’s ocean resource management statute. *See* OR. REV. STAT. § 196.420 (2013).

<sup>313</sup> Ocean SAMP, *supra* note 179, §§ 160.2, 170.2 (“Renewable energy and offshore development policies and regulatory standards ensure there is a rigorous review for all ocean development so that the Council meets its public trust responsibilities.”).

<sup>314</sup> *See id.* ch. 3.

### CONCLUSION

It should be no real surprise that such a vast and complex resource as our oceans has come to be the subject of such a vast and complex regulatory and jurisdictional system. Marine spatial planning provides state and federal agencies with a tool to map the existing uses and resources of the ocean and coastal waters in the hopes of creating a clearer path to shared governance and responsible development of these resources. Just as on land, adjacent uses are not always compatible, so in the ocean must we address potentially conflicting uses in order to best preserve the priority resources for the long term. Marine spatial planning begins to envision what our future ocean uses may look like and works toward a future where traditional ocean users can sustain side-by-side with new renewable energy development while protecting habitats and wildlife upon which we all depend.