



2005

## Enduring Optimism: Examining the Rig-to-Reef Bargain

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32 Ecology L.Q. 863

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# Enduring Optimism: Examining the Rig-to-Reef Bargain

Rachael E. Salcido\*

*Federal law requires the removal of offshore oil and gas platforms from the seafloor at the end of production. An exception to this rule allows a platform to stay on the seafloor if it is incorporated into a state artificial reef program. These “rig-to-reef” projects have been promoted as innovative public-private partnerships that address the dual problems of costly platform removal and disappearing fishing opportunities. I argue that the current legal framework fails to ensure habitat enhancement and may condone ocean dumping. The problem can be traced to three sources: federal and state competition on the outer continental shelf, lack of a comprehensive long-term federal vision for outer continental shelf development, and interest group pressure in the face of scientific uncertainty. I recommend that we revisit the bargain struck in rig-to-reef conversions. This article identifies the flaws in current law and proposes a more robust experimental model to ensure that public benefit is realized in rig-to-reef programs.*

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## INTRODUCTION

While current scientific research indicates that oil platforms are better at filling charter fishing boats than improving marine ecosystems, controversy continues over whether offshore oil platforms can be left on the seabed when they become obsolete. The abandonment issue is consequential since there are 6,500 installations worldwide, and removal cost estimates are as high as 40 billion dollars.<sup>1</sup> Yet there is strong public opposition to the offshore disposal of oil platforms in ocean dumpsites.<sup>2</sup> Indeed, for decades federal law required that operators remove platforms entirely from the seabed.<sup>3</sup>

In a peculiar twist of fate, obsolete offshore oil platforms have now become a fashionable donation from oil companies to coastal states in the Gulf of Mexico.<sup>4</sup> In Texas and Louisiana, over a hundred platform jackets—the metal platform legs buried in the seafloor—have been “recycled” into artificial reefs<sup>5</sup> to provide diving and fishing opportunities

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1. According to some estimates, the potential cost of removing all oil rigs will be between 35 and 40 billion U.S. dollars. MINERALS MGMT. SERV., DECOMMISSIONING AND REMOVAL OF OIL AND GAS FACILITIES OFFSHORE CALIFORNIA: RECENT EXPERIENCES AND FUTURE DEEPWATER CHALLENGES, MMS OCS STUDY 98-0023, at 20 (Frank Manago & Bonnie Williamson eds., Proceedings from Public Workshop in Ventura, California, Sept. 23–27, 1997) [hereinafter DECOMMISSIONING OFFSHORE CALIFORNIA] (comments of W.S. Griffin, Jr., Phillips Petroleum Company). Cost estimates continue to evolve as removal technology improves and larger platforms are placed in deeper waters. See also Peter Cameron, *Tackling the Decommissioning Problem*, 14 NAT. RESOURCES & ENV'T 121, 121 (1999) (noting that 10,000 offshore rigs existed worldwide in 1999). The number of platforms at any given point in time varies, as both decommissioning of defunct platforms and installation of new platforms is ongoing.

2. The Brent Spar dispute in Europe, discussed *infra* Part V.B.3, best illustrates public outcry against the dumping of platforms at offshore ocean dumpsites. See also COMM'N ON DISPOSITION OF OFFSHORE PLATFORMS, NATIONAL RESEARCH COUNCIL, DISPOSAL OF OFFSHORE PLATFORMS 46 (1985) [hereinafter COMM'N ON DISPOSITION] (discussing public opinion about the disposal of platforms in the ocean). The committee's work was supported by an agreement between the Department of the Interior (DOI) and the National Academy of Sciences, which evaluated the alternatives for disposition of offshore platforms and published recommendations for U.S. policy development on the issue in 1985. Respondents to a survey regarding alternatives to the removal of offshore platforms expressed skepticism of toppling platforms in place due to a “reluctance to make the ocean a ‘junkyard.’” *Id.* The study also noted that respondents' concerns for the environment were “expressed as to the mortgaging of future opportunities at the expense of simple or cost-effective platform removal options.” *Id.*

3. See *infra* Part I.B.3, notes 84-88, and accompanying text discussing movement from complete removal rule to exception for artificial reefs.

4. Oil companies enjoy the enhancement of reputation as good environmental actors for their perceived generosity in donating such structures. The Coastal Artificial Reef Planning Guide notes that entities that donate materials not only receive the benefit of “reduced removal or disposal costs” but also receive “favorable publicity.” THE JOINT ARTIFICIAL REEF TECHNICAL COMMITTEE OF THE ATLANTIC AND GULF STATES MARINE FISHERIES COMMISSIONS, COASTAL ARTIFICIAL REEF PLANNING GUIDE 25 (Dec. 1998) [hereinafter COASTAL ARTIFICIAL REEF PLANNING GUIDE].

5. Webster's dictionary defines a reef: “a line or ridge of sand or rock lying at or near the surface of the water; as, a coral reef.” WEBSTER'S NEW UNIVERSAL UNABRIDGED

to recreationists. To a lesser extent, commercial fisherman are also intended beneficiaries.<sup>6</sup> In the typical arrangement between the oil company and the state, the oil company donates one-half of the avoided cost of removal for maintenance of the "reef."<sup>7</sup> The National Fishing Enhancement Act of 1984 facilitated these arrangements by providing a specific exception to the removal requirement if a state applies for a federal permit to use the platform as an artificial reef.<sup>8</sup> These "rig-to-reef" projects have been promoted as innovative public-private partnerships that address the dual problems of costly platform removal and disappearing fishing opportunities.<sup>9</sup>

Not all states have embraced this unique disposal solution.<sup>10</sup> In contrast to activities in the Gulf of Mexico, California has repeatedly rejected rig-to-reef conversions as an alternative to platform removal. In 2001, former governor Gray Davis vetoed a bill to facilitate conversions off the California coast, explaining "[t]here is no conclusive evidence that converted platforms enhance marine species or produce net benefits to the environment."<sup>11</sup> As this precautionary approach reflects, the

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DICTIONARY, DELUXE SECOND EDITION 1515 (1983). Natural reefs are underwater rocks and coral assemblages, typically near the surface of the water, that support marine species by providing foraging areas, relief from predation or rough water conditions, and other important services throughout the lifetime of various marine species. Artificial reefs seek to duplicate these services.

6. Susan Langhenning, *Gulf Sanctuary*, NEW ORLEANS TIMES PICAYUNE, June 29, 2003, at 1; Sharon Denny, *Oil Platforms Don't Have to Die, They Can Become Living Reefs*, OIL DAILY, May 6, 1985, at B23.

7. See *infra* Part II.B.

8. 30 C.F.R. § 250.1725 (2005). See *infra* Part I on the legal provisions governing removal of platforms on the OCS.

9. A.J. Mistretta, *Oil Rigs Let Oil Companies Save Cash, Help Environmental Image*, NEW ORLEANS CITY BUSINESS, Jan. 27, 2003, at 28; Kenneth R. Weiss, *'Rigs to Reefs' Plan Stirs Debate: A Bill to Preserve the Frames of Retired Offshore Oil Platforms as Homes for Sea Life Creates New Alliances among Environmentalists, Fishermen*, LOS ANGELES TIMES, Sept. 23, 2001, at B1.

10. This regional difference was noted early in the debate over removal options. See COMM'N ON DISPOSITION, *supra* note 2, at 46 (citing divergent views on the potential for platform-converted artificial reefs to enhance fisheries resources). The author's theory was that responses expressing a wide range of environmental concerns about different disposal options were "regionalized," "reflecting historical perspectives as well as the economic consequences appreciated by the respective respondents." At that time, interests outside of the Gulf of Mexico questioned the enhancement value of platforms on the east and west coasts. *Id.*

11. S.B. 1, 2001–2002 Sess. (Cal. 2000) (vetoed by Governor Gray Davis, Oct. 13, 2001). SB 1 was not the first bill to promote rig-to-reef conversions in California. See S.B. 241, 1999–2000 Sess. (Cal. 1999) (unenacted); S.B. 2173, 1997–1998 Sess. (Cal. 1998) (unenacted). See *infra* Part V.B.2. A blue ribbon panel was convened to give an opinion as to the environmental benefits of rig-to-reef conversions. See SALLY J. HOLBROOK ET AL., SELECT SCIENTIFIC ADVISORY COMMITTEE ON DECOMMISSIONING, THE ECOLOGICAL ISSUES RELATED TO DECOMMISSIONING OF CALIFORNIA'S OFFSHORE PRODUCTION PLATFORMS: REPORT TO THE UNIVERSITY OF CALIFORNIA MARINE COUNCIL 36 (Nov. 8, 2000) [hereinafter SELECT SCIENTIFIC ADVISORY COMM. ON DECOMMISSIONING] (concluding that "in light of the lack of strong evidence of benefit and the relatively small contribution of platforms to reef habitat in the

environmental benefit of these programs remains speculative and subject to considerable debate within the scientific community.<sup>12</sup> Although proponents—primarily the oil industry and marine recreationists—argue conversions are prudent recycling projects creating valuable fisheries habitat,<sup>13</sup> others contend that conversions are merely disguised ocean dumping.<sup>14</sup>

In this article, I examine the bargain struck in rig-to-reef conversions, the uncertainty regarding their effect on marine environment sustainability, and implications for reform of ocean management. The interplay of interest groups in the face of scientific uncertainty and the rise of a social license to operate levied against the oil industry add more layers of complexity to the question of platform removal. The existing regulatory structure is a seriously flawed, piecemeal effort that inadequately addresses the complex issues relevant to offshore disposal of oil platforms. The cost of platform removal has unduly influenced relevant laws, which are grounded in the unproven theory that rig-to-reef programs are an innovative solution to a host of problems. As a consequence, serious shortcomings in unsustainable fishing and offshore oil development practices remain largely unaddressed by the rig-to-reef projects.

## I. FACTUAL BACKGROUND: THE DECOMMISSIONING CHALLENGE

### A. *The Aging Offshore Oil Infrastructure*

The United States depends on fossil fuels to power industry, transportation and other vital sectors of its economy. An important source of domestic oil and gas is the outer continental shelf (OCS)—the submerged land off our shores—which contains proven reserves of these natural resources.<sup>15</sup> Large drilling platforms are placed on the OCS to

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region, evaluation of decommissioning alternatives in our opinion should not be based on the assumption that platforms currently enhance marine resources”).

12. Governor Davis noted that this theory of environmental benefit is not widely accepted by the scientific community. Cal. S.B. 1 veto. See discussion *infra* Part V.B.2 on scientific debate. Whether the structures provide habitat continues to be controversial, particularly where man-made reefs create habitats that are quite different from the original fisheries habitat. “The use of artificial reefs as mitigation for loss of dissimilar habitat has been and will continue to be a controversial topic.” NAT’L OCEANIC & ATMOSPHERIC ADMIN., DRAFT NATIONAL ARTIFICIAL REEF PLAN REVISION 42–43 (Feb. 2002) [hereinafter NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002].

13. See *infra* Part III.B.1.

14. This has long been the crux of the debate over all forms of artificial reefs, which had been used as a solid waste disposal alternative in the past. See John MacDonald, *Artificial Reef Debate: Habitat Enhancement or Waste Disposal?*, 25 OCEAN DEV & INT’L L. 87 (1994) (discussing the use of incinerator ash, tires and platforms as artificial reefs).

15. The Outer Continental Shelf Lands Act defines “outer Continental Shelf” as “all submerged lands lying seaward and outside of the area of lands beneath navigable waters as

produce oil and natural gas. Today there are approximately 4,000 offshore oil rigs on the OCS, almost all in the Gulf of Mexico, with the rest off the coast of the Pacific Ocean.<sup>16</sup> In fact, the early years of the twenty-first century saw an increase in offshore drilling in United States coastal waters, with the George W. Bush administration strongly encouraging domestic oil and gas production on public lands, both on and offshore.<sup>17</sup>

Partly due to the emphasis on domestic production, the amount of offshore oil and gas as a percentage of national supply is projected to continue to increase in the short term.<sup>18</sup> Recent technological advances that facilitate extreme deepwater drilling operations have contributed significantly to the influx of petroleum from offshore sources.<sup>19</sup>

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defined in section 1301 of this title, and of which the subsoil and seabed appertain to the United States and are subject to its jurisdiction and control . . . ." 43 U.S.C. § 1331(a) (2000). U.S. jurisdiction to utilize OCS resources extends to 200 miles from the shore in an exclusive economic zone. U.N. Conference on the Law of the Sea, *opened for signature* Dec. 10, 1982, U.N. Doc. A/Conf.62/122, art. 57 (1982), *reprinted in* 21 I.L.M. 1261 (1982).

16. MMS, Installations, Removals, and Cumulative Totals of Offshore Production Facilities in Federal Waters: 1953–03 (citing TIMS Quarterly Reports, Aug. 5, 2005), <http://www.mms.gov/stats/xlsExcel/PlatformSummary-1942-2004.xls> [hereinafter MMS OFFSHORE FACILITIES REPORT] (showing 3,944 installations, 3,921 on the Gulf of Mexico OCS and twenty-three on the Pacific OCS (California)).

17. Sam Fletcher, *US Drilling Surge Will Continue Into the Year*, OIL & GAS J., May 19, 2003, at 49–50; Robin Kundis Craig, *The Bush Administration and the Environment: An Overview and Introduction*, 25 W. NEW ENG. L. REV. 1, 22–24 (2003) (discussing the Bush administration's tactics and promotion of extractive industries, such as oil and gas); *See also* Douglas Jehl, *Where Bison Meets Oil Rig*, *Talk of Cooperation*, N.Y. TIMES, May 25, 2001, at 14 (discussing the Bush administration's emphasis on domestic oil and gas production, even on public lands); Jan G. Laitos & Thomas A. Carr, *The Transformation on Public Lands*, 26 ECOLOGY L. Q. 140, 158–59 (1999) (discussing the general decline in oil and gas drilling on public lands from the 1970s through the 1990s).

18. In addition to industry and energy expert opinions, government press releases and other public documents published by the DOI and Minerals Management Service (MMS) support this forecast. *See, e.g., Balancing Energy Needs and Environmental Health*, MMS OCEAN SCIENCE, Jan.–Feb. 2004, at 5 (graphing OCS oil production and projecting increased production in the next decade). In the aftermath of hurricane Katrina, the offshore oil and gas industry's downstream production has been primarily affected. Refineries are unable to process crude into consumer products due to the evacuation of employees in Louisiana and Mississippi and the destruction to refinery and supply infrastructure. *See* ENERGY INFO. ADMIN., THIS WEEK IN PETROLEUM, Aug. 31, 2005, <http://tonto.eia.doe.gov/oog/info/twip/twiparch/050831/twipprint.html>.

19. MINERALS MGMT. SERV., DEEP WATER: WHERE THE ENERGY IS 4 (2004) ("With deep water production expected to almost double over the next decade, Gulf oil production will rise to 2.25 million barrels per day, or nearly 80% of total Gulf production, by 2011."); MINERALS MGMT. SERV., DEEPWATER DEVELOPMENT FACTS (Jan. 1999) [hereinafter MMS DEEPWATER DEV. FACTS]; *See also* Paul Eisenstein, *Giant Oil Platforms*, POPULAR MECHANICS, Jan. 13, 2004 (showing capabilities of offshore oil rigs at depths exceeding 6,600 feet), available at [http://www.popularmechanics.com/science/extreme\\_machines/1280836.html](http://www.popularmechanics.com/science/extreme_machines/1280836.html).

Deepwater drilling is an important area for future oil exploration.<sup>20</sup> The United States has encouraged deepwater exploration in the Gulf of Mexico, with Congress enacting a Deepwater Royalty Relief Act to spur private investment in exploration and drilling beyond depths of 200 meters.<sup>21</sup> As the search for deepwater oil and gas reserves continues, more platforms will be required at greater depths.<sup>22</sup> The trend in offshore drilling is universal, as the rate of offshore oil production and the use of offshore oil rigs has increased significantly worldwide.<sup>23</sup>

Yet, while the industry is engaged in considerable exploration and production efforts in deepwater areas, the industry is faced with hundreds of aging platforms that are now approaching their production capacity.<sup>24</sup> Thus, the United States and its oil industry lessees will increasingly have to confront the issues posed by the vast number of offshore drilling platforms reaching retirement.<sup>25</sup>

The process of winding down offshore production is called "decommissioning," which includes shutting down all operations, plugging the wells, dismantling the offshore fixtures, and disposing of waste materials.<sup>26</sup> Over the next decade, even while additional platforms for oil production are erected on the OCS, a thousand rigs in the Gulf of Mexico will be retired by their owners.<sup>27</sup> Furthermore, government and

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20. MMS DEEPWATER DEV. FACTS, *supra* note 19, at 2; U.S. COMMISSION ON OCEAN POLICY, AN OCEAN BLUEPRINT FOR THE 21ST CENTURY: FINAL REPORT 357 (2004) [hereinafter OCEAN COMM'N REPORT].

21. Outer Continental Shelf Deep Water Royalty Relief Act of 1995, Pub. L. No. 104-58, 109 Stat. 557 (codified as amended at 43 U.S.C. §§ 1301, 1337 (2000)); 43 U.S.C. § 1337(a)(3)(C)(ii). The Secretary of Interior has authority to waive royalty payments if it is uneconomical to explore otherwise.

22. Furthermore, the discovery of other natural resources such as methane hydrates, which may provide a source of energy as well as projected interest in deepwater ocean mining, and renewable energy projects could also increase the number of structures installed in the future. See OCEAN COMM'N REPORT, *supra* note 20, at 364-67.

23. HOSSEIN ESMAEILI, THE LEGAL REGIME OF OFFSHORE OIL RIGS IN INTERNATIONAL LAW 12 (2001).

24. MICHAEL VINCENT MCGINNIS ET AL., UNIV. OF CALIF., SANTA BARBARA, THE POLITICS, ECONOMICS, AND ECOLOGY OF DECOMMISSIONING OFFSHORE OIL AND GAS STRUCTURES, MMS OCS STUDY 2001-006 at 78 (Minerals Mgmt. Serv. 2001) [hereinafter MCG INNIS ET AL.], available at <http://www.coastalresearchcenter.ucsb.edu/cmi/files/2001-006.pdf>.

25. A 2001 report forecasts a 29 percent decline in number of platforms in the Gulf of Mexico over the period from 1999 to 2023. ALLAN G. PULSIPHER ET AL., CENTER FOR ENERGY STUDIES, LA. STATE UNIV., FORECASTING THE NUMBER OF OFFSHORE PLATFORMS ON THE GULF OF MEXICO OCS TO THE YEAR 2023, OCS STUDY MMS 2001-013 at 1 (Minerals Mgmt. Serv., Apr. 2001).

26. The onshore structures associated with offshore drilling operations must also be shut down when offshore operations cease. This article does not consider the decommissioning of onshore facilities, where the costs are more certain, manageable, and environmental impact more clear.

27. Most of the approximately 4,000 platforms erected on the U.S. OCS are in the Gulf of Mexico, and in the Gulf of Mexico more than one-quarter of the remaining platforms are over



industry planning for decommissioning of twenty-three platforms offshore California is now underway.<sup>28</sup>

Naturally, the considerable expense attributable to decommissioning invites a discussion about alternatives for the disposition of production structures.<sup>29</sup> Cost estimates for removal range from \$50,000 (short platforms in very shallow waters) to \$15 million (tall platforms in the deepest waters) per platform.<sup>30</sup> Imagine an underwater Eiffel Tower, Empire State Building or Statue of Liberty.<sup>31</sup> Dismantling these giant underwater structures requires the use of large ocean cranes and barges.<sup>32</sup> And while the platform and many of its working parts can occasionally be reused at a different location for drilling operations,<sup>33</sup> the platform jacket is often very costly to remove, has no real prospect for reuse, and may

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twenty-five years old. It is estimated that more than one thousand structures may be removed from the Gulf area this decade. MCGINNIS ET AL., *supra* note 24, at 78; MMS OFFSHORE FACILITIES REPORT, *supra* note 16.

28. A recent estimate puts the total cost for removing the 23 platforms in the POCSR at \$1,007,699,000 (2004 dollars). MINERALS MGMT. SERV., OFFSHORE FACILITY DECOMMISSIONING COSTS: PACIFIC OCS REGION at ii (Sept. 17, 2004) [hereinafter PACIFIC OCS REGION DECOMMISSIONING COSTS], *available at* [http://www.mms.gov/omm/pacific/lease/2004\\_final\\_decommissioning\\_cost\\_report\\_rev\\_1.pdf](http://www.mms.gov/omm/pacific/lease/2004_final_decommissioning_cost_report_rev_1.pdf). The report includes costs of plugging wells, removing platform jackets and decks, clearing the site, and other costs of compliance with lease requirements and permit provisions. *Id.* at i.

29. In the United States, oil companies are committed to remove production fixtures contractually at the outset of OCS leases. Minerals Mgmt. Serv., Oil and Gas Lease of Submerged Lands Under the Outer Continental Shelf Lands Act, Form MMS-2005, sec. 22 (Mar. 1986) [hereinafter MMS Lease Form] (requiring complete removal). However, some suggest that many companies did not anticipate the extent of the costs, nor allocate specific funds for this future liability. *See, e.g.,* Samir Mankabady, *Decommissioning of Offshore Installations*, 28 J. MAR. L. & COM. 603, 603 (1997). Mankabady notes that oil companies used to set aside funds for future decommissioning and review such sums yearly. However, given the diverse size and weight of platforms, determining the amount of money required for decommissioning was elusive. He also suggests that the rising price of oil and improved secondary recovery methods pushed this issue out of the forefront of oil companies' concerns. *Id.* at 604.

30. COMM'N ON DISPOSITION, *supra* note 2, at 20. Estimated average disposal cost per platform ranges depending on its depth. The committee evaluated platform removal cost by depth categories. Category I included structures in 0 to 20 feet, with projected costs of \$50,000 to \$400,000 per platform. Category II included structures in 20 to 100 feet, projected cost ranges were \$600,000 to \$1.3 million per platform. Category III evaluated structures in 100 to 200 feet, projected costs of \$1 million to \$2.5 million per platform. Category IV, platforms in 200 to 400 feet, ranges average \$5 million to \$15 million per platform. Major costs include blasting and towing, and could be reduced if multiple platforms were decommissioned simultaneously.

31. DECOMMISSIONING OFFSHORE CALIFORNIA, *supra* note 1, at 10, 20.

32. Mark J. Kaiser, *FASB 143 Rules Will Change Decommission Liability*, OIL & GAS J., Mar. 14, 2005, at 43 (discussing the mechanics and costs of decommissioning); ESAU R. VELAZQUEZ & ROBERT C. BYRD, GULF OF MEXICO DEEPWATER PLATFORM DECOMMISSIONING, OTC DOC. NO. 15,113 (2003) (discussing the mechanics of various decommissioning options).

33. EPA encourages recycling of platform materials. COMM'N ON DISPOSITION, *supra* note 2, at 48 (citing Letter from Tudor Davies, EPA, to W.M. Benkert (Nov. 27, 1984); *See* MCGINNIS ET AL. *supra* note 24, at 44 ("[A] potential market for the distribution and reuse of equipment between industry players and not simply within one company's operations, must be explored further.")).

have little scrap value.<sup>34</sup> Thus, the platform jacket must be brought back to shore and disposed of on land.<sup>35</sup> The ability to drill in ever deeper waters, of course, exacerbates these removal costs in the end stage.<sup>36</sup>

The technical feasibility of removing platforms has not been a problem in American coastal waters, at least thus far.<sup>37</sup> But experience from dismantling North Sea infrastructure suggests that trouble lies ahead for future U.S. deepwater decommissioning.<sup>38</sup> In the North Sea, offshore platforms are often much larger and located in deeper water than their American counterparts thus far decommissioned.<sup>39</sup> Significant

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34. COMM'N ON DISPOSITION, *supra* note 2, at 17. The authors note that individual parts of the platform deck equipment can be easily refurbished and reused, such as cranes, generators, buildings, and heliports. However, the report notes that "structural portions of the jacket and deck are not as reusable as the deck equipment." *Id.* They cite "different soil conditions" as requiring different designs for the foundation of new platforms. *Id.* at 18. "Since most platforms are not suitable for reuse as platforms, they must be scrapped on shore or at sea." *Id.* McGinnis concludes that scrapping of steel is the most likely outcome, while land-filling of other material will probably occur. "The overwhelming bulk of the waste stream generated from decommissioning platforms is the steel from jackets." A smaller portion of the waste stream for California platforms that will probably end up in landfills consists of concrete, insulating materials, and mud. MCGINNIS ET AL., *supra* note 24, at 45.

35. In the United States, the Marine Protection, Research and Sanctuaries Act (MPRSA) strictly regulates ocean disposal of wastes to prevent harm to the marine environment. Marine Protection, Research and Sanctuaries Act of 1972, Pub. L. No. 92-532, § 2, 86 Stat. 1052 (codified as amended in scattered sections of 16 U.S.C. and 33 U.S.C.). It is difficult to obtain legal permission to discard of waste materials in the ocean, which requires a permit from the Environmental Protection Agency. See Charles B. Anderson, *Ocean Dumping and the Marine Protection, Research and Sanctuaries Act*, 1 LOY. MAR. L.J. 79, 92 (2002) (arguing that MPRSA eschews a cost-benefit analysis). To date, the federal government's policy requires removal or conversion to an artificial reef. See *infra* notes 85-86.

36. See generally MMS DEEPWATER DEV. FACTS, *supra* note 19; Press Release, Minerals Management Service (MMS), Deepwater: A New Frontier for Resource Management (May 18, 2000) (noting the increase in deepwater drilling); Press Release, MMS, Number of Rigs Drilling In Deepwater Gulf Reaches Record High of 42 (Apr. 19, 2001); Press Release, MMS, Gulf Deepwater Sees Major Advance in 2004; Records Set (Jan. 31, 2005) (touting major advances in Gulf of Mexico deepwater drilling, and noting that six of the fourteen new deepwater startups were floating production facilities); COMM'N ON DISPOSITION, *supra* note 2, at 20.

37. See MMS OFFSHORE FACILITIES REPORT, *supra* note 16 (showing that 2,606 installations have been removed from the GOM OCS, and one removed from the Pacific OCS).

38. Mankabady, *supra* note 29, at 611. Mankabady noted that, in 1997, "decommissioning is still in its infancy: only 9 of the 220 installations in the British sector have been removed." *Id.* at 615.

39. Most decommissioning has thus far occurred in the shallow waters of the Gulf of Mexico, however, in the next ten years significantly more decommissioning will be required in the deep waters of the Gulf and offshore California. For predictions on the removal of offshore platforms in the Gulf of Mexico, see PULSIPHER ET AL., *supra* note 25. For a recent log of permanent offshore platforms placed offshore on the GOM OCS at greater than 1,000 feet, see MMS, Gulf of Mexico Permanent Deepwater Structures, <http://www.gomr.mms.gov/homepg/offshore/deepwatr/dpstruct.html> (last visited Nov. 30, 2005). See also DECOMMISSIONING OFFSHORE CALIFORNIA, *supra* note 1, at 9-12 (noting that decommissioning of deepwater structures will soon be coming to the forefront in California and the Gulf of Mexico). For estimates of decommissioning costs for platforms offshore California, see PACIFIC OCS REGION DECOMMISSIONING COSTS, *supra* note 28 (discussing costs associated with decommissioning projects projected for the time period 2010 to 2025).

problems have been encountered in removing these deepwater structures.<sup>40</sup> Consequently, removal activities have been delayed and often put on hold in the North Sea.<sup>41</sup> Each removal project is a unique and difficult engineering undertaking, as platforms were not necessarily designed for removal. Therefore, experts are concerned that feasibility may be a problem in the United States as decommissioning occurs in deeper waters, such as those offshore California.<sup>42</sup>

The cost of removal has an undeniably strong influence on existing rig-to-reef policy.<sup>43</sup> An important industry objective is minimizing the cost of decommissioning.<sup>44</sup> This is why oil companies choose to remove platforms when it is less costly to do so than engage in rig-to-reef projects. As further discussed in the following section, oil companies have committed to removal, but ultimately failed to undertake adequate planning to implement this commitment.<sup>45</sup> Once decommissioning was

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40. Technical problems encountered in decommissioning projects include engineering removal of heavy steel structures, cutting off and/or pulling out the legs of the platforms from the seafloor, and conducting these operations safely with concern for personnel on floating equipment, divers, and marine life in the vicinity. The most well-publicized platform removal challenge involved a deepwater oil storage rig in the North Sea. See *id.* at 612–13 (discussing the Brent Spar incident); ESMAEILI, *supra* note 23, at 191–92.

41. ESMAEILI, *supra* note 23, at 218 (“Since the Brent Spar incident both companies and governments have been attempting to delay the decommissioning of the big oil platforms in the North Sea . . .” after operations cease).

42. Decommissioning in the Pacific OCS region will involve deepwater installations, which MMS notes will include “significant technical, safety, environmental, and material disposal challenges. From a technical standpoint, the technology has yet to be developed to remove certain deepwater structures. This is particularly true in water depths exceeding 400 feet.” DECOMMISSIONING OFFSHORE CALIFORNIA, *supra* note 1, at 9. Cameron notes that there may be little transferability of the U.S. decommissioning experience—legal and technical—to other parts of the world. “The high cost of removal in deeper water and the extensive role of governments in petroleum operations in most countries generate many differences from the Gulf of Mexico.” Cameron, *supra* note 1, at 121.

43. See *infra* note 46 and accompanying text discussing industry lobbying to change international law due to the high cost of removal.

44. The rig-to-reef option is pursued by oil companies when it is less costly than removal. The Rigs to Reefs Act of 2003 that failed to pass through Congress sought to amend the Outer Continental Shelf Lands Act to encourage conversions by further clarifying the liability issue, and by providing a tax break to oil companies who maintain the platform after the expiration of the lease and prior to title transfer to the state artificial reef program. H.R. 2654, 108th Cong. (2003). Early policy studies determined that the industry needed more than just a “good public relations” boost to participate in these programs. COMM’N ON DISPOSITION, *supra* note 2, at 51. The rig-to-reef option “is likely to be pursued only to the extent that the cost to the structure owner for artificial reef development does not exceed the cost of other options.” *Id.* The original National Artificial Reef Plan (NARP) also noted that “[e]conomic considerations will continue to be most important in the disposal decision process,” and since relocation is typically very expensive, “these costs will be compared with other disposal options.” NAT’L OCEANIC & ATMOSPHERIC ADMIN., NOAA NATIONAL ARTIFICIAL REEF PLAN, NOAA TECHNICAL MEMORANDUM NMFS OF-6, at 17 (Richard B. Stone ed., 1985) [hereinafter NOAA ARTIFICIAL REEF PLAN OF 1985].

45. As noted by a federal official in a public workshop discussing anticipated technical challenges in decommissioning platforms off California’s coast, now that the time for removal

imminent, the industry undertook aggressive efforts to scale back its legal obligations to remove defunct platforms. The government has been willing to amend legal removal obligations given the scientific uncertainty of environmental impacts and dependence on oil. However, public opinion has been very influential in pressuring oil companies to abide by their previous commitments. Due to public backlash against proposed ocean dumping of platforms, public acceptance of disposal options is now an express part of any discussion about removal options. The debate over decommissioning options has thus been transformed to focus on cost, environmental impact, and public acceptance of disposal options.<sup>46</sup> Because public opinion rejects the use of ocean dumpsites the debate has shifted to the next less costly alternative: recycling platforms as artificial reefs or other uses.

### *B. The Vacillating U.S. Approach to Platform Removal Policy*

There are many conflicting influences on the development of U.S. policy regarding the disposition of offshore platforms. A glimpse at the progression of attitudes on energy policy and environmental stewardship helps to illustrate these conflicts. Unpacking the various layers of legislation reveals a complex, evolving policy. The debate over platform removal occurs within this larger context of different attitudes and legal reforms.

#### *1. Cultural Influences on Platform Removal Policy*

Although the debate over the ultimate disposition of offshore platforms is relatively new, offshore drilling has always been controversial in American politics.<sup>47</sup> A central theme of ongoing

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has come, "[t]he onshore infrastructure required to dispose of these massive steel structures also may not exist, which may necessitate consideration of other options such as converting the structures to artificial reefs or other uses." DECOMMISSIONING OFFSHORE CALIFORNIA, *supra* note 1, at 10.

46. See, e.g., COMM'N ON DISPOSITION, *supra* note 2; MCGINNIS ET AL., *supra* note 24, at 78; DECOMMISSIONING OFFSHORE CALIFORNIA, *supra* note 1; The oil industry wanted to revisit the removal requirement when the third convention on the Law of the Sea was negotiated, pointing to the high cost of removal in deepwater. Richard J. McLaughlin, *Coastal State Discretion, U.S. Policy, and the New IMO Guidelines for the Disposal of Offshore Structures: Has Article 5(5) of the 1958 Continental Shelf Convention Been "Entirely Removed?"*, 1 TERR. SEA J. 245, at 246, 251 (1991) (discussing Proposed International Standards to Ensure Safety of Navigation, submitted by the Oil Industry International Exploration and Production Forum to IMO Sub-Committee on Safety of Navigation, 33rd Session, IMO Doc.Nav. 33/7 (1986)).

47. See generally EDWARD A. FITZGERALD, *THE SEAWEED REBELLION: FEDERAL-STATE CONFLICTS OVER OFFSHORE ENERGY DEVELOPMENT* (Lexington Books 2001) (discussing legal challenges involving debate over development of the outer continental shelf). See also R. SCOTT FARROW, *MANAGING THE OUTER CONTINENTAL SHELF LANDS: OCEANS OF CONTROVERSY* (Taylor & Francis 1990) (discussing controversial aspects of managing the outer continental shelf). In 1995, public protest over the proposed disposal of a

controversy is the struggle between coastal states and the federal government over offshore energy development, known as the "Seaweed Rebellion."<sup>48</sup> As more fully explored in Part IV.B. *infra*, states have jurisdiction over the coastline out to three miles from the shore, while the federal government has jurisdiction beyond that legal border.<sup>49</sup>

In recent years, coastal states' and the general public's concern about the environmental impact of offshore drilling has profoundly impacted OCS development and drilling practices.<sup>50</sup> While it is true that offshore drilling has increased significantly, it is primarily occurring in deepwater areas of the Gulf of Mexico.<sup>51</sup> This regional drilling focus has developed as a consequence of the political influence of some coastal states' Congress members. A moratorium on leasing offshore lands for oil and gas exploration is now in place in all but the central and eastern areas of the Gulf of Mexico and Alaska.<sup>52</sup>

The current increase in attention to the deplorable state of overfished ocean fisheries and marine environment degradation also influences attitudes about offshore drilling. Decades of overfishing, pollution, development, and destruction of habitat have created a "crisis in our oceans" leaving many marine species populations and entire

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large oil platform, the Brent Spar, in a North Sea disposal site ignited debate across Europe and brought the issue back into international dialogues. See Mankabady, *supra* note 29, at 612-13; ESMAEILI, *supra* note 23, at 190-91, 212-14. Some argue that removal and onshore disposal of platforms is a "core strategic objective" for environmentalists, ocean activists, and policymakers. ALLAN G. PULSIPHER & WILLIAM B. DANIEL IV, CENTER FOR ENERGY STUDIES, LOUISIANA STATE UNIVERSITY, ONSHORE DISPOSITION OF OFFSHORE OIL AND GAS PLATFORMS: WESTERN POLITICS AND INTERNATIONAL STANDARDS (report based on presentation at APEC workshop on platform decommissioning in Jakarta, Indonesia in October 1998).

48. See generally FITZGERALD, *supra* note 47 (discussing history and development of state-federal conflicts over offshore resources).

49. See discussion *infra* Part IV.A.1 on the historic and ongoing state-federal conflict on the OCS.

50. See Robert B. Wiygul, *The Structure of Environmental Regulation on the Outer Continental Shelf: Sources, Problems, and the Opportunity for Change*, 12 J. ENERGY NAT. RESOURCES & ENVTL. L. 75 (1992) (providing an in depth discussion and critique of the framework of environmental regulation on the OCS).

51. MMS OFFSHORE FACILITIES REPORT, *supra* note 16.

52. The President has the authority to withdraw any unleased lands of the OCS. Outer Continental Shelf Lands Act, 43 U.S.C. § 1341(a) (2000). The moratorium was declared by President George H.W. Bush, and was extended by President William J. Clinton. As it stands, the moratorium will last until 2012 unless it is subsequently extended by the President. Each year since, Congress has prevented spending on development of oil and gas through appropriations riders. More generally, the issue of environmental degradation has achieved a foothold in national energy policy discussions. See David J. Hayes, *Energy, Again—But with a Kicker*, 16 NAT. RESOURCES & ENV'T 215 (2002) (noting environmental considerations at the center of Bush energy policy development); Gary C. Bryner, *The National Energy Policy: Assessing Energy Policy Choices*, 73 U. COLO. L. REV. 341, 341-42 (2002) (noting that the difficulty of developing an energy policy "is increasingly an unrelenting challenge because it is inextricably linked to environmental issues").

ecosystems at risk.<sup>53</sup> Although overlooked for decades, the declining health of the oceans has now been recognized, resulting in calls for management policy reform.<sup>54</sup> Recent federal and state legislative enactments have been directed at determining how to manage and rebuild ocean health, recognizing the importance of the world's oceans as the provider of numerous invaluable ecosystem services. Congress took a very important step at the beginning of this century, calling for an expert appraisal of ocean health and management. The Oceans Act of 2000 (the "Oceans Act") provided for the organization and funding of the United States Commission on Ocean Policy (the "Ocean Commission").<sup>55</sup> The Ocean Commission was charged with recommending improvements to the existing ineffective ocean management regime and making suggestions for addressing the crisis in ocean health caused by human impacts.<sup>56</sup> The Ocean Commission also had to give input on how to resolve ongoing state and federal conflict over offshore drilling.<sup>57</sup> The Ocean Commission's "Ocean Blueprint for the 21<sup>st</sup> Century" makes sweeping recommendations for overhauling current oceans law to encourage long-term sustainability of this valuable natural resource.<sup>58</sup> Legislative action on all of these recommendations has not been swift, but some of the measures have received attention with lawmakers.<sup>59</sup> States have also renewed activities concentrated on improving marine health.<sup>60</sup> Certainly, public awareness of this problem is increasing, and it is receiving a long-overdue, if still modest, amount of legislative attention.

Meanwhile, U.S. energy demands continue to outpace the domestic supply of fossil fuels, inducing reliance on imports to fill ever-growing oil

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53. See PEW OCEANS COMMISSION, AMERICA'S LIVING OCEANS: CHARTING A COURSE FOR SEA CHANGE 2-9 (2003) [hereinafter PEW REPORT] (identifying the following "major threats" to the oceans: nonpoint and point source pollution, invasive species, aquaculture, coastal development, overfishing, habitat alteration, bycatch, and climate change, and further discussing the decline in populations of several marine species, increases in diseases, and the negative effects on other species in the ecosystem that rely on them).

54. See *id.* at 102-126 (making recommendations for change in the management of the ocean's resources).

55. Oceans Act of 2000, Pub. L. No. 106-256, 114 Stat. 648 (to be codified at 33 U.S.C. § 857-19).

56. See *id.* § 2; Robin Kundis Craig, *Regulation of U.S. Marine Resources: An Overview of the Current Complexity*, 19 NAT. RESOURCES & ENV'T 3, 4 (2004) (stating how regulations need to be more coordinated to comprehensively protect marine resources).

57. Craig, *supra* note 56, at 4.

58. See OCEAN COMM'N REPORT, *supra* note 20, at 472-522 (providing a complete list of recommendations appearing throughout the report).

59. The proposals on aquaculture have been well discussed, as well as the potential for research and additional siting of fixed structures. See National Offshore Aquaculture Act of 2005, S. 1195, 109th Cong. (2005).

60. California's Marine Life Protection Act is one important state initiative to rebuild the health of ocean ecosystems. See CAL. FISH & GAME CODE §§ 2850-2863 (Deering 2005).

and natural gas demands.<sup>61</sup> Movement toward alternative and renewable energy sources and sustainable energy policy has been glacial. As a consequence, escalating interest in minimizing reliance on foreign oil as well as technological advances in deepwater drilling operations encourage increased domestic offshore production.<sup>62</sup> Platform removal following offshore production is a considerable expense. Areas offshore the United States would be more profitable (and thus potentially more attractive to industry) if multi-million dollar removal obligations were eliminated.

## 2. *International Rules Regarding Platform Removal*

The obligation of the United States under international law for disposal of offshore platforms is governed by the U.N. Convention on the Law of the Sea and the London Dumping Convention.<sup>63</sup> International law on the issue of platform removal is unsettled, but has moved away from strict removal and toward coastal nation discretion.<sup>64</sup> When the

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61. The sizable divide between U.S. energy policy and the growing energy demand in this country is well documented. For a recent discussion recommending ways to facilitate increased offshore drilling to close the import gap, see Kim Harb, *The Legal and Policy Dilemma of Offshore Oil and Gas Development*, 19 NAT. RESOURCES & ENV'T 23 (2004) (noting a "vast disconnect in this country between our energy needs and our energy policies"). On the other hand, those who promote sustainable use of natural resources promote expansion of alternative and renewable energy sources as well as appropriate conservation efforts to develop a sustainable energy policy.

62. The recently enacted Energy Policy Act of 2005 requires that the Secretary of Energy prepare an inventory of oil and natural gas resources beneath all of the waters of the United States OCS, specifically calling for the inventory and analysis to "use any available technology, except drilling, but including 3-D seismic technology to obtain accurate resource estimates. . . ." Pub. L. No. 109-58, § 357(a)(2), 119 Stat. 594, 720 (2005) (to be codified at 42 U.S.C. § 15912). Many see this type of inventory process as a precursor to exploration and drilling. See Bart Jansen, *End to Drilling Ban Viewed as Threat to Georges Bank: Senate Approval of Exploration for Oil and Gas Reserves Rekindles a Controversy*, MAINE SUNDAY TELEGRAM, June 22, 2003, at 1A. On the other hand, it may encourage agitation for continued moratorium. Apart from the inventory, other incentives in the Energy Policy Act of 2005 were directed to increase domestic production of oil and gas, such as royalty relief and tax subsidies. See Press Release, Minerals Management Service (MMS), 2005 Energy Policy Act Grants MMS New Authority and Includes Incentives for Increased Domestic Energy Production (Aug. 8, 2005).

63. Law of the Sea: Convention on the Continental Shelf, *entry into force* June 10, 1964, 15 U.S.T. 471, 499 U.N.T.S. 311 [hereinafter UNCLOS I]; Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, *opened for signature* Dec. 29, 1972, *entry into force* Aug. 30, 1975, 26 U.S.T. 2403, 1046 U.N.T.S. 120 [hereinafter London Dumping Convention]; U.N. Conference on the Law of the Sea, *opened for signature* Dec. 10, 1982, U.N. Doc. A/Conf.62/122 (1982), *reprinted in* 21 I.L.M. 1261 (1982) [hereinafter UNCLOS III]. The United States has not yet acceded to the UNCLOS III, thus its international obligations are even further uncertain at this time given the arguable operation of the UNCLOS I to which it is a party.

64. A few reasons for this uncertainty exist: the most recent law of the sea convention has not been joined by all nations, some nations have entered into regional treaties that are more restrictive, and state practice relevant in defining international law has not yet emerged clearly. See Rosalyn Higgins QC, *Abandonment of Energy Sites and Structures: Relevant International*

international community first began to discuss this question, concern for unhindered commercial and military navigation led to a strict removal requirement: the 1958 Convention on the Continental Shelf, to which the United States is a party, required that any abandoned or disused offshore installation be "entirely removed."<sup>65</sup> The United States engaged in further international dialogue about the growing problem of ocean dumping in the 1970s.<sup>66</sup> The United States participated in negotiations on the London Dumping Convention, which focused on the prevention of marine pollution.<sup>67</sup> The United States adopted the provisions of the London Dumping Convention (LDC), which is specifically designed to prevent degradation of oceans by international dumping.<sup>68</sup> The LDC prohibits disposing of offshore structures at sea, but allows "placement of matter for a purpose other than the mere disposal thereof...."<sup>69</sup>

By the end of the 1970s, some of the large offshore platforms had completely drained the wells they serviced and decommissioning was imminent.<sup>70</sup> Negotiations on the 1982 Third United Nations Convention on the Law of the Sea (UNCLOS III) culminated in discretionary authority to coastal states to decide whether disused offshore structures must be entirely removed.<sup>71</sup> Article 60(3) of the UNCLOS III allowed coastal states to "take into account any generally accepted international standards established in this regard by the competent international organization."<sup>72</sup>

One such "competent international organization," the International Maritime Organization (IMO), adopted guidelines and standards for the removal of offshore structures on the continental shelf and in the 200 mile area bordering a coastal nation known as the exclusive economic

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Law, 11 J. ENERGY & NATURAL RES. L. 6 (1993) (discussing the state of international law on the question of platform removal and rigs-to-reefs).

65. UNCLOS I, *supra* note 63, art. 5(5) (establishing this strict removal provision).

66. John Warren Kindt, *Solid Wastes and Marine Pollution*, 34 CATH. U. L. REV. 37, 76-81 (1984).

67. The 1972 London Dumping Convention considers disposal of offshore platforms as sea dumping, unless the platform is placed for an alternate purpose. London Dumping Convention, *supra* note 63, art. III(1)(a), (1)(b)(ii). The 1996 Protocol to the convention arguably "tightens up" dumping restrictions. See Elizabeth A. Kirk, *The 1996 Protocol to the London Dumping Convention and the Brent Spar*, 46 INT'L COMP. L.Q. 957, 963 (1997). The MPRSA was amended in 1974 to conform to the treaty obligations of the LDC. See Act of Mar. 22, 1974, Pub. L. No. 93-254, § 1(1), 88 Stat. 50.

68. London Dumping Convention, *supra* note 63 (proclaiming ratification by United States on Sept. 25, 1973).

69. Art. III(1)(a) prohibits dumping, while art. III(1)(b) allows alternative uses. *Id.*

70. Cameron, *supra* note 1, at 121 (noting industry has been aware of looming problem of decommissioning).

71. UNCLOS III, *supra* note 63.

72. *Id.* art. 60(3). The United States has not yet ratified the UNCLOS III treaty. President George W. Bush endorsed the treaty and it has been moved to the Senate for approval. The Senate has expressed reservations about entering into a treaty that will limit U.S. sovereignty.



zone (EEZ).<sup>73</sup> The IMO guidelines promote a case-by-case approach to the removal question, considering navigation, impact on the environment, as well as cost and potential new uses. Under these guidelines, certain instances of platform ocean dumping are allowed where the platform's size is large and the environmental consequences are judged to be acceptable.<sup>74</sup> Furthermore, IMO guideline 3.4.1 contemplates that a coastal state may approve the conversion of a platform to a new use, such as an artificial reef, for the enhancement of a living resource.<sup>75</sup> However, the IMO has also adopted a recommendation that platforms installed on the OCS be designed for complete removal, diminishing the strength of future arguments claiming lack of feasibility.<sup>76</sup>

The United States, warning about ocean dumping, urged the IMO to excuse platform removal only where "a bona fide legitimate new purpose" is feasible. And even as to this, the delegation advocated a 2 percent maximum use of the new use exception.<sup>77</sup> But these efforts failed. Not only was the United States unsuccessful in convincing other nations to incorporate this approach into international treaties, domestic law never recognized these limitations.<sup>78</sup> Nor did domestic law adopt the legal requirement regarding design for complete removal.<sup>79</sup>

The relaxation of the removal rule in international law to case-by-case evaluation has raised concerns about the significant discretion of coastal nations to abandon portions of obsolete platforms in place.<sup>80</sup> One scholar warned of the influence of special interest groups in this context and potential harm to international navigational rights.<sup>81</sup> In particular, some nations may facilitate the evasion of removal requirements by overemphasizing both removal costs and the value of "new uses" assigned to obsolete platforms.<sup>82</sup> Unlike some of the other new uses suggested by entrepreneurs (such as floating hotels, prisons, or research observation centers), the exception for an artificial reef carries heightened concern that nations may designate a "new use" without technical merit given the scientific uncertainty regarding the effects on

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73. Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone, Int'l Maritime Org. 16th Ass. Res. A.672, MSC 57/27/Add.2, Annex 31 (Oct. 19, 1989) [hereinafter IMO Guidelines].

74. *Id.* at 2.1.1–2.1.5.

75. *Id.* at 3.4.1.

76. *Id.* at 3.13 (requiring that any structure erected after January 1, 1998 be designed for complete removal).

77. McLaughlin, *supra* note 46, at 251–52, 260.

78. *See id.* at 263.

79. *See* discussion *infra* Part V.C.2.

80. *See* McLaughlin, *supra* note 46, at 249 (characterizing coastal state discretion as excessive and potentially problematic for U.S. interests).

81. McLaughlin was concerned that the navigational rights of the international community were at risk and criticized vague standards and reliance on case-by-case evaluations. *Id.* at 266.

82. *Id.* at 264.

the environment of any given “artificial reef.”<sup>83</sup> The United States is not immune from these concerns. Furthermore, the question of whether it is wise to encourage a proliferation of fixed structures on the OCS when the ocean’s health is in spiraling decline is not being addressed by the current focus on cost and individual environmental impact from each rig-to-reef conversion.

### 3. *Domestic Legislation Regarding Platform Removal*

The domestic law governing platform removal is primarily contained in three federal statutes: the Outer Continental Shelf Lands Act, the National Fishing Enhancement Act and the Marine Protection, Research and Sanctuary Act.<sup>84</sup> The Outer Continental Shelf Lands Act (OCSLA) is a mature statute that governs all aspects of offshore drilling. The original act was updated in 1976 to include more attention to the environmental impacts of offshore drilling. Pursuant to OCSLA, the agency that oversees offshore development—the Minerals Management Service (MMS) within the Department of Interior (DOI)—adopted regulations requiring the removal of oil platforms within one year of the cessation of production from the platform.<sup>85</sup> Mirroring these regulations, standard lease provisions between the federal government and oil company lessees required the removal of all platforms from the ocean floor.<sup>86</sup> In 1984 the National Fishing Enhancement Act was adopted,

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83. *Id.* McGlaughlin noted that the discretion given to coastal nations meant that it was possible that “[r]egardless of technical merit, a coastal state could designate any abandoned structure as an aid to the enhancement of living resources and allow it to remain in place.” *Id.* at 264.

84. Outer Continental Shelf Lands Act, 43 U.S.C. §§ 1301, 1331–1356 (2000); National Fishing Enhancement Act of 1984, Pub. L. No. 98-623, 98 Stat. 3394 (codified at 16 U.S.C. § 1220 (2000) and 33 U.S.C. §§ 2101–2106 (2000)); Marine Protection, Research and Sanctuaries Act, Pub. L. No. 92-532, § 2, 86 Stat. 1052 (codified as amended in scattered sections of 16 U.S.C. and 33 U.S.C.). As discussed *infra* Part V.A, because of the fragmentation and complexity of ocean law, including overlapping jurisdictional issues, many other statutes with tangential application are implicated by the removal question. These include the Endangered Species Act (prohibiting the killing of covered species), the Marine Mammal Protection Act (regulating certain ocean activities affecting protected mammals), and the National Environmental Policy Act (requiring an environmental impact report for any major federal project that has a significant impact on the environment). See *infra* Parts II and IV discussing statutes bearing on the development of artificial reefs.

85. See 30 C.F.R. § 250.1725 (2005) (implemented pursuant to 43 U.S.C. § 1334).

86. MMS Lease Form, *supra* note 29, § 22 (“Removal of Property on Termination of Lease. Within a period of one year after termination of this lease in whole or in part, the Lessee shall remove all devices, works, and structures from the premises no longer subject to the lease in accordance with applicable regulations and Orders of the Director. However, the Lessee may, with the approval of the Director, continue to maintain devices, works, and structures on the leased area for drilling or producing on other leases.”). Federal regulations dictate removal within the one-year period from termination of the lease or pipeline right-of-way, unless approval is obtained to use the structure for other activities. 30 C.F.R. § 250.1725(a).

providing a specific artificial reef exception to the rule that platforms must be removed.<sup>87</sup> MMS amended its regulations accordingly.<sup>88</sup>

The third relevant statute governs the disposal of material at sea generally. The United States took its first serious steps toward domestic regulation of ocean dumping by enacting the Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA), commonly known as the "Ocean Dumping Act."<sup>89</sup> Pursuant to the MPRSA, the Environmental Protection Agency (EPA) regulates the disposal of materials in the ocean. As discussed above, the London Dumping Convention prohibits disposing of offshore structures (like oil rigs) at sea, but allows "placement of matter for a purpose other than the mere disposal thereof."<sup>90</sup> This approach is also consistent with ocean dumping standards under the MPRSA. The Act defines "dumping" as including a number of practices, but specifically adding that "it does not mean the construction of any fixed structure or artificial island nor the intentional placement of any device in ocean waters or on or in the submerged land beneath such waters, for a purpose other than disposal, when such construction or such placement is otherwise regulated by Federal or State law or occurs pursuant to an authorized Federal or State program...."<sup>91</sup> There is also a dispensation for emergencies.<sup>92</sup>

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87. See discussion *infra* Part III on NFEA.

88. See *infra* Part II.A.2.

89. The Council on Environmental Quality noted the problem of ocean pollution in an influential report. See COUNCIL ON ENVIRONMENTAL QUALITY, OCEAN DUMPING: A NATIONAL POLICY (1970). For discussions of the development of ocean dumping laws, see Steven J. Moore, *Troubles in the High Seas: A New Era in the Regulation of U.S. Ocean Dumping*, 22 ENVTL. L. 913, at 928 (1992) (describing the influence of the CEQ's ocean dumping report on adoption of ocean dumping legislation). See also William J. Chandler & Hanna Gillelan, *The History and Evolution of the National Marine Sanctuaries Act*, 34 ENVTL. L. REP. 10,505, 10,521 (2004) ("With the release of the CEQ report on ocean dumping, momentum for an ocean dumping law became unstoppable."). The MPRSA authorized the federal Environmental Protection Agency to regulate the disposal of materials in the ocean by, among other things, empowering EPA to permit offshore disposal in certain narrow instances. See 33 U.S.C. §§ 1411–1421 (2000). For a time, EPA typically prohibited offshore disposal when confronted with scientific uncertainty over whether the implementation of a particular proposal would adversely impact the marine environment. But its exercise of its permitting authority under the Ocean Dumping Act was not as prohibitive as some would have preferred, leading to challenges to EPA's approval practice and occasional litigation.

90. London Dumping Convention, *supra* note 63, art. III(1)(a) (prohibiting dumping); *Id.* art. III(1)(b) (allowing alternative uses).

91. 33 U.S.C. § 1402(f).

92. When a storm mangled an offshore rig, the government allowed the dumping of that platform in place as an emergency exception to the removal rule. See Bill Finch & Ben Raines, *Offshore Platform Standards Get a Tough Drilling, Wind—Design Criteria are Under Question*, GRAND RAPIDS PRESS, Oct. 2, 2005, at C7; Steve Quinn, *Rita Ravages Oil Production in the Gulf*, MIAMI HERALD, Sept. 29, 2005, at C3. Heather Timmons & Vikas Bajaj, *BP Details Its Damages From Hurricanes*, N.Y. TIMES, Oct. 5, 2005, at C5; Heather Timmons, *BP Estimates Damage by Hurricanes at \$700 Million*, INT'L HERALD TRIB., Oct. 5, 2005, at 15.

Therefore, the United States has pursued a fairly restrictive approach to ocean dumping in its domestic law. With respect to the disposal of platforms at sea, the United States has committed to the policy that oil platforms cannot be merely dumped in the ocean. They must either be removed or converted to artificial reefs under specific guidelines of federal and state law.<sup>93</sup>

The current legal approach emerged despite recommendations by government consultants to allow some dumping of platforms on the OCS.<sup>94</sup> Recognizing that the cost of decommissioning is an important business consideration that affects offshore drilling, in 1984 the DOI requested that the Marine Board of the National Research Council study and provide recommendations regarding the policy on removal of offshore platforms.<sup>95</sup> The Marine Board committee discussed the possibility of EPA-established ocean dumpsites for platforms and government assumption of liability and responsibility for some abandoned platforms. The committee recognized that “[s]ome would view this policy as overly generous to the oil industry. Nevertheless, the committee considers it difficult to justify a government requirement for expenditure of very large sums of private monies where marginal public benefit would result.”<sup>96</sup>

Although the federal government ultimately rejected the National Research Council’s idea of siting and making available “ocean dumpsites” for the purpose of disposing platforms offshore, these recommendations illustrate that the cost of decommissioning is a major component in the development of removal policy. The oil industry was successful in getting policymakers to focus on cost considerations and liability relief and has continued to maintain the centrality of these issues in discussions on alternative uses of platforms generally.<sup>97</sup>

Beyond the exception for artificial reefs, the conversion of rigs to other “new uses” has a very good chance of being approved in the future. A bill introduced by then Louisiana Representative, now Senator David Vitter, the Rigs to Reef Act of 2003, sought to amend the Outer Continental Shelf Lands Act to encourage not only more conversions of platforms to artificial reefs, but also to other uses such as observation

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93. McLaughlin, *supra* note 46, at 263–64.

94. The federal government rejected the advice of policy consultants recommending that some ocean dumping of platforms be used in context of overall platform disposition policy. COMM’N ON DISPOSITION, *supra* note 2, at 3 (recommending that the EPA designate a number of ocean dumpsites for platforms). See McLaughlin, *supra* note 46, at 261 (noting removal requirement stayed in place in domestic law despite influential report by the Commission on Disposition of Offshore Platforms recommending some ocean dumping of platforms).

95. See COMM’N ON DISPOSITION, *supra* note 2.

96. See *id.* at 2.

97. See Rigs to Reefs Act of 2003, H.R. 2654, 108th Cong. (2003) (unenacted) (focusing further on liability relief and tax breaks to oil companies who donate platforms).

centers and aquaculture facilities.<sup>98</sup> Although this bill did not pass through Congress, the Energy Policy Act of 2005 included a provision authorizing alternate uses of existing structures and facilities previously permitted on the OCS for energy-related uses.<sup>99</sup> Furthermore, some experimental aquaculture projects using rigs have already begun.<sup>100</sup> The current presidential administration supports such measures, as do commercial interests. In response to the recommendations of the Ocean Commission, the White House released the "U.S. Ocean Action Plan" supporting the grant of new authority to the DOI "to permit OCS facilities to be converted to other approved uses."<sup>101</sup>

It is against the larger backdrop of competing oil dependence and environmental concern that the United States developed its platform removal policy. Traditionally, the United States has tried to encourage offshore oil development and bring domestic supplies to the market at the lowest price possible.<sup>102</sup> However, ocean dumping is strictly regulated based on concern about degrading the ocean environment.<sup>103</sup> Now, despite influential reports calling for restoration of ocean ecosystems, further proposals for ever more "productive" uses of the ocean are entering the public debate.<sup>104</sup> These competing objectives complicate the

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98. *Id.*

99. See Pub. L. No. 109-58, § 388(a), 119 Stat. 594, 744-47 (2005) (to be codified at 43 U.S.C. § 1337(p)).

100. Experiments with operating rigs acting as aquaculture pens have begun in California. See, e.g., HUBBS-SEAWORLD RESEARCH INST., THE GRACE MARICULTURE PROJECT: PROJECT DESCRIPTION, available at [http://gracemaricultureproject.org/downloads/GMP\\_Brochure.pdf](http://gracemaricultureproject.org/downloads/GMP_Brochure.pdf) (last visited Nov. 16, 2005). See also Cheryl Lyn Dybas, *Marine Life Complicates Removal of Old Oil Rigs*, WASHINGTON POST, Apr. 11, 2005, at A10.

101. U.S. OCEAN ACTION PLAN: THE BUSH ADMINISTRATION'S RESPONSE TO THE U.S. COMMISSION ON OCEAN POLICY 24 (2004) [hereinafter BUSH RESPONSE].

102. Analyzing conflicting international treaty requirements on platform removal, Professor McDade noted that "[a]s traditional advocates for the processes of change in international law, nations such as the United Kingdom and the United States have to tread a cautious path between maximum utilization of energy resources and the lowest possible expenditure of taxpayers' funds towards that unitisation." Paul V. McDade, *The Removal of Offshore Installations and Conflicting Treaty Obligations as a Result of the Emergence of the New Law of the Sea: A Case Study*, 24 SAN DIEGO L. REV. 645, 653 (1987).

103. The MPRSA authorizes the EPA to issue permits for the disposal of materials into the ocean. The permitting process considers alternatives to ocean disposal as well as the environmental impact of proposed dumping projects. See 33 U.S.C. §§ 1411-1421 (2000). Sections 1412(a) and 1413(b) involve issues of environmental degradation.

104. Building on the publicly funded Ocean Commission Report, the non-governmental Pew Oceans Commission conducted an extensive study also concluding that the health of the oceans is precarious. PEW REPORT, *supra* note 53; OCEAN COMM'N REPORT, *supra* note 20. Notwithstanding, the current administration has identified as a clear objective: "making our oceans, coasts, and Great Lakes cleaner, healthier, and more productive." BUSH RESPONSE, *supra* note 101, at 3. The first two goals have yet to be aggressively pursued, but the last—ocean production—has seen significant growth. See generally Robin Kundis Craig, *The Other Side of Sustainable Aquaculture: Mariculture and Nonpoint Source Pollution*, 9 WASH. U. J.L. & POL'Y 163 (2002) (arguing that United States must address ocean water quality and land-based pollution to promote successful mariculture industry).

issue of platform removal, both in domestic law and in international negotiations. In the United States, the relaxation of the complete removal rule set the stage for national artificial reef legislation intended to distinguish rig-to-reef projects from prohibited ocean dumping.

### C. *The Rig-to-Reef Alternative*

In contrast to removing platforms as part of decommissioning, rig-to-reef conversions are projects intended to relieve some of the financial burden of decommissioning by allowing oil companies to leave platforms in the ocean if states agree to accept title and liability for the platform materials as artificial reefs.<sup>105</sup> Rig-to-reef projects avoid some of the most costly decommissioning measures such as transportation, onshore dismantling, and payment of disposal fees.<sup>106</sup> In turn, states use these projects to create artificial reefs. Typically it is the platform jacket—a steel support structure that is affixed to the ocean floor—that is left in the ocean to act as an artificial reef. Artificial reefs in the United States have been used primarily for recreational fishing, although a few projects have been used for mitigating damage to ocean areas and estuaries impacted by construction and industrial projects.<sup>107</sup>

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105. See MCGINNIS ET AL., *supra* note 24, at 91. Oil companies are profit-maximizing entities focused on exploration and extraction; apart from their donations to rigs-to-reef projects, they are not in the business of constructing fisheries habitat. Thus, companies choose to remove platforms rather than seek conversion when it is less expensive to do so. This reality prompted a Louisiana Congressman, Representative David Vitter, to propose The Rigs to Reefs Act of 2003, which if passed would have provided tax incentives to donating companies in addition to removal and liability relief. See H.R. 2654, 108th Cong. (2003).

106. Since decommissioning includes plugging wells and the conversion to an artificial reef also includes some measure of cleaning, the significant savings comes from the avoided cost of transportation and onshore recycling or disposal fees. The particular disposition scenario implicates different costs. See MCGINNIS ET AL., *supra* note 24, at 53–57 (discussing various costs of decommissioning options).

107. NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 12, at 17. Artificial reef planners voice concern about using artificial reefs as mitigation rather than as enhancement for fishing access. COASTAL ARTIFICIAL REEF PLANNING GUIDE, *supra* note 4, at xi. One mitigation project that bears noting is occurring in response to the loss of kelp habitat offshore California. The California Coastal Commission required that Southern California Edison build artificial reefs to mitigate damage to natural kelp beds caused by the nuclear power generating plant at San Onofre. The two-phase project includes a small-scale pilot experiment and the second larger-scale mitigation construction project. Paul Sisson, *Scientists: Artificial Reef Could Make Amends for San Onofre's Environmental Damage*, NORTH COUNTY TIMES, June 27, 2005. The final report from the experimental phase of the project suggests the experiment efforts will be worthwhile. See DAN REED ET AL., UNIV. OF CALIF., SANTA BARBARA, FINAL REPORT ON THE FINDINGS AND RECOMMENDATIONS OF THE EXPERIMENTAL PHASE OF THE SONGS ARTIFICIAL REEF MITIGATION PROJECT (Cal. Coastal Comm'n, Aug. 2005). According to the authors,

Results from the five-year experimental phase of the artificial reef mitigation project were quite promising in that all six artificial reef designs and all seven locations (i.e. blocks) tested showed a near equally high tendency to meet the performance standards established for the mitigation reef. We conclude from these findings that a

Logistically, an artificial reef can be made from a platform jacket in several ways: cutting off the platform top and leaving the jacket in place; toppling the jacket in place; or removing the jacket and moving it to another location where it is secured to the ocean floor.<sup>108</sup> When the first two of these options are used following production in federally regulated areas (i.e., beyond the three-mile mark), the platforms remain in federally controlled OCS areas, but are managed by state officials.<sup>109</sup> When the platform is moved, it may be moved to other areas of the federal OCS or brought closer to shore in state waters.<sup>110</sup> In either event, the converted platform ultimately attracts fish, which in turn provides a "hot spot" for fishermen or divers.<sup>111</sup> According to rig-to-reef proponents, each method of artificial reef creation has unique fisheries benefits.<sup>112</sup>

Artificial reef popularity has increased as fisheries managers place restrictions on fishing in the hope of rebuilding the health of devastated fisheries.<sup>113</sup> Notwithstanding optimism for this unique waste disposal solution, artificial reefs have not contributed measurably to rebuilding overfished domestic fisheries<sup>114</sup> but instead have been used mostly as recreational fishing and diving attractions.<sup>115</sup> The irresolute approach of

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low relief concrete rubble or quarry rock reef constructed off the coast of San Clemente, CA has a good chance of providing adequate in-kind compensation for the loss of kelp forest biota caused by the operation of SONGS Units 2 & 3.

*Id.* at 7. In Europe, artificial reefs have been used much more extensively to assist with conservation objectives rather than recreational opportunities. Antony Jensen, *Artificial Reefs of Europe: Perspective and Future*, 59 ICES J. MARINE SCI. S3 (Oct. 2002).

108. COMM'N ON DISPOSITION, *supra* note 2, at 49-51.

109. See Oil and Gas Lease Sale 116, Final Notice of Sale, 62 Fed. Reg. 4789, 4794 (Jan. 31, 1997); Oil and Gas Lease Sale 168, Final Notice of Sale, 62 Fed. Reg. 39,863, 39,869 (July 24, 1997) (referring to the fact that an adjacent state, Texas, had zoned proposed lease area for future artificial reef development).

110. The Federal Government has jurisdiction from three to 200 miles; the coastal states have jurisdiction from the shore out to the three-mile mark. See discussion *infra* Part IV.B.

111. Denny, *supra* note 6 (noting that fishermen in the Gulf concentrate their fishing efforts around platforms); Tom Behrens, *Sunken Treasure; Artificial Reef Makes Snapper Accessible to Small Boat Owners*, HOUSTON CHRONICLE, Mar. 28, 2002, This Week, at 11 (noting that rigs are "staples of red snapper anglers" in Texas). See also Mistretta, *supra* note 9 (reporting fishermen assertions that a trip out to a rig guarantees a catch); MCGINNIS ET AL., *supra* note 24, at 79 (noting frequent use of platforms for fishing).

112. Toppling the structure limits the reef to benthic use, whereas cropping the top and leaving the jacket in place allows for habitat at different depths and can allow the existing fish populations to remain relatively undisturbed. These options also have varying impacts on navigation. COMM'N ON DISPOSITION, *supra* note 2, at 49-51 (discussing "the leave-in-place option," "the partial removal options," "the topple-in-place-option," and "the emplace elsewhere option").

113. Behrens, *supra* note 111.

114. Fisheries managers have not targeted artificial reefs as a tool to improve the recovery of certain fish stocks. Research is just beginning to review the question of whether reefs could provide assistance to fisheries as a recovery tool.

115. NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 12, at 13; COASTAL ARTIFICIAL REEF PLANNING GUIDE, *supra* note 4, at 12, 16; MCGINNIS ET AL., *supra* note 24, at 73.

the United States towards the issue of removal as discussed above leads many citizens, some environmentalists, and certain policymakers as discussed more fully below, to conclude such projects are much more about subsidizing oil production than improving fisheries. These critics would reject these projects as ocean garbage dumping rather than approve them as materials that enhance marine resources.<sup>116</sup> While the legal definition of ocean dumping clearly does not include the establishment of an artificial reef for recreational use, without demonstrated success of artificial reefs to improve and enhance fisheries this legal approach creates a distinction without a difference.<sup>117</sup>

## II. TURNING PLATFORMS INTO REEFS: ARTIFICIAL REEF LEGISLATION AND GULF STATE PROGRAMS

This section reviews the primary federal and state laws that govern artificial reef development and rig-to-reef conversions. Congress crafted the National Fishing Enhancement Act to facilitate rig-to-reef conversions and it was adopted by many states in the Gulf of Mexico. This law is not the equivalent of a comprehensive federal program for artificial reef development.<sup>118</sup> Rather, the Act has numerous shortcomings, and by extension the state artificial reef programs provide a poorly performing system of pseudo-experimentation that lacks adequate safeguards for addressing long-term environmental concerns.

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116. The Ocean Conservancy typically opposes the use of artificial reefs for fishing or tourism, but seeks a cautious approach considering the potential for reefs to mitigate for human damaged habitat. See Ocean Conservancy: Artificial Reefs, [http://www.oceanconservancy.org/site/PageServer?pagename=issues\\_artificialreefs](http://www.oceanconservancy.org/site/PageServer?pagename=issues_artificialreefs) (last visited Nov. 15, 2005). Also, the Ocean Conservancy has noted the likelihood that artificial reefs could have a negative effect on over-fished species. See Langenhenning, *supra* note 6. The most vocal environmental NGO opposed to alternative offshore disposal methods is Greenpeace. See DAVID HUNTER, JAMES SALZMAN & DURWOOD ZAELEKE, INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 742-43 [hereinafter HUNTER ET AL.] (discussing Greenpeace activism over dumping of Brent Spar). The Natural Resources Defense Council is also skeptical of such projects. See Sarah Osterhoudt, *Reefer Madness*, NRDC ONEARTH, Winter 2002, available at <http://www.nrdc.org/onearth/02win/briefings.asp> (“[T]he actual ecological effects of artificial reefs are virtually unstudied and unknown....”). Governor Davis rejected the most recent attempt to legalize rig-to-reef conversions in California. S.B. 1, 2001-2002 Sess. (Cal. 2000) (vetoed by Governor Gray Davis, Oct. 13, 2001). See also *Rigs to Reefs; Who Benefits – Oil Companies or Rockfish?*, SANTA BARBARA INDEP., Dec. 9, 2004, at 19. But see PULSIPHER & DANIEL, *supra* note 47.

117. See COMM’N ON DISPOSITION, *supra* note 2, at 51 (commenting that, for the emplace elsewhere option, “To the extent that obsolete structures are poorly sited as reefs and public use benefits are limited, it can be argued that this option is often little more than ocean dumping.”).

118. McLaughlin suggests that a strictly case-by-case approach rather than a coordinated permitting procedure for rig-to-reef development will be continued based on the concerns of user groups, notably the Department of Defense, U.S. Coast Guard, and some commercial fishing interests. McLaughlin, *supra* note 46, at 262.



A. *The National Fishing Enhancement Act of 1984*

The National Fishing Enhancement Act of 1984 (NFEA) was adopted without much fanfare. As its very name announces, this act was designed to promote fishing. Acknowledging that "overfishing and the degradation of vital fishery resource habitats have caused a reduction in the abundance and diversity of United States fishery resources...",<sup>119</sup> Congress adopted NFEA "to promote and facilitate responsible and effective efforts to establish artificial reefs,"<sup>120</sup> and to "enhanc[e] fishery resources and commercial and recreational fishing opportunities."<sup>121</sup>

By the time the NFEA was enacted—and despite wide disagreement over their utility and hazards—artificial reefs had gained great popularity in many coastal areas for enhancing recreational fishing and diving opportunities.<sup>122</sup> Artificial reefs had been made from discarded refuse of virtually every sort—discarded tires, cars, scrap vessels, and bridge and highway rubble.<sup>123</sup> Indeed, artificial reef guidelines in the United States have developed in large part to prevent waste disposal in the guise of artificial reef construction. A number of these earlier artificial reef projects did cause damage to natural habitat, but nearly all had the effect of attracting fish to near-shore areas. Adoption of NFEA recognized: "if you build it, they will come."<sup>124</sup>

As these early efforts demonstrated, almost any item placed in the ocean can attract fish and operating rigs were no exception. Many fishermen in the Gulf of Mexico relied on operating platforms to attract populations of fish in convenient near-shore areas, and they feared that the removal of platforms would reduce fishing opportunities.<sup>125</sup> The proliferation of artificial reefs generally and the attractiveness of platforms to fish popularized the idea that oil rigs could be converted into artificial reefs.<sup>126</sup> Proponents of rig-to-reef conversions in the Gulf of Mexico, particularly recreational fishermen, noted that "restrictions on fishing" and "increasing demands on marine fish" made rigs-to-reefs a win-win situation for fishing interests and oil companies.<sup>127</sup> In their view, rig-to-reef projects were sure to further the goal of "concentrat[ing]

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119. 33 U.S.C. § 2101(a)(2) (2000).

120. 33 U.S.C. § 2101(b) (2000).

121. 33 U.S.C. § 2105(1) (2000).

122. James D. Murray, *A Policy and Management Assessment of U.S. Artificial Reef Programs*, 55 BULL. MARINE SCI. 960 (1994) (noting that interest in artificial reefs has increased, and providing several recommendations for increased review of artificial reef sites and improved management practices).

123. *Id.* at 963 ("[A]lmost every conceivable solid waste item has been used in artificial reef construction.").

124. FIELD OF DREAMS (Universal Pictures 1989).

125. MCGINNIS ET AL., *supra* note 24, at 73.

126. *Id.*

127. *Id.*

marine life and enhanc[ing] fishing.”<sup>128</sup> Indeed, despite the growing evidence<sup>129</sup> that marine fisheries were seriously taxed by overuse, the NFEA was designed to promote enhanced access and utilization of fisheries.<sup>130</sup>

The NFEA codified an exception to the rule requiring the removal of platforms for “artificial reefs.”<sup>131</sup> The NFEA defines an artificial reef as a structure that is constructed or placed in waters, “for the purpose of enhancing fishery resources and commercial and recreational fishing opportunities.”<sup>132</sup> Accordingly, the purpose rather than the effect of habitat enhancement legally defines an artificial reef and distinguishes it from ocean dumping. This definitional approach—purpose versus effect—could be reasonable from a legislative point of view, since any given artificial reef might not actually provide an enhancement of fisheries resources.<sup>133</sup> Even though the oil rig was not originally placed on the seafloor for the purpose of enhancing fishery resources, this exception allows a conceptual re-birth into an artificial reef once an oil company transfers title to the state.

### *1. Punting on Coordination and Vision: A National Artificial Reef Plan?*

The NFEA divided responsibility for regulating the development and monitoring of artificial reefs between the Secretary of Commerce, charged with overseeing agencies that regulate fisheries, and the Army Corps of Engineers, which has permitting power for fixed OCS structures.<sup>134</sup> The federal government has no active role in artificial reef construction on a national level, nor are reef building activities

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128. *Id.*

129. See *supra* notes 53-60 and accompanying text.

130. 33 U.S.C. § 2102 (2000). Congress enumerated several goals for artificial reefs constructed pursuant to NFEA. Chief among these are to “(1) enhance fishery resources to the maximum extent practicable; [and] (2) facilitate access and utilization by United States recreational and commercial fishermen . . . .” *Id.*

131. 33 U.S.C. § 2103 (2000).

132. 33 U.S.C. § 2105(1) (2000).

133. This was the comment of staff who reviewed the proposed California Rigs to Reefs Act S.B. 1. Noting it was not reasonable to ask the California Department of Fish and Game to determine whether an artificial reef provided a net environmental benefit compared to the removal of the platform, staff suggested evaluating whether the proposed artificial reef did not pose a significant harm to the marine environment. See *infra* V.B.2 (California’s Skepticism of rigs-to-reefs).

134. Five federal entities have varying degrees of involvement in rig-to-reef conversions: the Department of Interior (DOI), the Department of Commerce (DOC), the Department of Defense (DOD), the Department of Transportation (DOT), and the Environmental Protection Agency (EPA). See NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 12, at 4-9 (discussing the roles of federal agencies in artificial reef permitting, planning, and construction).

coordinated nationally.<sup>135</sup> Instead, the NFEA directed the drafting of a National Artificial Reef Plan (NARP) to guide states to develop their own comprehensive artificial reef programs.<sup>136</sup>

The National Oceanic and Atmospheric Administration (NOAA), in the Department of Commerce, produced the NARP in 1985 and published a draft revision thereto in 2002.<sup>137</sup> The 1985 NARP noted serious deficiencies in our knowledge of how to construct and manage artificial reefs to enhance fishery resources.<sup>138</sup> The knowledge gap was also the subject of a comprehensive review of current science and literature on artificial reefs published by fisheries scientists in the *Bulletin of Marine Science* shortly after the adoption of the NFEA.<sup>139</sup> The authors of this review noted that "[d]espite considerable enthusiasm by various government agencies, private organizations and individuals, relatively little is known about the biology and ecology of artificial reefs."<sup>140</sup> The authors pointed out that government agencies and others were spending significant funds to construct artificial reefs "despite the general lack of fundamental knowledge concerning optimum design criteria, location, and size of reefs."<sup>141</sup> Echoing these concerns, the 1985 NARP recognized that "[i]mproperly planned, constructed, or managed reefs can be ineffective, interfere with other activities (e.g., trawling) or damage natural habitats and benefits may not be realized."<sup>142</sup>

To assure high quality construction of artificial reefs in the future, the NARP evaluates proposed materials by focusing on four factors: function, compatibility, durability and stability, and availability.<sup>143</sup>

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135. NOAA ARTIFICIAL REEF PLAN OF 1985, *supra* note 44, at 2.

136. 33 U.S.C. § 2103.

137. The NARP is in the form of a technical memorandum, published by NOAA, providing guidance on artificial reef building. Several agencies also contributed to the contents, including the National Marine Fisheries Service and EPA. The executive summary of the NARP explains that its three major functions are to provide guidance to individuals, organizations and government agencies on the technical aspects of reef construction and management, based on the best available scientific information. Also, the NARP is to serve as a guide to state and federal agencies who permit and manage artificial reef to ensure national standards and objectives of the NFEA are achieved. Finally, the NARP seeks to encourage comprehensive planning of artificial reefs with emphasis on the consideration of local conditions. To this end, the NARP noted that local reef siting plans were being developed (as of September 1985) and the NARP may encourage additional planning in other areas of the country interested in artificial reef construction. NOAA ARTIFICIAL REEF PLAN OF 1985, *supra* note 44, at vi. See also NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 12.

138. NOAA ARTIFICIAL REEF PLAN OF 1985, *supra* note 44, at 36-38 (discussing priority research needs).

139. James A. Bohnsack & David L. Sutherland, *Artificial Reef Research: A Review with Recommendations for Future Priorities*, 37 BULL. MARINE SCI. 11 (1985).

140. *Id.* at 11.

141. *Id.*

142. NOAA ARTIFICIAL REEF PLAN OF 1985, *supra* note 44, at 2.

143. *Id.* at 14.

Platform jackets score high in each of these areas.<sup>144</sup> According to artificial reef builders, platform jackets are superior to some materials because of their durability and the minimal likelihood for drift or movement once placed.<sup>145</sup> According to the initial NARP, the “advantages of petroleum structures as reef material derive from their diverse locations and water depths, large numbers, inherent design, modification flexibility, longevity, and stability.”<sup>146</sup> The recently updated NARP expresses optimism about the development of state experience building artificial reefs.

## 2. *Exception to the Platform Removal Requirement*

After Congress enacted the NFEA, the MMS promulgated regulations revising its policy (and setting aside relevant lease obligations<sup>147</sup>) requiring the removal of all oil platforms.<sup>148</sup> The regional supervisor of the MMS may now approve partial structure removal or toppling in place for a rig-to-reef conversion,<sup>149</sup> provided the following requirements are met: (1) the structure becomes part of a state artificial reef program; (2) the responsible state obtains a permit from the Army Corps of Engineers; and (3) the state accepts title and liability for the structure.<sup>150</sup> NFEA does not, however, provide any funding for state artificial reef programs.<sup>151</sup>

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144. Quality reef construction materials can be extremely expensive. Unlike countries such as Japan, which spend significant amounts to construct artificial reefs, in the United States, states rely on the donation of materials to complete artificial reef construction projects. The main source of artificial reef construction materials in the U.S. is recycled materials, although the market for pre-fabricated reef materials is growing. NOAA ARTIFICIAL REEF PLAN OF 1985, *supra* note 44, at 1 (contrasting the United States approach with that of Japan).

145. NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 12, at 17.

146. NOAA ARTIFICIAL REEF PLAN OF 1985, *supra* note 44, at 17. The initial NARP noted that, at the time of its publication in 1985, there were “about 4,000 active offshore gas and oil structures in place with most serving as de facto reefs.” *Id.*

147. See sources cited *supra* note 86.

148. 51 Fed. Reg. 7584-02 (Mar. 6, 1986) (codified at 30 C.F.R. pt. 250).

149. 30 C.F.R. § 250.1730 (2005).

150. 30 C.F.R. § 250.1730(a). In 2002, the MMS reorganized decommissioning regulations and adopted provisions which provide the MMS Regional Supervisor the authority to approve an alternate removal depth of a platform (other than fifteen feet below the mudline) if at least one of the following is satisfied: (1) the structure will not be an obstruction to other users of the seafloor or area and certain information is submitted to show that erosional processes are not expected to expose the obstructions; or (2) divers are required and the seafloor sediment stability poses safety risks; or (3) the water depth is greater than 2,624 feet. 30 C.F.R. § 250.1728 (2005). In the preamble to the final rule, MMS asserted that this section is not intended to permit the MMS to allow portions of platforms to be abandoned in place. Instead it is to allow some measure of abandonment when structures do not pose a hazard to other ocean users or navigation. It also creates special exceptions for platforms in deeper waters (depth of over 2,624) and where the safety of personnel (divers) needed to conduct removal obligations are of paramount concern. Oil and Gas and Sulphur Operations in the Outer Continental Shelf—Decommissioning Activities; Final Rule, 67 Fed. Reg. 35,398 (May 17, 2002) (codified at

This exception shifts the decision to leave a platform on the OCS to a coastal state that agrees to incorporate the platform into its artificial reef program. The exception is unique in that states may be managing these structures in federal waters beyond the three-mile mark that legally defines state from federal jurisdiction offshore.

NFEA requires that states take on title to the platform and liability for platforms converted to reefs.<sup>152</sup> The NARP compares the decision a state makes to assume a permit for reef construction to the decision it makes to construct a public park.<sup>153</sup> Strict adherence to all permit requirements will immunize reef managers, typically employees of state fish and game departments, from liability pursuant to section 205 of NFEA.<sup>154</sup> However, under other circumstances an artificial reef manager's liability is unclear.<sup>155</sup>

States are shielded from liability for damage that arises in connection with compliance with the terms and conditions of an artificial reef permit. However, there are at least two instances where a state may be subject to liability despite this permit shield. First, the permit shield does not apply where liability arises from the violation of one or more permit conditions. Second, the permit shield does not extend to occurrences that are beyond the scope of permit requirements. Put simply, the permit shield is only as broad as the permit itself.<sup>156</sup>

As a practical matter, the likelihood of state liability seems rather remote. The permitting process contains measures that help ensure the structural integrity and stability of proposed artificial reefs. In addition, artificial reefs are required to be shown on navigation charts, marked with buoys, and otherwise satisfy navigability requirements. NOAA's Artificial Reef Plan Revision suggests that a properly sited and marked artificial reef poses little possibility for liability.

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30 C.F.R. pts. 250 and 256). As MMS pointed out in response to comments, it does not have authority to allow ocean-disposal of platforms. Instead, the EPA would have to issue an ocean-dumping permit pursuant to the MPRSA. *Id.* at 35,401.

151. Most funding is provided by state appropriations, federal aid for sportfishing restoration and platform donors. See MCGINNIS ET AL., *supra* note 24, at 81.

152. 33 U.S.C. § 2104 (2000).

153. NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 12, at 39.

154. 33 U.S.C. § 2104(c)(1).

155. Without the benefit of a federal statute relieving liability, the state actors might call upon state sovereign immunity doctrines and state assumption of the risk law to defend suits based on personal injury or property damage.

156. Under the National Fishing Enhancement Act, there is no liability for acts required under the permit. 33 U.S.C. § 2104(c)(1). However, the Act provides for potential liability in any other non-permit related actions: "A person to whom a permit is issued in accordance with subsection (a) of this section and any insurer of that person shall be liable, to the extent determined under applicable law, for damages to which [§ 2104(c)(1)] does not apply." 33 U.S.C. § 2104(c)(1).

The issue of state liability for artificial reefs has had no exploration in the courts. Presumably, a state would have at its disposal a number of defenses to a suit for damages arising from property or personal injuries under tort theories. The analogy to liability for public parks is apt, and fishermen and divers using recreational reefs are likely to face assumption of the risk and contributory negligence doctrines. If a third-party could make a prima facie case for nuisance, trespass, or negligence, the state may still be able to avoid liability based on the common law doctrine of sovereign immunity,<sup>157</sup> or as is more common today, immunity statutes adopted by state legislatures or recreational use statutes.

The platform donator, on the other hand, is shielded from liability after it has transferred title to the platform if the NARP standards are met and materials are not "otherwise defective at the time title is transferred."<sup>158</sup>

NFEA was clearly intended to clarify title to abandoned platforms, shift liability to coastal states, and preserve federal interests in continued mineral extraction and navigation. Absent from these efforts is any long-term vision for the use of artificial reefs on the OCS or a federal role in ensuring habitat enhancement is obtained by these projects. Put simply, the NFEA facilitates rig-to-reef projects *for catching fish*. This is one of NFEA's key failings. To the extent NFEA presumes you can add more and more fishermen landing catch, more frequent fishing trips, and still have an enhanced fisheries resource in the form of more fish in the sea, one wonders what miracle could possibly make this regime work in the long-term.<sup>159</sup> Artificial reef science is far from illustrating that artificial reefs are an improvement over existing natural habitat for the directed purpose of increasing the health and abundance of ocean fisheries, and thus should not be viewed as a panacea for overfishing.<sup>160</sup> There is no

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157. FOWLER V. HARPER, FLEMING JAMES, JR. & OSCAR S. GRAY, *Liability of Governmental Units*, 5 THE LAW OF TORTS § 29 (2d ed. 1986).

158. 33 U.S.C. § 2104(4) (2000). Relief from liability is logical to the extent the donor is no longer in control of materials that are left in the ocean and managed by state entities. Some see this relief of liability as overly generous to oil companies. However, it would be illogical to maintain private liability for a material that a state is putting to public use.

159. Michael Neubert, *Can We Catch More Fish and Still Preserve the Stock?*, 43 OCEANUS 1 (Jan. 19, 2005) (examining the increasing use of Marine Protected Areas to conserve fish and optimize fisheries yield), [http://www.whoi.edu/cms/files/dfino/2005/4/v43n2-neubert\\_2395.pdf](http://www.whoi.edu/cms/files/dfino/2005/4/v43n2-neubert_2395.pdf). Using mathematical analysis, the author determined that marine reserves, areas where no fishing is allowed, must be included to achieve the fishing strategy that provides maximum yield. "In other words, fishermen actually catch fewer fish than when there are no areas closed to fishing." *Id.* at 3.

160. Jeffrey J. Polovina, *Artificial Reefs: Nothing More than Benthic Fish Aggregators*, 30 CAL. COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS REPORTS 37, 37 (1989) (reporting that despite billions in investments and volume of artificial reef deployment, between 1976–87 no measurable increase in coastal fishing landings occurred in Japanese fisheries). See also Dr. Stanislav Patin, *Decommissioning, Abandonment and Removal of Obsolete Offshore Installations*, [http://www.rigzone.com/news/insight/insight\\_pf.asp?i\\_id=112](http://www.rigzone.com/news/insight/insight_pf.asp?i_id=112) (last visited Dec. 1,

evidence that an increase in the use of artificial reefs will produce sufficient fish to keep up with the rising demand of recreational fishing.<sup>161</sup> Given the existing scientific understanding of the function of artificial reefs in marine ecosystems, NFEA expresses a policy decision that providing recreational opportunities outweighs the potential hazards of expanding the use of artificial reefs.

### 3. *The Deceptive Comfort of the "Best Scientific Information Available"*

Like many modern environmental statutes, the NFEA requires that the "best scientific information available" apply to the siting, construction, monitoring, and management of artificial reefs.<sup>162</sup> But NFEA does not fund artificial reef research or require mandatory monitoring in state programs that might lead to increased scientific information about artificial reefs.<sup>163</sup> Like the original NARP, the draft Artificial Reef Plan Revision of 2002 notes that several areas of artificial reef research are still under-explored.<sup>164</sup> "While information on artificial reefs has increased, resource managers still require more and better fishery science and information to enable artificial reef programs to have maximum sustained beneficial results at lowest costs, and to avoid situations where reefs are found to be detrimental to resources or users."<sup>165</sup> The specific areas identified by a survey of reef managers include, among other things: understanding reef community ecology, reef

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2005). Patin discusses the secondary use of offshore platforms. He notes that rig-to-reefs was popular in the Gulf of Mexico because of the association between rigs and fish landings.

However, further analyses of the fishing situation in the Gulf of Mexico showed that the growth of the fish catch in this case was connected not with increasing the total stock and abundance of commercial species but with their redistribution due to the reef effect of the platforms. A critical point here was the use of static gear methods of fishing (e.g., lines and hooks) instead of trawl gears.

*Id.* Thus, the scientific uncertainty about the effects of rigs on fish populations continues to play an important role in the expansion and administration of rig-to-reef programs, particularly where overfishing may still be occurring.

161. See *infra* Part III.A.

162. 33 U.S.C. § 2102 (2000).

163. Some funding for research on the effects of artificial reefs has been offered through the NMFS Cooperative Research Program (CRP) Grant Program. For example, a solicitation for applications to further research on recreational and charter fisheries in the Gulf of Mexico and Atlantic coast noted that "research is needed to evaluate the effectiveness of artificial reefs, what can artificial reefs do for the fishing community, and estimate associated impacts." Financial Assistance for Research and Development Projects in the Gulf of Mexico and off the U.S. South Atlantic Coastal States; Cooperative Research Program, 67 Fed. Reg. 77,235, 77,237 (Dec. 17, 2002). The solicitation also noted that better information was needed on the catch and effort from recreational fishermen.

164. NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 12, at 40.

165. *Id.*

population life histories, bioengineering and design, harvest analysis, community production, and reef population dynamics.<sup>166</sup>

The bottom line is that fundamental knowledge about what artificial reefs do is still missing, while funding for artificial reef management continues to be a problem. Better artificial reef science would substantially increase potential benefits to the environment from artificial reefs and avoid future harm from ill-designed or poorly managed reefs.<sup>167</sup> But the consequence of the current approach is that—even two decades later—the “best scientific information available” requirement in the context of rigs-to-reefs is essentially a symbolic, cautionary statement with little real-world meaning.<sup>168</sup>

### B. Gulf State Rig-to-Reef Programs

Of all the coastal states, Louisiana has the most comprehensive and well-developed statutory framework for addressing artificial reef planning.<sup>169</sup> In 1986, the legislature adopted the Louisiana Fishing Enhancement Act. This legislation created the Louisiana Artificial Reef Development Program and led to the creation of an Artificial Reef Plan to implement the installation of artificial reefs.<sup>170</sup> Louisiana took these steps because, among other reasons, the “loss of existing oil and gas structures could lead to a reduction in current charter-boat operations, as well as potential tourism and coastal development opportunities”<sup>171</sup>

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166. *Id.* at 40–42 (also documenting other needs including estuarine applications, socioeconomics information, and research on the potential uses for mitigation).

167. *See id.* at 40 (noting that more and better fisheries science is needed to improve success of artificial reefs and prevent harms from artificial reefs). Marine science is far behind terrestrial science, and it may be the case that we are unable to understand the complexity of the relationship between marine habitat and marine life on a scale that would enable successful artificial reef construction for fisheries enhancement. Furthermore, perfect scientific understanding of artificial reefs still would not dictate their use. Competing ocean users would still disagree over the extent of their use. *See generally* MCGINNIS ET AL., *supra* note 24, at 13–14 n.6 (discussing limitations of scientific information to solve debate over the merits of the rigs-to-reef option).

168. The phrase appears in many statutes that involve impacts on the environment, and its definition has been left to debate in statutes of major importance such as the Endangered Species Act and the Clean Water Act. *See, e.g.,* Holly Doremus, *The Purposes, Effects and Future of the Endangered Species Act's Best Available Science Mandate*, 34 ENVTL. L. 397 (2004); Michael J. Brennan et al., *Square Pegs and Round Holes: Application of the “Best Scientific Data Available” Standard in the Endangered Species Act*, 16 TUL. ENVTL. L. J. 387 (2003).

169. Murray, *supra* note 122, at 961.

170. Louisiana Fishing Enhancement Act, 1986 La. Acts 100 § 1, codified as amended at LA. REV. STAT. ANN. §§ 56:639(1)–(10) (West 2004); § 56:639.5(A) (creating the Louisiana Artificial Reef Development Program to “promote, develop, maintain, monitor and enhance the artificial reef potential” in the navigable waters of Louisiana, and the waters of the adjacent federal exclusive economic zone).

171. CHARLES A. WILSON ET AL., LA. DEPT. OF WILDLIFE & FISHERIES TECHNICAL BULLETIN NO. 41, LOUISIANA ARTIFICIAL REEF PLAN 5–6 (Nov. 1987) [hereinafter LOUISIANA ARTIFICIAL REEF PLAN].



The Louisiana Artificial Reef Plan is the product of a public process intended to establish guidelines and goals for Louisiana artificial reef efforts. Many different interest groups participated in the public hearings; as the plan notes, “[v]irtually all of the comments obtained supported the concept of an artificial reef plan for Louisiana. Many interest groups felt that a centrally coordinated state plan was critical to preventing artificial reef development from deteriorating into haphazard ocean dumping off the Louisiana coast.”<sup>172</sup> Based on an assessment of participant preferences for the siting of artificial reefs, the Louisiana Artificial Reef Plan states that “most, if not all, artificial reefs will be placed in areas where oil and gas structures and other obstructions now exist.”<sup>173</sup>

Three components of the Louisiana Artificial Reef Plan—artificial reef establishment, funding, and indemnity—warrant comment. Under the Louisiana Artificial Reef Plan, artificial reefs must be established pursuant to the NFEA guidelines and the permits required thereunder.<sup>174</sup> Similarly, consistent with the NFEA, artificial reef siting, construction, maintenance, and monitoring must be implemented “based upon the best scientific information available.”<sup>175</sup> The responsible department is also broadly directed to “[d]evelop additional technical information needed to carry out the program.”<sup>176</sup>

The Artificial Reef Plan called for the creation of an Artificial Reef Development Fund. Noting that the NFEA did not provide funding to offset state costs and ongoing maintenance obligations associated with artificial reef programs, Louisiana indicated it would “depend upon oil and gas companies donating a portion of their savings realized thorough their participation in the program.”<sup>177</sup> An oil company is asked to donate one-half of the avoided cost of removal to the fund, although this aspect of the program is not codified.

Finally, various provisions of the Artificial Reef Plan and the Louisiana Fishing Enhancement Act address liability issues. The state and its agencies are absolved of liability under a permit shield for activities required by state and federal permits,<sup>178</sup> and donors are also shielded from damage claims if the donated materials meet applicable federal guidelines.<sup>179</sup> Once title transfers from a donor oil company to the

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172. *Id.* at 20.

173. *Id.* at 17.

174. *Id.* at 42.

175. § 56:639.4 (establishing standards for artificial reefs).

176. § 56:639.5(B)(1)(e).

177. LOUISIANA ARTIFICIAL REEF PLAN, *supra* note 171, at 20.

178. § 56:639.10(A) (“The department, the state of Louisiana and its agencies, and any insurer of these groups shall not be liable for damages caused by activities required to be undertaken under the terms and conditions of state and federal permits acquired for reef development.”).

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state (in the case of an offshore rig), the donor company is contractually indemnified as long as all NARP and Louisiana Artificial Reef Development Program elements are met.<sup>180</sup>

In 1989, Texas adopted a statutory scheme to facilitate artificial reef construction.<sup>181</sup> Like Louisiana, Texas developed an Artificial Reef Plan to implement its Artificial Reef Act. The Texas Department of Parks and Wildlife reviews artificial reef proposals, and may grant a permit for artificial reef establishment if the proposal complies with the NFEA.<sup>182</sup> Texas has converted several rigs under its program, noting their recreational value. In fact, according to the Department of Parks and Wildlife, rig conversions are the “heart” of the Texas artificial reef plan.<sup>183</sup>

The Texas program is similar to the Louisiana program with respect to establishment, funding, and liability. The Texas Artificial Reef Act requires reefs to be “sited, constructed, maintained, monitored, and managed in a manner that...uses the best scientific information available....”<sup>184</sup> Companies are asked to donate one-half of their savings in exchange for relief from removal obligations. Title and liability is transferred to the state, which also uses a permit shield approach to insulate the state and its agents for activities undertaken pursuant to state and federal permits for artificial reef development.<sup>185</sup>

Other states in the Gulf also have artificial reef programs and, though on a much smaller scale than Texas and Louisiana, have obtained rigs to convert to artificial reefs for recreational fishing opportunities.<sup>186</sup> Florida’s artificial reef program—adopted in 1982—is one of the more active artificial reef programs in the Gulf and Atlantic states.<sup>187</sup> However,

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Any person or company who has transferred title of artificial reef construction materials to the state of Louisiana shall not be liable for damages arising from the use of such materials in an artificial reef, if such materials meet applicable requirements of the National Artificial Reef Plan published under Section 204 of the National Fishing Enhancement Act, and United States Department of Interior regulations.

§ 56:639.10(B)

180. See State of Louisiana, Act of Donation, Article VII – Liability; 7.3 Title Passage of Structure.

181. Act of May 1, 1989, ch. 47, § 1, 1989 Tex. Sess. Law Serv. 47 (Vernon) (codified at TEX. PARKS & WILD. CODE ANN. §§ 89.001–89.061 (Vernon 2005)).

182. § 89.003.

183. Texas Parks & Wildlife, *Artificial Reefs Enhance Fishery Resources Plus Fishing and Diving Opportunities off Texas*, [http://www.tpwd.state.tx.us/landwater/water/habitats/artificial\\_reef/artreef.phtml](http://www.tpwd.state.tx.us/landwater/water/habitats/artificial_reef/artreef.phtml) (last visited Nov. 15, 2005).

184. § 89.023(6).

185. § 89.061.

186. Mississippi and Alabama also have artificial reef programs which are similar to the NFEA. See MISS. CODE ANN. § 49-15-17 (2004); ALA. CODE § 9-12-150 (2004).

187. Jon Dodrill, Artificial Reef Program Summary Overview, Florida Fish and Wildlife Conservation Commission Meeting, Nov. 2000 (on file with author).

only a few former offshore rigs are included in the program.<sup>188</sup> Furthermore, in contrast with Texas and Louisiana, Florida is unlikely to continue using converted offshore oil rigs in its artificial reef program because there are no operating rigs currently in Florida coastal waters or in the adjacent federal waters.<sup>189</sup> Thus, it is not economically feasible for oil and gas companies to transport rig structures from surrounding areas to offshore Florida in order to obtain financial relief from decommissioning. This situation might change, of course, if offshore drilling is pursued around Florida in the future.

At the time of its initial publication in 1985, the NARP recognized that states were already actively legislating in this area, but it further observed that "efforts are presently neither coordinated, nor universal among State agencies."<sup>190</sup> But this lack of coordination has begun to change. As part of the process of amending the NARP, interstate fisheries worked together to formulate and convey recommendations, culminating in the Coastal Artificial Reef Planning Guide published in 1998.<sup>191</sup> Recently, regional databases for artificial reef information have been established to share experiences and improve communication among artificial reef managers. And while not coordinated formally, the existing artificial reef programs share many of the same elements since they are all based on the NFEA.

To some extent the growth of these programs exacerbates the problem posed by scientific uncertainty. Limited research and monitoring dollars are stretched across increasing numbers of artificial reefs, which may be creating unknown and as yet undetected problems. Increased communications between states revealed that better fisheries research is critical to artificial reef success, as is increased funding, specific goal-

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188. Altogether, five artificial reef sites in Florida's coastal waters include ten platform structures. Among them is one of the first offshore rigs to be converted to an artificial reef, donated by Exxon in 1980 (even before any state program was in place). This and other offshore rig conversions took place without any state or local government financial expenditures on costs relating to preparation, transport, or installation, since the donor company paid for all these expenses. A scientific survey of these sites yielded mixed results as to the numbers and diversity of fish. The durability of the structures, on the other hand, proved to be quite good, as many had withstood several hurricanes: Kate in 1985, Opal and Erin in 1995, and Andrew in 1992. Jon Dodrill, *Obsolete Oil and Gas Platforms in Florida's Artificial Reef Program*, Div. of Marine Fisheries, Florida Fish & Wildlife Conservation Comm'n (on file with author). Hurricanes hit the Gulf coast annually, and oil rigs are designed to withstand the rough weather of tropical storms and hurricanes. Indeed, platforms fare well as artificial reefs because of their stability. See also Robert K. Turpin & Stephen A. Bortone, *Pre- and Post-Hurricane Assessment of Artificial Reefs: Evidence for Potential Use as Refugia in a Fishery Management Strategy*, 59 ICES J. MARINE SCI. S74 (Oct. 2002).

189. See MMS, *History of Rigs-to-Reefs (RTR) Offshore Florida*, <http://www.gomr.mms.gov/homepg/offshore/egom/rigsreef.html> (last visited Nov. 16, 2005). See also Dodrill, *supra* note 188.

190. NOAA ARTIFICIAL REEF PLAN OF 1985, *supra* note 44, at 4.

191. COASTAL ARTIFICIAL REEF PLANNING GUIDE, *supra* note 4, at ix.

directed reef projects, and mandatory monitoring.<sup>192</sup> Most artificial reef managers conceive of artificial reefs as fisheries management tools rather than fish aggregating devices.<sup>193</sup> Yet some artificial reef managers have complained that the pressure exerted by fishing interests to create new artificial reefs far exceeds their state program's capacity to monitor previously constructed reefs.<sup>194</sup>

As reflected in the review of various state legislative efforts, all states share some degree of concern with regard to the environmental consequences of artificial reefs. Yet, gulf state programs have not generated necessary scientific data on artificial reefs, resulting in continued public debate about the impact of artificial reefs on the environment broadly as well as about rig-to-reef conversions specifically. The current direction of increased coordination is necessary to generate reliable information and create a program that ensures environmental benefit from rig-to-reef construction projects. Artificial reef managers must be supported with up-to-date information and the capacity to evaluate the success of artificial reefs. Competition between the federal government and states over OCS revenues and interest group pressure to expand these programs has left a void for well-funded and publicly embraced research on artificial reef science.<sup>195</sup>

### III. EXAMINING THE RIG-TO-REEF DEBATE

Notwithstanding the adoption of NFEA, there continues to be significant concern about the use of oil platforms as artificial reefs.<sup>196</sup> Conservationists agitate for platform removal. One observer of this debate has remarked that ocean activists and environmentalists have adopted as a "core strategic objective" the complete removal of platforms from the ocean following operations (known also as "onshore-only")

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192. *Id.* at xi. ("Establishment of baseline evaluation and monitoring programs remains an issue."). They suggested assessments of the physical attributes of the reef structures and to establish objectives for building a reef. These steps "may require that such objectives be included in permits." *Id.*

193. *Id.* Part of the reason for updating the NARP was to re-emphasize that artificial reefs are fisheries management tools.

194. Murray, *supra* note 122 (stating everyone wanted a reef in their "backyard").

195. One suggestion for the hesitancy of environmentalists to support the use of artificial reefs, beyond the state of existing scientific research is that the current body of knowledge has been obtained primarily by oil industry funded research. See Seema Mehta, *Artificial Reef Shelter or Litter?*, LOS ANGELES TIMES, July 4, 2000, at A1 (noting that most of funding for artificial reef science work has come from oil companies that concede they have a vested interest). See generally Wendy Wagner & David Michaels, *Equal Treatment for Regulatory Science: Extending the Controls Governing the Quality of Public Research to Private Research*, 30 AM. J. L. & MED. 119 (2004) (arguing for the need to infuse norms of sound science into privately funded research that is relied on for health and environmental regulations).

196. MCGINNIS ET AL., *supra* note 24, at 90 ("Despite the NFEA, there remain a number of issues and concerns associated with the use of rigs as artificial reefs.").

disposition).<sup>197</sup> Yet, industry and recreationists continue to push for more aggressive use of the exception to the removal rule.<sup>198</sup> The conflict is compounded by a lack of federal direction for artificial reef programs, whereby development of artificial reefs occurs state-by-state even on the federally controlled OCS. MMS acknowledged in its 2000 Policy Statement on Rigs-to-Reefs that the agency is uncertain whether to be more conservative or more aggressive about securing offshore rigs for artificial reefs.<sup>199</sup> Furthermore, since state programs depend on donations for construction materials and funding, state planners note the limited success likely from the standpoint of artificial reef managers who cannot conduct long-term planning to implement state artificial reef plans.<sup>200</sup> With so many different interests and views on the proper approach to environmental stewardship of the ocean resource, it is clear that rig-to-reef policy must consider more than the enthusiasm of marine recreationists and the waste disposal problem posed by costly platform removal.

#### A. *The Ongoing Scientific Debate*

Perhaps the most important aspect of the ongoing controversy is the issue of whether artificial reefs benefit the environment. In October 2003, diving crews sponsored by the industry group National Ocean Industries Association and Coalition for Enhanced Marine Resources broadcast vivid images of marine life living on and surrounding Platform Edith, located off the coast of southern California.<sup>201</sup> Nuevo Energy Company constructed Edith in 1983, after the federal government leased the site to Nuevo to promote exploration, development, and production of petroleum resources.<sup>202</sup> As California does not have a rig-to-reef program, the future of this platform is in question.

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197. PULSIPHER & DANIEL, *supra* note 47.

198. See MCGINNIS ET AL., *supra* note 24, at 73–74.

199. LES DAUTERIVE, RIGS-TO-REEFS POLICY, PROGRESS, AND PERSPECTIVE, OCS MMS REPORT 2000-073 at 5 (Minerals Mgmt. Serv. 2000) MMS poses several questions to stakeholders regarding rigs-to-reefs including, “Should we strive harder to retain and use oil and gas platforms . . . ?” or “Should we be even more selective and conservative in encouraging artificial reef development with obsolete platforms?” *Id.* at 5.

200. NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 12, at 23 (“[I]t has become evident that a total reliance upon scrap materials may hinder the ability to reach reef development goals and objectives.”).

201. The images can be accessed on the National Ocean Industry Association (NOIA) website. [www.noia.org/rigs\\_reef.htm](http://www.noia.org/rigs_reef.htm) (follow “footage of Washington broadcast” hyperlink) (last visited Nov. 16, 2005). NOIA is a national trade association whose mission is “to secure reliable access and a favorable regulatory and economic environment for companies that develop the nation’s valuable offshore resources in an environmentally responsible manner.” NOIA, <http://www.noia.org> (last visited Nov. 16, 2005).

202. MMS, Platforms Operated by Dos Cuadras Offshore LLC: Platform Edith, Lease OCS-P 0296, <http://www.mms.gov/omm/pacific/offshore/platforms/doscuadrasplatform.htm> (last

The existence of marine life on and around Platform Edith cannot be denied. Less clear, however, is whether snapshot views like the October 2003 broadcast have any proper relevance in the scientific debate. The proximity of marine life to offshore platforms is only the beginning of a highly complex scientific puzzle. So complex, in fact, that even after years of experimentation with artificial reefs, the environmental effects of rig conversions (good and bad) remain beyond the reach of scientific explanation.<sup>203</sup> Many critical scientific questions were not resolved before the NFEA was adopted in 1984 to facilitate rig-to-reef conversions, and in fact they endure today.<sup>204</sup>

In its most common form, the scientific debate involves competing “production versus aggregation” theories.<sup>205</sup> Production theory suggests that artificial reefs are a source of fish whereas aggregation theory proposes that fish are attracted to artificial reefs. Thus, proponents of each theory have different interpretations of evidence that many fish and other marine life are located at artificial reef sites. An increase in the concentration of marine life in a particular location (such as an artificial reef, for example) does not necessarily signal an increase in the overall number of fish regionally (production).<sup>206</sup> It is widely understood that fish are good “associators,” leading some skeptics to point out that by such logic “[a] landfill can be considered essential habitat to seagulls....”<sup>207</sup> Fish gathered around dumped car batteries could hardly be considered “habitat.”<sup>208</sup> In fact, through numerous scientific studies, experts have concluded it is extremely difficult to evaluate whether leaving platforms

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visited Nov. 16, 2005). According to MMS records, Edith is located 8.5 miles from the shore at a water depth of 161 feet. It has produced 7,838,158 barrels cumulative oil production, and 5,665,629 mcf cumulative gas production as of March 2003. *Id.*

203. See MCGINNIS ET AL., *supra* note 24, at 26 (discussing lack of complete information about rig-to-reef ecology).

204. See *id.* at 73 (suggesting that this issue did not prevent adoption of programs in the Gulf of Mexico as it has in California, but that the question is still important to state artificial reef managers).

205. *Id.* at 90–91 (identifying the scientific uncertainty of the production versus aggregation question as an unresolved issue of concern to state artificial reef managers).

206. SELECT SCIENTIFIC ADVISORY COMM. ON DECOMMISSIONING, *supra* note 11, at 32 (noting that even where a reef might have a strong local effect, “it is the regional effect that truly matters from an ecological perspective”). Moving the focus from the immediate vicinity to a regional approach changes the question of whether artificial reefs are effective, although the authors note that depending on the objective for a certain artificial reef, attraction might be a sufficient measure of success. The example they point to is where a reef is meant to provide “non-consumptive recreational use.” *Id.* at 20. This could be a spot for divers to view marine life underwater.

207. Margot Higgins, ENVTL. NEWS NETWORK, Jan. 15, 2000, <http://www.enn.com/arch.html?id=12050> (quoting Eric Cardenas, a spokesperson for Santa Barbara’s Environmental Defense Council).

208. Mehta, *supra* note 195.

in place affects regional stocks of fish either positively or negatively.<sup>209</sup> As discussed further in relation to fisheries management generally in Part IV.C., it is particularly difficult to identify what areas of the ocean are providing "habitat" (areas important to fish for different life stages, propagation, growth, etc.) when seeking to protect areas of particularly important habitat for marine species that are declining in numbers.<sup>210</sup>

Some scientists dispute that artificial reefs serve as nurseries of the sea, asserting that conditions at artificial reefs may be too harsh for non-adult fish.<sup>211</sup> This calls into question whether the well-documented attraction of large, mature fish to artificial reefs has a meaningful ecological benefit. There is no scientific consensus about whether the presence of significant numbers of adult species at a site necessarily means that the site is an appropriate breeding ground to increase the overall number of fish regionally.<sup>212</sup>

Focusing on production, according to some researchers, oversimplifies a much more complex issue.<sup>213</sup> Indeed, there is a serious concern that artificial reefs may be harmful to fisheries and the environment and hinder fish propagation. Artificial reefs may attract fish away from more suitable natural habitat.<sup>214</sup> Whether or not some artificial reefs are less productive than natural habitat has yet to be determined.<sup>215</sup> Some species that might otherwise naturally exist in an area may be displaced by artificial reefs that attract some species, but

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209. See SELECT SCIENTIFIC ADVISORY COMM. ON DECOMMISSIONING, *supra* note 11, at 32.

210. Under the Sustainable Fisheries Act amendments to the Magnuson-Stevens Act, regional fisheries councils were charged with identifying areas of "essential fish habitat." However, these efforts were largely unsuccessful to improve the health of fisheries, in part because of the difficulty of identifying what areas of "habitat" are required throughout fish and other marine species life-stages. See Kristen M. Fletcher & Sharonne E. O'Shea, *Essential Fish Habitat: Does Calling it Essential Make it So?*, 30 ENVTL. L. 51 (2000) (evaluating the relevance of essential fisheries habitat (EFH) for fisheries management in the larger context).

211. D.R. Frumkes, *The Status of the California Rigs-to-Reefs Programme and the Need to Limit Consumptive Fishing Activities*, 59 ICES J. MARINE SCI. S272, S274 (Oct. 2002) (describing one criticism of rigs-to-reefs as limiting the ability of juveniles recruited to rigs to complete their life cycle in that habitat). *But see* Mark Helvey, *Are Southern California Oil and Gas Platforms Essential Fish Habitat?*, 59 ICES J. MARINE SCI. S266, S270 (Oct. 2002).

212. MARK H. CARR ET AL., UNIV. OF CALIF., SANTA BARBARA, CONSEQUENCES OF ALTERNATIVE DECOMMISSIONING OPTIONS TO REEF FISH ASSEMBLAGES AND IMPLICATIONS FOR DECOMMISSIONING POLICY, OCS STUDY MMS 2003-053 at 79 (again noting production versus aggregation uncertainty and concern about the ability of reefs to assist at all stages of fish life cycles).

213. SELECT SCIENTIFIC ADVISORY COMM. ON DECOMMISSIONING, *supra* note 11, at 20 (noting that, as to the point of oversimplification, "For fishing enhancement, increased fish production is not necessarily important, although it may be desirable.").

214. *Id.* at 32 (noting that the presence of organisms on an artificial structure does not illustrate enhancement of regional stocks because the structure may have attracted such organisms from more suitable habitats). See also Frumkes, *supra* note 211, at S274.

215. Helvey, *supra* note 211, at S270.

repel others.<sup>216</sup> A related concern is that artificial reefs (including converted rigs) could forever change the normal migration pattern of certain fish, possibly luring them from more productive natural habitat to artificial reefs, or causing other unforeseen problems in their lifecycles such as increasing natural mortality.<sup>217</sup> Another frequently voiced concern is that by concentrating fish in discrete locations they simply become easier to catch.<sup>218</sup> If artificial reefs do not create habitat that produces a net gain in overall fish populations, their numbers may actually be reduced more quickly than if such structures were absent.<sup>219</sup>

Further concerns about artificial reefs echo criticisms of aquaculture.<sup>220</sup> Aquaculture critics suggest there are unforeseen risks in moving to a system of reliance on artificial reefs for fish propagation.<sup>221</sup> Aggregation of fish at artificial reefs can lead to increased contamination from various sources—including onshore industrial operations and agriculture, offshore waste disposal (including hazardous chemicals, drill cuttings, and disintegrating structures associated with oil production

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216. Frumkes, *supra* note 211, at S276. See also Polovina, *supra* note 160, at 38 (discussing a Japanese study from 1984 where some species were attracted to reefs whereas others were repelled, potentially having a negative effect).

217. See Lauren Gravitz, *The Double-Edged Lure of Man-Made Reefs*, CHRISTIAN SCI. MONITOR, Aug. 3, 2000, at 16 (quoting Dr. Coleman, a fisheries ecologist at Florida State University, as pointing out “the migratory pathways of groupers have evolved over geologic time,” and that artificial reefs may change these pathways). The NOAA notes that research must still be conducted to address the questions: “While resources are using artificial reefs, is there a difference in natural and fishing mortalities as compared to other habitats?” and “Do man-made reefs enhance prey fields and availability, and the growth rates of reef population cohorts?” NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 12, at 41.

218. This is the most frequent concern voiced by opponents of artificial reefs. Polovina, *supra* note 160, at 38 (concluding that artificial reefs can be excellent aggregators, but could be ultimately harmful “simply because they allow managers to delay making hard but necessary decisions, such as imposing limits or reducing effort”).

219. SELECT SCIENTIFIC ADVISORY COMM. ON DECOMMISSIONING, *supra* note 11, at 20 (“However, if the stock is fully exploited or overexploited, employing artificial reefs could have negative consequences for the stock unless the stock is enhanced through increased production by the reefs.”). See also Polovina, *supra* note 160, at 37 (emphasizing that in Japan, despite billions in investments and volume of artificial reef deployment, between 1976–87 no measurable increase in coastal fishing landings occurred).

220. See D. Douglas Hopkins, Rebecca J. Goldberg, & Andrea Marston, *An Environmental Critique of Government Regulations and Policies for Open Ocean Aquaculture*, 2 OCEAN & COASTAL L.J. 235, 237–40 (1997) (discussing some environmental concerns raised by the advent of aquaculture in open ocean waters). See also Ronald J. Rychlak, *Ocean Aquaculture*, 8 FORDHAM ENVTL. L. J. 497 (1997) (discussing use of aquaculture to improve health of ocean fisheries).

221. For an overview of the ecological issues associated with fish farming such as fishing down the food chain, pollution, habitat modification, and introduction of non-native species, see Rosamond L. Naylor et al., *Effect of Aquaculture on World Fish Supplies*, 405 NATURE 1017 (June 29, 2000). See also James H. Tidwell & Geoff L. Allan, *Fish as Food: Aquaculture's Contribution*, 2 EMBO REPORTS 958 (2001) (seeking to dispel many environmental concerns associated with aquaculture).



operations),<sup>222</sup> and even fish wastes—that becomes concentrated in their immediate environment.<sup>223</sup> Such contamination has already occurred in some aquaculture operations.<sup>224</sup>

Artificial reefs, though touted as a fisheries management tool and quite popular with hobby fishermen and divers, do not appear to have improved the health of fisheries in American coastal waters. Decades of experimentation have yielded inconclusive results.<sup>225</sup> This is not surprising for at least two reasons. First, as some scientists have pointed out, the amount of habitat provided by artificial reefs represents only the smallest fraction of the overall amount of habitat in the world's oceans.<sup>226</sup> Second, artificial reef construction efforts in American coastal waters have been quite modest and focused primarily on creating recreational fishing opportunities.<sup>227</sup> The state-by-state efforts have been underfunded and under-monitored, leading to a lack of reliable results.<sup>228</sup> Indeed, these efforts fall far short of comprehensive systems used in other countries such as Japan (which rejects recycled material altogether), that rely extensively on artificial reefs for commercial fishing purposes.<sup>229</sup>

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222. Most of the pollution from oil platforms comes from contaminated drilling muds and drill cuttings, pieces of rock that are moved from the well into the surrounding surface area. See ESMAEILI, *supra* note 23, at 148.

223. Hauke L. Kite-Powell, *Down on the Farm . . . Raising Fish*, 43 OCEANUS 1 (Sept. 21, 2004), [http://www.whoi.edu/cms/files/dfino/2005/4/v43n1-kitepowell\\_2362.pdf](http://www.whoi.edu/cms/files/dfino/2005/4/v43n1-kitepowell_2362.pdf). Also, non-native farmed species may escape fisheries and act as biological pollution, causing harm to native fishes in the area. See Mary Liz Brenninkmeyer, *The Ones That Got Away: Regulating Escaped Fish and Other Pollutants from Salmon Fish Farms*, 27 B.C. ENVTL. AFF. L. REV. 75, 79–87 (1999) (discussing the adverse environmental effects of both chemical pollution and biological pollution from salmon farms).

224. See Brenninkmeyer, *supra* note 223, at 79–87; Craig, *supra* note 104, at 163.

225. SELECT SCIENTIFIC ADVISORY COMM. ON DECOMMISSIONING, *supra* note 11, at 23 (“[T]here is a paucity of information regarding the influence of the platforms on fishery resources, or the effects of harvesting on platform-associated species.”). See also NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 12, at 40–43 (identifying further research needs).

226. SELECT SCIENTIFIC ADVISORY COMM. ON DECOMMISSIONING, *supra* note 11, at 32 (stating that the magnitude of the effects from artificial reefs is likely to be small in relation to overall regional populations). See also Weiss, *supra* note 9 (noting that some marine scientists that have avoided the debate opine that the platform's sea life is small compared to the vastness of the ocean).

227. See NOAA ARTIFICIAL REEF PLAN OF 1985, *supra* note 44, at 1 (characterizing United States artificial reef efforts as frugal); *id.* at 5 (noting growing interest in use for restoring habitat, mitigating for loss of habitat, or creating habitat); NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 12, at 2 (noting that since the 1985 plan was released, most efforts with artificial reefs have focused on enhancing access to fishery resources).

228. See MCGINNIS ET AL., *supra* note 24, at 81 (discussing continuing issue of underfunding); NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 12, at 35 (identifying performance monitoring as voluntary).

229. NOAA ARTIFICIAL REEF PLAN OF 1985, *supra* note 44, at 1 (contrasting United States approach with that of Japan). In Japan, artificial reef construction has been funded by the central government since the 1930s. See FRANK M. D'ITRI, *ARTIFICIAL REEFS: MARINE AND FRESHWATER APPLICATIONS* 13 (Lewis Publishers 1985). The level of government funding is unrivaled by any other nation. *Id.* Japan has been building reefs in part to secure independence

The most optimistic thing that can be said about contemporary artificial reef science is that the jury is still out.<sup>230</sup> Yet the experiment continues, often failing to produce reliable information about artificial reefs.<sup>231</sup>

### B. The Political Debate

Uncertainty over the effects of artificial reefs and competing theories regarding whether artificial reefs serve as productive marine habitat continues to fuel the political debate over rig-to-reef programs. The production question has heretofore been the linchpin of the debate over whether rig-to-reef programs can be distinguished from prohibited offshore waste disposal because of their value as marine habitat. However, since this scientific question cannot be adequately answered, values play a significant role in rig-to-reef policy development. Consensus about which decommissioning option is best for the environment continues to be elusive, and to some degree, those on both sides of the debate over rig-to-reef projects tend to define the decommissioning problem with a cost-benefit analysis.<sup>232</sup>

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in a source of food for feeding the nation. *Id.* It uses a variety of structures to attract fish to near shore areas to relieve dependence on fisheries further offshore. Despite extensive construction efforts, there is no evidence that the number of fish has improved regionally due to the presence of artificial reefs. Landings have stayed level, thus there may be at least some benefit in stabilizing the fisheries and bringing fish closer to shore where fishermen can capture them. Hiroshi Kakimoto & Hisanao Okubo, *Fishery Production From Artificial Reefs*, in COMPREHENSIVE RESEARCH ON ARTIFICIAL REEFS IN THE COASTAL AREAS OF NIIGATA PREFECTURE 12 (T. Otsu trans., NMFS Trans. No. 108, 1985) (noting the value of highly stable coastal fishery even if regional total catch has not increased). Japan has also had problems assessing the value of artificial reefs.

230. MCGINNIS ET AL., *supra* note 24, at 26 ("if there is scientific consensus, scientists agree that all the facts are not in").

231. Artificial reefs have been in use for decades, and the federal law promoting their use was adopted in 1984, yet significant uncertainties still exist. The ICES Journal of Marine Science recently had an issue dedicated to artificial reefs where the limitations of current research were again discussed. See 59 ICES J. MARINE SCI. S1 (Oct. 2002).

232. In its simplest form, cost-benefit analysis (CBA) monetizes the benefits that accrue from regulation and weighs this against the costs of the regulation. Proponents of CBA promote reaching a balance between regulation and environmental degradation that is appropriate in a world of limited resources. In fact, nowhere is this critique of environmental regulation more adamantly lobbied than in the regulation of the petroleum industry, which has sought relief from pollution remediation obligations. See Robert W. Wells, Jr., *Without "REBECCA," Cost-Effective Environmental Cleanup Is An Oxymoron At Florida's Petroleum Contamination Sites*, 70-FEB FLA. B.J. 53 (1996); Victor B. Flatt, "[H]e Should at his Peril Keep it There . . .": *How the Common Law Tells us that Risk Based Corrective Action is Wrong*, 76 NOTRE DAME L. REV. 341 (2001). While state rig-to-reef programs have taken funds from donating oil companies to provide recreational benefits, it is the oil industry that will benefit most from this balancing effort. See Thomas O. McGarity, *A Cost-Benefit State*, 50 ADMIN. L. REV. 7, 33-35 (1998).

[I]n the real political world the strongest advocates of cost-benefit analysis are large corporations, trade associations and associated think tanks . . . . Regulatees like to see governmental intervention measured by a cost-benefit test not to make more

### 1. *The Oil Industry and Recreation Interests Unite*

An important component of this debate is whether to subsidize domestic fossil fuel production and boost recreational fishing and diving opportunities. While both activities generate significant economic returns, both have contributed to the decline of ocean health.<sup>233</sup>

Not surprisingly, the oil industry is a vocal proponent of rig-to-reef programs that make offshore disposal of defunct platforms a viable decommissioning option.<sup>234</sup> Industry representatives are active participants in expert commissions, also appearing on panels and in decommissioning workshops to encourage alternatives to onshore disposal.<sup>235</sup> This is particularly so in California, where a rig-to-reef program has been repeatedly rejected.<sup>236</sup> Corporations are profit maximizing entities, thus the reduction of operating costs is always an important goal. Furthermore, under many state programs a company that "donates" an offshore platform to an artificial reef program is rewarded not only by avoiding significant decommissioning costs, but also by receiving a perhaps unwarranted enhancement of its reputation as an environmental good actor.<sup>237</sup> As noted in a recent MMS study report, "the oil industry has a keen interest in the development of a rig-to-reef policy in California, both as a cost-savings mechanism and as an

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resources available to the poor, but to make more resources available to themselves. Even under the highly contestable assumption that a cost-benefit decision criterion would eliminate waste, no vehicle exists for channeling the savings to the most deserving social programs. The savings will invariably go to the regulatees, who may or may not spend them on activities that benefit society. Absent some governmental vehicle for directing how regulated entities spend the resources saved by less stringent regulation, they will devote resources to things that make their shareholders happy.

*Id.*

233. Stephen T. Hesse, *Adapting to Sea Change: Managing Marine in the Face of Climate Uncertainties*, 5 SUSTAINABLE DEV. L. & POL. 37, 38 (Spr. 2005); Felicia C. Coleman et al., *The Impact of United States Recreational Fisheries on Marine Fish Populations*, 305 SCIENCE 1958, (Sept. 24, 2004).

234. The California Artificial Reef Enhancement (CARE) program was established in 1999. It was organized to study the prospects for rig-to-reef conversions in California, and began with seed money donated by Chevron. See MCGINNIS ET AL., *supra* note 24, at 69.

235. Note that not just the employees of oil production/refining industry are included in this grouping, but also the industry that has grown around servicing oil companies in offshore operations. For example, WINMAR Construction, which specializes in lifecycle management for the energy industry, boasts "Creative Disposal Solutions" for their clients, including Rigs-to-Reefs. WINMAR – Experience, <http://www.winmar.us/experience> (last visited Nov. 13, 2005). According to their promotional website materials, "Win Thornton, President of WINMAR, is a member of the Artificial Reef Advisory Board for the state of Texas." WINMAR – Construction, <http://www.winmar.us/experience/disposal> (last visited Nov. 13, 2005).

236. MCGINNIS ET AL., *supra* note 24, at 62–72 (discussing efforts to develop and pass rig-to-reef legislation in California).

237. *Id.* at 69. See discussion of social license to operate, *infra* Part III.B.2.

opportunity for promoting its image as an environmental steward or benefactor.”<sup>238</sup>

Recreationists—hobby fisherman, divers, and the industry that has developed to support their ventures—are the staunchest non-oil industry supporters of rig-to-reef programs.<sup>239</sup> Artificial reefs provide diving opportunities and are popular fishing spots. Apart from industry savings, the benefits enjoyed by recreational (and a few commercial)<sup>240</sup> fishing interests have been a strong driving force behind the development and implementation of rig-to-reef programs in many states.<sup>241</sup>

These groups are also able to argue that removal itself has predictable environmental impacts. Decommissioning activities create air, water, and land pollution.<sup>242</sup> Another potential environmental cost of removal is the value of marine life in the vicinity of platforms. Frequently, platforms attract marine species that live on and surround the structure.<sup>243</sup> Though unlikely to continue, in the past explosives have been used to remove the legs from the seafloor, which kills marine life on the structures and in the immediate vicinity.<sup>244</sup> Even if only a fraction of all rigs on the U.S. OCS are currently located at sites ideal for artificial reefs, for each rig that is removed, some marine life will be destroyed in the process.<sup>245</sup> This loss is weighed in support of leaving rigs in place

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238. MCGINNIS ET AL., *supra* note 24, at 69.

239. Sportsfishing organizations promote the use of artificial reefs for recreational fishing. See Weiss, *supra* note 9 (discussing coalitions between the oil industry and recreational fishing interests on rig-to-reef proposals). See also Frumkes, *supra* note 211, at S274 (noting that the sportsfishing industry supported rigs-to-reefs developments). Recreational fishing provides over \$20 billion dollars to the U.S. economy and is a recognized priority of federal and state governments. OCEAN COMM’N REPORT, *supra* note 20, at 275.

240. Some commercial fishermen oppose rig-to-reef conversions because artificial reefs can hinder navigation. Artificial reefs can also limit the effectiveness of trawling—the method used by some commercial fishermen to get shrimp and other bottom dwelling fish off the bottom of the ocean floor. Nets, long-lines, and trawlers can get caught on artificial reefs, causing property damage and even injury to commercial fishermen. Of course, the deleterious impact of such commercial fishing practices on the marine environment is well documented, though it remains largely unaddressed. See MCGINNIS ET AL., *supra* note 24, at 68–70 (noting interest by recreational fishermen and resistance from commercial fishermen to rig-to-reef idea in California).

241. See *id.* at 78–80.

242. COMM’N ON DISPOSITION, *supra* note 2, at 47. Furthermore, the machinery and vessels used to transport materials during the decommissioning activities may emit air and water pollutants.

243. Dybas, *supra* note 100.

244. COMM’N ON DISPOSITION, *supra* note 2, at 47.

245. At times these organisms may even be protected by the endangered species act or marine mammal protection act. Taking and Importing Marine Mammals; Taking Bottlenose Dolphins and Spotted Dolphins Incidental to Oil and Gas Structure Removal Activities in the Gulf of Mexico, 67 Fed. Reg. 19,370 (2002) (proposing rule allowing incidental take of bottlenose dolphins and spotted dolphins during platform removal in the Gulf of Mexico). The GAO noted that the effects of certain decommissioning activities on the marine environment, such as the use of explosives to remove platforms, must be better understood to further the goal

rather than removing them. As authors of a study on the development of international standards lamented, "[a] common wisdom has been forming among environmentalists that the only 'right' or 'environmentally correct' thing to do with retired offshore oil and gas platforms is to dismantle them completely and bring all their components to shore for disposal and salvage."<sup>246</sup>

## 2. *Conservation and Environmental Advocates Seek Renewed Precaution*

Environmentalists remain the most significant group opposing rig-to-reef programs. Scientific uncertainty plays a critical role in their advocacy efforts, with many arguing that scientific uncertainty regarding the value of artificial reefs as fishery management tools must be resolved before rig-to-reef programs are properly endorsed at a policy level. Groups such as the Ocean Conservancy and the Natural Resources Defense Council suggest considerably more evaluation of artificial reefs is necessary, and they point out that little restoration of failing marine health can be achieved by recreational use of artificial reefs.<sup>247</sup>

But some also oppose the offshore disposal of oil platforms out of a concern that it signals a growing acceptance of using the ocean as a garbage receptacle.<sup>248</sup> Ocean dumping of wastes is often all too easy, as the problems of wasteful consumption are put out of sight, out of mind—a lesson already learned in the 1970s spurring adoption of the MPRSA.<sup>249</sup> Opponents of ocean dumping seek to advance their fundamental belief that industrial waste should be treated and recycled, not dumped in the ocean.<sup>250</sup> Such arguments are certainly not the exclusive province of radical environmental groups; there is wide

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of environmental protection. See U.S. GEN. ACCOUNTING OFFICE, OFFSHORE OIL AND GAS RESOURCES, INTERIOR CAN IMPROVE ITS MANAGEMENT OF LEASE ABANDONMENT, REPORT TO THE CHAIRMAN, COMMITTEE ON GOVERNMENT AFFAIRS, U.S. SENATE, GAO/RCED-94-82 (May 1994).

246. PULSIPHER & DANIEL, *supra* note 47, at 1.

247. See Ocean Conservancy, *supra* note 116. The Natural Resources Defense Council (NRDC) has also voiced concern about remote liability for removal in the future. See Osterhoudt, *supra* note 116. See Bruce Alpert, *Vitter Wants Rigs to Stay as Reefs Bill Would Change Law Forcing Removal*, NEW ORLEANS TIMES PICAYUNE, Sept. 19, 2003, at 13. See also SIMON REDDY, GREENPEACE INT'L, NO GROUND FOR DUMPING, THE DECOMMISSIONING AND ABANDONMENT OF OFFSHORE OIL AND GAS PLATFORMS (1995).

248. Alpert, *supra* note 247.

249. See Anderson, *supra* note 35, at 79. See also Kindt, *supra* note 66, at 37 (discussing use of ocean as garbage receptacle).

250. Letter from Peter Melchett, Executive Director, Greenpeace-UK, to Christopher Fay, Chairman and CEO, Shell UK (Sept. 5, 1995), *quoted in* HUNTER ET AL., *supra* note 116, at 744 (acknowledging Greenpeace's error in estimation of oil left on Brent Spar, but reiterating its argument in opposition to ocean dumping).

agreement that we should not deface the ocean by disposing of garbage and waste products offshore.<sup>251</sup>

Unlike the fairly simple matter of evaluating the cost of removal, the environmental benefits of removing offshore platforms are vigorously contested.<sup>252</sup> Even where there may be short-term harm to the surrounding area if removal is undertaken, the long-term benefits of cleaning up after operations is greatly appealing to those who approach the issue from a moral obligation to return the area to its pre-drilling state as originally contemplated and from the polluter pays standpoint that businesses should internalize the cost of their activities.<sup>253</sup> A utilitarian perspective that the removal approach yields the option of other potential uses for the site and surrounding area in question—particularly for ease of navigation—would also tend to focus on the long-term benefits of platform removal.

The issue of liability has been another rallying point for environmentalists in the political debate. The risks posed by artificial reefs for which an owner could potentially be held liable include interference with navigation, physical harm to users of the artificial reefs, property damage, and unintended environmental impacts like adverse effects on fisheries.<sup>254</sup> There is also the long-term risk and distinct probability that removal of these structures may be required in the future.<sup>255</sup> The prospect of the cost of remote liability (transferred to the state and state taxpayers) must therefore be weighed against the more readily understood cost of complete removal and the speculative benefits of an artificial reef.

An excellent illustration of the collision between competing viewpoints is the Brent Spar dispute, which arose out of a 1995 proposal to dispose of a large platform owned by Shell in the North Sea.<sup>256</sup> The United Kingdom initially approved the disposal, concluding that under its laws, deepwater disposal was the “best environmental option practicable.”<sup>257</sup> Reports done in connection with decommissioning the Brent Spar suggested there was little difference, environmentally, between a leave in place or removal option. But environmental advocates were not persuaded by the evaluation.<sup>258</sup>

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251. See COMM'N ON DISPOSITION, *supra* note 2, at 48 (citing the notion that the ocean should not become a “junkyard”).

252. ESMAEILI, *supra* note 23, at 191.

253. See Mark Sagoff, *Settling America or The Concept of Place in Environmental Ethics*, 12 J. ENERGY NAT. RESOURCES & ENVTL. L. 349 (1992).

254. See COMM'N ON DISPOSITION, *supra* note 2, at 41.

255. Groups such as the NRDC have voiced concern about the long term liability for removal being shifted away from oil companies. See Alpert, *supra* note 247.

256. ESMAEILI, *supra* note 23, at 212.

257. *Id.* at 191, 212–13.

258. SIMON REDDY, *supra* note 247.

Greenpeace, the leading opponent of the proposal, argued that dumping the Brent Spar amounted to environmental vandalism.<sup>259</sup> Other environmental and community activists also refused to accept this decision, and they led boycotts of Shell UK to push for onshore disposal.<sup>260</sup> As the opposition gained momentum, some nations—even those that had earlier sanctioned the proposal—changed their positions and pressured the United Kingdom to reverse its decision.<sup>261</sup>

Eventually, the public opposition efforts compelled Shell UK to pursue onshore disposal. Thus, the Brent Spar dispute continues to influence offshore disposal decisions. As one scholar noted, “since the Brent Spar incident both companies and governments have been attempting to delay the decommissioning of the big oil platforms in the North Sea when abandonment occurs.”<sup>262</sup> The dispute led to the amendment of a regional treaty, limiting disposal,<sup>263</sup> and has caused some to conclude that even the potential for a rigs-to-reefs program in the North Sea is dead.<sup>264</sup>

On a more abstract level, the Brent Spar incident illustrates the rise of a concept known as corporate responsibility or a “social license to operate.”<sup>265</sup> Under this theory, oil companies must have a social license to operate, somewhat like permission from the public above and beyond government approvals or permits needed to conduct business activities.<sup>266</sup> Scholars who have studied this phenomenon as applied to firms that pollute the environment observed that this new “license” often forces firms to go beyond compliance with applicable law.<sup>267</sup> This theory may help account for the difference in public opinion between rig-to-reef

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259. Mankabady, *supra* note 29, at 612–13. The Brent Spar ended operations in September 1991. *Id.* at 612. Shell obtained a disposal license from the Marine Safety Agency of the DTI in 1995. *Id.*

260. Mankabady, *supra* note 29, at 612–13 (reporting that Greenpeace International and other groups contested Shell UK’s plan to dump the Brent Spar in the ocean).

261. ESMAEILI, *supra* note 23, at 212–13. See also HUNTER ET AL., *supra* note 116, at 742–43 (discussing Greenpeace’s Brent Spar campaign).

262. ESMAEILI, *supra* note 23, at 218.

263. Regional treaties, such as the OSPAR Convention in the North–East Atlantic area, also limit some countries’ options regarding decommissioning. OSPAR Commission, *Sintra Statement* (July 23, 1998), available at <http://www.ospar.org/eng/html/md/sintra.htm>.

264. See Jensen, *supra* note 107, at S5; Mark Baine, *The North Sea Rigs-to-Reef Debate*, 59 ICES J. MARINE SCI. S277 (Oct. 2002).

265. These concepts are not necessarily new, but have seen rising popularity and influence in recent times. Neil Gunningham, Robert A. Kagan, & Dorothy Thornton, *Social License and Environmental Protection: Why Businesses Go Beyond Compliance*, 29 LAW & SOC. INQUIRY 307 (2004).

266. See *id.* at 307 (describing a social license as the extent to which a corporation must meet societal expectations whether or not they are embodied in current law).

267. See *id.* at 314 (finding evidence from the pulp and paper industry that community actors and environmental groups may have more influence over corporate environmental compliance than government).

programs and the use of abandoned ships or other materials as artificial reefs. Interestingly, the legal regime for abandoning ships at sea is less controversial, more permissive, and even attempts by statute to promote equitable distribution of obsolete ships among states interested in sinking them for use as artificial reefs.<sup>268</sup> Unlike the process for converted rigs, there is a general permit available for ocean disposal of obsolete ships.<sup>269</sup> The evidence that ships provide valuable marine habitat is no better than that supporting decommissioned oil rigs as habitat. The only clear reason why there is more public acceptance of ships converted to artificial reefs than platforms is the public awareness of the environmental harms common in all aspects of oil and gas operations and disinclination toward policies that assist the oil industry.<sup>270</sup> Through the social license to operate, the public influences how the wealth that is created from OCS exploration and drilling activities should be distributed among the federal government, states, and citizens and balanced against concern for the environment.<sup>271</sup>

As the Brent Spar incident illustrates, a social license to operate is an important component of the platform removal debate. Greenpeace's activities made public acceptance of decommissioning options a distinct objective of industry today.<sup>272</sup> The oil industry is now eager to boost its image as an environmental steward to counter the growing public awareness that the use of fossil fuels, itself unsustainable because these are non-renewable resources, is destroying earth's life-support system. The public is coming to understand that extraction of oil and gas itself creates environmental degradation, and the use of oil and gas causes air, water, and soil pollution. Now, the failure to plan wisely for disposal of waste production materials illustrates that each step of the entire offshore drilling operation carries potentially negative environmental

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268. National Fishing Enhancement Act of 1984, 16 U.S.C. §§ 1220–1220d (2000). Section 1220(b) requires that the Secretary take into consideration the number of obsolete ships that are, or might later become, available to states for use as artificial reefs.

269. Transportation and Disposal of Vessels, 40 C.F.R. § 229.3 (2005). The structure must be cleaned of all pollutants prior to disposal. Permit terms require advance notice to EPA, supervision by Coast Guard, and other requirements relating to site choice and methods of sinking.

270. Arguably, the identity of the donor makes a significant difference in public acceptance. Oil companies that donate rigs enjoy the rare opportunity to enhance their reputation as a "good" environmental actor. The incongruence of shipwrecks and rigs regulations supports the argument that the public's perception of the oil industry as anti-environmental contributes to skepticism of rigs-to-reef policy. See Mistretta, *supra* note 9.

271. Sharing revenues with coastal states directly or creating a fund for coastal environmental improvement projects are two suggestions that lawmakers have discussed. Initiatives in California and Florida also illustrate this broad public concern for environmental effects of offshore drilling.

272. See Cynthia A. Williams, *Civil Society Initiatives and "Soft Law" in the Oil and Gas Industry*, 36 N.Y.U. J. INT'L L. & POL. 457, 467 (2004) (citing the Brent Spar incident as bringing the corporate social responsibility trend to light).



consequences. What the rig-to-reef debate illustrates is that for a "social license to operate" to be effective, industry must not only *appear* to be operating responsibly, but the public must also demand meaningful results.<sup>273</sup> Without significantly more information about the effects of artificial reefs, good or bad, providing industry with reputation enhancement for the rig-to-reef "partnership" is unwarranted.

To reverse the damage from pollution and overfishing that has come from competing uses of the ocean, more aggressive strategies must be implemented. An important step is to commit to conducting future ocean activities, including offshore drilling and fishing, in a long-term sustainable manner. Sustainable development meets the needs of people today without compromising the potential for future generations to meet their needs.<sup>274</sup> It requires that environmental stewardship, economic development, and social development be reconciled and treated as co-equal goals.<sup>275</sup> In the current legal framework, energy demand and recreational interests have far overshadowed environmental stewardship, posing serious concern about the sustainability of these practices. The platform removal debate and rig-to-reef programs must be placed responsibly within the larger scheme of multiple-use ocean management and offshore federalism that is evolving today.

IV. REFLECTING ON THE ORIGINS OF THE PROBLEM:  
FRAGMENTATION OF OCEAN LAW AND THE CONTINUING CONTEST  
OVER MANAGING THE OCS

What the ongoing debate over rig-to-reef programs obscures is the failure of fisheries laws and offshore oil development practices to achieve sustainable use of the ocean's resources. Fundamentally, oil and gas regulation as well as fisheries management have anthropocentric regimes dominated by economic interests. Neither regime achieves sustainable utilization of natural resources and both regimes incorporate elements obviously antithetical to sustainable use precepts. As a result, these two areas of law—in addition to the broader interdisciplinary approach to ocean management—have been the subjects of lengthy debate over the form and substance of much needed reform. It is commonly recognized that our legal infrastructure must be reworked to improve the health of ocean ecosystems and to ensure that long-term benefits can be obtained from this invaluable natural resource.<sup>276</sup> These failings of ocean

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273. This is consistent with other initiatives that rely on information disseminated to the public. See *id.*

274. OUR COMMON FUTURE: THE WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT (Gro Harlem Brundtland ed., Oxford University Press 1987).

275. *Id.*

276. See generally OCEAN COMM'N REPORT, *supra* note 20; PEW REPORT, *supra* note 53; Kristen M. Fletcher, *Fix It! Constructing a Recommendation to the Ocean Commission for the*

stewardship created the problems that rig-to-reef programs seek to address, as two unsustainable practices converge.

### A. Oil and Gas Regulation

There are two main shortcomings of offshore oil and gas regulation that drive rig-to-reef policy development. First is the ongoing competition between coastal states and the federal government over management of OCS resources. Second is the related problem of inadequate planning for long-term OCS exploitation.

#### 1. The State-Federal Conflict on the OCS

Coastal states and the federal government have long fought for dominion over coastal waters and their natural resources.<sup>277</sup> Offshore oil production has been the primary catalyst of ongoing conflict; while coastal states bear many of the risks of offshore drilling, the federal government receives the direct benefits in the form of federal revenue.<sup>278</sup> While the risk of a large oil spill continues to receive attention, of growing concern is the significant lack of study on the chronic, low-level, and cumulative impacts on the marine and human environment levied by offshore exploration and drilling.<sup>279</sup> This basic inequity has prompted many coastal states to go to great lengths in recent decades to prevent drilling in federal waters off their shores. This has happened particularly in California and Florida where healthy coastal environments are central to the economy.<sup>280</sup> The concession to allow states to develop their own artificial reef programs, possibly even managing such reefs if permitted in federal waters, is an unusual compromise in a typically contentious turf

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*Future of Fisheries*, 8 ROGER WILLIAMS U. L. REV. 93 (2002). This is also evident given the numerous proposals for amendments to the OCSLA and laws governing ocean activities.

277. This enduring dispute is popularly known as the "Seaweed Rebellion." FITZGERALD, *supra* note 47, at 53–82.

278. *Id.*; H.R. REP. NO. 98-206, at 26–30 (1983); Barry Hart Dubner, *Problem on the United States Continental Shelf—Measuring the Environmental "Effectiveness" of the Outer Continental Shelf Act (OSCA)*, 34 NAT. RESOURCES J. 519, 530 (1994); OCEAN COMM'N REPORT, *supra* note 20, at 359.

279. OCEAN COMM'N REPORT, *supra* note 20, at 361. In addition to recognizing the negative impacts on bottom dwelling organisms and destruction of habitat, the report also calls for more information on the chronic, low level impacts, and cumulative impacts on the marine, coastal, and human environment levied by offshore oil and gas drilling operations.

280. John K. Van de Kamp & John A. Saurenman, *Outer Continental Shelf Oil and Gas Leasing: What Role for the States?*, 14 HARV. ENVTL. L. REV. 73, 112–1124 (1990) (discussing California's political approach and local ordinances to influence drilling decisions); Sierra B. Weaver, *Local Management of Natural Resources: Should Local Governments Be Able to Keep Oil Out?*, 26 HARV. ENVTL. L. REV. 231, 242–50 (2002) (discussing California efforts to prevent offshore oil drilling through local laws); Edward A. Fitzgerald, *The Seaweed Rebellion: Florida's Experience With Offshore Energy Development*, 18 J. LAND USE & ENVTL. L. 1 (2002) (discussing Florida's evolution from supporter to opponent of offshore drilling).

battle. Such an approach, however, has an obvious downside under the current offshore drilling revenue-sharing regime as discussed further in this section.

While federal supremacy offshore was initially an issue decided by the Supreme Court,<sup>281</sup> a series of federal statutes now regulates many aspects of the complex relationship between states and the federal government in offshore waters.<sup>282</sup>

Generally, the coastal states have jurisdiction from the shore outward to the three-mile mark,<sup>283</sup> although the federal government retained a navigational servitude within this area for the purposes of commerce, navigation, national defense, and international affairs.<sup>284</sup> Beyond the three-mile mark, the federal government has exclusive jurisdiction and has claimed an exclusive economic zone to the 200-mile mark.<sup>285</sup> This division of responsibility at the three-mile mark, based on an arbitrary delineation from an ecological standpoint, is a central feature of many contemporary disputes, particularly over the regulation of offshore oil drilling practices.<sup>286</sup>

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281. In the first Supreme Court case to consider the issue, *United States v. State of California*, the federal government contested California's rights to lease offshore areas for oil and gas development. 332 U.S. 19 (1947). California argued that it had title to the area adjacent to its coasts based on *Pollard v. Hagan*. *Id.* at 30-31 (citing *Pollard v. Hagan*, 44 U.S. 212 (1845)). *Pollard* vested ownership of inland waters to states on an equal footing basis to the original thirteen colonies which had obtained rights to inland water from the crown. However, the Court found no such ownership of offshore waters could be claimed by either the original colonies or later admitted states. The Supreme Court determined that the federal government, rather than the state, had authority over offshore resources beyond the low water mark. *Id.* at 36. Following this case, similar litigation ensued between the United States and Texas, Louisiana, as well as other coastal states. See, e.g., *United States v. State of Texas*, 339 U.S. 707 (1950); *United States v. Louisiana*, 339 U.S. 699 (1950); *United States v. Maine*, 420 U.S. 515 (1975). These Supreme Court rulings did not end the contests between coastal states and the federal government, which now litigate questions of control and management over OCS resources under federal statutes.

282. The three main statutes provide this regulation. Outer Continental Shelf Lands Act, 43 U.S.C. §§ 1301, 1331-1356 (2000); Federal Submerged Lands Act, 43 U.S.C. §§ 1301-1315 (2002); Coastal Zone Management Act, 16 U.S.C. §§ 1451-1465 (2000). See generally FITZGERALD, *supra* note 47. The history of the state-federal conflict on the OCS has been much discussed in the literature. For a concise discussion, see Wiygul, *supra* note 50 (providing a backdrop to the power struggle between the federal government and the states as well as the statutory framework of OCS development).

283. 43 U.S.C. § 1312. The seaward boundary of each coastal state is generally three geographical miles from the coast line. However, for historical reasons the boundaries for Texas and Florida are broader than three miles. For further discussion of the history of the offshore boundary dispute between coastal states and the federal government, see Robert Jay Wilder, *The Three-Mile Territorial Sea: Its Origins and Implications For Contemporary Offshore Federalism*, 32 VA. J. INT'L L. 681 (Spring 1992).

284. 43 U.S.C. § 1314(a).

285. Consistent with UNCLOS III, *supra* note 63, art. 57.

286. See Wilder, *supra* note 283 (arguing for reevaluation of the state-federal delineation given the increasing uses of the OCS).

The Outer Continental Shelf Lands Act (OCSLA) is the primary statute governing offshore oil drilling.<sup>287</sup> A key feature of the OCSLA is its leasing provisions, which authorize the federal government to lease tracts of land on the OCS to private companies.<sup>288</sup> The federal government receives bonus bid monies from oil companies competing for offshore leases, as well as lease payments and royalties from lessees on the minerals and gas extracted from OCS areas leased to such private parties. Unlike the revenue-sharing regimes used on public lands onshore,<sup>289</sup> only in limited circumstances does the federal government share revenues with the adjacent coastal states.<sup>290</sup> Furthermore, to the extent other statutes provide states some influence over drilling off their shores, it is certainly limited.<sup>291</sup> The federal government is not obligated

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287. See discussion *supra* Part I.B on OCSLA.

288. Outer Continental Shelf Lands Act, 43 U.S.C. § 1334 (2000).

289. Under the Mineral Leasing Act of 1920, affected states and the federal government share revenues from minerals extraction. Pub. L. No. 109-80, 41 Stat. 437 (codified as amended in scattered sections of 30 U.S.C. §§ 181-263 (2000)).

290. When a well site is located within three miles of the state boundary a small increment of these royalties is shared directly with adjacent states pursuant to section 1337(g) of the OCSLA. 43 U.S.C. § 1337(g). This revenue sharing scheme is intended to provide affected coastal states with "funds which may be used for the mitigation of adverse economic and environmental effects related to the development . . ." of adjacent offshore areas. 43 U.S.C. § 1332(4)(B). Despite this modest revenue-sharing provision, these mitigation payments—quite unlike the regimes used on dry land—have done little to alleviate the tension between states and the federal government over offshore drilling. See OCEAN COMM'N REPORT, *supra* note 20, at 359 (discussing difference between minerals leasing act onshore and OCSLA revenues). This has led many to suggest increased revenue-sharing as a solution to ongoing tension between coastal states and the federal government over offshore drilling, and the recent Energy Policy Act of 2005 increased revenue sharing between coastal states and the federal government in part to support increased domestic oil and gas production.

291. Coastal states do have some influence over drilling off their shores pursuant to the current legal framework. Shortly after the OCSLA was enacted, the Coastal Zone Management Act (CZMA) was adopted. Pub. L. No. 89-454, § 301, 80 Stat. 303 (1966) (codified as amended at 16 U.S.C. §§ 1451-64 (2000)). Under the CZMA, Congress recognized the importance of state involvement in federal programs affecting ocean resources, and the potential for states to develop ocean resource management plans. 16 U.S.C. § 1451(m). "Because of their proximity to and reliance upon the ocean and its resources, the coastal states have substantial and significant interests in the protection, management, and development of the resources of the exclusive economic zone that can only be served by the active participation of coastal states in all Federal programs affecting such resources and, wherever appropriate, buy the development of state ocean resource plans as part of their federally approved coastal zone management programs." The CZMA encouraged each coastal state to adopt a Coastal Management Plan (CMP), a long-term plan for the multiplicity of uses contemplated in coastal areas. 16 U.S.C. § 1455. Federal funding assistance available for states that developed coastal programs. States submit their CMPs to the DOI for approval. Upon approval, the federal government must conform its proposed coastal zone activities with the contents of the relevant CMP: "[E]ach Federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent with approved state management programs."

291. 16 U.S.C. § 1456(c)(1). This provision is known as the "consistency determination." Many commentators believed CZMA would give the state a "veto" power over OCS development. Recognizing the potential impact on U.S. sovereignty, critics of CZMA note the

to defer to a particular state's environmental concerns.<sup>292</sup> This has made several states powerless to prevent continued leasing through applicable statutes, which has then led to political maneuverings.<sup>293</sup>

Some contend the resulting division of authority over the oceans contributes to the failure of governing laws to achieve sustainable use.<sup>294</sup> Certainly, with increased activities, the potential for conflicting uses occurring on the OCS, and the great wealth potentially obtainable from ocean resources, this dispute will continue.<sup>295</sup>

## 2. *Limited Vision for Sustaining Outer Continental Shelf Resources*

Another shortcoming of existing law is the federal government's lack of vision for long term sustainability of the ocean resource. As just discussed, OCSLA was designed to achieve "cooperative federalism," in recognition of the competing goals of coastal states and the federal government with respect to offshore oil exploration and leasing decisions.<sup>296</sup> Affected states have a consulting role in the process to determine where oil drilling will occur and thus where a particular oil platform will be located on the OCS.<sup>297</sup> However, under current law each

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statute provides excessive power to coastal states which can interfere with the national agenda. See Bruce Kuhse, *The Federal Consistency Requirements of the Coastal Zone Management Act of 1972: It's Time to Repeal This Fundamentally Flawed Legislation*, 6 OCEAN & COASTAL L. J. 77 (2001). But see John A. Duff, *The Coastal Zone Management Act: Reverse Pre-Emption or Contractual Federalism?*, 6 OCEAN & COASTAL L. J. 109 (2001) (countering that CZMA is an important tool for state-federal relationships and management of the coastal zone); Wiygul, *supra* note 50, at 157 (discussing how no veto power inured to states with consistency determinations). Tension between coastal states and the federal government over the consistency determination provision of the CZMA continues, with areas of conflict including the timing and generation of environmental information required for adequate state review of OCS projects. The recent Energy Policy Act of 2005 modified the time period for the decision and appeal process, in part as a response to criticism that consistency determinations were unduly delaying energy projects. See Pub. L. No. 109-58, § 381, 119 Stat. 594, 737-38 (2005) (to be codified at 16 U.S.C. § 1465).

292. Wiygul, *supra* note 50, at 157.

293. Instead, coastal states have used other measures such as legislative tools and local laws to prevent offshore development. See Lynn S. Sletto, *Piecemeal Legislative Proposals: An Inappropriate Approach to Managing Offshore Oil Drilling*, 33 GOLDEN GATE U. L. REV. 557, 566-82 (2003) (discussing legislative tools used to stop leasing). See also Weaver, *supra* note 281, at 242-50 (discussing California state and local efforts to prevent oil drilling on the California coast).

294. See Wilder, *supra* note 286 (proposing more cooperative state-federal partnership for developing OCS resources).

295. For example, see proposals such as the Stewardship for Our Coasts and Opportunities for Reliable Energy Act, S. 1206, 109th Cong. (2005), and the Offshore Fairness Act of 2005, S. 735, 109th Cong. (2005) (proposing extension of seaward boundaries of Louisiana, Mississippi and Alabama).

296. See *supra* notes 290-291 discussing cooperative federalism in the context of OCSLA and CZMA.

297. This consulting role is provided via the Coastal Zone Management Act consistency requirements. See *supra* note 291.

step in the oil drilling program is evaluated for environmental impact separately: lease sale, exploration and production, and decommissioning.<sup>298</sup> Thus, analysis of the final stages of oil exploration and extraction is deferred until decommissioning is imminent.<sup>299</sup> If rig-to-reef programs become simply a matter of toppling existing platforms in place and relying on adjacent states to manage their continuing presence, the initial decision about where to place an oil platform is determinative of the separate issue of where an artificial reef should be located.<sup>300</sup> This suggests that both the federal and state governments must focus on the long-term use of ocean areas so that non-renewable resource extraction does not drive long-term use of ocean areas. Under current law, adequate analysis of the final stages of operations is deferred—making waste generation a mere afterthought to extraction.<sup>301</sup>

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298. The National Environmental Policy Act (NEPA) requires environmental review. In general, NEPA requires that an environmental impact statement (EIS) be prepared for any major projects undertaken or approved by the federal government that may have a significant impact on the environment. National Environmental Policy Act of 1969, 42 U.S.C. § 4332(c) (2000). This document contains detailed analysis about the effects—direct, indirect and cumulative—of the proposed activities on the environment. However, NEPA does not require that projects with significant impacts be rejected; it merely requires that decision-makers be aware of the environmental consequences of major federal projects. See *Strycker's Bay Neighborhood Council v. Karlen*, 444 U.S. 223 (1980) (establishing that NEPA does not impose substantive requirements). Specific limitations of NEPA in the regulation of offshore oil and gas operations include the problem of tiered review. A frequently criticized aspect of NEPA, particularly in the context of oil and gas regulation, is that tiered review allows specific evaluation of environmental impacts at different stages of the offshore drilling process. See *Tribal Village of Akutun v. Hodel*, 869 F.2d 1185 (9th Cir. 1988); *North Slope Borough v. Andrus*, 642 F.2d 589, 609 (D.C. Cir. 1980). Instead of one overarching EIS for the process of leasing, exploring, drilling and decommissioning, the government is able to do a separate EIS for each individual stage. The environmental impacts of an approved offshore drilling operation, from start to finish, are never fully explored in a single study. This has led many to criticize the tiering approach, as it appears to “dilute” the true extent of environmental impact of offshore drilling. Wiygul, *supra* note 50, at 103–04 (describing review process as “pyramidal”); *id.* at 165–66 (discussing fact that information subject to minimal review might be used later in the tiered process to justify development). Also, a state’s concern about the effects of a catastrophic accident (like the Santa Barbara spill of 1969) is not addressed by NEPA, because NEPA does not require a worst-case scenario analysis. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 354 (1989); *Village of False Pass v. Clark*, 733 F.2d 605, 612–13 (9th Cir. 1984). This is so even in the most sensitive environmental areas. For example, the worst-case scenario approach has been rejected specifically with regards to an EIS prepared by the MMS for development and production plans for oil and gas development in Alaska’s north coast. *Edwardsen v. United States Dep’t of the Interior*, 268 F.3d 781, 785 (9th Cir. 2001).

299. Decommissioning is a major federal action that triggers the requirements for an environmental impact statement under NEPA. 42 U.S.C. § 4332(C) (2000).

300. See discussion *supra* Part II.B on Gulf State rig-to-reef programs.

301. See discussion *supra* note 298 on tiered NEPA environmental review.

### B. Fisheries Management Looks to Habitat Protection

Timing has much to do with the development of rig-to-reef policy and related legislative efforts in recent years. Offshore disposal advocates benefit from the opportunity to connect their efforts with other means of addressing the growing problem—first widely observed in the 1970s—of rapidly disappearing fish stocks.<sup>302</sup> Experts agree that overfishing is the greatest threat to fisheries and fish habitat.<sup>303</sup> Yet, various legislative efforts to address this problem have largely proven unsuccessful due to the powerful influence of fishing interests.<sup>304</sup>

Congress adopted the Magnuson-Stevens Fishery Conservation and Management Act in 1976 to address the growing problem of overfishing of federally managed fisheries.<sup>305</sup> Twenty years later, the Sustainable Fisheries Act amendments sought to improve the shortcomings of this statute to halt the growing crisis of declining catch.<sup>306</sup> In addition to

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302. See JAMES RASBAND, JAMES SALZMAN & MARK SQUILLACE, *NATURAL RESOURCES LAW AND POLICY* 428 (Foundations Press 2004) [hereinafter RASBAND ET AL.] (describing the decline in various fish populations in the waters of the United States). Out of the world's fifteen major fisheries, thirteen have experienced serious decreases in productivity. Gareth Porter, *Fisheries Subsidies Overfishing and Trade*, 16 ENV'T AND TRADE 10 (United Nations Environment Programme ed., 2000). Overfishing as well as habitat loss and degradation have been noted as drivers of fishery collapse. RASBAND ET AL., *supra*, at 434–38. Overfishing occurs when fish are caught at a rate greater than the population can replenish itself. See PEW REPORT, *supra* note 53, at 35 (“The principle problem is that we catch too many fish, and far too quickly, for nature to replace.”). Two types of overfishing are growth overfishing and recruitment overfishing. Growth overfishing occurs when too many fish are taken before they reach a size where further growth will be offset by predatory mortality. Recruitment overfishing occurs when fishers leave too few mature fish for producing a sufficient number of eggs to create “recruits” for the stock. RASBAND ET AL., *supra*, at 442. An unsustainable take of fishery resources causes both a reduction in fish populations and a serious disruption to the ocean ecosystem. When overfishing of one target fish population reduces catches to economically unsustainable levels, lower value fish are targeted and then overfished. This process, called “fishing down the food web,” disrupts the natural benefits of biodiversity resulting in reduced populations and reduced sustainability of entire assemblages of fish populations. PEW REPORT, *supra* note 53, at 40–41.

303. See PEW REPORT, *supra* note 53, at 35–43 (discussing the decline of fish populations caused by overfishing). See generally OCEAN COMM'N REPORT, *supra* note 20, at 274–303 (discussing the problems of overfishing and the effects of destroying “essential fish habitat”).

304. See Teresa M. Clotier, *Conflicts of Interest on Regional Fishery Management Councils: Corruption or Cooperative Management?*, 2 OCEAN & COASTAL L.J. 101 (1996); Peter Van Tuyn, *Courage Without Conviction: Cause for Chaos in U.S. Marine Fisheries Management*, 28 VT. L. REV. 663, 666–667 (2004) (discussing limited government capacity to police improper influence due to regulatory structure); Rory Bahader, *Big Boats, Big Crews, The Biggest Seas and Little Licenses. Exposing the Regulatory Paradox Allowing the Existence of the “Uninspected Fish Processing Vessel”*, 15 ST. THOMAS L. REV. 219, 227 (discussing industry influence on fishing regulations). See also OCEAN COMM'N REPORT, *supra* note 20, at 275 (noting that regional fisheries management councils often made decisions favoring fishing interests and increased catch limits rather than conservation goals).

305. Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. §§ 1801–1882 (2000).

306. Sustainable Fisheries Act, 16 U.S.C. §§ 1801–1882 (2000). Depletion of fishery resources were originally attributed to foreign fishers, however nearly thirty-years after the

efforts to limit the amount of fishing (both commercial and recreational) to help rebuild fisheries and obtain "maximum sustained yield" of important fisheries, Regional Fishery Management Councils were established and directed to set up Fishery Management Plans.<sup>307</sup> Such Plans identify areas of "essential fish habitat" (EFH) to assist in minimizing the degradation of habitat by overfishing and other activities potentially destructive to marine habitat.<sup>308</sup> EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."<sup>309</sup> Regulations further expand the definition of EFH.<sup>310</sup> Once designated, Fishery Management Councils are required to minimize adverse effects to EFH caused by fishing, and federal agencies must consult with the National Marine Fisheries Service (NMFS) regarding actions authorized, funded, or undertaken that might adversely affect EFH.<sup>311</sup>

A key problem with these legislative efforts is that scientists have struggled to identify the precise habitat that fish require both generally and at different times in a given lifecycle.<sup>312</sup> The problems encountered here are quite similar to those in artificial reef science. The lack of scientific certainty as to which areas to designate undermines the EFH designation process in a number of ways. Initial designations were made on the basis of limited knowledge.<sup>313</sup> To account for this uncertainty, EFH designations were quite broad.<sup>314</sup> Thus, it is possible that such

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Magnuson Act removed foreign fishers, amendments were needed to emphasize the need to reduce the pressure domestic fishing places on fisheries. Coleman, *supra* note 233, at 1958.

307. OCEAN COMM'N REPORT, *supra* note 20, at 275. Recognizing the damaging effects of overfishing, the Commission's report recommends requiring FMCs to use of the best scientific information available when determining "the maximum amount of fish that can be harvested without adversely affecting recruitment or other key biological components of the fish population." *Id.* at 277.

308. These provisions have been compared to the habitat protection provisions of the Endangered Species Act (ESA). Although not specifically a fisheries management law, the ESA protects certain corals from destruction. 16 U.S.C. § 1536 (2000). Thus, coral fingers cannot be destroyed by the industry using blasting activities to remove platform structures without resultant liability under the ESA section 9 "take" prohibition, unless an incidental take permit is first issued.

309. 16 U.S.C. § 1802(10) (2000).

310. 50 C.F.R. § 600.10 (2005) further defines EFH. Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.

311. 50 C.F.R. § 600.920 (2005).

312. See Fletcher & O'Shea, *supra* note 210, at 71 (discussing difficulties in designating EFH).

313. See *id.* at 59 (stating that while some councils had studies to rely on, other councils had to rely on limited data or anecdotal sources).

314. See *id.* at 71 (noting that the entire Gulf of Mexico was designated as EFH).



designations included areas that were not all that important for spawning, breeding, feeding, or growth and failed to capture some areas that might have been much more important. For these two related reasons, EFH designations have not been effective in protecting fish species.<sup>315</sup> Finally, while the exercise of identifying habitat that is essential to promote healthy fisheries has proved important “to increase awareness of the magnitude of habitat issues facing our nation’s declining fisheries...,” it has not been particularly successful in conserving such habitat due to an additional weakness in enforcement mechanisms.<sup>316</sup>

Whether artificial reefs can provide “essential fish habitat” as part of a fishery management plan was identified as an important issue in the rig-to-reef policymaking process. In 2002, the NMFS, the expert federal agency that provides recommendations on EFH designations, concluded that artificial reefs, including those converted from rigs, could be designated as EFH in fishery management plans.<sup>317</sup> However, because of the weaknesses of EFH designation guidelines, the potential designation of a particular artificial reef as EFH is unremarkable.<sup>318</sup> EFH designations have now been augmented by “special management zone” designations, and the NMFS has also designated a subset of all EFH, approximately 1 percent, as “habitat of particular concern” for ecologically important or particularly vulnerable habitat.<sup>319</sup> Fishery Management Councils have also been criticized for succumbing to “regulatory capture” by interest groups that promote the fishing industry, undermining confidence in EFH designations.<sup>320</sup> This problem has led to calls for reforming the composition of Fishery Management Councils.<sup>321</sup>

Despite the obvious degradation of the ocean resource caused by overfishing, Congress, the executive, and states have all been active in seeking to enhance recreational fishing opportunities in coastal waters. The public trust doctrine espouses the view that the waters of the states

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315. See U.S. COMMISSION ON OCEAN POLICY, PRELIMINARY REPORT OF THE U.S. COMMISSION ON OCEAN POLICY–GOVERNORS’ DRAFT 243 (Apr. 2004) [hereinafter GOVERNORS’ DRAFT].

316. See Fletcher & O’Shea, *supra* note 210, at 97; *id.* at 68 (“Even though increased attention to habitat has been considered a breakthrough in fisheries management paradigms, the requirements of the Magnuson Act still amount to a voluntary and generally unenforceable scheme.”).

317. Magnuson–Stevens Act Provisions, Essential Fish Habitat, 67 Fed. Reg. 2343 (Jan. 17, 2002).

318. The Preliminary Report of the U.S. Commission on Ocean Policy noted that EFH regulations need to be reworked. GOVERNORS’ DRAFT, *supra* note 315, at 243.

319. *Id.*

320. See Marianne Cufone, *Will there Always Be Fish in the Sea? The U.S. Fishery Management Process*, 19 NAT. RESOURCES & ENV’T 28, 34 (2004); OCEAN COMM’N REPORT, *supra* note 20, at 502; PEW REPORT, *supra* note 53, at 44 (discussing regulatory capture of fishery management councils).

321. OCEAN COMM’N REPORT, *supra* note 20, at 502; Fletcher, *supra* note 276, at 117–24.

should be held in trust for the public, traditionally for fishing, swimming, and commerce—although in modern times conservation has also been held to promote the public trust.<sup>322</sup> Fishing for recreational purposes is a public trust use. Beyond this longstanding interest protected by the public trust doctrine, under the Sport Fish Restoration Act the DOI has the specific task of enhancing fishing opportunities for recreation.<sup>323</sup> The NFEA and similar state measures to increase fishing opportunities reflect a continuing public interest in using coastal waters for recreational fishing. President Clinton highlighted the importance of recreational fishing in an Executive Order in 1995.<sup>324</sup>

Unfortunately, these efforts have not been accompanied by meaningful data collection or research on the impact of recreational fishing on marine habitat and fishery stocks.<sup>325</sup> The extent to which recreational fishing detracts from ongoing efforts to protect fisheries remains, therefore, largely unknown.<sup>326</sup> Some published studies, however, conclude that recreational fishing is responsible for more of the fish harvested in some regions, such as the Gulf of Mexico, than commercial fishing.<sup>327</sup> While in general recreational fishing methods are often much

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322. *Illinois Cent. R. Co. v. State of Illinois*, 146 U.S. 387 (1892) (establishing the public trust doctrine); *Marks v. Whitney*, 491 P.2d 374, 380 (Cal. 1971) (supporting the idea that conservation is an appropriate public trust purpose). See also Robin Kundis Craig, *Mobil Oil Exploration, Environmental Protection, and Contract Repudiation: It's Time to Recognize the Public Trust in the Outer Continental Shelf*, 30 ENVTL. L. REP. 11,104 (2000) (discussing the application of the public trust doctrine to the outer continental shelf); Donna R. Christie, *Marine Reserves, the Public Trust Doctrine and Intergenerational Equity*, 19 J. LAND USE & ENVTL. L. 427, 432 (2004) (discussing public trust doctrine and recreational fishing).

323. Dingell–Johnson Sport Fish Restoration Act, 16 U.S.C. § 777 (2000). Some artificial reef projects are funded by the Wallop–Breaux Amendment. Pub. L. No. 98-369, § 1014(b), 98 Stat. 1016 (codified at 16 U.S.C. § 777).

324. Exec. Order No. 12,962, 60 Fed. Reg. 30,769 (June 9, 1995).

325. NOAA National Marine Fisheries Service conducts the Marine Recreational Fisheries Statistics Survey (MRFSS), initiated in 1979. Some have suggested the greatest weakness in the survey is the intercept points. Others point to the potential for underestimation of catch by recreational anglers. See OCEAN COMM'N REPORT, *supra* note 20, at 281. The National Academy of Science is undertaking a project entitled *Review of Recreational Fisheries Survey Methods*, Project Identification Number: OSBX-U-04-05-A, sponsored by NOAA and estimated to be completed in mid-2006.

326. Coleman, *supra* note 233, at 1958 (noting that even after the Magnuson Stevens amendments, although commercial fishing was scrutinized, recreational fishing was afforded little attention as contributing to the problem of overfishing). See OCEAN COMM'N REPORT, *supra* note 20, at 281 (noting the need for improved data collection on recreational fishing).

327. Last year the Gulf of Mexico Regional Fisheries Council cut short the recreational fishing season when it determined quotas had been reached early. See *Closure of the Recreational Red Snapper Component*, 69 Fed. Reg. 62,818 (Oct. 28, 2004). The National Marine Fisheries Service also implemented a seasonal closure of the recreational grouper fishery from November to December 2005, and implemented a reduction on bag limit to assist in achieving a red grouper stock-rebuilding plan. See *Gulf Grouper Recreational Management Measures*, 70 Fed. Reg. 42,510 (July 25, 2005). See also Coleman, *supra* note 233, at 1959 (noting that among fish populations of concern, 64 percent of landings in the Gulf of Mexico were recreational landings). Responding to a critique that the article maligned recreational fishermen,

less directly destructive of ocean habitat than commercial methods (such as trawling), recreational fishing can contribute to overfishing, exacerbating habitat destruction, and other negative effects. The growing evidence about the magnitude of recreational fishing led the Ocean Commission to recommend further studies of the impact of recreational fishing on sustainable fisheries and emphasize the importance of habitat.<sup>328</sup> Like the growing recognition of the destructive nature of some recreational activities on land, we have slowly come to understand that recreational use of the ocean also contributes to the decline in ocean ecosystems by reducing the number of fish, even if recreational fishing methods are less destructive to marine habitat than commercial methods.<sup>329</sup>

Thus, the interest in artificial reefs stems not only from interest in providing more places for recreationists to visit, but also from the deterioration and destruction of natural ocean habitats. The causes of natural reef deterioration and destruction are multiple, but experts agree that overfishing does the most to destroy reef habitat.<sup>330</sup> The unavoidable conclusion is that fishing itself must be more strictly regulated—through amending or simply replacing current laws—to reduce habitat destruction. Although habitat is an important part of the whole picture in improving the health of fisheries, we cannot rely on artificial reefs to rebuild fisheries. And it is certainly a danger that a focus on artificial reef habitat will distract attention from efforts to reduce the impacts of fishing itself.<sup>331</sup>

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the authors of this study noted that “[i]n the Gulf of Mexico, four of the five most productive species that are over-fished are taken primarily by recreational anglers . . . .” Felicia C. Coleman et al., Letters to the Editor, 307 *SCIENCE* 1561 (Mar. 11, 2005).

328. OCEAN COMM’N REPORT, *supra* note 20, at 297 (“[M]aintaining healthy, functioning habitats is an essential element of an ecosystem-based management approach.”).

329. See Coleman, *supra* note 233, at 1959 (“Where recreational fishery landings rival those of commercial fisheries for major stocks of concern, sometimes even replacing them, they can have equally serious ecological and economic consequences on fished populations.”). Legally sanctioned commercial fishing methods such as trawling can cause significant damage to habitat. See Van Tuyn, *supra* note 304, at 664–65 (discussing habitat damage from commercial trawling). However, as noted by fisheries experts, both commercial and recreational fishing have similar ecological effects in that they both can “truncate size and age structures, reduce biomass, and alter community composition.” Coleman, *supra* note 233, at 1959.

330. Robin Kundis Craig, *Taking Steps Toward Marine Wilderness Protection? Fishing and Coral Reef Marine Reserves in Florida and Hawaii*, 34 *MCGEORGE L. REV.* 155, 161–66 (2003).

331. See Polovina, *supra* note 160, at 38.

## V. MOVING FROM OPTIMISM TO RESULTS

A. *Ocean Management Failures*

The declining health of the oceans and fisheries has been identified as one of the most pressing global environmental issues of our time.<sup>332</sup> The prevailing but misguided belief that the ocean is beyond human impact and that its resources are inexhaustible has been conclusively discredited. Over a decade ago, at the United Nations Conference on Environment and Development (UNCED), consensus among nations reflected the global view that ocean health is failing, and nations must take affirmative efforts to protect ocean resources.<sup>333</sup> Nonetheless, despite international and national recognition of the negative human impacts on the ocean, the paradigm of inexhaustibility<sup>334</sup> remains entrenched in the U.S. legal and political system. This paradigm has continued to reign, particularly in the areas of offshore minerals extraction and fishing, inhibiting aggressive changes in law and policy to stop human activities from degrading the marine environment.<sup>335</sup>

The lack of an adequate response to the failing health of the ocean is due in part to the slow and uncoordinated development of ocean law in the United States, which lags far behind the development of terrestrial environmental laws.<sup>336</sup> As one expert of ocean regulation recently explained: “[T]he United States lacks a single coherent policy regarding its marine resources, which are instead managed through a sometimes bewildering array of federal, state, and local laws, implemented through numerous federal, state, and local regulatory entities whose mission and priorities do not always dovetail neatly.”<sup>337</sup> This is certainly a fair description of the legal framework for rig-to-reef conversions, which involves the federal government and coastal states, competing concerns

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332. See HUNTER ET AL., *supra* note 116, at 673–707 (discussing conservation of living marine resources).

333. United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, June 3–14, 1992, *Agenda 21*, Ch. 17, U.N. Doc A/CONF.151/26/Rev.1.

334. Robin Kundis Craig, *Sustaining the Unknown Seas: Changes in U.S. Ocean Policy and Regulation Since Rio '92*, 32 ENVTL. L. REP. 10,190, 10,191 (2002) (using term “paradigm of inexhaustibility”).

335. John A. Duff, *Offshore Management Considerations: Law and Policy Questions Related to Fish, Oil, and Wind*, 31 B.C. ENVTL. AFF. L. REV. 385, 401 (2004) (promoting movement out to sea of governance models employed to manage other public resources).

336. See Robin Kundis Craig, *Taking the Long View of Ocean Ecosystems: Historical Science, Marine Restoration, and the Oceans Act of 2000*, 29 ECOLOGY L.Q. 649 (2002) (discussing development of ocean regulations in the United States). Craig points out that “terrestrial ecosystems have received much legal attention in recent years.” *Id.* at 674. She examines the Oceans Act of 2000 as Congressional recognition of the need to improve existing ocean laws. *Id.* at 671–72; Fletcher, *supra* note 276.

337. Craig, *supra* note 334, at 10,192.

about ocean dumping regulated under the MPRSA, fisheries management and attention to marine habitat, restrictions to preserve unhindered navigation, and of course oil and gas regulation.

The Ocean Commission's report to the President about the future of the oceans bluntly summarized the need for legal reform. Increased competition for ocean space, the emergence of potential new ocean uses, the decline of vital commercial fishery stocks, the unresolved debate over offshore energy and mineral development, and the persistence of marine pollution were all listed as reasons for immediate reform.<sup>338</sup> The Commission recommended consolidating the multiplicity of federal agencies to organize expertise and better effectuate environmental protections.<sup>339</sup> Joining other voices in the ocean reform movement, the Commission specifically criticized the OCSLA by citing the need for expanded sharing of revenues and increased involvement by coastal states.<sup>340</sup>

The Ocean Commission's report identified two overarching goals that bear directly on the debate over rig-to-reef programs: to strive for sustainability of the ocean resource and move to an ecosystem management approach.<sup>341</sup> Sustainability conforms to the United States' international support of sustainable development principles in several different resource use contexts, and incorporating ecosystem management principles is now frequently a goal of federal natural resource agencies.<sup>342</sup>

In fact, prior to the Commission's report, the Minerals Management Service (MMS) released a working draft of its efforts to incorporate sustainable development principles into resource management objectives.<sup>343</sup> MMS concluded that despite the important role of offshore oil and gas to our current economy and standard of living, "because oil and gas are exhaustible resources, the production and use of which can cause environmental damage, society at large should consider how the

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338. GOVERNORS' DRAFT, *supra* note 315, at 25–26. The private sector has also undertaken similar efforts to improve ocean management and governance. The Pew Foundation recently completed a similar study and released its findings to the public. See Kathryn J. Mengerink, *The Pew Oceans Commission Report: Navigating a Route to Sustainable Seas*, 31 *ECOLOGY L. Q.* 689 (2004).

339. See Fletcher, *supra* note 276, at 126, 131–32 (suggesting among other things the creation of a federal Oceans Agency, and that NOAA be moved from Department of Commerce to reduce economic incentives of fisheries).

340. OCEAN COMM'N REPORT, *supra* note 20, at 359–60.

341. *Id.* at 472.

342. See THOMAS J. SCHOENBAUM, RONALD H. ROSENBERG & HOLLY D. DOREMUS, *ENVIRONMENTAL POLICY LAW* 324–30 (Foundation Press 2002) (discussing the ecosystem management approach).

343. MINERALS MGMT. SERV., *OCS RESOURCE MANAGEMENT AND SUSTAINABLE DEVELOPMENT* (Sept. 24, 1999), available at <http://www.mms.gov/SD-FINAL2.PDF>.

wealth created by these resources is used.”<sup>344</sup> This statement recognizes that the serious trade-offs made in offshore drilling—specifically the exploitation of non-renewable resources to the possible detriment of renewable resources—should be publicly endorsed. The rise of corporate social responsibility and the social license to operate has illustrated the wider public’s interest in ensuring more than trickle-down benefit from natural resource exploitation by private entities.<sup>345</sup> Although existing law may not adequately express the public’s demand for a fair return on the use of public resources, the social license to operate is beginning to exercise influence.<sup>346</sup> As an important part of the entire mix of ocean activities, unsustainable offshore oil drilling practices can threaten other efforts aimed at improving ocean sustainability. This fact becomes more pronounced as ecosystem management, rather than resource-by-resource management, is expanded. Existing policy on the production of offshore resources does not strike a balance between current and future dependency on ocean resources that is acceptable to a broad constituency. This has created continued legal debate over offshore drilling and has cast serious doubt about the potential for our existing policies in this area to achieve sustainability of the ocean.

The lack of an adequate response to the failing health of the ocean is also due in part to the relative weakness of scientific grounding for marine management. We are simply far less knowledgeable about the marine environment than the terrestrial environment. Scholarship aimed at improving science in marine policymaking identifies certain norms of environmentally responsible conduct that emerged from the UNCED: sustainability, biodiversity, the polluter pays principle, and the precautionary approach to resource use.<sup>347</sup> Some scholars have concluded that recent marine resource management laws have begun to incorporate more scientific grounding. These scholars have observed trends towards requiring precautionary and adaptive approaches in decision-making, demanding that externalities are internalized by those exploiting marine resources, and recognizing biodiversity preservation as an important

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344. *Id.* at 18.

345. Gunningham et al., *supra* note 265, at 336–37; David W. Case, *Corporate Environmental Reporting as Informational Regulation: A Law and Economics Perspective*, 76 U. COLO. L. REV. 379, 419–22 (2005).

346. Gunningham et al., *supra* note 265, at 336–37; Case, *supra* note 345, at 419–22.

347. Richard G. Hildreth et al., *Roles for a Precautionary Approach to Marine Resources Management*, 19 NATURAL RES. & ENV’T 64, 64–67 (Summer 2004). Sustainability and the concept of sustainable development have been defined as an approach to natural resource utilization that meets the needs of humans today without limiting the ability to utilize natural resources to meet future needs. The polluter pays principle has a German origin. This principle requires that the cost of addressing pollution either by clean-up or other mitigation measures be borne by the person or entity who put the material into the environment.

element of sound law.<sup>348</sup> Two notable ocean and coastal law experts, M. Casey Jarman and Richard Hildreth, recently identified these changes in certain laws impacting the ocean, such as the Sustainable Fisheries Act, the National Environmental Policy Act, and to a lesser degree the Ocean Dumping Act.<sup>349</sup> But these experts suggest that the movement toward incorporating environmentally responsible norms of conduct is not discernable in the management of the OCS for oil, gas, and minerals.<sup>350</sup>

We must recognize that our shortcomings in response to failing ocean health include both a failure of legal response and a failure of commitment to environmentally responsible norms of conduct. These principles must come to bear on rig-to-reef projects, which have more potential to provide public benefit in a legal system that is grounded in environmentally responsible conduct rather than focused on the special needs of powerful interest groups.

### *B. Alternative Views of Artificial Reef Programs*

Concern over ocean dumping has heightened distrust of proposals to place artificial structures on the seafloor, regardless of evidence of a laudable purpose.<sup>351</sup> This is simply because, as previously discussed, the intent to enhance fisheries resources does not do enough to distinguish artificial reef construction as habitat enhancement rather than ocean dumping.<sup>352</sup> This is undoubtedly aggravated by the fact that such projects are often the *only* alternative to otherwise applicable solid waste disposal requirements.<sup>353</sup> Notwithstanding these concerns, current rigs-to-reef programs and policies place too little emphasis on the ecological effects of artificial reefs.<sup>354</sup> Performance monitoring continues to be voluntary;<sup>355</sup> too little effort is extended to ensure that artificial reef permit requirements are being met; and as such permits frequently lack specific fisheries enhancement goals, there is no way to measure or quantify the ecological benefit (if any) of an artificial reef.<sup>356</sup> Although artificial reef

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348. *Id.* at 66.

349. *Id.*

350. *See id.* at 67.

351. MacDonald, *supra* note 14.

352. *See supra* Part III.A. notes 201–231, and accompanying text (discussing the ongoing scientific debate); *supra* Part IV.B, notes 302–321, and accompanying text (discussing the regulatory focus on marine habitat).

353. *See supra* Part I.B.3, notes 84–97, and accompanying text (discussing the development of U.S. law regarding platform removal); *supra* Part II.A, notes 119–133, and accompanying text (discussing the exemption for artificial reefs under NFEA).

354. *See infra* Part V.B.1 (discussing the National Marine Sanctuary Artificial Reef Policy); *infra* Part V.B.2 (discussing California's proposed rigs to reefs legislation).

355. NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 4, at 35.

356. COASTAL ARTIFICIAL REEF PLANNING GUIDE, *supra* note 4, at 34–36 (discussing the importance of monitoring); NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 12, at 35.

managers recognize these limitations, they continue to express optimism that their efforts will be fruitful.<sup>357</sup> I contend that given the important issues at stake, a healthy dose of skepticism must come to bear on artificial reef efforts.

### 1. *The National Marine Sanctuary Artificial Reef Policy*

Such skepticism is not hard to find. Although Congress endorsed artificial reef construction by passing NFEA, not all federal agencies with ocean management responsibilities view artificial reefs as proven fisheries enhancement tools.

National Marine Sanctuaries are identified by the federal government as areas with unique and sensitive habitats of national importance.<sup>358</sup> The National Marine Sanctuaries Program, administered by the National Ocean Service, National Oceanic and Atmospheric Administration, generally forbids the siting of artificial reefs in sanctuaries, with limited exceptions.<sup>359</sup> The rationale for this general prohibition is that artificial reef science is insufficiently developed.<sup>360</sup> Too little is known about the design and function of artificial reefs, which poses the risk of negative effects on sanctuary resources.<sup>361</sup>

In contrast to current rig-to-reef programs, the National Marine Sanctuary Artificial Reef Policy allows an artificial reef project in an experimental setting only.<sup>362</sup> The proposal must have identified goals for enhancing sanctuary resources and generate specific reports about the project's success.<sup>363</sup> Once the project is completed, it is contemplated that the artificial reef will be removed from the sanctuary.<sup>364</sup> Such an approach suggests a far more precautionary approach to artificial reefs, while at the same time driving the generation of scientific research and information.

An obvious contrast with rig-to-reef conversions is that National Marine Sanctuaries projects will have more opportunity to measure impacts from a baseline. Information can be gathered about the surrounding ecosystem prior to deployment of the artificial structure. This is much more difficult in state rig-to-reef programs that rely on

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357. The Coastal Artificial Reef Plan was drafted to emphasize the use of artificial reefs as fisheries management tools, and promote their benefits illustrating the continued optimism of fisheries managers—the contributing authors—of these artificial reef building projects. See COASTAL ARTIFICIAL REEF PLANNING GUIDE, *supra* note 4.

358. National Marine Sanctuaries Act, 16 U.S.C. § 1431 (2000).

359. NOAA, POLICY STATEMENT OF THE NATIONAL MARINE SANCTUARY PROGRAM: ARTIFICIAL REEF PERMITTING GUIDELINES at i (2003).

360. *Id.*

361. *Id.*

362. See *id.* at 4–5 (allowing research, education and in some sanctuaries “management”).

363. *Id.* at 10–12.

364. *Id.*



decommissioned oil rigs, where the surrounding environment has been affected by the presence of the rig and oil drilling at that location. There is minimal research on low level and cumulative impacts of drilling, although other environmental impacts are typically discussed in environmental impact reports, thus baseline conditions are hard to extrapolate. Some of this information could be generated for other projects if more scientific resources are committed to evaluating the environmental effects of oil drilling.

## 2. *California's Skepticism of Rig-to-Reef Programs*

Perhaps the best illustration of California's skepticism of rig-to-reef programs is the fate of a recent bill intended to facilitate the inclusion of offshore oil platforms in California's artificial reef program. Some years prior to the passage of the NFEA, California's legislature determined that the decline in certain marine species of fish was a significant issue facing the state. It therefore created a program to conduct research and develop innovative solutions to the problem of declining fish species and promote construction of artificial reefs in conjunction with California's university system.<sup>365</sup> This existing artificial reef program did not accept platform donations.<sup>366</sup> SB 1, introduced on December 4, 2000,<sup>367</sup> was the third attempt in three years to authorize the conversion of platforms to artificial reefs in California.<sup>368</sup> SB 1 differed in many important respects from the laws in place in Louisiana and Texas. The most significant differences were in the proposed treatment of donor liability, the scaling of returns from the avoided cost of removal, and the proposed use of the converted platforms.

In contrast to Gulf of Mexico state programs, SB 1 provided for the Department of Fish and Game (DFG) to negotiate an indemnity agreement with the donating company to insulate the state against liability.<sup>369</sup> SB 1 also included a scaling of returns to the state based on

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365. CAL. FISH & GAME CODE § 6420(c) (Deering 2005). The Department of Fish and Game oversees the placement of artificial reefs in state waters pursuant to the California Artificial Reef Program. CAL. FISH & GAME CODE §§ 6420-6425.

366. MCGINNIS ET AL., *supra* note 24, at 58-59 (chronicling California's artificial reef program); *Id.* at 62-64 (discussing proposals for rig donations and conversions in California). In 1992, the California Department of Fish and Game rejected a donation of rig materials for an artificial reef concluding that the materials were not suitable for reefing. *Id.* at 63.

367. S.B. 1, 2001-2002 Sess. (Cal. 2000) (vetoed by Governor Gray Davis, Oct. 13, 2001).

368. See MCGINNIS ET AL., *supra* note 24, at 65-66; S.B. 241, 1999-2000 Sess. (Cal. 1999) (unenacted); S.B. 2173, 1997-1998 Sess. (Cal. 1998) (unenacted).

369. Cal. S.B. 1 § 5 (proposing addition of CAL. FISH & GAME CODE § 6427(f)(1)(D)); *Id.* (proposing addition of CAL. FISH & GAME CODE § 6427.5) ("[T]he state is indemnified from any liability that may result from approving the conversion of an offshore oil platform or production facility as an artificial reef or any liability that may result from the ownership of the reef.").

the size of the platform donated.<sup>370</sup> Unlike Gulf of Mexico state programs, where the amount of decommissioning savings is negotiated on an ad hoc basis (with the state typically receiving half of the avoided cost of removal), SB 1 required the donating company to pay 35 percent of avoided costs in 200 feet or less of water, 50 percent for those in 201 to 400 feet of water, and 65 percent for platforms at depths of more than 400 feet.<sup>371</sup>

The most significant different between SB 1 and Gulf of Mexico state programs, however, was the approach to the goal of using converted platforms as fishery management tools. First, the DFG was required to determine that a proposed conversion would “provide a net benefit to the marine environment compared to the alternative of removing the facilities from the marine environment.”<sup>372</sup> Then, artificial reefs created from converted platforms would initially be established as “no-take” zones, where fish and other marine species could not be harvested.<sup>373</sup> It was contemplated that this restriction might be lifted once specific habitat enhancement goals were achieved. Thus, unlike the Gulf of Mexico programs, artificial reefs would not be used for fishing immediately, but would first be monitored and evaluated to determine whether they were advancing fishery enhancement objectives.<sup>374</sup>

In the end, SB 1 passed through the legislature but was vetoed by the governor. Governor Davis rejected the bill, explaining that it was “premature to establish this program until the environmental benefits of such conversions are *widely accepted by the scientific and environmental communities*.”<sup>375</sup> This comment was based on scientific studies conducted in California that failed to produce evidence that platform conversions benefited regional stocks of marine species.<sup>376</sup> Notably, Governor Davis vetoed SB 1 even though he was presumably aware that, on the other

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370. *Id.* (proposing addition of CAL. FISH & GAME CODE § 6429.3(a)).

371. *Id.* (proposing addition of CAL. FISH & GAME CODE § 6429.3(a)).

372. *Id.* (proposing addition of CAL. FISH & GAME CODE § 6427(b)).

373. *Id.* § 8 (proposing addition of CAL. PUB. RES. CODE § 30960(b)).

374. Consistent with this aim, one proposed section of S.B. 1 read, “[a]llowing take at artificial reefs created from offshore oil platforms or production facilities threatens efforts to improve and restore sports and commercial fishing opportunities in California.” *Id.* § 5 (proposing addition of CAL. FISH & GAME CODE § 6426.4(a)(3)). Thus, if such a conversion were approved, the DFG would have been directed to, “prohibit all fishing or removal of any marine life from the artificial reef and within a reasonable buffer.” Take would have been allowed only for research purposes. *Id.* (proposing addition of CAL. FISH & GAME CODE § 6426.4(b)).

375. Cal. S.B. 1 veto (emphasis added).

376. See SELECT SCIENTIFIC ADVISORY COMM. ON DECOMMISSIONING, *supra* note 11, at 35 (“[T]here is not any sound scientific evidence (that the Committee is aware of) to support the idea that platforms enhance (or reduce) regional stocks of marine species.”).

hand, no evidence demonstrates that such structures, if left in place, would necessarily harm regional stocks of marine species.<sup>377</sup>

### C. *A Sound and Sustainable Rig-to-Reef Program*

A proactive and adaptive approach to reef conversions can be employed to further sustainability goals rather than impede them. The uncertainty about the fundamental issue of artificial reef utility underscores the importance of establishing a framework for addressing the disposition of defunct oil platforms that is technically, financially, and politically workable and environmentally sound.<sup>378</sup> The regulatory focus on managing a waste disposal problem of oil production and encouraging expanded recreational fishing must adapt to include more robust evaluation of the environmental benefit the public receives from this disposition approach.

#### 1. *Conforming Goals to Reality—Experimenting, Adapting, and Removing Ill-sited Platforms*

We have yet to reach an acceptable balance between the interests at stake in the rig-to-reef debate. An intent to enhance fisheries resources, whether to promote sustained yield from fisheries or to more broadly advance the restoration of ocean ecosystems, without a concrete set of goals and monitored results, does not do enough to distinguish these projects from ocean dumping. Despite this, current rig-to-reef programs and policies place undue emphasis on the purported purpose of such projects rather than their effects, blurring the line between ocean dumping and artificial reefs. Performance monitoring continues to be voluntary.<sup>379</sup> Rig-to-reef programs must adopt goals and require results to measure the ecological benefit (if any) of an artificial reef, or accept the public's intent that ocean dumping of platforms be prohibited.

One starting place for improving current programs is the standard for initial approval of rig-to-reef projects. The initial approval of rig-to-reef projects is a good place to start shifting the perspective about the utility of artificial reefs toward a more experimental outlook. Debate over the standard for approval of potential rig-to-reef conversions under California's rejected SB 1 provides a good illustration of the problem

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377. *Id.*

378. This uncertainty is not dissimilar to other political debates involving scientific uncertainty and the risk of environmental harm. Some examples include recycling heavy metals in fertilizers, seeding clouds, and genetic engineering of crops. See, e.g., Wendy E. Wagner, *The Science Charade in Toxic Risk Regulation*, 95 COLUM. L. REV. 1613 (1995) (discussing the "science charade" that agencies use in regulating toxic risk to suggest politically neutral outcomes based on science rather than value judgment).

379. NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 12, at 35.

with the current approach used in Gulf State programs, which rely in large part on the good intentions of fisheries managers. SB 1 proposed that the starting point for a rig-to-reef conversion would be the conclusion by state fisheries managers that the project would “provide a net benefit to the marine environment compared to the alternative of removing the facilities from the marine environment.”<sup>380</sup> However, based on the state of scientific uncertainty, staff comments regarding SB 1 suggested the bill criteria be amended to reflect the impossible task this set up for the DFG: “is it possible that the efforts DFG will have to undertake will be somewhat in vain? According to the best research available, it is not strictly possible to determine if converting any particular platform into a reef would produce a net benefit to the marine environment as called for in the bill.”<sup>381</sup> Instead, the staff suggested the DFG consider whether “no significant harm to the marine environment” would come from the proposed project.<sup>382</sup> Although such a standard is nearly indistinguishable from the environmental considerations required for the issuance of ocean dumping permits for other wastes at sea,<sup>383</sup> it is a specific objective of NFEA (avoiding harm to marine areas) and such an approach makes initial approval merely the first step toward establishing an artificial reef for the enhancement of marine resources. Given our current knowledge base, the standard should be that the project would not harm the environment, and the proponent of the project bears the burden of scientific findings to that effect.

Second, recognizing that good intentions fall far short of enhancing marine resources, improvement in defining objectives and tracking progress is required. The NMSP artificial reef policy and California’s rejected SB 1 “no-take” zone approach are helpful models of adaptive management of artificial reefs. Any particular artificial reef may have different positive as well as potentially injurious effects.<sup>384</sup> Mandatory periodic reviews of clearly articulated habitat enhancement goals will assure permit conditions are being met, but they will also serve another important purpose by helping to illuminate the ecological benefits, to the extent they exist, of artificial reefs.<sup>385</sup>

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380. Cal. S.B. 1 § 5, *adding* CAL. FISH & GAME CODE § 6427(b).

381. Senate Natural Resources and Wildlife Committee, Bill Analysis, Cal. S.B. 1, at 7.

382. *Id.*

383. Under the MPRSA, approved dumping first determines whether “disposal will not unduly degrade or endanger the marine environment.” 40 C.F.R. § 227.4 (2005). MPRSA permits must consider both environmental impact criteria and requirements for disposal site management. 40 C.F.R. § 227.1(a) (2005).

384. MCGINNIS ET AL., *supra* note 24, at 25.

385. See Margaret W. Miller, *Using Ecological Processes to Advance Artificial Reef Goals*, 59 ICES J. MARINE SCI. S27, S30 (Oct. 2002) (suggesting vast improvement in successes with artificial reefs would accrue if every artificial reef “were treated as a study reef”).

Artificial reef managers support specific goals and progress reports. They are just as eager to establish the scientific benefits of artificial reefs as a management tool as they are interested in avoiding harm from such projects.<sup>386</sup> Artificial reef managers could identify anticipated benchmarks for success and reasonable timelines for achieving these benchmarks. Baseline data would be required prior to the establishment of the artificial reef, and managers would need the flexibility to place the structures off-limits to fishing and diving during evaluation and establishment periods. Managers need not be confined to initial objectives if research illustrates alternative positive benefits. Such an approach might even consider allowing an artificial reef with only proven aggregating effects to be used in non-consumptive ways (such as diving or research) if it is shown to take pressure off natural reefs in the area. This approach would also provide that those artificial reefs with injurious or non-beneficial effects (essentially the same as ocean dumping) are removed. Initial approval of an artificial reef would not ensure its longevity; proof of its worth in achieving specific goals would be required. This research mandate would make artificial reef managers accountable to project objectives as well as their recreational fishing constituency. It would also facilitate evaluation by the broader public into the uses of artificial reefs, since it would make clear whether such tools are effective and efficient, or merely a novelty.

Beyond distinguishing rig-to-reef projects from ocean dumping, a more robust experimental model is also necessary to keep up with the growing use of artificial reefs in other contexts. A sound research approach could pave the way for responsible expansion of the application of artificial reefs to estuary restoration and as environmental mitigation for projects that impact marine resources. According to the National Artificial Reef Plan, "[w]hile the majority of [artificial] reefs have been built to support and enhance recreational fishing, interest is growing in using artificial reefs to restore, mitigate, or create habitat...."<sup>387</sup> Since the science of artificial reefs is still riddled by competing theories, however, growing efforts to use artificial reefs as a replacement for natural environments involve significant risk of failure to achieve environmental goals. Using artificial reefs as habitat mitigation should be

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386. See COASTAL ARTIFICIAL REEF PLANNING GUIDE, *supra* note 4.

387. NOAA DRAFT ARTIFICIAL REEF PLAN OF 2002, *supra* note 12, at 13. The original plan was developed in 1985 by the Secretary of Commerce under direction of the National Fishing Enhancement Act of 1984 (NFEA). 33 U.S.C. § 2103 (2000). The original plan noted that there was very scant information on how to site reefs to enhance or restore habitat. "While there is growing interest in using artificial reefs to enhance or restore fishery resources and associated habitat, there is limited research or experience to guide in siting reefs for these purposes." The original plan includes those limited recommendations, in the form of some "dos" and "don'ts." NOAA ARTIFICIAL REEF PLAN OF 1985, *supra* note 44, at 7.

much more rigorously scrutinized until the science of artificial reefs is better understood. The popularity of artificial reefs with the public is not likely to wane unless information about the effects of artificial reefs is better understood and disseminated.

Expanding scientific scrutiny of rig-to-reef projects cannot be done without empowering artificial reef managers with the staff and funding they require. To obtain flexibility in removal requirements, industry should be required to offer tangible benefits to the environment that are as meaningful as their obligation to remove defunct industrial fixtures. Without staff to study and monitor the effects of artificial reefs, this basic evaluation simply cannot occur.

An increase in transparency would be a step toward obtaining benefit from the rig-to-reef option without continuing to burden coastal states with under-funded cleanup subsidy programs. Transparency in rig-to-reef transactions would be significantly enhanced if the monetary value of the prospective artificial reef habitat and the cost to the state of accepting the conversion, as opposed to just the cost of removal, were calculated as part of the proposal.<sup>388</sup> This change in perspective would help to illuminate the fact that it is far more expensive to manage an unproven technology, which still requires scientific research and monitoring, than an established technology. Unlike many other environmental commodities, artificial reef construction materials have a known economic value. The monetized value of habitat enhancement from artificial reefs, however, is speculative, particularly given the scientific uncertainty surrounding artificial reefs altogether.<sup>389</sup> While difficult to calculate, estimations of habitat value would help the public understand whether and why such investments are necessary. Potentially useful calculation tools could include using environmental baselines (evaluating what habitat exists before the project and comparing it with the habitat that is anticipated to be created with the project) or referring to the cost of restoration or replacement habitat.<sup>390</sup> Illumination of the

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388. MacDonald, *supra* note 14.

389. There would be many components of such a calculation, with some much easier to monetize than others. Artificial reef construction materials have a known economic value. Economic benefits from tourism, the costs of maintenance, managing liability and the costs of insurance policies to secure against such risks can all be estimated with some degree of precision. It is more difficult, however, to value the resulting artificial reef habitat. Other costs difficult to estimate include the cost of the structure standing as an obstruction to navigation, the risk of movement, and the risk of harm to the environment including the potential that decomposition will release pollution in the ocean as well as the value of returning the ocean floor as near to its pre-drilling state as possible.

390. Identifying natural areas of ecological significance and then calculating the cost to duplicate these areas is still a controversial issue. The debate over valuation of natural areas has been extensively played out in the context of natural resources damage litigation under CERCLA. Some tools used to make these calculations include contingent valuation, where surveys of respondents are used to calculate what a person would pay for the resource. Sletto,

speculative nature of habitat value gained and the need to evaluate the ecological effect of these efforts (including the possibility of ultimate platform removal funded by the state) will strengthen states' arguments that increased revenue sharing from OCS operations and increased influence over OCS activities are long overdue.

## 2. *Aligning Goals and Sharing Responsibilities*

Federal and state objectives for OCS activities must be reconciled, or rig-to-reef programs will continue to suffer from obscure goals and ineffective results. Federal acknowledgement of this issue at the outset of offshore development decision-making is required. The level of government best suited to deal with an environmental problem should be charged with responsibility for such problem.<sup>391</sup> Here, the federal government trustee can best avoid the waste disposal problem created by its permitted OCS development projects<sup>392</sup> and should be looked to for leadership.<sup>393</sup>

The federal government, which receives financial benefits from OCS development, has control over the bargain struck with the oil industry at the outset. Even if state programs are well-intentioned, federal objectives must be aligned with state objectives to achieve the best "bargain" from the entire operation from start (OCS leasing), to re-start (artificial reef conversion). If indeed the federal government's intent is to subsidize oil and gas production, this objective can be accomplished with royalty relief<sup>394</sup> or bonus bid reductions<sup>395</sup> at or during production rather than shifting the focus of financial support to the cleanup stage. Involvement of the federal government in reef programs could also pave the way to more extensive research in deepwater areas where effective rig-to-reef

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*supra* note 293, at 583–85 (discussing proposal for environmental baseline to be included in OCSLA process).

391. Daniel C. Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570 (1996).

392. See discussion of state and federal competition on the OCS *infra* Part II.B.

393. Currently, the direction for rig-to-reef policy, according to MMS, will be dictated in large part by stakeholders. See DAUTERIVE, *supra* note 199, at 5. If the past is any indication of the future, this will be dominated by the diverse coalition of recreationists and the oil industry.

394. The federal government receives a payment based on the amount of oil or gas produced from a certain lease. The federal government could choose to reduce the amount of the payment if it is interested in encouraging development. This approach was taken to spur deepwater drilling. See Outer Continental Shelf Deep Water Royalty Relief Act of 1995, 43 U.S.C. § 1337(a)(3)(C)(ii) (2000).

395. The federal government also obtains a lump sum or "bonus" bid at the outset of negotiations on the sale of offshore leases. Such bonus bid sums, often quite substantial, could be reserved and returned to oil companies to mitigate the cost of platform removal. See 43 U.S.C. § 1337(a) (authorizing the Secretary of the Interior to fix an amount for a cash bonus).

development might require a trade-off that involves impacts to navigation.<sup>396</sup>

Whether a platform will be removed is now determined on a case-by-case basis. One purported justification for this discretionary approach is that platforms are not generally designed for complete removal, making it expensive as well as technically infeasible in some instances to remove a platform. Based on the current rig-to-reef practice, the deeper the platform the more likely it is to be "recycled" as a reef.<sup>397</sup> It is well known that "[t]o reduce deepwater structure decommissioning, operators want to be allowed to dispose of the structures by sinking them and turning them into artificial reefs."<sup>398</sup> The technological advances of constructing platforms in deeper waters have outpaced technological advances to remove platforms safely and inexpensively. This occurred in a regulatory context where platform operators had already committed to removal, illustrating an unreasonably short-sighted business operation. This situation must be halted. There is no reason technical feasibility should control removal decisions given the significant financial wealth generated in these operations. Platforms can and should be designed for complete removal; an up-front design requirement in federal leases (as advocated by the IMO) would shift the focus of the offshore disposal debate to considerations important to the public, rather than to industry.<sup>399</sup>

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396. Some scientific research suggests that allowing rig-to-reef marine communities to stay undisturbed near the surface of the water has more potential for environmental benefit than toppling rigs or cutting them down. See SELECT SCIENTIFIC ADVISORY COMM. ON DECOMMISSIONING, *supra* note 11, at 29–31 (discussing removal of all or the upper 30 meters of a rig structure). The authors noted that organisms that live on the top of the structure and depend on a significant amount of light and nutrients would not be present in deeper areas, and removal would have an impact on marine life lower down in the water column. *Id.* at 30. They propose that, "The removal of the top portion of the platform may have great effects on the biota on the lower part, and over the long term that assemblage may not be sustained." *Id.* See also Weiss, *supra* note 9 (noting that scientists debate the benefits of rig-to-reef conversions); PULSIPHER & DANIEL, *supra* note 47, at 19 (noting that research shows the first 80–100 feet below water is critical). The Department of Interior, Coast Guard, and other federal actors will have to be involved in expressing their support for such trade-offs, providing a good indication of federal support for marine ecosystem enhancement through the use of artificial reefs.

397. At a public workshop discussing decommissioning, Associate Director for Offshore Minerals Management, U.S. Department of the Interior, Carolita Kallaur noted that "[i]n the Gulf of Mexico, statistics show that the greater the water depth the more likely decommissioned structures are to be converted to artificial reefs . . . . However, 40% of the structures located in 100–200 feet of water, and 85% of the structures located in 200–400 feet of water have been converted to artificial reefs." DECOMMISSIONING OFFSHORE CALIFORNIA, *supra* note 1, at 10.

398. Ron Twachtman, *Offshore-Platform Decommissioning Perceptions Change*, OIL & GAS J., Dec. 8, 1997, at 38.

399. This standard was suggested over thirty years ago when the Secretary of Defense recommended such standard be discussed interagency, due to concerns about the proliferation of abandoned platforms harming U.S. marine defenses ("seaborne forces"). COMM'N ON DISPOSITION, *supra* note 2, at Appendix C, Position of the Department of Defense. Moreover, MMS looked favorably on this requirement when raised again in response to comments over revision of platform installation regulations in 2000. See Oil and Gas and Sulphur Operations in



This design requirement could also be paired with a firm goal for the number of platforms that will be left in the ocean for use as artificial reefs or other purposes. This would do much to address the concern about the proliferation of platforms on the seabed and provide state artificial reef managers with better ability to plan for the development of their programs. Again, this points to the need for increased federal attention and involvement at initial lease stages to prevent a waste disposal problem, particularly since the federal government is poised to approve a proliferation of more permanent fixed structures on the OCS for energy development, aquaculture, and research.<sup>400</sup>

States already have a recognized important role in managing coastal zone activities.<sup>401</sup> A tool to enable the federal government and the states to implement a long-term vision of ocean use and sustainability must be fostered. An obvious candidate is the increased use of ocean zoning to establish not only short term uses for particular ocean areas, but also long-term sustainability.

#### *D. Marine Protected Areas Could Mediate Among Conflicting Ocean Uses*

An effective regulatory tool increasingly used to manage ocean ecosystems is the Marine Protected Area (MPA).<sup>402</sup> The MPA is a form of ocean zoning that considers all activities in a particular area of the ocean.<sup>403</sup> This holistic ecosystem approach has been employed by the federal government and several states in response to the limitations of traditional regulatory tools to achieve marine management goals, such as individual fishing quotas, catch limits, gear restrictions, and seasonal

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the Outer Continental Shelf—Decommissioning Activities, 65 Fed. Reg. 41,892, 41,893 (July 7, 2000) (to be codified at 30 C.F.R. pt. 250).

400. The Bush administration has proposed to increase authority over OCS structures. BUSH RESPONSE, *supra* note 101, at 24. Congress has in fact increased DOI's authority for offshore energy development on the OCS. See Energy Policy Act of 2005, Pub. L. No. 109-58, § 388, 119 Stat. 594, 744-47 (2005) (to be codified at 43 U.S.C. § 1337) (amending section 8 of the Outer Continental Shelf Lands Act to authorize the Secretary of Interior to issue "leases, easements, or rights-of-way" on the OCS if such activities "use, for energy-related purposes or for other authorized marine-related purposes, facilities currently or previously used for activities authorized under this Act. . .").

401. OCEAN COMM'N REPORT, *supra* note 20, at 473-74 (recommending increased partnerships with coastal states).

402. See Exec. Order No. 13,158, 65 Fed. Reg. 34,909 (May 26, 2000) (encouraging the adoption of MPA management); NATIONAL RESEARCH COUNCIL, MARINE PROTECTED AREAS: TOOLS FOR SUSTAINING OCEAN ECOSYSTEMS (2001); Craig, *supra* note 330, at 167-68; Christie, *supra* note 322, at 430 (discussing marine reserves as complement to ecosystem-management).

403. Neubert, *supra* note 159.

closures.<sup>404</sup> The MPA is one regulatory tool that could be used to ensure that federal and state objectives are achieved on the OCS through mutual agreement over the hierarchy of uses (or non-use) best suited to particular areas of the ocean. For instance, one proponent of this approach suggests specific areas, like the Gulf of Mexico, should be zoned for minerals extraction and any compatible uses such as recreational fishing.<sup>405</sup> While a suggestion like this might seem dramatic to some, policymakers have recognized the limitations of multiple-use management in an open access system and are looking for ways to expand exploitation of ocean resources without creating additional user conflicts.<sup>406</sup> The MPA approach is particularly suitable to managing fixed structures on the OCS, as such structures have place-based certainty and are likely to have local effects.

The most restrictive form of an MPA is the marine reserve, which prohibits all extractive activities in the defined reserve area.<sup>407</sup> In addition to providing relief to overfished stocks, the marine reserve approach ensures that habitat is not damaged physically by fishing activities.<sup>408</sup> By using artificial reefs in reserve areas, much like California SB 1 proposed, scientific information about artificial reef capacity to improve or harm marine ecosystems and particular species of fish could be generated. While the use of artificial reefs in marine protected areas is currently rare, reef managers note it “may be one of the most underutilized applications for artificial reefs.”<sup>409</sup> Certainly, it has much more promise to produce reliable scientific evidence about the effects of artificial reefs on

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404. NATIONAL MARINE PROTECTED AREAS CENTER, NOAA PROGRESS REPORT: STATUS OF MPA EXECUTIVE ORDER 13158 AND NATIONAL MARINE PROTECTED AREAS CENTER FISCAL YEAR 2002 AND 2003 (July 2004). The federal government coordinates MPA information. See MPA.gov, Marine Managed Area Programs and Systems in States, Commonwealths, and Territories, [http://mpa.gov/mpa\\_programs/state\\_programs.html](http://mpa.gov/mpa_programs/state_programs.html) (last visited Nov. 18, 2005) (listing the coastal states that are using some form of MPA or marine managed areas to govern ocean resources).

405. Harb, *supra* note 61, at 27.

406. See Exec. Order No. 13,158 (recognizing the importance of solving emerging user conflicts, threats to ocean sustainability, and the need for protecting areas of the ocean from human impacts). See also Barbara A. Vestal, *Dueling with Boat Oars, Dragging Through Mooring Lines: Time For More Formal Resolution of Use Conflicts in States' Coastal Waters?*, 4 OCEAN & COASTAL L.J. 1 (1999) (analyzing solutions for improving ocean management given increasing use conflicts); Roger Fleming, Peter Shelley & Priscilla M. Brooks, *Twenty-Eight Years and Counting: Can the Magnuson-Stevens Act Deliver on its Conservation Promise?*, 28 VT. L. REV. 579, 610 (2004) (discussing increasing uses of oceans); *Id.* at 619–21 (discussing network of marine protected areas to conserve marine habitat).

407. See Craig, *supra* note 330, at 169–72 (discussing the benefits of marine reserves).

408. *Id.*

409. COASTAL ARTIFICIAL REEF PLANNING GUIDE, *supra* note 4, at 15.

the surrounding environment than those artificial reefs constantly utilized by recreationists.<sup>410</sup>

Most coastal states have already begun to experiment with the MPA approach to marine life and habitat conservation.<sup>411</sup> The most aggressive of these efforts is unfolding in California, with the Marine Life Protection Act (MLPA) establishing an extended network of marine protected areas along the entire California coastline.<sup>412</sup> As part of an overarching strategy to protect ocean resources, California also continues to promote the complete moratorium on offshore oil drilling.<sup>413</sup> This effort illustrates the importance of shared environmental objectives between the federal government and coastal states to achieve sustainability of the ocean: an effort such as the MLPA could never be truly effective if the federal government pursued its own interests in risk-laden OCS development on the adjacent OCS.<sup>414</sup>

Of course, MPAs, and in particular no-take marine reserves, are fiercely criticized. The most vocal opponents are fishing interests that contend zoning the ocean displaces traditional rights of use.<sup>415</sup> MPA opponents cite the traditional "right to fish" and have even moved states to adopt "freedom to fish" legislation to limit the ability of fisheries managers to regulate recreational fishing.<sup>416</sup> Some have suggested the solution to ocean zoning opposition is collaboration between fishermen and fisheries managers. The success of MPAs, particularly marine reserves, has thus far hinged on stakeholder acceptance of this new management tool.<sup>417</sup> Securing this acquiescence will require proven results of the efforts undertaken to restore ocean ecosystems or specific

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410. The Coastal Artificial Reef Planning Guide suggests that the lack of baselines poses a serious shortcoming to artificial reef management efforts, to the extent they exist at all. *Id.* at 36.

411. See sources cited *supra* note 404.

412. One of the first initiatives in this larger plan is implementation of the Marine Life Protection Act, adopted by the California legislature in 1999, which calls for a network of MPAs along the entire coastline. CAL. FISH & GAME CODE §§ 2850-2863 (Deering 2005).

413. CAL. RES. AGENCY, PROTECTING OUR OCEAN: CALIFORNIA'S ACTION STRATEGY, FINAL REPORT TO GOVERNOR ARNOLD SCHWARZENEGGER iii, 36 (Sept. 2004).

414. The reverse may also be true in areas where federal efforts to restore marine ecosystems conflict with state activities. See Craig, *supra* note 336, at 658-664 (predicting that potential conflicts between state and federal goals may undermine environmental protections).

415. See Christie, *supra* note 322, at 431 (noting that the most frequent criticism of marine reserves is violation of public trust doctrine).

416. Freedom to Fish Acts were proposed in most coastal states by recreational fishing groups. See, e.g., Kelly McGrath, *The Feasibility of Using Zoning to Reduce Conflicts in the Exclusive Economic Zone*, 11 BUFF. ENVTL. L. J. 183, 212 (discussing the Freedom to Fish campaigns of sportfishing organizations). In 2003, 11 states introduced Freedom to Fish Acts. See, e.g., S.B. 281, 2003-2004 Sess. (Cal. 2004) (unenacted); H.B. 2205, 2003-2004 Biennium (Wash. 2003) (unenacted); H 5686A, 2003 Sess. (R.I. 2003) (enacted); H.B. 1160, 2003 Sess. (Md. 2003) (unenacted); H.R. 313, 2003 Sess. (Pa. 2003) (passed).

417. See Craig, *supra* note 330, at 261 (underscoring need for public support for successful MPA management).

fisheries. Stakeholders are likely to accept change only if there has been a satisfactory demonstration that sacrifices have been secured toward a common goal.

#### CONCLUSION

Adapting rig-to-reef programs to a more environmentally sound approach requires national planning and an experimental outlook on these projects as unproven fisheries management tools. Rig-to-reef programs currently subsidize unsustainable practices, improve the ability to extract fish rather than improve ocean ecosystems, and misplace reliance on corporate generosity. At worst, these projects are nothing more than legally-approved garbage dumping that attracts fish away from valuable fisheries habitat. Even if artificial reefs are a net environmental wash, states expend limited resources for recreational benefit at a time when the ocean's health is in crisis. The importance of achieving a sustainable ocean resource demands that the vacuum created by scientific uncertainty, and in turn legal uncertainty, is not dominated by political expediency, profiteering, or sheer inertia. Instead, rig-to-reef programs must employ a strong commitment to improving the health and functioning of important ocean ecosystems to resist the powerful influence of profitable oil companies and the enduring optimism of recreational fishermen.

