TULANE ENVIRONMENTAL LAW JOURNAL

VOLUME 29 SUMMER 2017 ISSUE 2

Examining the Public Trust Doctrine's Role in Conserving Natural Resources on Louisiana's Public Lands

John Arnold*
Andrew Jacoby†

Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home; that wilderness is a necessity; and that mountain parks and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life. Awakening from the stupefying effects of the vice of over-industry and the deadly apathy of luxury, they are trying as best as they can to mix and enrich their own little on-goings with those of Nature, and to get rid of rust and disease.[1]

© 2017 John Arnold & Andrew Jacoby.

* Mr. Arnold is an attorney practicing environmental law in New Orleans. While earning his undergraduate and graduate degrees in wildlife science from Mississippi State University, he worked on research projects from Canada to Louisiana. After graduating from the Mississippi College School of Law in 2007, he managed the legal division of a nationally recognized environmental consulting firm and opened his own law practice. He now works for Jones, Swanson, Huddell & Garrison, LLC, litigating cases primarily related to land loss, oilfield contamination, and waterbottom disputes. Mr. Arnold also has experience in evaluating opportunities and constraints of existing and proposed restoration measures in coastal Louisiana to conserve wetlands and multiple land uses.

† Mr. Jacoby is an environmental litigator based in New Orleans, Louisiana. He is a partner at the law firm Scott, Vicknair, Hair, and Checki, LLC. He previously worked for the state of Texas on water law issues before returning to Louisiana to practice environmental litigation. His work includes oilfield contamination, gas station contamination, public interest environmental law, air pollution, water pollution, permitting, facility siting, hydraulic fracturing (fracking), coastal erosion, and historic preservation. He is a graduate of Tulane University's environmental law program. He received undergraduate business and liberal arts degrees from the University of Texas at Austin. He is originally from Ann Arbor, Michigan.

1. John Muir, *The Wild Parks and Forest Reservations of the West*, *in* OUR NATIONAL PARKS (1901).

I. INTRODUCTION

Like many places throughout the country, Louisiana's natural resources have instilled and enriched the values, traditions, and livelihoods of the state's culture. But, unlike most places, the state's water-dominated landscape has fostered unique assemblages of plants and animals that offer diverse opportunities for recreation, commerce, and sustenance.

Among these natural settings lie public lands devoted to protecting natural resources and offering consumptive uses for the public. Through gift, acquisition, and sovereign right, the state and federal governments have assembled a battery of lands available for public use in Louisiana. Refuges were first established as a way to ensure that natural resources would not succumb to the abuse of overexploitation and excessive consumption. Public grounds propagated productive wildlife habitat and functioned as sanctuaries for the restoration of animal species in danger of extinction caused by disappearing wilderness and increased industrial growth. Louisiana also regarded public properties as recreational lands that afforded hunting and fishing opportunities to the public at large, for which uninhabited lands and waters fostered the natural life and beauty of the landscape, drawing the public away from the doldrums of daily life.

Designed to accommodate almost every interested citizen, these lands can be used by anyone who complies with the regulations for proper use.[2] Major commercial interests also enjoy the benefits of public lands, namely oil and gas operations.

The use of public lands for oil and gas exploration and production has been occurring nearly since the infancy of the oil industry in the state. Public water bottoms and over 100 state wildlife management areas (WMAs), refuges, and national wildlife refuges (NWRs) exist within Louisiana. Ranging from very minimal activity to areas with thousands of wells, all but a very few have experienced some degree of oil and gas exploration and production. However, because of the inherent intrusive nature of oil and gas activities and its long history within the state, public lands have experienced varying degrees of environmental alterations that have gone largely unaddressed.

The following discussion will evaluate whether the Public Trust Doctrine might serve as an appropriate mechanism to address impacts to the public lands within the state as a result of oil and gas operations.

---

2. Interest groups commonly include recreational and commercial fishermen, hunters, trappers, hikers, birdwatchers, ecotourists, and others.

II. THE PUBLIC LANDS SYSTEMS

A. Louisiana Refuge System

As a major wintering ground for migratory waterfowl, Louisiana became a central gathering place for market hunters by the end of the 19th century.[3] Spring shooting and market hunting had become a dominant force in the state and nation, and wildlife populations were being decimated and natural resources abused.[4] Recognizing this plight, Edward A. McIlhenny, son of the Tabasco brand pepper sauce inventor Edmund McIlhenny, began efforts to establish bird preserves and supplement wildlife populations through husbandry.[5]

Born and raised in south Louisiana at Avery Island, McIlhenny became an avid outdoorsman, ornithologist, and ecologist.[6] Living in a rich coastal setting, he invested a significant amount of time studying the creatures along the coast, erecting a bird sanctuary where he helped save the snowy egret from extinction, and promote nutria populations for the fur industry.[7] McIlhenny also administered a state-sponsored game farm on Avery Island used to propagate wild ducks, geese, and ring-necked pheasants for restocking wild populations.[8] However, the start of possibly his biggest accomplishment came in 1910 when he happened to meet Charles Willis Ward.[9] In a story told by McIlhenny, he revisited how the first refuge in Louisiana came into existence.[10]

---

3. DONALD W. DAVIS, WASHED AWAY?: THE INVISIBLE PEOPLES OF LOUISIANA'S WETLANDS 388-89 (2010).

4. *See* GAY M. GOMEZ, A WETLAND BIOGRAPHY: SEASONS ON LOUISIANA'S CHENIER PLAIN 117 (1998).

5. *See* SUZANNE TURNER, JOHN WELCH & NICK MUSSO, SUZANNE TURNER ASSOCIATES, LLC, THE ATCHAFALAYA NATIONAL HERITAGE AREA: SELECTED LEVEL 0 CULTURAL LANDSCAPE ASSESSMENTS 21 (2010).

6. Charity Michelle Boutte, Life, Land, and Labor on Avery Island in the 1920s and 1930s 2-3 (May 2011) (unpublished M.A. thesis, University of Texas at Austin) (on file with the University of Texas Libraries); E.A. McIlhenny, *The Blue Goose in its Winter Home*, 49 AUK: Q.J. ORNITHOLOGY 279, 282 (1932).

7. Edward A. McIlhenny, *The Creating of Wild Life Refuges in Louisiana*, 1 LA. CONSERVATION REV. 23, 23 (1930); A. M. Bailey, *Snowy Egrets Brought Back by Protection*, 1 LA. CONSERVATION REV. 26, 26 (1930); LA. DEP'T OF CONSERVATION, FOURTH BIENNIAL REPORT: APRIL 1, 1918 TO APRIL 1, 1920, at 43 (1920); Armand P. Daspit, *Development of Nutria in Few Years Since Its Introduction in Louisiana Has Been Virtually Phenomenal*, 6 LA. GAME, FUR, & FISH 4 (1947); *see also* SHANE K. BERNARD, "M'SIEU NED'S RAT? RECONSIDERING THE ORIGIN OF NUTRIA IN LOUISIANA: THE E. A. MCILHENNY COLLECTION, AVERY ISLAND, LOUISIANA," LOUISIANA HISTORY, 43 (SUMMER 2002), 281-93.

8. *See* LA. DEP'T OF CONSERVATION, *supra* note 7, at 18.

9. *See* LA. DEP'T OF CONSERVATION, NINTH BIENNIAL REPORT: 1928-29, at 133 (1929).

10. *See id.* at 133-35.

> In March, 1910, I was in a sporting goods store in New Orleans looking over some fishing tackle. The clerk serving me, called me by name, and at once a man standing at the counter near me, turned to me and said, "Are you Mr. McIlhenny of Avery Island?" On being assured that I was, he said, "I am Charles Willis Ward, of Michigan, and I have been wanting to meet you for a long time, to learn at first hand how you have accomplished the protection of the wild life in Louisiana, for which you are famous."
>
> This was my first meeting with Mr. Ward, who was destined to be of such great assistance in establishing the Louisiana Wild Life Sanctuary.
>
> ***
>
> During Mr. Ward's visit with me, we together visited a 54,000-acre block of land on the south side of Vermilion Bay, which I had under lease from the Orange land Company for the purpose of protecting the ducks and geese during their winter sojourn in Louisiana. On this property I had maintained a warden service during the winter, and it had become a famous winter resort for great numbers of wild fowl. Mr. Ward was very anxious to buy this property, and before the year was out he and I bought it jointly.
>
> ***
>
> On November 4, 1911, a little more than a year after we purchased the Vermilion Bay property, Mr. Ward and I donated to the State of Louisiana the 13,000 acres now known as the Louisiana State Wild Life Sanctuary-the proportion of the gift being three-fourths by Ward and one-fourth by McIlhenny. This was the first wild life refuge in the world, privately donated, for the public good.[11]

McIlhenny continued efforts to acquire additional permanent winter feeding and nesting grounds in south Louisiana by turning his attention to Marsh Island in Iberia Parish.[12] During 1911, through exhaustive efforts of negotiating prices, making surveys, and perfecting titles, McIlhenny, again with the help of Ward, acquired a six-month option from the landowners for the purchase of the lands in which he had an interest.[13] Using his contacts in Chicago and New York, McIlhenny acquired pledges from a number of investors to provide a portion of the cash needed to match the purchase price.[14] However, in 1912, after a meeting with Mrs. Russell Sage and a reconnaissance of the property by her assistant, McIlhenny secured a promise for the entire purchase price

---

11. *Id.*
12. *Id.* at 135.
13. *Id.* at 135-6.
14. *Id.* at 136.

from Mrs. Sage.[15] On July 22, 1912, for a total price of $162,980.02, McIlhenny and Sage bought the 75,663.95 acres of prime wildlife habitat.[16] A little more than a year later, control of the property was given to the Conservation Commission of Louisiana for a period of five years.[17]

Soon after Mrs. Sage purchased Marsh Island, another tract came up for sale in which McIlhenny had a keen interest.[18] The property, lying along the coastline and straddling the Vermilion-Cameron Parish border, totaled 86,000 acres.[19] In the fall of 1912, McIlhenny secured another six-month purchase option.[20] After obtaining pledges from investors, on June 12, 1913, McIlhenny bought the property in his name for $212,500 with $27,500 in cash and $185,000 in promissory notes.[21] Through his dealings with investors, the Rockefeller Foundation became interested in the property and eventually purchased the tract on May 20, 1914.[22] Seven days later, the Foundation offered control of the property to the Conservation Commission of Louisiana for a period of five years.[23] The Commission accepted the offer in September after McIlhenny hosted a meeting at his house on Avery Island with the full Commission in attendance.[24]

McIlhenny had managed to place under the control of Louisiana over 174,663 acres of land.[25] Yet, the control of the vast majority of this acreage was only temporary.[26] After considerable negotiations, McIlhenny was able to convince the Sage and Rockefeller interests to deed the property to the State in the form of a donation with the lands dedicated as refuges or game preserves for perpetual wildlife protection.[27] In 1920, the transfer was made final, giving the State of Louisiana an asset that was worth more than anyone could have imagined.[28] The State and sportsmen everywhere deemed these acts of donation "as one of the greatest features of game conservation in this

---

15. *Id.*
16. *Id.* at 136-37.
17. *Id.* at 137.
18. *Id.*
19. *Id.*
20. *Id.* at 137-38.
21. *Id.* at 138.
22. *Id.*
23. *Id.*
24. *Id.* at 139.
25. *Id.* at 139.
26. *Id.*
27. *See id.*
28. *See* Deeds of Donation for Marsh Island and Rockefeller, each dated Nov. 8, 1920 (on file with authors). Deeds include conditions that if violated will revert property back to donor.

country," and thus established the foundation from which future acquisitions of public lands would be made possible.[29]

Louisiana began an aggressive campaign to acquire new public lands, and by 1936 the State had sixteen public parks, fish and game preserves, and wildlife refuges.[30] Many public areas coming into state ownership were previously cleared for agricultural or industrial uses and since abandoned.[31] Upon acquiring these properties, the State invested tremendous amounts of resources in managing habitat and wildlife, patrolling the public grounds to protect resources from intruders, and maintaining facilities.[32] By the late 1930s, the Department of Conservation spent millions of dollars supervising and patrolling the refuges acquired since 1911.[33]

Despite these expenditures, public lands served as a revenue source for the state.[34] The State received millions of dollars for geophysical exploration operations and many more millions through leasing on a competitive system of sealed bids.[35] Severance taxes and royalties on production provided additional significant streams of revenue.[36] Historically, through the combined earnings from oil production on Rockefeller and Marsh Island, the state has been able to purchase additional properties designated for public use.[37] Among other acquisitions, in the 1960s, the state bought the Pointe au Chien, Saline, and Salvador WMAs.[38]

---

29. LA. BD. OF COMM'RS FOR THE PROT. OF BIRDS, GAME & FISH, REPORT OF THE BOARD OF COMMISSIONERS FOR THE PROTECTION OF BIRDS, GAME AND FISH 9 (1912).

30. *See* LA. DEP'T OF CONSERVATION, THIRTEENTH BIENNIAL REPORT: 1936-1937 (1937); Map entitled, "Louisiana State and National Parks, Fish and Game Preserves, Wildlife Refuges," *Commission Takes Firm Stand on Future Uses of Public Land*, 19 LA. CONSERVATIONIST 2, 2 (1967).

31. *See* Paul G. Redington, *Keep Marshlands for Wild Fowl*, 3 LA. CONSERVATION REV. 3, 4-5 (1933).

32. *See* Armand P. Daspit, LA. DEP'T OF CONSERVATION, *Fur and Wildlife Division*, *in* FOURTEENTH BIENNIAL REPORT: 1938-1939 67, 67 (1940).

33. *See id.*

34. *See* Memorandum for Federal Study of Estuaries from C.J. Bonnecarrere Sec'y, State Mineral Bd. to La. State Mineral Bd. Nat'l Study Public Meeting (Oct. 10, 1968), at 43.

35. *See id.*

36. For example, in 1984, Rockefeller Refuge earned almost $1.2 million every month. LA. DEP'T OF WILDLIFE & FISHERIES, ROCKEFELLER WILDLIFE REFUGE MANAGEMENT 15 (2011).

37. Selected Topics Prepared for Governor Buddy Roemer from Virginia Van Sickle, Sec'y, Dep't of Wildlife and Fisheries 19 (undated) (unpublished report) (on file with author).

38. Russell Sage (Ouachita Parish)—Acquired 12.28.1960, Saline (later renamed to Dewey Wills WMA) (Catahoula-LaSalle Parishes)—March 1964, Red River (Concordia Parish)—12.1.1969, Spring Bayou (Avoyelles Parish)—1.24.1967, Pointe Au Chein (later renamed to Pointe aux Chenes WMA) (Terrebonne and Lafourche Parish)—12.11.1968, Salvador (St. Charles Parish)—12.11.1968. *See* Richard K. Yancey, *The Vanishing Delta Hardwoods: Their Wildlife Resources*, LA. WILDLIFE AND FISHERIES COMM'N (State of La. Wildlife and

The state also commonly leases public and private properties for use by the public as hunting grounds, such as the Atchafalaya Delta WMA in St. Mary Parish and the Biloxi WMA in St. Bernard Parish.[39] Today, the State of Louisiana owns and leases over sixty WMAs and refuges.[40]

B. National Wildlife Refuge System

In addition to the state's fledgling acquisition program, the federal government initiated efforts that would result in the creation of its own system of public lands. The national wildlife refuge system (NWR system) began when President Theodore Roosevelt issued an executive order on March 14, 1903, to preserve the breeding grounds for brown pelicans and other breeding birds on an island off Florida's central Atlantic coast.[41] The refuge was aptly named Pelican Island National Wildlife Refuge, and was the first land specifically set aside by the federal government for the sake of wildlife.[42] To formalize the protection of declining populations of wildlife, Congress passed the Migratory Bird Law in 1913 and the Migratory Bird Conservation Act in 1929, which authorized funding of almost $8 million to establish a nationwide network of inviolate refuges.[43] This appropriation amounted to a very large sum at the time.[44]

Fisheries Comm'n), Dec. 1, 1969, at 8-9, 20; Selected Topics Prepared for Governor Buddy Roemer from Virginia Van Sickle, Sec'y, Dep't of Wildlife and Fisheries (undated).

39. 1968 La. Acts 612; 1977 La. Acts 565; LA. STAT. ANN. §§ 56:109, 56:781 (2016). Louisiana Act 565 authorized the State to lease this land, which became Atchafalaya Delta Wildlife Management Area to the Department of Wildlife and Fisheries. In 1977, the Louisiana Department of Natural Resources leased the Atchafalaya WMA to the Department of Wildlife and Fisheries. *See* Stephanie Showalter & Lisa C. Schiavinato, *Marine Protected Areas in the Gulf of Mexico: A Survey*, MISS.-ALA. SEA GRANT LEGAL PROGRAM, LA. SEA GRANT LEGAL PROGRAM, 85 (Pub. No. MASGP 03-019); Exec. Order No. 7983, 3 F.R. § 2389 (1938). The 1977 lease ended in August 2002, which was subsequently extended until July 2003 when a new lease was entered into with the Department of Wildlife and Fisheries remaining the lessee. *Id.* The 2003 lease agreement ends at midnight on June 30, 2028. *See* LA. ADMIN. CODE tit. 76, § 301 (2016). Biloxi Wildlife Management Area (Biloxi WMA) is owned by the Biloxi Marsh Land Corporation and is leased to the Louisiana Department of Wildlife and Fisheries under the authority of LA. STAT. ANN. 56:109.18. This statute gives the Wildlife and Fisheries Commission the authority to establish, maintain, and manage wildlife management areas and other state-protected areas.

40. *Wildlife Management Areas: WMA Overview*, LA. DEP'T WILDLIFE & FISHERIES, http://www.wlf.louisiana.gov/wma (last visited Apr. 2, 2016).

41. *See National Wildlife Refuge System*, U.S. FISH & WILDLIFE SERV., http://www.fws.gov/refuges/about/acquisition.html (last visited Apr. 2, 2016).

42. Paul G. Redington, *Keep Marshlands for Wild Fowl*, 3 LA. CONSERVATION REV. 3, 4 (1933).

43. *Id.*

44. *See id.*

The federal program began in Louisiana in 1904 with the establishment of Breton Island Reservation, the second oldest refuge in the NWR System.[45] Later named Breton NWR, Roosevelt visited the refuge in 1915.[46] The refuge was set aside to further the purpose of the Migratory Bird Conservation Act by serving as a refuge and breeding ground for birds and other wildlife.[47] Today, twenty-four NWRs are located throughout the state of Louisiana.[48]

C. Public Land Uses and Values

McIlhenny primarily designed the state's refuges to provide habitat for migratory waterfowl where they could remain unharassed by hunters; yet, the ultimate goal for establishing the refuges was aimed at wildlife conservation where protection of the wild resources could be perpetuated for use and enjoyment by future generations.[49] State lands were also used for education, recreation, and scientific research. The Louisiana legislature formally pronounced these lands to provide "hunting, fishing, and recreational opportunities as primary uses of wildlife management areas, wildlife refuges, public hunting grounds and recreation areas."[50]

Similarly, the NWR system expressly acquires and reserves federal lands for wildlife conservation.[51] The stated purpose of the NWR system is to develop "a national program of wildlife and ecological conservation and rehabilitation" through the "restoration, preservation, development and management of wildlife and wildlands habitat."[52]

> The System was created to conserve fish, wildlife, and plants and their habitats and this conservation mission has been facilitated by providing present and future generations of Americans opportunities to participate in

---

45. Jack Curry, *100 Years Later—Still Flying High*, 55 LA. CONSERVATIONIST 4, 7 (2003).

46. *Breton National Wildlife Refuge*, U.S. FISH & WILDLIFE SERV., http://www.fws.gov/breton/ (last visited Apr. 2, 2016).

47. *See* Showalter & Schiavinato, *supra* note 39, at 78. Exec. Order No. 7983, 3 F.R. § 2389 (1938). Executive Order 7983, signed by President Franklin D. Roosevelt in October 1938, revoked this previous Executive Order and established the site as Breton Bird Refuge to further the purpose of the Migratory Bird Conservation Act (16 U.S.C. 715-715r). Executive Order 7983 reserved and set apart the area for use by the U.S. Department of Agriculture as a refuge and breeding ground for birds and other wildlife.

48. *Southeast Region*, U.S. FISH & WILDLIFE SERV., http://www.fws.gov/southeast/maps/la.html (last updated Oct. 2, 2016).

49. *See* LA. DEP'T OF CONSERVATION, *Wildlife Resources of Louisiana, Their Nature, Value and Protection*, BULLETIN, no. 10 at 161-62 (1921); LA. DEP'T OF CONSERVATION, *supra* note 7, at 17-18 (1920).

50. LA. STAT. ANN. § 56:109.2 (2016).

51. *See* MICHAEL J. BEAN & MELANIE ROWLAND, THE EVOLUTION OF NATIONAL WILDLIFE LAW 283-89 (3rd ed. 1997).

52. 50 C.F.R. § 25.11(b) (2016).

> compatible wildlife-dependent recreation, including fishing and hunting, on System lands and to better appreciate the value of and need for fish and wildlife conservation.[53]

The NWR system purpose and vision for wildlife and habitat conservation stresses the importance of natural resource conservation principles and practices, rendering the NWR system as a model for habitat management.[54]

The establishment of the state and federal public lands system in Louisiana came at a time of increasing agricultural and industrial activity.[55] Development of land accommodating a tremendous population expansion and rapid industrial growth, privatization of lands restricting public access, and an agricultural demand that incentivized farmers to place marginal land into production all threatened the available supply of land for wildlife and habitat management and conservation.[56] Thus, the need for public land increased and its acquisition deemed a matter of necessity.[57]

In recognition of the success of the Gulf Coast refuges in obtaining conservation objectives, the State acquired new lands in other parts of the state to provide the public with recreational opportunities.[58] In 1921, the Middle Grounds was first set aside by Act 52 of the State Legislature.[59] The State donated the tract to the Lighthouse Service of the federal government, which established a lighthouse reservation housing a sixty-foot-tall lighthouse, a two-story house made of cypress, and several other buildings.[60] The facilities serviced boat traffic from the Gulf of Mexico to New Orleans through Pass-a-Loutre. However, as boat traffic began using alternate routes, the State was able to reacquire the property.[61] The area, later named Pass-a-Loutre WMA, ultimately became part of a 66,000-acre public hunting ground that facilitated guided duck hunts.[62]

The State also premised acquisition of properties on preservation of habitat to perpetuate many species of birds and game resources in danger

---

53. 16 U.S.C. § 668dd (2012).

54. *See* U.S. DEP'T OF THE INTERIOR, BAYOU TECHE NATIONAL WILDLIFE REFUGE: COMPREHENSIVE CONSERVATION PLAN 5 (2009).

55. *See* Lloyd Abadie, *Our Disappearing Wildlife Habitat*, 10 LA. CONSERVATIONIST 22, 22 (1958).

56. *Commission Takes Firm Stand on Future Uses of Public Land*, *supra* note 30.

57. *Id.*

58. *Id.* at 2-3, 20.

59. James Nelson Gowanloch, *Department of Conservation To Receive Valuable Land*, 3 LA. CONSERVATION REV. 35, 36 (1933).

60. *Id.* at 35.

61. *Id.*

62. *Id.* at 36.

of extinction. For example, an 81,000-acre tract of land was leased in Madison Parish from the Singer Manufacturing Co. in 1926. This land was dedicated to the state to prevent forest fires and protect wildlife from excessive hunting and trapping, a persistent problem requiring the permanent assignment of two Department of Conservation agents.[63] Other conservation goals were accomplished as wolves were found to still wander the property along with the panther, the last place in the state the animal was known to exist.[64] The Singer Preserve also provided a refuge for the "overflow of game and birds which would make hunting in the nearby sections splendid and at the same time preserve the species of birds and animals which might otherwise die out."[65]

Other refuges were also used for species preservation. The 142,000-acre Sabine National Wildlife Refuge in Cameron Parish, originally designated as a refuge and breeding ground for migratory waterfowl and other wildlife, partially functioned to protect the southern red wolf from extinction.[66] Later, during the early 1960s, the alligator was in danger of extinction, and the coastal refuges served as sanctuaries and breeding grounds where their numbers could grow and disperse into surrounding marshes.[67] Likewise, increased sitings of Trumpeter Swans and Whooping Cranes were occurring on the refuges.[68] Thought to be near extinction and very rare, their increasingly frequent use of the refuges was an encouraging sight.[69]

Significant levels of funding were also spent on research investigating the values and functions of natural resources and evaluating management strategies.[70] Refuge biologists commonly worked with biologists from the Louisiana State University, the Louisiana Cooperative

---

63. Armand P. Daspit, *Report of the Fur and Wild Life Division*, *in* 1930-1932 TENTH BIENNIAL REP. OF THE DEP'T OF CONSERVATION OF THE ST. OF LA., at 263, 265.

64. *Id.* at 265.

65. *Id.*

66. *Commission Takes Firm Stand on Future Uses of Public Land*, *supra* note 30, at 3; Exec. Order No. 7764, 2 F.R. § 3183 (1937). Executive Order 7764, signed December 6, 1937, by President Franklin D. Roosevelt, originally designated Sabine NWR as a Migratory Waterfowl Refuge. The Executive Order ordered approximately 143,110 acres to be acquired and then reserved and set aside for use by the U.S. Department of Agriculture as a refuge and breeding ground for migratory birds and other wildlife in furtherance of the Migratory Bird Conservation Act (16 U.S.C. 715-715r).

67. *See* Allan Ensminger, *Refuge Progress*, 20 LA. CONSERVATIONIST 29, 30 (1968).

68. REPORT OF THE CONSERVATION COMMISSION OF LOUISIANA FROM APRIL 1ST, 1914 TO APRIL 1ST, 1916, at 19 (1916).

69. *Id.*

70. For example, shortly after acquiring the initial public lands, surveys conducted in the summer of 1915 revealed that ducks normally thought to only breed in northern reaches of the country and into Canada were nesting in Louisiana. LA. WILDLIFE & FISHERIES COMM'N, THIRTEENTH BIENNIAL REPORT: 1968-69 137 (1970).

Wildlife Research Unit, and the Louisiana Cooperative Fisheries Unit to investigate and evaluate a myriad of research interests.[71] The data procured from these investigations has guided the evolution of practical and economically feasible methods of habitat and species management.[72]

Such management practices of public resources have significantly contributed to the economic prowess and stability of the state. For example, today, Louisiana ranks at or near the top in national seafood and wildlife production, including status as: number one producer in fisheries in the lower forty-eight states, number two producer of oysters, number one producer of blue crabs, number one producer of crawfish, number one producer of shrimp, and number one habitat for migratory waterfowl and songbirds.[73]

Much of the coastal waterbottoms are owned by the State.[74] These public grounds and water bodies serve as habitat for many game and nongame animals, and also act as nurseries for shrimp and fish that are of the utmost importance to offshore fisheries of the northern Gulf of Mexico.[75] "The result is some 20 or more million acres of water and sea floor enriched by the Mississippi River and nurtured by a vast coastal nursery which has a production of fish, shellfish and other natural resources easily harvested and unexcelled anywhere in the world."[76]

Public lands also support and enhance the ecosystem services that natural resources provide and the public enjoys, such as recreational benefits, storm protection, and floodwater retention.[77] The ecosystem services provided by coastal wetlands, including publicly owned resources, support and promote: five million waterfowl; twenty-five

---

71. *Id.* at 130. These interests included marsh management practices for both fish and wildlife, life history studies on the alligator, various studies dealing with aviculture, pond culture of several species of marine and freshwater fishes, bioassay work, and population trends of fishes along the refuge and adjacent gulf. *Id.* Scientists studied alligator nests, alligator census, biotelemetry, alligator carrying capacity, alligator restocking, alligator hatching, alligator winter feeding, impoundment studies, brush control, waterfowl banding, exotic waterfowl, brown pelicans, exotic deer, oil pollution, catfish and crawfish culture in brackish water, crawfish-waterfowl management, croaker culture, pompano, shrimp culture, shrimp-waterfowl management, seasonal distribution of fishes, fish tagging, freshwater fishing impoundments, otter trawl and benthic studies, surface trawl and plankton studies, breeding behavior of mottled ducks, wiregrass control studies, a snipe study, and ecological studies of vegetation, among other things. *Id.* at 130-49.

72. *See* Ensminger, *supra* note 67, at 29.

73. COASTAL PROT. & RESTORATION AUTH., BUS. COUNCIL OF NEW ORLEANS, LOUISIANA'S FUTURE 18 (2012).

74. *Commission Takes Firm Stand on Future Uses of Public Land*, supra note 30, at 4.

75. *Id.*

76. *Id.* at 5.

77. SECRETARY JEWELL ANNOUNCES $162 MILLION FOR 45 PROJECTS TO PROTECT ATLANTIC COAST COMMUNITIES FROM FUTURE STORMS, U.S. DEP'T INTERIOR (2013).

million songbirds; America's largest wintering habitat for migratory waterfowl and songbirds; seventy rare, threatened, or endangered species; the top source of wild seafood in the continental United States; and wetlands that serve as part of the hurricane protection system.[78] Furthermore, between 2006 and 2011, the number of wildlife-related recreation participants in Louisiana increased by 40%.[79]

The recognition of these values by state and federal governments is evidenced by their continued commitment of funds to acquire public lands. In September of 2012, an additional $11 million in revenue from the Migratory Bird Conservation Fund was publicly committed to adding 10,640 acres of wetlands to the refuge system.[80] Another $18.4 million was approved for the acquisition of 95,000 acres of wetlands under authority of the North American Wetlands Conservation Act.[81]

In short, designated public lands have been viewed as a necessity. Wildlife refuges contain abundant biodiversity and often represent the last stronghold for an endangered species or a diminished habitat type.[82] "The continued expansion of intensive land utilization in the United States forces maintenance of the wildlife refuge program as a sort of life insurance policy for the nation's wildlife resources."[83] "In an ever changing world, wildlife refuges have proven to be anchors for biodiversity and ecosystem conservation."[84] Furthermore, refuges provide significant benefits to local economies and a diverse number of ecosystem services and functions, including restoration of millions of acres of depleted lands, relieving regional flooding and providing hurricane protection, improving water quality, and helping private landowners utilize conservation protocols on their own lands.[85] These ecosystem services rendered by the public grounds have been valued in

78. COASTAL PROT. & RESTORATION AUTH., BUS. COUNCIL OF NEW ORLEANS, *supra* note 73, at 19.

79. *New Report Shows Rise in Hunting, Fishing and Wildlife-Related Recreation Participation in 28 States*, U.S. FISH & WILDLIFE SERV. (Sept. 12, 2012), https://www.fws.gov/pacific/news/news.cfm?id=2144375111.

80. NEWSLETTER OF THE GULF OF MEXICO COASTAL OCEAN OBSERVING SYSTEM, GCOOS NEWS & UPDATE (2002).

81. *Id.*

82. J. CLARK SALYER II, THE PERMANENT VALUE OF REFUGES IN WATERFOWL MANAGEMENT AT TRANS. NORTH AM. WILDLIFE CONFERENCE (1945).

83. *Id.* at 20.

84. America's Wildlife, *Conserving the Future: Wildlife Refuges and the Next Generation*, U.S. FISH & WILDLIFE SERV. (Feb 23, 2011), http://americaswildlife.org/draft-vision/intro/.

85. *Id.*; *see* U.S. DEP'T OF THE INTERIOR, *supra* note 54, at 2, 11, 19.

the billions of dollars annually.[86] As the human population continues to rise and the public continues to actively use public lands and enjoy the natural services they provide, public lands will continue to serve as a necessity.

III. OIL AND GAS EXPLORATION AND PRODUCTION ON PUBLIC LANDS

A. State Revenue

As the oil and gas industry boomed in the early twentieth century, federal and state governments seized the opportunity to directly reap the economic benefits from those operations. Through royalty payments and severance taxes, Louisiana and the nation began to enjoy a new source of steady and significant income.[87] Public lands, including WMAs, refuges, and state-owned waterbottoms, served as a vital source of much of this income. In fact, seeing the potential for higher profits through leasing of State lands rather than through their alienation, the Louisiana Legislature in 1914 granted the Governor the authority and discretion to withdraw any vacant or unappropriated public lands and lake bottoms from sale when the State would derive more value from the minerals on those lands than any other purpose.[88] Anticipating the demand from oil and gas producers to operate on public lands, the State developed an advertisement process where the highest bidder would receive a lease from the State; however, the Governor reserved the right to reject any bid where it appeared that bids were not large enough to warrant the State entering into a lease.[89] This right would be exercised in later years on several occasions.[90]

The State, through its State Land Office, began to receive "large sums in cash bonuses and royalties from State lands leased for the purpose of severing minerals from the soil."[91] In 1915, the State received cash bonuses of more than $32,000 for merely issuing leases with royalty payments from those leases collected at one-eighth to one-sixth of the

---

86. Molly W. Ingraham & Shonda Gilliland Foster, *The Value of Ecosystem Services Provided by the U.S. National Wildlife Refuge System in the Contiguous U.S.*, 64 ECOLOGICAL ECONOMICS 608-618 (2008), http://www.sciencedirect.com/science/article/pii/S0921800908000396.

87. Cyril K. Moresi, *Conservation of Louisiana's Mineral Resources, 1906 to 1935, Part IV, 1928-1935*, 4 LA. CONSERVATION REV. 14, 15-17 (1935).

88. Cyril K. Moresi, *Conservation of Louisiana's Mineral Resources, 1906 to 1918, Part II*, 3 LA. CONSERVATION REV. 21, 26 (1933) (citations omitted).

89. Moresi, *supra* note 87, at 17 (citation omitted).

90. *Id.* (citation omitted).

91. Cyril K. Moresi, *Conservation of Louisiana's Mineral Resources, 1906 to 1935, Part III—1918 to 1928*, 4 LA. CONSERVATION REV. 3, 5 (1934) (citation omitted).

production.[92] From 1916 to 1918, another $26,000 was paid to the State in bonuses and royalties from State-leased lands.[93] Payments declined in the following two years to just over $6000, partly because State lands were not surveyed at the time and, thus, had inadequate descriptions.[94] However, as coastal activity began to surge, and with an enormous amount of new exploration and production in the late 1920s, the State was issuing new leases and enjoying income levels never before experienced.[95] During the biennium of 1924 to 1926, the State Land Office received $130,982.[96] During the biennial period from 1926 to 1928, the State Land Office received $684,204 from mineral leases.[97] The level of activity and income continued to skyrocket, with the State Land Office collecting more than double during the following biennial period.[98] The demand for access of public lands intensified as the potential for huge profits from producing on State lands prompted some operators to offer more than $100,000 for signing a single lease.[99]

By 1930, twelve state leases were producing oil.[100] However, soon thereafter, the reduction in new leases and the relinquishment and cancellation of sixty-eight leases for failure to pay rentals corresponded to the downturn in the state and national economy and decrease in production throughout the state.[101] Despite the doldrums associated with the Great Depression, "production of petroleum on the State leases continued to increase but due to the low price of crude oil the amount of revenue received by the State Land Office" declined.[102] A reduction of almost $1 million in cash bonuses and royalties followed during 1930-1931. Nonetheless, payments for leases, exploration, and production on State lands would only increase in later years.[103] For instance, in 1943 the

---

92. Moresi, *supra* note 88, at 26 (citation omitted).

93. *Id.* at 27 (citation omitted).

94. Moresi, *supra* note 91.

95. In 1921, the state issued its first coastal zone oil lease. Gregory Blaine Miller, *Louisiana's Tidelands Controversy: The United States of America v. State of Louisiana Maritime Boundary Cases*, 38 LA. HIST. 203, 203 (1997).

96. Moresi, *supra* note 91, at 16.

97. *Id.* at 18 (citation omitted).

98. Moresi, *supra* note 87, at 17.

99. *Id.* (citation omitted).

100. *Id.* ("[F]our in Caddo Parish; one in the Urania field; one in the Lockport field, Calcasieu Parish; two in the East Hackberry field, Cameron Parish; one in the Bayou Bouillon field, St. Martin Parish; and one each in the Dog Lake, Lake Barre, and Lake Pelto fields, Terrebonne Parish.").

101. *Id.* at 22.

102. *Id.*

103. *See* R. Flaherty, *Industry's Influence and Effect on the Coastal Zone*, 27 OFFICIAL J. LA. ADVISORY COMM'N ON COASTAL & MARINE RES. 1 (1972).

State Mineral Board entertained bids for leasing mineral rights on the Rockefeller Wildlife Refuge, which had never been explored prior to this time.[104] Humble Oil and Refining Company paid the state $89,350 just for the rights to explore the property for potential mineral development.[105]

Exploration and production ultimately expanded to include offshore coastal waters, which contained a staggering amount of mineral value of which the state and federal government would enjoy. In 1934, the Texas Company drilled the first offshore well in coastal waters one mile from the shoreline of Louisiana.[106] Offshore waters were quickly flooded with new operations and by 1947 the first bottom-supported platform was constructed in eighteen feet of water twelve miles from shore.[107] The industry exploded and by 1980, over 12,500 offshore rigs were located throughout the Continental Shelf of the Gulf.[108] Technological advancements allowed exploration and production in extreme water depths, further promoting industrial activity throughout the Gulf.[109]

> Between 1941 and 1992, the submerged lands below state and federal waters off the Louisiana coast produced 9.88 billion barrels of oil valued at more than $97 billion. This production also generated nearly $47 billion in lease payments, bonuses, rents, royalties and severance taxes for the governments of Louisiana and the United States.[110]

By 1983, with the help of offshore production, the industry would be supporting 165,000 jobs, "which generated more than $3.5 billion in payroll, $545 million in royalties and taxes, and $859 million in state taxes."[111] These monies generated new industry and business directly and indirectly associated with the oil industry.[112]

The vast sum of money related to these increasingly reliable sources of revenue would perpetuate the leasing of state-owned lands, including

---

104. *Call for Bids for Oil Rights on Game Refuge*, 1 LA. CONSERVATIONIST 1, 1 (1943).

105. *Id.*

106. *History of Oil & Gas in Louisiana and the Gulf Coast Region*, LA. DEP'T NAT. RESOURCES, http://dnr.louisiana.gov/assets/TAD/education/BGBB/6/la_oil.html (last visited Apr. 3, 2016).

107. *Id.*

108. *Id.*

109. DIANE AUSTIN ET AL., U.S. DEP'T OF THE INTERIOR, NO. 1435-01-01-CA-85169, HISTORY OF THE OFFSHORE OIL AND GAS INDUSTRY IN SOUTHERN LOUISIANA: VOLUME I: PAPERS ON EVOLVING OFFSHORE INDUSTRY 109 (2008).

110. Miller, *supra* note 95, at 203-04 (citations omitted).

111. Dianne Lindstedt & Lori Nunn, *Petroleum Development in Louisiana's Coastal Zone*, *in* 2 COASTAL ZONE '85 1410, 1413 (Orville T. Magoon, et al. eds., 1984) (citing MID-CONTINENT OIL AND GAS ASS'N, LOUISIANA OIL AND GAS FACTS (21st ed. 1984)).

112. *Id.*

refuges and WMAs.[113] The severance taxes paid by oil and gas companies would become the biggest single source of internally generated tax revenue for the State.[114] However, as the level of exploration and production and their corresponding royalties intensified, so too did the environmental impacts associated with oil and gas operations.

B. Environmental Impacts

Despite regulatory restrictions on certain operating practices, the oil industry in Louisiana was booming. The economic success of the industry translated into extensive and intensive operations in the field.[115] Whether during exploration, production, transportation, or any other oilfield activity, the nature of these operations sharply interfaced with the natural environment.[116]

The extensive canal networks along the coast serve as one of the most patent examples of these interactions. Because of its expansive coastal wetlands, Louisiana has the greatest number of inland waterways of any state in the nation, which supported the growing oil extraction industry.[117] Straightening natural waterways and excavating virgin marshes, barge-mounted dredges altered and created waterways necessary for drilling rigs to access proposed well locations.[118] As operators discovered and developed fields, extension of existing canals and creation of new branches resulted in an inter-connected system used for transportation of equipment and personnel.[119] The oil field canal system became so pervasive that by 1969, in 506 known fields with 25,510 wells, canals covered 10% of the land area within the coastal area of the state.[120] Over 4500 miles of canals and channels had been dredged across the Louisiana coast, most of them for oil and gas operations.[121]

---

113. Selected Topics Prepared for Governor Buddy Roemer from Virginia Van Sickle, Sec'y, Dep't of Wildlife and Fisheries, *supra* note 37 (citation omitted).

114. LA. STATE PLANNING OFF., LOUISIANA COASTAL RESOURCES 6 (1977).

115. *See* Lindstedt & Nunn, *supra* note 111, at 1412-13.

116. *Id.*

117. SHERWOOD M. GAGLIANO, LOUISIANA STATE UNIVERSITY CENTER FOR WETLAND RESOURCES, REP. NO. 14, CONTRACT NO. DACW 29-70-C-0272, CANALS, DREDGING AND LAND RECLAMATION IN THE LOUISIANA COASTAL ZONE 55 (1973); *see* Lindstedt & Nunn, *supra* note 111, at 1413.

118. *See* GAGLIANO, *supra* note 117, at 69, 72.

119. *See id.* at 72.

120. *Id.* at 84 (citation omitted).

121. *See* BARNEY B. BARRETT, LA. WILDLIFE & FISHERIES COMM'N, U.S. DEP'T INTERIOR, WATER MEASUREMENTS OF COASTAL LOUISIANA 1 (1970).

This expansive canal network dominated the landscape and encroached upon natural habitats inevitably altering their processes and functions.[122] The direct removal of marsh soils and creation of spoil banks disrupted the natural flow and runoff of entire basins.[123] These alterations were realized through changing hydrological patterns, increased rates of runoff, dissipated water storage capacities, lowered water levels, saltwater intrusion into upper reaches of freshwater basins, vegetative type transitions, marsh deterioration, and accelerated land loss.[124]

Moreover, ecological changes in the estuaries and nurseries along the coast resulted from the direct destruction of fish and shellfish water bottoms, saltwater intrusion, changes in rates of water exchange, loss of nursery acreages, and silting.[125] These areas served as reproductive and juvenile growth oases for a number of recreational and commercial inshore and offshore fisheries, such as shrimp, oysters, crabs, and menhaden.[126] Fish populations in the nursery areas responded negatively to these basic changes in ecology, which caused permanent loss or reduction of fish production.[127] These irreversible changes resulted in impacts of long duration which "could have been prevented or at least reduced in extent had the construction projects been properly planned and managed."[128] Canals and dredging were "ubiquitous activities within the wetlands" and would remain as permanent scars that drastically changed how coastal wetlands would function and appear.[129]

However, notwithstanding the enormous efforts to explore potential reservoirs and engineer the extensive infrastructure for delivering oil and gas to market, none of it would be possible without a producing well. For without a producing well, operators and investors saw no financial return. By the 1930s, a systematic practice of drilling and production had been adopted by most operators.[130]

---

122. ROBERT H. BAUMAN ET AL., ONSHORE OIL & GAS ACTIVITIES ALONG THE NORTHERN GULF OF MEXICO COAST: A WETLAND MANAGER'S HANDBOOK 29 (Donald R. Cahoon ed., 1989); *Milestone Resource Meeting Held*, 6 LA. CONSERVATIONIST 14, 14 (1953).

123. *See* BAUMAN ET AL., *supra* note 122, at 32.

124. *See* NAT'L RESEARCH COUNCIL & COMM. OF THE RESTORATION & PROTECTION OF COASTAL LA. ET AL., DRAWING LOUISIANA'S NEW MAP: ADDRESSING LAND LOSS IN COASTAL LOUISIANA 16 (2006); GAGLIANO, *supra* note 117, at 1.

125. LA. STATE PLANNING OFF., *supra* note 114, at 7.

126. *Commission Takes Firm Stand on Future Uses of Public Land*, supra note 30, at 5.

127. *Id.* at 21.

128. *Id.*

129. Jack R. Van Lopik, *The Oil Industry and Coastal Zone Management in Louisiana*, 26 TRANSACTIONS-GULF COAST ASS'N OF GEOLOGICAL SOC'YS 349, 351 (1976).

130. DIANNE M. LINDSTEDT, HISTORY OF OIL & GAS DEVELOPMENT IN COASTAL LOUISIANA 11 (1991); BAUMAN ET AL., *supra* note 122.

As industry and regulation grew, measures designed to protect freshwater aquifers became part of these standard operating procedures.[131] Well bore construction was typically designed to protect any freshwater horizons from effluents traveling through the well.[132] Thus, concrete casings set at strategic intervals protected freshwater bearing horizons from contamination of oil, gas, brine, and other chemicals introduced during drilling and producing the well.[133] However, because of the interface of the well bore and aquifers, each well acted as a potential or actual source of pollution.[134] Furthermore, the practice of cementing casing was entirely neglected in South Louisiana prior to the mid-1930s.[135]

Drilling operations not only required proper controls to ensure the integrity of the casing, but also necessitated a complex mixture of chemicals, muds, and other fluids to maintain proper pressures within the well to prevent a "blowout" and to lubricate and cool the drill bit.[136] Drilling muds were necessary to bring "well cuttings to the surface, control subsurface pressures, cool and reduce the friction on the drilling bit and drill pipe, wall the hole with an impermeable cake, hold cuttings and weight material in suspension when circulation is temporarily stopped, and support part of the weight of the drill pipe casing."[137] Drilling fluids were injected down through the drill pipe, out of the bit, and returned to the surface through the annulus outside the drill pipe to remove drill cuttings and allow the drill bit to remain clean and unobstructed.[138]

---

131. *See, e.g.,* La. Statewide Order 29-B (1943); LA. DEP'T OF CONSERVATION, RULES AND REGULATIONS: RULES, REGULATIONS AND REQUIREMENTS GOVERNING THE CONSERVATION OF NATURAL GAS AND CRUDE OIL OR PETROLEUM (1920).

132. Robert M. Conger, *The Environmental Safety of Underground Injection of Oilfield Brines in Louisiana*, 26 TRANSACTIONS GULF COAST ASS'N OF GEOLOGICAL SOC'Y, 65, 66 (1986); A. GENE COLLINS, EPA, EPA-660/2-74-010, SALINE GROUNDWATERS PRODUCED WITH OIL AND GAS 39 (1973).

133. Conger, *supra* note 132; COLLINS, *supra* note 132.

134. *See* M.R. SCALF, J.W. KEELEY & C.J. LAFEVERS, EPA, EPA-R2-73-268, GROUND WATER POLLUTION IN THE SOUTH CENTRAL STATES 55 (1973).

135. *See* LA. DEP'T OF CONSERVATION, EIGHTH BIENNIAL REPORT OF THE DEPARTMENT OF CONSERVATION OF THE STATE OF LOUISIANA: 1926-1928 175 (1929); *see generally*, Moresi, *supra* note 91, at 3 (discussing Louisiana's oil and gas operations from 1906-1935).

136. *See* K.E. BIGLANE, SOME CURRENT WASTE TREATMENT PRACTICES IN LOUISIANA INDUSTRY AS PRESENTED TO THE THIRTEENTH PURDUE INDUSTRIAL WASTE CONFERENCE 4 (1958).

137. Kenneth E. Biglane, *Some Current Waste Treatment Practices in Louisiana Industry*, 10 LA. CONSERVATIONIST 8, 9 (1958) (citation omitted).

138. BAUMAN ET AL., *supra* note 122, at 66 (citation omitted).

During drilling operations, 50 to 900 barrels of waste material would be produced per day over a 3- to 4-month period.[139] Of these, the drilling muds constituted one of the most potent constituents of drilling operation wastes.[140]

Drilling muds contained varying types of chemicals depending on the characteristics of the formations in which the drill bit encountered.[141] Bentonite clays in the mud were carefully mixed with sulfates of barium or lead to add weight to increase their effectiveness.[142] In addition, diesel fuels and other fuel oils were commonly used in the muds at quantities of up to 15% by volume.[143] These fuels were held in emulsion with the use of dispersants, soaps, organic colloids, and other powdered solids.[144]

As these materials circulated within the well and the bit produced cuttings as it rotated through the earth, the resulting mixture was brought to the surface and pumped into a pit where floating oil was skimmed and drilling muds were separated from fluids using filters and synthetic, organic, or water-soluble polymers.[145] The use of organic flocculants was relatively new in the mid-1950s and became a way for operators to reduce costs of waste treatment from about thirty cents per barrel to almost one cent per barrel.[146] This flocculation process released additional oils and fluids from the mud mixture.[147] Oils would be skimmed and "the supernatant liquids . . . drained away to another holding pit, neutralized, and discharged during high waters."[148] Upon completion of the well, muds within the wellbore were removed and treated in a pit.[149] However, not all the muds could be retrieved as they were lost to blowouts, washing out of the hole, incorrect batch mixing, leftover quantities from batch mixing, general negligence, cleaning of the

---

139. Biglane, *supra* note 137, at 9. Drilling wastes commonly consisted of "process water, brines, well cuttings, water and oil emulsion base drilling muds, lost circulation materials such as cotton seed hulls, shredded automobile tires, tree bark, walnut shells, and a multitude of other fibrous materials, lime, sodium hydroxide, and live crude oil in concentrations approaching 1 per cent by volume." *Id.*

140. *Id.*; BAUMAN ET AL., *supra* note 122, at 69.

141. Biglane, *supra* note 137, at 9.

142. *Id.*

143. *Id.*

144. *Id.*

145. *Id.* at 10.

146. *Id.*

147. *Id.*

148. *Id.*

149. *Id.* at 9.

drilling tools, and washdown of the platform.[150] Commonly, muds remaining within the first pit were dried and then buried.[151]

State agency personnel soon acknowledged that better methods of handling and disposal were required because wastes from drilling operations could have extremely harmful and lasting impacts "in irrigation districts, in streams flowing through pasture lands, wild game areas, or serving municipal water supplies, and in waters over commercial shellfish areas."[152] Later advancements in treatment allowed operators to reinject the wastes back into subsurface formations or carry them to a commercial disposal facility.[153]

In the event wells were nonproductive of oil, or "dry," upon completion of the well, or if after some period of production no longer rendered marketable quantities of oil, operators would abandon the well.[154] Upon abandonment, regulations required operators to "plug" the wells to prevent the flow of any liquids to the surface or overlying freshwater aquifers.[155] However, "during this early period of petroleum development in Louisiana, plugging procedures were neither standardized nor strictly enforced and were largely left to the discretion of each company."[156]

For wells that successfully found producing quantities of oil, a highly acidic completion fluid was commonly used to promote the efficient flow of gas and oil.[157] These acids included hydrochloric, nitric, sulfuric, hydrofluoric, formic, and acetic acids in volumes as much as several hundred thousand gallons per well.[158] This treatment process resulted in the formation of soluble compounds such as calcium chloride, sodium sulfate, sodium fluoride, and others.[159] Acids were also used as corrosion inhibitors to reduce friction, reduce loss, maintain permeability, prevent emulsion formation and avoid precipitation.[160]

---

150. *Id.* at 10.

151. *Id.*

152. *Id.* at 9.

153. THE BUREAU OF APPLIED RESEARCH IN ANTHROPOLOGY, UNIVERSITY OF ARIZONA, EXPLORING ENVIRONMENTAL VALUES AND POLICY IN THE UNITED STATES: CASE STUDIES IN ARIZONA AND LOUISIANA 141 (Diane Austin & Thomas McGuire, eds., 2001).

154. *See* LA. DEP'T OF ENVTL. QUALITY, GROUND WATER PROTECTION IN LOUISIANA: PROBLEMS AND OPTIONS 58 (1985).

155. *See id.*

156. *Id.*

157. U.S. ENVTL. PROT. AGENCY, EPA-570/9-77-001, WASTE DISPOSAL PRACTICES AND THEIR EFFECTS ON GROUND WATER 300 (1977).

158. *Id.*

159. *Id.*

160. *Id.*

Among the most effective inhibitors were those containing arsenic compounds.[161]

When a well was "brought in," compounds used in drilling and treating the well along with oil, gas, and produced water came to the surface in a single stream of fluids requiring separation.[162] Early on, this mixture was placed directly into pits, which were used as settling basins to allow oil and water to break out of emulsion and the oil skimmed from the surface.[163] Saltwater would settle to the bottom and seep through the bottom of the pit or pit levees or be discharged into nearby surface water bodies.[164] Later, as more sophisticated equipment became available for separation, pits were used as receptacles to receive produced water discharged from separator tanks and any excess oil would be skimmed from the surface.[165] In some instances, oil remaining within the pit would be burned to prevent its escape into the surrounding drainage basins as brine was intentionally released into natural drainages or allowed to overflow pit levees.[166]

Because of the varying aspects of an oilfield growing in size and complexity, pits were engineered facilities specifically designed for a planned purpose. Depending on the capacity needed to accommodate the anticipated volume of a particular waste, pits ranged in aerial extent and depth. For example, emergency pits were not designed for long-term retention of large volumes of fluids.[167] Their main purpose was to facilitate temporary disposal or storage of brine or oil during a breakdown in infrastructure such as a separator, an injection well, or other collection, distribution, or storage facility.[168] Likewise, pits used to hold drill cuttings or drilling muds were created each year in the thousands but were relatively small.[169] Reserve pits typically were used for workover or cleanout operations where wastes generated during these procedures were deposited into such a pit.[170] These activities did not

---

161. *Id.*

162. BAUMAN ET AL, *supra* note 122, at 76-77.

163. Mary L. Barrett, *Earthen Pits in U.S. Petroleum Fields: A History of Nomenclature and Related Usage*, 11 OIL-INDUSTRY HISTORY 43, 49 (2010) (citation omitted).

164. BAUMAN ET AL, *supra* note 122, at 76.

165. *Id.* at 76-77.

166. FRANK B. CONSELMAN, AMERICAN INSTITUTE OF MINING, NO. SPE 1871, METALLURGICAL AND PETROLEUM ENGINEERS, INC., GEOLOGIC ASPECTS OF THE BRINE POLLUTION PROBLEM 2 (1967).

167. Barrett, *supra* note 163, at 45.

168. U.S. ENVTL. PROT. AGENCY, EPA 570/9-78-004, SURFACE IMPOUNDMENTS AND THEIR EFFECTS ON GROUND WATER QUALITY IN THE UNITED STATES—A PRELIMINARY SURVEY 21 (1978).

169. *Id.*

170. Barrett, *supra* note 163, at 45.

require a pit with large volume capacity, thus pits sizes were relatively small.[171] Burn pits were constructed as shallow impoundments used to store or confine tank bottoms or separated oil.[172]

On the other hand, oil storage pits were quite large.[173] At Jennings, for example, several pits constructed in that field during early production could accommodate 100,000 barrels of fluids.[174] The largest had a capacity of one million barrels. Obviously, earthen pits were an integral part of exploration and production operations designed to accommodate numerous types of waste generated from varying activities.[175]

However, a single pit could be used for different purposes as the needs of the field or individual wells changed. For example, a drilling mud pit could be enlarged to be used for saltwater disposal and oil, occasionally burned. At Jennings, as the field grew in size and age and production shifted to the flank of the salt dome, many of these pits were transitioned into use as saltwater disposal pits despite their original purpose.[176] Likewise, similar practices were used across the state.[177] Pits originally designed and used to assist in drilling a well could later become used for saltwater disposal where brine was discharged directly to the pit and allowed to seep through the soil, discharged into adjacent surface water bodies, or reinjected into designated subsurface formations.[178] Commonly, a single pit would accommodate the waste disposal needs of a battery of wells.[179] Therefore, these so-called evaporation pits could range in size anywhere from tens of square feet to over a few acres.[180]

This scenario of transitioning a pit from one use to another as logistical demand of the field changed over time resulted in the mixture of varying wastes at a single location. This mixture can lead to dangerous results. For example, burn pits used to incinerate waste oil while the pit was used for saltwater disposal creates a chemical reaction

---

171. *Id.* at 46 (citation omitted).

172. *See* U.S. ENVTL. PROT. AGENCY, *supra* note 168.

173. *See* TONJA KOOB MARKING & JENNIFER SNAPE, LOUISIANA'S OIL HERITAGE, IMAGES OF AMERICA SERIES 15 (2012); McFarlain v. Jennings-Heywood Oil Syndicate, 16,291 (La. 1/21/1907); 43 So. 155.

174. Brief for Plaintiff at 6, *McFarlain*, 43 So. at 155.

175. *See* MARKING & SNAPE, *supra* note 173.

176. SHERWOOD M. GAGLIANO, ET AL., CEI NO. 28060, INVESTIGATION OF ENVIRONMENTAL IMPACTS OF OIL AND GAS ACTIVITIES ON THE HOUSSIERE PROPERTY, ACADIA PARISH, LA xi-xii (2011).

177. *See id.* at 4-2.

178. Barrett, *supra* note 163, at 51-54.

179. U.S. ENVTL. PROT. AGENCY, *supra* note 168, at 20.

180. U.S. ENVTL. PROT. AGENCY, *supra* note 157, at 296.

producing dioxins, a chemical known to cause cancer and regarded as one of the most toxic chemicals known to science.[181] The ultimate consequence of such mixing and chemical interactions is not yet fully known or understood.

Use of pits by the oil industry for waste disposal has historically been commonplace. However, largely used for disposal of produced water, this method was perceived to be feasible only in circumstances where rates of evaporation or seepage could overbalance the volumes of brine produced.[182] In most fields, volumes of produced water increased as the fields aged.[183] With evaporation being an almost unattainable goal in the subtropical climate of Louisiana, seepage into groundwater systems from insidious leaks from pit bottoms and surface water discharges from overflowing waste pits were common occurrences.[184]

Large volumes of saltwater required disposal historically accommodated with pits, surface water discharges, and subsurface injection.[185] A 1956 LDOC statewide survey showed 53.7 million barrels produced in a single month making an estimated annual of 644 million barrels.[186] Of the monthly totals recorded by the LDOC, 10.2 million barrels of brine were discharged into pits, 17 million barrels were emptied into surface water disposal, and 23.5 million barrels were injected into disposal wells.[187]

Two and half decades later, due to increased production and aging fields, produced water production almost doubled. In 1982, 1.13 billion barrels of produced water were documented being produced annually

---

181. *See Dioxins & Furans: The Most Toxic Chemicals Known to Science*, ENERGY JUST. NETWORK, http://www.ejnet.org/dioxin/ (last updated Feb 17, 2012).

182. *See* V. L. MARTIN, DISPOSAL OF PRODUCTION DIVISION WASTES: FOR PRESENTATION AT CHAPTER MEETING OF DIVISION OF PRODUCTION 7 (1932).

183. T.M. WINFIELE, *Water Conservation in Petroleum Production*, *in* PROC. OF SECOND ANNUAL SYMP. ON WATER CONSERVATION AND INDUS. DEV., BULL. NO. 38, Nov. 19-20, 1952, 38, at 38 ENGINEERING EXPERIMENT STATION (1953).

184. INTERSTATE OIL COMPACT COMM'N, RESEARCH COMMITTEE SUBCOMMITTEE ON WATER PROBLEMS ASSOCIATED WITH OIL PRODUCTION IN THE UNITED STATES 22 (1966); MARTIN, *supra* note 182, at 7-8 (1932).

185. *See* O.T. ICE, *Department of Conservation Controls on Water Pollution*, *in* A WATER RESOURCES INSTITUTE ON ASPECTS OF STREAM POLLUTION CONTROL JUNE 27-28 22 (1968) (citation omitted); C.B. WALLACE, *The Legal Consequences of Salt Water Pollution from Oil and Gas Operations*, BULL. VIII(1), THE INTERSTATE OIL COMPACT COMM'N COMMITTEE (1966); D.E. FUELLHART, LA. DEP'T OF CONSERVATION, SUBSURFACE DISPOSAL OF OIL FIELD BRINES IN SOUTH LOUISIANA, Information Circular no. 2 (1937).

186. *See* INTERSTATE OIL COMPACT COMM'N, PRODUCTION AND DISPOSAL OF OILFIELD BRINES IN THE UNITED STATES AND CANADA 42 (1960).

187. *Id.*

within the state of Louisiana.[188] By 1986, approximately two million barrels of produced water were being discharged into the surface waters of coastal Louisiana each day.[189] An estimated 300 million barrels came onshore from the Outer Continental Shelf, separated from the petroleum, and then discharged into the coast's waterways.[190]

Because of the large volumes generated, pit facilities could often not accommodate the daily deluge of water without overflowing or requiring the discharge of large volumes of waste through improper treatment.[191] There was always an ever-present danger of retaining dykes getting washed out resulting in a sudden load of brine into surface water bodies or over land.[192]

Yet, the use of unlined pits provided the most economical approach to disposal with about four cents per barrel, but such use also presented a serious risk of overflow and seepage resulting in pollution.[193] This calculated risk was "dependent upon the required life of the pit, the economic conditions of the lease, local statutes regarding such installation, surface conditions, and the quality and quantity of fluid being handled."[194] Alternate means of disposal typically involved the use of saltwater disposal wells, which were much more expensive to install and maintain.[195] These costs were factored in to the decision-making process:

> He must weigh the cost of a subsurface disposal installation against the cost for surface storage during the months when controlled disposal of surface waters is prohibited. He must also consider the probable additional cost for separation equipment so that rigid control of the effluent may be maintained with a minimum quantity of residual oil being discharged. Sometimes there is a tendency to ignore necessary repairs to facilities from which there is no monetary return. Saltwater disposal systems are situated

---

188. *See* LEONARD P. GIANESSI & FOREST D. ARNOLD, OFF. OF OCEAN RES. COORDINATION AND ASSESSMENT OF THE NATL. OCEANIC & ATMOSPHERIC ADMIN., THE DISCHARGES OF WATER POLLUTANTS FROM OIL AND GAS EXPLORATION AND PRODUCTION ACTIVITIES IN THE GULF OF MEXICO REGION 48 (1982).

189. LA. DEPT. OF WILDLIFE & FISHERIES, BOARD MEETING: OCTOBER 4-5, 1990 3 (1990).

190. *See* VIRGINIA VAN SICKLE & C.G. GROAT, *Oil Field Brines: Another Problem for Louisiana's Coastal Wetlands in* PROCEEDINGS OF THE FIRST INTERNATIONAL SYMPOSIUM ON OIL AND GAS EXPLORATION AND PRODUCTION ACTIVITIES IN THE GULF OF MEXICO REGION 662-63 (1982).

191. FRANK B. CONSELMAN, SOC'Y OF PETROLEUM ENG'RS OF AIME, paper no. SPE 1871, GEOLOGIC ASPECTS OF THE BRINE POLLUTION PROBLEM 2 (1967).

192. *See id.*

193. W.F. ELLISON, SOC'Y OF PETROLEUM ENG'RS, PAPER NO. 885-G, SALT WATER DISPOSAL 3 (1957).

194. *Id.*

195. *See id.* (citation omitted).

> in this category of operations. A careful study of the economic life of the oil producing properties should determine the monies available for disposal facilities.[196]

Regardless of the chosen method of disposal, produced waters proved to be problematic.[197] As the Louisiana Department of Wildlife and Fisheries (LDWF) remarked, the wastes did "not stabilize when impounded, required expensive preparation for proper disposal (ground injection) and are harmful to fish, small animals used by fishes for food, and all types of vegetation. Some brines carry potential acid forming substances in them which materially affects all of the stream inhabitants."[198] The Oil and Gas Journal summed it up well when it said, "[i]t is not only the volume of produced saltwater that makes the problem so formidable. It is this coupled with the polluting capability of the brine."[199]

Typically, the salinity of produced water is significantly higher than that of surface waters.[200] Produced water salinities in Louisiana usually range from 50 to 150 parts per thousand (ppt) but can reach up to 350 ppt.[201] In comparison, the salt content of seawater averages 32 ppt.[202] Most produced water has salinity levels that are significantly higher than sea water and, therefore, are toxic to plants and animals in the freshwater marshes, swamps, and estuarine zones of Louisiana, and are hazardous for human consumption.[203]

Whether through exploration, production, or handling of waste, oil and gas activities have undeniably caused environmental impacts with long-lasting effects to natural resources. Produced waters, notably, can have effects that persist for hundreds of years.[204] Salts do not degrade,

---

196. *Id.* at 3, 5-6.

197. *See* K.E. Biglane, *Division of Water Pollution Control*, *in* SIXTH BIENNIAL REPORT, LOUISIANA WILD LIFE AND FISHERIES COMMISSION: 1954-1955 163 (1956).

198. *Id.* at 163-64.

199. Robert J. Enright, *Oil-Field Pollution and What's Being Done About It*, 61 OIL & GAS J. 77 (1963).

200. *See* Gordon Rittenhouse et al., *Minor Elements in Oil-Field Waters*, 4 CHEM. GEOL. 189 (E.P.R. Publication No. 534, 1969).

201. VIRGINIA VAN SICKLE & C.G. GROAT, OIL FIELD BRINES: ANOTHER PROBLEM FOR LOUISIANA'S COASTAL WETLANDS 665 (1990).

202. A.T. KNECHT, FINAL REPORT ON THE IMPACT OF PRODUCED WATER DISCHARGES FROM OIL AND GAS OPERATIONS ON THE ESTUARINE ENVIRONMENT IN LOUISIANA—A LITERATURE REVIEW i-ii (1988).

203. KERRY M. ST. PE, ET AL., LA. DEP'T ENVTL. QUALITY, AN ASSESSMENT OF PRODUCED WATER IMPACTS TO LOW-ENERGY, BRACKISH WATER SYSTEMS IN SOUTHEAST LOUISIANA (Kerry M. St. Pé, ed., 1990); LEONARD D. HAMILTON, ANNE F. MEINHOLD & JOHN NAGY, HEALTH RISK ASSESSMENT FOR RADIUM DISCHARGED IN PRODUCED WATERS (1991).

204. DARRELL UECKERT, MARK K. MCFARLAND & STEVE HARTMANN, OIL FIELD RECLAMATION TOUR 1 (1998).

and easily migrate through environmental media.[205] Thus, groundwater pollution becomes a major concern. Exposure of groundwater resources to oilfield wastes has been evaluated by state and federal agencies.[206]

The studies found that "[u]ncased or unplugged wells or wells with rusted or leaky casing, especially those abandoned, further complicate the pollution problem."[207] "Properly constructed water wells, oil and gas wells, and liquid waste disposal wells are not normally sources of ground water contamination, but when they are in a state of disuse and disrepair, casings and screens begin to corrode and the wells can become conduits through which contaminants can travel vertically through the boreholes."[208] Over time, the highly corrosive nature of brine deteriorated the structural integrity and protective nature of properly constructed casings, and otherwise improperly constructed ones.[209] The resulting ruptured and corroded casings create conduits for contamination, allowing oil and saltwater to enter freshwater bearing zones.[210]

However, not only were wells potential sources of contamination, but pits also became a major focal point of the Environmental Protection Agency (EPA) when it considered sources of groundwater contamination.[211] The EPA found that the historic disposal of the unwanted brine through pits and natural drainages had led to a persistent and continuing source of groundwater contamination. "Disposal of brine from oil and gas production activities has been a major cause of ground-water contamination in areas of intense petroleum exploration and development. The principal problem has been related to the long-term practice of discharging to unlined pits."[212] "A large majority of the surface impoundments in the nation are unlined and, as a consequence, waste fluids that seep down from them can constitute a potential threat to

---

205. JAMES K. OTTON, U.S. GEOLOGICAL SURVEY, OPEN-FILE REPORT NO. 2006-1154, ENVIRONMENTAL ASPECTS OF PRODUCED-WATER SALT RELEASES IN ONSHORE AND COASTAL PETROLEUM-PRODUCING AREAS OF THE U.S.—A BIBLIOGRAPHY 5 (2006); *see* U.S. ENVTL. PROT. AGENCY, *supra* note 157, at 296.

206. *See, e.g.*, COLLINS, *supra* note 132, at 38 (noting findings of a study conducted by the EPA that a fresh water aquifer polluted by oilfield brine would remain contaminated for over 250 years) (citing JOHN S. FRYBERGER, U.S. ENVTL. PROT. AGENCY, EPA-R2-72-014, REHABILITATION OF A BRINE-POLLUTED AQUIFER 1 (1972)).

207. M.R. SCALF ET AL., *supra* note 134, at 88.

208. TYLER E. GASS, JAY H. LEHR & HAROLD W. HEISS, JR., U.S. ENVTL. PROT. AGENCY, EPA-600/3-77-095, IMPACT OF ABANDONED WELLS ON GROUND WATER 1 (1977).

209. WASTE DISPOSAL PRACTICES AND THEIR EFFECTS ON GROUND WATER, *supra* note 157, at 298.

210. *See id.*

211. *See id.*, at 296.

212. *Id.* at 294.

the natural quality of underground drinking-water sources."[213] Furthermore, where the soil structure of pit bottoms have become altered by chemical processes initiated by the waste in the pit, and when the sorptive capacity of soil is exhausted by continuous seepage and inundation by effluents, migration is more readily achieved.[214]

As early as the mid-1970s, Louisiana was identified as one of the few states where waste-disposal practices degrading ground water quality was most prevalent.[215]

Other indelible marks left on Louisiana's landscape involve the contribution of oil and gas activities to coastal land loss. Estimates of contribution range from 9% to more than 90%.[216] Notwithstanding the debate over the degree to which oil and gas exploration and production practices have led to land loss, the vast majority of scientists conclude that some degree of land loss can be attributed to oil and gas activities.[217]

The large volumes of highly saline produced waters directly introduced into coastal surface waters garnered the attention of state officials: "[d]rilling of wells produces large quantities of high saline brines that must be disposed. The disposal of these brines in wetland areas can result in vegetation changes and reduced fish populations in nearby areas."[218] Over time, state officials became more sensitive to this area of concern. In 1990, the Secretary of the LDWF and Director of the Louisiana Geological Survey (LGS) stated:

> There have not been sufficient field studies to quantify the role of produced water in marsh loss. The coincidence of high rates of marsh loss with concentrations of brine discharge points in general and around oil fields with high volume discharges of produced water in particular is, at a minimum, strong circumstantial evidence that produced waters are a significant contributor to marsh loss in coastal Louisiana.[219]

The LDNR took this opportunity to further examine the effects of produced water on land loss by studying the Golden Meadow oil field. State researchers found that many of the canals and channels exhibited

---

213. U.S. ENVTL. PROT. AGENCY, *supra* note 168, at 51.

214. *See* U.S. ENVTL. PROT. AGENCY, *supra* note 157, at 295-96.

215. *See id.* at 296. *See generally* JOHN S. FRYBERGER, U.S. ENVTL. PROT. AGENCY, EPA-R2-72-014, REHABILITATION OF A BRINE-POLLUTED AQUIFER (1972) (describing investigation and rehabilitation efforts of a brine-polluted aquifer).

216. J.B. JOHNSTON ET AL., U.S. DEP'T OF THE INTERIOR, MMS 2009-048, OUTER CONTINENTAL SHELF PIPELINE AND NAVIGATION CANAL IMPACTS AND MITIGATION EFFECTS ON WETLAND HABITATS OF COASTAL WESTERN AND CENTRAL GULF OF MEXICO 51 (2009).

217. *See id.* at 50.

218. LA. STATE PLANNING OFF., *supra* note 114, at 6.

219. SICKLE & GROAT, *supra* note 190, at 671.

shallow water depth, which allowed brine effluent to "build up to very high levels in the water body."[220] The high salt content of brine interrupted the natural life cycle of marsh grasses killing the complex root systems.[221] Without the dead plant material to keep the marsh surface from subsiding and the roots to bind the marsh soil together, land converted to open water.[222] At Golden Meadow between 1964 and 1978, many "new ponds" were created as a result of these types of discharges.[223]

With Louisiana losing approximately 1883 square miles of land since 1932, these estimates place the oil and gas industry as a significant contributor to land loss across the Louisiana coast.[224] These impacts have accompanied oil and gas operations since its inception, and the devastating environmental impacts to these areas remain, including on public grounds.

C. Oil and Gas on Louisiana Public Lands

To accomplish the goal of perpetual wildlife protection, refuges were managed to conserve and enhance wildlife habitat, particularly for migratory waterfowl.[225] Management aimed at maintaining sufficient wintering and breeding habitat for these birds meant constant vigilance and adaptability to changing conditions, particularly in the coastal marshes where managers were faced with challenges associated with oil and gas production.[226] "The exploration for these minerals created conditions which radically affected the general ecology of the coastal marshes and brought about changes which were undesirable for wildlife."[227]

Thus, management strategies were developed to accommodate these mineral activities and the changing landscape driven by canal construction and saltwater intrusion.[228] Fresh and intermediate marsh types were encroached upon with brackish and saline waters from the Gulf through the canals, which served as conduits.[229] Canals and their

---

220. S.M. HAQUE, *Effects of Surface Brine Disposal on the Marshes in Coastal Louisiana in* COASTAL ZONE '93: PROCEEDINGS OF THE EIGHTH SYMPOSIUM ON COASTAL AND OCEAN MANAGEMENT, NEW ORLEANS, LA. 1347, 1353 (1993).

221. *Id.* at 1351.

222. *Id.* (citation omitted).

223. *Id.*

224. BRADY R. COUVILLION ET AL., U.S. GEOLOGICAL SURVEY, LAND AREA CHANGE IN COASTAL LOUISIANA FROM 1932 TO 2010 4 (2011).

225. Ensminger, *supra* note 67, at 29.

226. *Id.*

227. *Id.*

228. *See id.*

229. *See id.*

associated spoil banks also acted as physical impediments to natural flow patterns of freshwater.[230] As a consequence, habitats began to transition into plant communities that supported an assemblage of plants not ideal for waterfowl use.[231] The deterioration of the wintering grounds for millions of birds that spent the winter along the coast demanded attention.[232] Managers at Rockefeller and Marsh Island initiated a novel management program constructing impoundments to control water and sediment.[233] A 9000-acre impoundment was constructed on Marsh Island and 19,000 acres were impounded on Rockefeller by using existing oil canal levees and excavating virgin material to construct new levees and repair old ones.[234] Once an area became impounded, managers could control water fluctuations with water control structures and pumps.[235] This ability to manipulate water levels acted as a management tool to promote or inhibit certain plant species depending on their desirability as waterfowl food or cover.[236] After completing construction, waterfowl use on the refuges went from between 50,000 and 70,000 ducks to a wintering population of 600,000 ducks in 1967.[237] Not only did waterfowl benefit from these management strategies, but these areas were also heavily used by a tremendous number of transient shore birds.[238] Waterfowl management not only provides food, water, and cover for wintering ducks and geese, but by managing for waterfowl, the refuges were also promoting a healthy ecosystem that supported a plethora of game, nongame, recreational, and commercial species.[239]

Responding to and managing refuge resources in the midst of oil and gas operations was not unique to Rockefeller, as many of the public lands were managed with oil and gas operations in mind. The LDWF commonly wrote rules to be incorporated into lease agreements.[240]

---

230. *See id.*
231. *Id.*
232. *Id.* at 29-30.
233. *Id.* at 30.
234. *Id.*
235. *Id.*
236. *Id.*
237. *Id.*
238. *Id.*
239. These early practices of using impoundments to control the vectors inside those enclosures have acted as a model for other public and private landowners. Wetlands in coastal marshes, bottomland hardwoods, former agricultural fields, and other areas across the country are managed using similar methods. In fact, this "moist-soil management" approach has been a major focus of research and management approaches all across the country.
240. *See*, *e.g.*, LA. WILDLIFE & FISHERIES COMM'N, PROCEEDINGS OF MEETING OF LOUISIANA WILD LIFE AND FISHERIES COMMISSION: FEBRUARY 24, 1953, at 2-7 (1953); LA. DEP'T OF WILDLIFE & FISHERIES, THE DEVELOPMENT OF METHODS AND STANDARDS OF OPERATION TO

Generally speaking, LDWF staff and the oil and gas personnel on the ground worked in a cooperative effort to comply with lease requirements and manage the property as best they could.[241] However, despite the written agreements, environmental damages occurred.

The approximately 30,000-acre Pointe Au Chien WMA resides in Terrebonne and Lafourche parishes.[242] With over 650 wells drilled on the WMA accessed by crisscrossing canals, the area has been the subject of intensive oil and gas activity within the Bully Camp and Montegut fields.[243] These historical operations have necessitated the State to undertake extensive marsh management programs to maintain the productivity of the WMA by guarding against tidal fluctuations and saltwater intrusion.[244] Canal construction within these fields has resulted in high land-loss potential, loss of excellent wildlife habitats and recreational areas, and saltwater intrusion into freshwater marshes.[245] The state has found some of the WMAs to have been "highly impacted from oil and gas production."[246] Pits formerly used for waste disposal remain open and unaddressed with production facilities "abandoned." The WMA sits within an area where over nine square miles of land were lost between 1990 and 2000, with approximately 76% of that loss attributable to oil and gas activity.[247]

In 1966 at Dewey Wills WMA, formerly Saline WMA, representatives from the Louisiana Wild Life and Fisheries Commission, the Louisiana Department of Conservation, and oil operators conducting activities on the WMA met to discuss contamination problems occurring on the publicly-owned management area.[248] Remedying oil spills and saltwater problems were the topics of discussion. This meeting occurred

---

PROTECT FISH AND WILDLIFE RESOURCES AND SUPPORTING HABITATS OF COASTAL WILDLIFE REFUGES DURING OIL AND GAS DEVELOPMENT (draft) (1977).

241. Personal Communication, Allan Ensminger.

242. *Pointe-aux-Chenes WMA*, LA. DEP'T WILDLIFE & FISHERIES, http://www.wlf.louisiana.gov/wma/2790 (last visited Jan. 19, 2016).

243. *See Oil, Gas, and Injection Wells in Louisiana, Geographic NAD83*, LA. DEP'T NAT. RESOURCES, https://catalog.data.gov/dataset/oil-gas-and-injection-wells-in-louisiana-geographic-nad83-ldnr-2007-oil-gas-wells-ldnr-2007 (last updated Apr. 10, 2015).

244. LA. DEPT. WILDLIFE & FISHERIES, ANNUAL REPORT 20 (1982).

245. *See generally* EDWIN J. DURABB, REPORT OF THE COASTAL ZONE MANAGEMENT ADVISORY COMMITTEE AND LAFOURCHE PARISH PLANNING DEPARTMENT TO THE LAFOURCHE PARISH COUNCIL (1987).

246. *See Permit Tracking System: CUPNO-P19911185*, LA. DEP'T NATURAL RES., http://reports.dnr.state.la.us/sundown/cart_prod/cart_cmd_permit.cart_permit_frame?pcup_num=P19911185 (last visited Sept. 21, 2016).

247. *See* CH2M HILL, MUSSETTER ENGINERRING, INC., PHASE 2: RECONNAISSANCE-LEVEL EVALUATION OF THE THIRD DELTA CONVEYANCE CHANNEL PROJECT 5-9 (2006).

248. Robert Lafleur, *Oil Field Waste Pollution Abatement in the Saline Wildlife Management Area*, 18 LA. CONSERVATIONIST 17 (1966).

soon after the State acquired the property, and officials indicated that the Commission planned to enhance, improve, and develop the 60,000-acre tract as an attractive public hunting, fishing, and outdoor recreational area. To accomplish these goals, certain actions would be required of the operators including: "[r]eplac[ing] all deteriorated oil lines to prevent or reduce the large number of line breaks" that were anticipated; conducting "[f]requent inspections of all trunk and feeder lines to prevent oil spillage"; "[i]mmediately notify[ing], if possible, certain personnel of the Louisiana Wild Life and Fisheries Commission and the Louisiana Department of Conservation in the event of accidental oil spills or salt water discharges"; "[p]revent[ing] any salt water, drilling mud, oil base or otherwise, from being discharged to any land area or into any stream, bayou, lake, or other waters in the Management Area or adjacent areas"; "[w]here leaks occur, restor[ing] area to original appearance prior to spillage"; "[m]aintain[ing] slush pits on the area in good condition to prevent overflow or leakage of any waste oil, salt water, or other noxious or contaminating materials"; and "[r]estor[ing] dry hole sites to original condition."[249]

Dewey Wills has over 840 former and existing wells on its lands.[250] Today, open pits containing oilfield wastes remain open in violation of state regulations.[251] Soil saturated with salt from spilled or discharged produced water has been left unattended. Without appropriate ecological and geotechnical assessments, the entire extent of the damages will remain unknown, including whether threats to groundwater supplies are present.

The Salvador WMA rests along the northwestern shoreline of Lake Salvador in St. Charles Parish.[252] The WMA has over 250 former and existing wells on the property, the majority accessed by canals.[253] The concurrent effects of oil and gas dredging and shoreline erosion have made interior portions of the WMA subject to tidal influences, which increase the risk for shoreline breaching and land loss.[254] This connection to Lake Salvador "threatens the wetland health in and around the Lake Salvador Wildlife Management Area."[255]

---

249. *Id.*

250. *See Oil, Gas, and Injection Wells in Louisiana*, *supra* note 243.

251. *See* LA. ADMIN. CODE tit. 43 §§ 301, 303, 305, 307, 309, 311, 313, 315 (2015).

252. *Salvador/Timken WMA*, LA. DEP'T WILDLIFE & FISHERIES, http://www.wlf.louisiana.gov/wma/2765 (last visited Jan. 19, 2016).

253. *See Oil, Gas, and Injection Wells in Louisiana*, *supra* note 243.

254. COASTAL RESTORATION DIV., LA. DEP'T OF NATURAL RES., MONITORING PLAN BA-5C BAJE DE CHACTAS 1 (Aug. 31, 1992, July 26 1995).

255. *Id.*

At Pass-a-Loutre WMA located in the "bird-foot delta," oil and gas exploration and production was a constant source of growing problems requiring "continuous vigilance by refuge personnel to assure that these activities [did] not cause undue damage to the area."[256] Located in a floating marsh, access through the area required canal dredging.[257] Each time a new canal was dredged and a drilling site established, problems of drainage and saltwater intrusion emerged. The WMA has nearly 3000 wells within its borders.[258]

On Yancey WMA, similar conditions exist where unattended pits and former production areas have been abandoned for years without any remedial attention. Moreover, production activities classified as "active" are in derelict conditions. Production facilities exhibit obvious areas of salt-impacted soils. Disposal facilities have been abandoned with salt having leached or spilled from containment areas into the surrounding habitats, killing vegetation. Wildlife, such as hogs and deer, frequent the areas, likely attracted to the salt content in the soil.

On Sherburne WMA, abandoned facilities remain unattended with tank batteries, separators, and other oilfield equipment left in deteriorating conditions. Former saltwater disposal pits still exhibit surface damage related to salt contamination.

Other State lands have also experienced degraded conditions. In the area surrounding Little River in LaSalle Parish, agency officials described the area as a "vast waste land."[259] Within these remote wooded areas, oil and saltwater were deposited in sumps with inadequate or no levees.[260] Rainfall events would then wash these contaminants into the surrounding woodlands and adjacent streams eventually flowing into the Little River.[261] In late summer and fall when precipitation was minimal and the River had no flow, the chloride content reached twenty-eight to thirty parts per thousand of chloride, which resulted in serious harmful implications for all the aquatic life within the waterway.[262] Conditions were so bad that salt crystals could be observed on the bank of the Little River twenty-five to thirty miles below the source of the brine

---

256. ELLIS W. LOGA, LA. WILDLIFE & FISHERIES COMM'N, 10TH BIENNIAL REPORT: 1962-1963, at 185 (1963).

257. *See id.*

258. *See Oil, Gas, and Injection Wells in Louisiana*, *supra* note 243.

259. Kathleen Blakeney, *Sores on the Land*, 22 LA. CONSERVATIONIST 21 (1970).

260. *Id.*

261. *Id.*

262. FRANK COOGAN, LA. DEP'T OF WILDLIFE & FISHERIES, 3RD BIENNIAL REPORT: 1948-1949, at 365 (1949).

discharges.[263] One legislator would later refer to the region as "an area that an atom-bomb had been dropped on."[264]

These practices were partially responsible for prompting the Louisiana Stream Control Commission in the mid-1960s to completely eliminate discharges of oil field brines to surface waters by using subsurface injection.[265] One of the largest stripper fields, Tullos-Urania in LaSalle Parish, was in 1963 producing only 4877 barrels of oil per day while discharging 268,000 barrels per day of brine with a salt content of nearly 60 parts per thousand.[266] Another LaSalle Parish field, the Selma field, discharged 27,266 barrels of brine per day to recover only 281 barrels of crude each day.[267] These stripper fields, along with others located in Winn and Grant parishes, surrounded the Little River drainage system.[268] Conditions were so bad that officials declared that Little River was unavailable to industry because of the brine.[269]

The creeks and streams that drained these fields flowed into the Little River, which emptied into Catahoula Lake in southern LaSalle Parish.[270] Oil field brines had polluted Catahoula Lake and pollution of the Lake created a conflict between recreational interests and industry. This continued inundation of contamination in and along the waters of the Little River and Catahoula Lake resulted in a very poor condition of public lands threatening public water supplies and recreational and commercial fishing.[271] Very similar conditions existed in Caddo Parish.[272]

Today, the condition of individual refuges vary, mainly depending on the timing of acquisition by the state and initiation of oil and gas development. Refuges such as Marsh Island and Rockefeller, while undergoing significant oil and gas development, have been managed with conservation in mind since their inception.[273] Thus, as damages became recognized or facilities degraded, the State was able to

---

263. *Id.*

264. *Natural Resources Committee, Wildlife and Fisheries Subcommittee Hearing*, on La. H.R. (Oct. 21, 1985) (audio recording) (on file with the Louisiana State Archives).

265. LA. ADMIN. CODE tit. 33, § 1901 (2015).

266. *Louisiana Battling Brine Pollution*, OIL & GAS J. 45, 45 (1964).

267. *Id.*

268. *Id.*

269. *Id.*

270. *Id.*

271. *See* LA. STREAM CONTROL COMM'N, PROCEEDINGS OF MEETING OF THE LOUISIANA STEAM CONTROL COMMISSION: AUGUST 20-21, 1964, at 17-19 (1964); *Pollution Serious Menace in September and October*, 3 LA. CONSERVATION NEWS 6, 6 (1927).

272. *See* O.T. ICE, *supra* note 185, at 196.

273. *See* Deeds of Donation for Marsh Island and Rockefeller, each dated Nov. 8, 1920 (on file with authors).

adequately respond and ultimately reach a reasonable balance between consumption and preservation.[274]

However, when the State acquired lands from private interests after production began, it had no control on how lands were previously managed.[275] Thus, many of these properties came into State ownership in a less-than-desirable condition.[276] And in some instances, the State had little control over oil and gas activities after it acquired the property because it only owned surface rights.[277] Not owning the mineral rights, the State was subject to mineral owners developing and extracting oil using the surface.[278]

The variability of environmental alterations resulting from oil and gas can be loosely correlated to the number of wells drilled and produced. As production volumes increase, so do the opportunities for spills, leaks, and discharges. Thus, as the number of former and existing wells increase on a given area, one could expect the extent and degree of damages to likewise increase.

D. Oil and Gas on Federal National Wildlife Refuges

Federal lands were not insulated from oil and gas operations and their related impacts. In 1920, the United States Congress authorized the lease of millions of acres of public lands containing reserves of coal, oil, and phosphate to private entities on a rental basis.[279] While the federal government owns the surface and correlative rights of these lands, mineral rights on many national wildlife refuges are held by private interests.[280] Thus, of the nearly 600 refuges located throughout the nation, about fourteen percent have oil and gas operations exploring, drilling, producing, and transporting oil on and across their lands.[281] All but two of the NWRs in the State of Louisiana have former or existing oil operations on their lands containing thousands of wells.[282]

---

274. Personal Communication, Allan Ensminger, *supra* note 241.
275. *Id.*
276. *Id.*
277. *Id.*
278. *Id.*
279. 30 U.S.C. §§ 181-287 (2012); Moresi, *supra* note 91, at 33.
280. U.S. GEN. ACCOUNTING OFFICE, GAO-03-517, NATIONAL WILDLIFE REFUGES: OPPORTUNITIES TO IMPROVE THE MANAGEMENT AND OVERSIGHT OF OIL AND GAS ACTIVITIES ON FEDERAL LANDS, at 1 (2003).
281. *See id.* at 5 (citing U.S. GEN. ACCOUNTING OFFICE, GAO-02-64R, U.S. FISH AND WILDLIFE SERVICE: INFORMATION ON OIL AND GAS ACTIVITIES IN THE NATIONAL WILDLIFE REFUGE SYSTEM, at 1 (2001)).
282. *See Oil, Gas, and Injection Wells in Louisiana*, *supra* note 243.

In the late 1970s, recognizing the growing demand for oil would inevitably lead to intensification of petroleum production in U.S. coastal zones, the U.S. Fish and Wildlife Service (USFWS) initiated studies to examine and document coastal ecosystems and the impacts of petroleum development activities ranging from "preexploration surveys through termination of production."[283] The product of these efforts would help managers and planners understand the activities, effects, and mitigation measures involved in the oil and gas exploration and production process.[284]

In 1981, the USFWS published a report that described and documented "the management of oil and gas development on wildlife refuges along the Louisiana and Texas coasts through an analysis of guidelines, standards, and stipulations imposed on development activities in these areas."[285] The document was to provide refuge managers and planners with a tool to help them prepare and review environmental impact statements and permits.[286] In concluding that "it is necessary to devise methods and standards of operation to minimize impacts of the energy development program," the report detailed some of the impacts on refuge lands caused by oil and gas exploration and production.[287]

In Louisiana, one of those is the Delta National Wildlife Refuge. Established in 1936, the refuge, located in the heart of the bird-foot delta at the terminus of the Mississippi River, was acquired to preserve a thriving example of a delta marsh ecosystem.[288] Dynamic natural systems characterize the refuge, with ponds, marshes, channels, passes, natural levees, and interior islands, all a product of the river and its waters and sediment flows.[289] The natural evolution of the river created this system of an intermingled mesh of habitats that provides a complexity of ecosystems found in few other places.[290] Influxes of river sediments build land and nourish existing marshes while the ever-present

283. WILLIAM L. LONGLEY, RODNEY JACKSON & BRUCE SNYDER, U.S. DEP'T OF THE INTERIOR, FWS/OBS-78/54, MANAGING OIL AND GAS ACTIVITIES IN COASTAL ENVIRONMENTS 2 (1978).

284. *Id.* at 10-65.

285. WILLIAM L. LONGLEY, RODNEY JACKSON & BRUCE SNYDER, U.S. DEP'T OF THE INTERIOR, FWS/OBS-81-22, MANAGING OIL AND GAS ACTIVITIES IN COASTAL ENVIRONMENTS: REFUGE MANUAL iii (1981).

286. *Id.*

287. *Id.*

288. *Id.* at 68.

289. *See id.* at 68-70.

290. *See id.* at 70.

sea lies at the doorstep, using saltwater to encroach into its interior and retard its growth.[291]

Prior to the USFWS acquiring the property, the owners leased the mineral rights to Texaco on a portion of the future refuge known as the Delta Duck Club tract.[292] Upon selling the tract, Texaco retained the right to develop the minerals.[293] Thus, the USFWS only obtained rights to the surface while Texaco would be allowed to continue operations.[294] On the Romere Pas tract, the U.S. government became the mineral owner, and upon the determination by the U.S. Geological Survey that extensive mineral development surrounding the area would result in significant drainage of minerals underlying the Romere Pass tract, the Bureau of Land Management leased the tract to the California Company, later becoming Chevron.[295] Development on the Romere Pass tract began in 1950.[296]

Oil fields were developed using canals to access drilling sites. Canals were dredged seventy feet wide and eight feet deep with the canal network growing each time a new well was to be drilled.[297] Existing canals were usually extended to reach new drilling sites.[298]

Because the Mississippi River diverted sediment through the oil field, infilling of canals caused operators to routinely perform maintenance dredging to keep the access canals open for navigation.[299] Spoil from the dredging operations typically was placed on the edge of the canal, and in some places reached a height of sixteen to twenty feet. The drilling sites themselves typically removed about 15,200 cubic yards of sediment and cleared a site 140 feet by 370 feet and 8 feet deep with the spoil placed around the drill site "to partition off the rest of the marsh."[300]

The impressive density of canals and well sites resulted in some areas almost two square miles in size containing 110 well sites, including the canals that led to the drilling sites.[301] "The development is so extensive that Gusey and Maturgo . . . reported that nearly 3,645 ha (9,000 acres) of the refuge's 19,764 ha (48,800 acres) have been

291. *Id.*
292. *Id.* at 128.
293. *Id.*
294. *See id.*
295. *Id.*
296. *Id.*
297. *Id.* at 129.
298. *Id.*
299. *Id.*
300. *Id.*
301. *Id.*

substantially altered by extensive crisscrossing of access canals and wellsites."[302]

The infrastructure used to extract the minerals consisted of tanks, compressors, brine-treatment facilities, pits, flowlines, pumps, separators, precipitators, and line heaters among other equipment necessary for the production, treatment, and transport of oil, gas, and water.[303] These facilities were located on spoil banks or barges.[304] The pits, dug into the spoil bank, and natural levees facilitated the discharge of brine.[305]

> There are two burn pits located on the pass bank. Each is surrounded by ring levees and contains smaller pits subdivided within. After the oil is burned off, the brine is placed directly into a canal where it is dispersed by the flow of water.
>
> ***
>
> Brine is cleaned by passing it through a series of settling and separation pits. It is disposed of by placing it directly into the pass with water flowing into the gulf. The brine disposal at this site comes from wells not only on the refuge but also offshore, because this production site is also used to treat petroleum produced in the gulf.
>
> ***
>
> Occasionally, larger spills occur, particularly with malfunctioning production equipment. In the past, burning pits have overflowed, spilling oil over several acres of marsh. Valves may malfunction.[306]

The constant everyday activity to maintain the facilities and support operations resulted in significant boat traffic, which added to "siltation problems and disturbance factors."[307] Several hundred flowlines connecting wellheads to central processing facilities crisscrossed the refuge with many placed on banks and others buried at water crossings.[308] Edge erosion exposed the older flowlines from underneath the banks and new lines installed.[309] Larger pipelines also cross the refuge, with some originating from offshore and leading to the Midwestern United States.[310]

The intensive activity and abrasive nature of the natural elements inevitably led to a number of minor spills, averaging two per month.[311]

---

302. *Id.* (citation omitted).
303. *Id.* at 130.
304. *Id.* at 129-30.
305. *Id.* at 130.
306. *Id.* at 130-31.
307. *Id.*
308. *Id.*
309. *Id.*
310. *Id.* at 131.
311. *Id.*

The spills resulted from leaks, faulty valves, and accidents.[312] Larger spills also occurred normally as a result of malfunctioning production equipment and overflowing pits, impacting several acres of marsh.[313]

The USFWS also profiled the Sabine National Wildlife Refuge, which lies on the opposite end of the Louisiana coast.[314] Located in the southwestern corner of Cameron Parish, this marsh-dominated refuge is situated five miles north of the Gulf of Mexico and bounded by marsh and rice fields to the north, pasture land and coastal ridges to the south, Sabine Lake on the west, and Calcasieu Lake to the east.[315]

Waters in these large coastal lakes influence water levels and salinity within the refuge.[316] The natural hydrology of the refuge, however, has been altered by canals so extensively that the Calcasieu Lake, Sabine Lake, and the Gulf of Mexico have become interconnected.[317]

Natural bayous were blocked and efforts to minimize and prevent interaction of refuge waters and saline Gulf waters that permeate the refuge have been negated by deteriorated weirs and plugs. Rainfall is the only source of freshwater that mixes with the waters of the "artificial estuaries."[318] The canals resulted from the oil and gas operations that began on the property in 1934, three years before the federal government acquired ownership.[319] However, much of the mineral rights were vested with oil companies that continued to operate, mainly via canals.[320] While some roads were constructed to reach well sites, most were accessed by dredging canals.[321] Like all other oil and gas fields, operations were supported by tanks, pits, flowlines, separators, and other typical facilities and equipment.[322]

Starting shortly after the turn of the century, the federal government began to assess the environmental conditions on their lands in the wake of oil and gas activity in the preceding century. A 2001 study conducted for the USFWS by North Carolina State University investigated chemical contamination at twenty-six national wildlife refuges in the Lower

312. *Id.*
313. *Id.*
314. *Id.* at 72-76.
315. *Id.* at 72.
316. *Id.* at 74.
317. *Id.*
318. *Id.*
319. *See id.* at 131-32.
320. *Id.*
321. *Id.* at 132-33.
322. *See* BAUMAN ET AL., *supra* note 122, at 76.

Mississippi River ecosystem.[323] National wildlife refuges located in Louisiana accounted for eight of the twenty-six, including Atchafalaya, Delta, Catahoula, Grand Cote, Lake Ophelia, Bayou Cocodrie, Tensas River, and Handy Brake.[324]

Sediment samples taken near existing and former oil wells and pits at the Catahoula, Atchafalaya, and Delta NWRs were found to have extremely high levels of polycyclic aromatic hydrocarbons (PAH).[325] PAHs cause concern because they can persist in the environment for a long time and some are carcinogenic.[326] Maximum values of PAH observed on these public grounds were extraordinarily high and had lethal effects to every organism except the most petroleum-tolerant species.[327] Levels exceeded the threshold for Probable Effects Concentrations likely having biological effects.[328] In testing the toxicity of sediment pore water, researchers recorded a 100% mortality rate for test specimens.[329] Researchers also observed visible oil in each sample.[330]

Then in 2003, the U.S. General Accounting Office (GAO) issued a report "to determine the extent of oil and gas activity on refuges, identify the environmental effects, and assess the Fish and Wildlife Service's management and oversight of oil and gas activities."[331] The study documented damages from oil and gas field infrastructure installation, use, and abandonment.[332] It found the network of roads, canals, wells, storage tanks, separators, and flowlines can reduce the quality and quantity of available habitat for wildlife use.[333] These facilities and supporting infrastructure break up the continuity of the landscape resulting in fragmented habitats.[334] "Fragmentation increases disturbances from human activities, provides pathways for predators, and helps spread nonnative plant species."[335]

---

323. DAMIAN SHEA, PROJECT ID: 4N34, PROGRESS REPORT: EFFECTS OF CONTAMINANTS ON FISH AND WILDLIFE IN THE MISSISSIPPI RIVER ALLUVIAL PLAIN 2 (1997).

324. *Id.* at 3.

325. *Id.* at 37.

326. U.S. ENVTL. PROT. AGENCY, POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) 1 (2008); U.S. ENVTL. PROT. AGENCY, EPA/600/R-93/089, PROVISIONAL GUIDANCE FOR QUANTITATIVE RISK ASSESSMENT OF POLYCYCLIC AROMATIC HYDROCARBONS 9-10 (1993).

327. SHEA, *supra* note 323, at 31.

328. *Id.* at 13-14.

329. *Id.*

330. *Id.* at 35.

331. U.S. GEN. ACCOUNTING OFFICE, *supra* note 280, at [ii] (2003).

332. *See id.* at 18.

333. *See id.* at 22.

334. *Id.*

335. *Id.*

In addition, the physical changes to refuge habitats resulting from the presence of oil field facilities and infrastructure can cause changes in hydrology, thereby altering patterns of sediment delivery and ultimately lead to degradation of habitats.[336] Damages attributed to oil and gas activities on NWRs throughout the nation included feeding habitat reduced for endangered California condors; soil contamination; persistence of old and unused infrastructure (including flow lines and storage tanks); unplugged wells; brine spills killing vegetation; oil spills killing wildlife; groundwater contamination; sediment contamination; saltwater intrusion from subsidence; pipeline spills; habitat loss from saltwater intrusion, roads, canals, and other facilities; habitat fragmentation resulting in increased number of predators; soil and vegetation damage from brine spills and pits; mercury contamination; and polychlorinated biphenyl contamination.[337]

A review of NWRs within Louisiana revealed some of the existing damages related to the associated oil and gas operations. On the Delta NWR with 338 wells and 2 fields, sediments were found contaminated with oil, and former infrastructure remained on site.[338] One member of the staff had oversight responsibilities.[339] The Atchafalaya NWR has approximately forty wells, brine discharges have killed vegetation, and oil and unused infrastructure remains on site.[340] The Sabine NWR has around sixty wells and forty active flow lines extending almost fifty miles.[341] Pipeline spills have caused wildlife fatalities and contamination.[342] Road and canal construction has destroyed and fragmented habitat.[343] The refuge collects fees from operators to fund full-time oversight position.[344] The D'Arbonne NWR has 139 wells with almost 200 miles of flowlines.[345] Brine spills and former pits have caused soil and vegetation damage and mercury contamination.[346] The Upper Ouachita has well over a thousand wells with over 300 miles of

336. U.S. GEN. ACCOUNTING OFFICE, *supra* note 280, at 53-54 (2003).
337. *Id.*
338. *Id.* at 53.
339. *Id.*
340. B.T. HILL, U.S. GEN. ACCOUNTING OFFICE, GAO-04-192-T, IMPROVEMENT NEEDED IN THE MANAGEMENT AND OVERSIGHT OF OIL AND GAS ACTIVITIES ON FEDERAL LANDS, at 53 (2003); U.S. GEN. ACCOUNTING OFFICE, *supra* note 280, at 48 (2003).
341. U.S. GEN. ACCOUNTING OFFICE, *supra* note 280.
342. *Id.*
343. *Id.*
344. *Id.*
345. *Id.*
346. *Id.*

flowlines.[347] Operations have resulted in soil and vegetation damage from brine spills and former disposal pits.[348] Sites are contaminated with Mercury.[349]

In 2008, the Delta Comprehensive Conservation Plan (CCP) recognized oil and gas development, among other processes, as a major cause of land loss and damage.[350] These damages stemmed from physical impacts and chemical contamination. The report stated "access to structures and facilities cause loss of habitat and hydrological changes to the system."[351]

The fields producing the oil and gas have considerable age on the equipment and flowlines. This requires constant monitoring by refuge staff. "Releases or spill events have occurred numerous times and have the potential to impact huge numbers of waterfowl and large expanses of habitat if not controlled immediately. . . . Spill events and releases are common occurrences."[352]

The 2011 Atchafalaya NWR CCP acknowledges these concerns and states that only through litigation will these polluted sites be restored.[353] Refuge staff were concerned with "the often slow, reluctant, and uncooperative" oil companies responsible for the contamination and, thus, the remediation of these sites.[354]

Active oil production and transportation on the Delta NWR has also resulted in impacts. "On April 6, 2010, a Chevron Pipeline Company pipeline, which traverses the refuge, was ruptured by an Exxon-Mobil spud barge. The pipeline released approximately 400 barrels of oil on the refuge, which ultimately impacted 57 acres of marsh habitat."[355] During 2011, several small oil releases from oil fields on the refuge impacted almost fourteen acres of marsh habitat.[356] The responsible parties agreed

> to participate in a cooperative partnership project to fulfill their remediation obligations on the refuge resulting from past spills. . . . This project was selected in 2012 by The Department of the Interior as a

347. *Id.*
348. *Id.*
349. *Id.*
350. U.S. DEP'T OF THE INTERIOR, DELTA AND BRETON NATIONAL WILDLIFE REFUGES: COMPREHENSIVE CONSERVATION PLAN 23 (2008).
351. *Id.* at 15.
352. *Id.* at 25, 50.
353. U.S. DEP'T OF THE INTERIOR, ATCHAFALAYA NATIONAL WILDLIFE REFUGE: COMPREHENSIVE CONSERVATION PLAN 24 (2011).
354. *Id.*
355. U.S. FISH & WILDLIFE SERV., OIL AND GAS: MARSH RESTORATION 1 (2014).
356. *Id.*

> component of its Great American Outdoor Initiative. The total combined project costs, considering all entities involved, exceeded $800,000.[357]

Environmental damages on NWRs from historical oil and gas operations remain, and impacts caused by existing operations persist. At Atchafalaya NWR, "[d]uring an 18-month period beginning on April 22, 2010, refuge law enforcement officers documented four brine spills, two oil spills, and other violations of the refuge Special Use Permit issued to the oil operator for oil production activities on the refuge."[358] Service personnel acknowledge that even small spills can injure or kill wildlife while contaminating soil and sediments.[359] Follow-up investigations of one of these spills revealed dead vegetation and bare soil, which can remain devoid of vegetation for decades.[360]

However, refuge officials seldom have an inventory of spills or former operations where contamination exists and where problems may arise from the execution of proposed activities. The lack of awareness of contaminated sites and the full ramifications of the contamination hinders managers' efforts at effective management and their "ability to identify and obtain appropriate mitigation measures and to require responsible parties to address damages from past activities."[361] Historical contamination remains persistent and toxic, and presents an ever-increasing hazard as more receptors are exposed.[362] And through the lack

---

357. *Id.*

358. U.S. FISH & WILDLIFE SERV., OIL AND GAS: SPILLS AND LEAKS ARE A RECURRING PROBLEM ON REFUGE 1 (2014).

> The violations included: failure to report spills, not removing oil-contaminated soil from a flowline (pipe) leak, clearing vegetation along a road without prior approval from the Refuge, and conducting workover operations at a well without authorization. Other citations involved failure to remove trash, pipes, and barrels. During one inspection, refuge law enforcement officers documented unlabeled barrels, oil leaks from 55-gallon barrels, an uncapped well, discarded pipes and metal, and trash. The investigation resulted in a guilty plea by the operator. . . . A guilty plea was filed in court in June 2012. In the guilty plea, the oil operator agreed to restore and rehabilitate the damaged Refuge property at the spill sites in accordance with conditions set in the Special Use Permit. As of June 2013, we are still waiting for restoration and rehabilitation of the spill sites to begin. *Id.*

359. *Id.*

> It only takes a little bit of oil to: Kill an embryo—During the breeding season, birds can transfer oil from their feet and feathers to their eggs. A few drops of oil on an egg shell can kill the embryo. Contaminate water—One gallon of oil can contaminate up to 1,000 gallons of water. Harm wildlife—Oiled birds, bats, amphibians, and small mammals attract predators such as hawks and foxes, who ingest the prey—contaminated with oil—and may also die as a result. *Id.*

360. *Id.*

361. B.T. HILL, *supra* note 340, at 8.

362. *Id.* at 18.

of awareness, technical expertise, and budgetary resources, the problem is perpetuated.

Although technological advances and the enactment of more stringent laws have significantly reduced the pollution problem with respect to ongoing operations, monitoring, cooperation, and enforcement are still necessary tools to keep operations in compliance. "Several refuge managers reported that operators do not always comply with legal requirements or follow best industry practices, such as constructing earthen barriers around tanks to contain spills, covering tanks to protect wildlife, and removing pits that temporarily store fluids used during well maintenance."[363] Thus, monitoring involves a constant diligent effort to ensure compliance with federal and state laws and regulations. These time-intensive efforts include emergency response, "dealing with legal matters after spill events, and constant permitting and mitigation actions for ongoing activities such as flowline routes (installation and removal), night activities, equipment use, drilling, seismic exploration, and plugging and abandonment of structures."[364]

Furthermore, in instances of documented and known contamination, refuge personnel do not possess the knowledge, capability, or qualifications to determine whether remedial actions taken at the site are sufficient to protect refuge resources.[365] For instance, "when small oil spills occur, operators may contain the oil and then remove the oil and the contaminated soil, but in some cases operators leave the oil and cover it with dirt."[366] Because of problems associated with identifying responsible parties, operator insolvency, potential inhibition of existing operations, and uncertainty by refuge officials regarding their authority to require cleanup reclamation of these sites is delayed or foregone.[367] In some instances, the refuge has undertaken to clean up site and expended public dollars in doing so.[368] Between 1991 and 2002, $387,000 of federal refuge monies were devoted to removing oilfield debris, plugging unused gas wells, and addressing contamination issues at fourteen oil and gas related sites, with many more sites needing to be addressed or identified.[369]

---

363. *Id.*

364. U.S. FISH & WILDLIFE SERV., DELTA AND BRETON WILDLIFE REFUGES COMPREHENSIVE CONSERVATION PLAN 21 (2008).

365. B.T. HILL, *supra* note 340, at 8.

366. U.S. GEN. ACCOUNTING OFFICE, *supra* note 280, at 25.

367. *Id.* at 26.

368. *Id.* at 29.

369. *Id.* Note to students—you can find some background and links to the key documents here: Kamila Lis, *FWS To Update Regulations Governing Drilling on National Wildlife Refuges*,

A recent inspector general report highlighted the problem of abandoned oilfield sites on national wildlife refuges, and this has spurred the federal government to take steps to address the problem. On December 11, 2015, the USFWS issued proposed rules to govern oil and gas operations in National Wildlife Refuges.[370] There are over 5000 oil and gas wells on 107 refuges nationwide.[371] The proposal is significant because the rules have been unchanged for more than fifty years.[372] The rulemaking notice states that the older regulations "have been ineffective at protecting refuge resources."[373] As noted, "[r]efuges have sustained significant damages from leaks and spills, unplugged or inadequately plugged wells, abandoned equipment, and insufficient or no reclamation of refuge lands and resources."[374] The rulemaking itself is a response to the Department of Interior Inspector General's March 2015 report, which found that poor management has left "refuges littered with orphaned or abandoned oil and gas infrastructure that could threaten the health and safety of wildlife, the safety of refuge visitors, and damage the environment."[375] The new rules include a permitting process for well-plugging and reclamation, financial security requirements (prior rules did not require financial security), and operating standards.[376]

The USFWS recognizes the need to balance development of nonfederal mineral rights with protection of natural resources.[377] However, not only can oil and gas exploration and production activities damage refuge habitats, but they can also result in increased costs and health hazards to the taxpayer.[378] Regulation of these activities typically

---

NAT'L L. REV. (Jan. 13, 2016), http://www.natlawreview.com/article/fws-to-update-regulations-governing-drilling-national-wildlife-refuges.

370. Management of Non-Federal Oil and Gas Rights; Proposed Rule, 80 Fed. Reg. 77,199, 77,200 (Dec. 11, 2015) (to be codified at 50 C.F.R. pts. 28 & 29).

371. *Id.* at 77,201.

372. *Id.*

373. *Id.* at 77,201.

374. *Id.* at 77,204.

375. U.S. DEP'T OF THE INTERIOR, U.S. FISH AND WILDLIFE SERVICE'S MANAGEMENT OF OIL AND GAS ACTIVITIES ON REFUGES 1 (2015).

376. Management of Non-Federal Oil and Gas Rights; Proposed Rule, 80 Fed. Reg. at 77,200.

377. U.S. FISH & WILDLIFE SERV., NONFEDERAL OIL & GAS DEVELOPMENT ON NATIONAL WILDLIFE REFUGE SYSTEM LANDS 1-2 (2015).

378. *Id.* "Oil and gas development presents a conservation challenge because it can contribute to habitat loss and fragmentation, increase spread of invasive species, result in soil and water contamination, and increase water scarcity." *Id.* at 1. Cost to cleanup poorly maintained sites or abandoned wells and infrastructure are passed on to the taxpayer. In many cases, wells and infrastructure are abandoned due to inadequate finances by an operator. Having a financial assurance to properly reclaim a site can save taxpayers from bearing the entire expense. Human health and safety can be compromised by having inadequate safeguards. Leaks, spills and

falls to state resource agencies tasked with administering permitting programs aimed at protecting the environment.[379]

IV. PUBLIC LANDS AND THE PUBLIC TRUST

Like many states, Louisiana successfully promoted the exploitation of its natural environments by industrial interests to foster economic growth. Among the industries operating within Louisiana, oil and gas stands as one of the most prominent.[380] Louisiana's state wetlands are home to the production and transport of one-third of all the oil and gas in the country.[381] Louisiana annually sends approximately $5 billion to the United States Treasury via oil and gas operations, which significantly contribute to the wealth and economic stability of the state and nation.[382]

While the State has promoted industrial enterprises to foster economic security, State-sponsored regulation has also been used to protect the resources from overconsumption and abuse.[383] At one time, Louisiana positioned itself at the leading edge of conservation efforts to protect its valuable natural resources from overconsumption.[384] Yet, despite these policies aimed at sustainability, significant damages to natural resources occurred as the oil and gas industry grew larger, demand for production increased and enforcement waned.

Serving as a primary authority for conservation efforts, the Public Trust Doctrine has been relied on in Louisiana to facilitate the appropriate balance between economic stability and environmental

---

physical hazards pose health and safety risks to refuge staff and visitors. Requiring operational standards will ensure health and safety concerns are addressed. *Id.* at 1-2.

379. *Id.*

380. Renita D. Young, *Oil and Gas Industry Continues To Strongly Support Louisiana*, TIMES-PICAYUNE (July 10, 2014), http://www.nola.com/business/baton-rouge/index.ssf/2014/07/oil_and_gas_industry_continues.html.

381. Chris John, *Oil and Gas Industry Has Louisiana's Best Interests at Heart*, TIMES-PICAYUNE (Aug. 1, 2013) http://www.nola.com/opinions/index.ssf/2013/08/oil_and_gas_industry_has_louis.html.

382. U.S. SENATE WRDA COMMITTEE, 113TH CONG., STATEMENT OF MARY LANDRIEU, S6370 (2013).

383. *See* La. Rev. Stat. 36:358(C) (2016) ("The office of conservation, in accordance with the law, shall exercise the functions of the state with respect to the regulation, conservation, and use of the natural resources of the state which are not specifically within the jurisdiction of other state departments or agencies. Its functions shall include but not be limited to . . . the promotion and encouragement of exploration, production, and refining efforts for oil, intrastate gas, and other hydrocarbons."); La. Rev. Stat. 56:1(A) (2016) ("To protect, conserve, and replenish the natural resources of the state, the wildlife of the state, including all aquatic life, is placed under the supervision and control of the Louisiana Wildlife and Fisheries Commission, which is hereby created and established in the executive branch of the state government.").

384. LA. CONSERVATION COMM'N, REPORT OF THE LOUISIANA CONSERVATION COMMISSION OF 1910 4 (1912).

health. The remaining portions of this Article will evaluate the scope and mechanics of the Public Trust Doctrine in conserving the natural resources of the state.

A. Introduction to the Public Trust Doctrine

Generally, the Public Trust Doctrine provides that certain natural resources are held by the State in trust for the benefit of the people, such that the public has inherent and eternal rights in those resources, and the State is limited in its power to compromise those rights.[385]

The best way to conceptualize how the Public Trust Doctrine is structured is to analogize to ordinary trust law. In ordinary trust arrangements, a trustee holds legal title to trust property (the trust res) and is responsible for managing the trust property.[386] A trust beneficiary is entitled to the benefits of the trust from the management of the trust property.[387] The trustee has broad power to manage the trust property, but must always act in the interest of all beneficiaries, and must use reasonable care in management of the trust property.[388] Analogized to the Public Trust Doctrine, the trustee is the State, the trust property/res is every natural resource that has a public interest associated with it, and the beneficiary is the public. Thus, similar to an ordinary trust, under the Public Trust Doctrine, the State (trustee) is obligated to maintain the public trust (natural resources) for the benefit of the public. Alternative ways to conceptualize the Public Trust Doctrine is as a covenant running with the land in favor of the public, or a public easement or servitude that gives the public certain rights of use in public trust resources, regardless of whether they are publicly or privately owned.

---

385. A recent Louisiana State Law Institute Report cited this definition of the Public Trust Doctrine crafted by the Coastal States Organization:

> The Public Trust Doctrine provides that public trust lands, waters and living resources in a State are held by the State in trust for the benefit of all of the people, and establishes the right of the public to fully enjoy public trust lands, waters and living resources for a wide variety of recognized public uses. The doctrine also sets limitations on the States, the public, and private owners, as well as establishing the responsibilities of the States when managing these public trust assets.

LA. STATE LAW INST., REPORT IN RESPONSE TO SCR 53 OF THE 2012 REGULAR SESSION: THE USE OF SURFACE WATER VERSUS GROUNDWATER 56 (2014); *see also* Sam Brandao, Comment, *Louisiana's* Mono Lake: *The Public Trust Doctrine and Oil Company Liability for Louisiana's Vanishing Wetlands*, 86 TUL. L. REV. 759, 767-68 (2012) (citing same definition).

386. RESTATEMENT (SECOND) OF TRUSTS § 176 (1959); Kelsey Cascade Rose Juliana v. United States, 6:15-cv-01517-TC, 2016 WL 6661146 at *19 (D. Or. Nov. 10, 2016) (describing how the Public Trust Doctrine operates according to basic trust principles).

387. *See id.* § 2.

388. *Id.* § 176.

Because the Public Trust Doctrine establishes protections for certain public trust resources, it potentially provides an important basis to protect public lands and state natural resources against commercial and state activity that would too significantly encroach and damage those lands and natural resources. Rooted in Roman and English law, the Public Trust Doctrine is an ancient doctrine whose evolution is key to understanding the breadth and power of its current protections.[389]

B. Historical Development of the Public Trust Doctrine

The roots of the Public Trust Doctrine extend back to the Roman era. In the Sixth Century A.D., the Roman emperor Justinian directed ten Roman jurists to pull together Roman imperial law as it had accumulated since the Second Century rule of Emperor Hadrian.[390] The jurists concentrated this law into a single overarching legal code—later given the name *Corpus Juris Civilis*[391]—with four component parts: the *Code*, the *Digest* (*Pandects*), the *Novels* (*New Laws*), and the *Institutes* of Justinian.[392] The *Institutes* established the foundation of the Public Trust Doctrine[393] by providing that "things common to mankind by the law of nature, are the air, running water, the sea, and consequently the shores of

389. *See* Sax, Joseph L., *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471, 475 (1970) (describing roots and purpose of doctrine).

390. Charles Donahue, Jr., *On Translating the Digest*, 39 STAN. L. REV. 1057 (1987). The Public Trust Doctrine component of the Institutes could have come from Roman jurist Marcian. *See* Richard A. Hughes, *Pro-Justice Ethics, Water Scarcity, Human Rights*, 25 J.L. & RELIGION 521, 529 (2010) (citing Patrick Deveney, *Title, Jus Publicum, and the Public Trust: An Historical Analysis*, 1 SEA GRANT L.J. 13, 23 (1976)) (suggesting that Roman law's "things common to all" are traceable to the works of the Roman jurist Marcian). Further, much of the Institutes was drawn from the Second Century Roman jurist Gaius. *See Justinian Code*, BLACK'S LAW DICTIONARY (10th ed. 2014) (defining "Justinian Code").

391. The Corpus Juris Civilis is occasionally called the Code of Justinian, but this is confusing because the Code of Justinian is one of the four component parts of the overarching Corpus Juris Civilis. *See Justinian Code*, BLACK'S LAW DICTIONARY (10th ed. 2014).

392. Donahue, *supra* note 390; *Corpus Juris Civilis,* BLACK'S LAW DICTIONARY (10th ed. 2014) (defining "*Corpus Juris Civilis*").

393. Courts consistently point to the Justinian Institutes as the original seed of the modern Public Trust Doctrine. *See, e.g.*, PPL Montana, LLC v. Montana, 132 S. Ct. 1215, 1234,(2012); Gowanus Indus. Park, Inc. v. Amerada Hess Corp., No. 01-CV-0902 (ILG), 2003 WL 22076651, at *14 (S.D.N.Y. Sept. 5, 2003); Matthews v. Bay Head Improvement Ass'n, 471 A.2d 355, 360 (N.J. 1984)(citation omitted); Nat'l Audubon Soc'y v. Superior Court of Alpine Cnty., 658 P.2d 709, 718 (Cal. 1983) (citation omitted); State v. Sorensen, 436 N.W.2d 358, 361 (Iowa 1989) (citation omitted); Lawrence v. Clark Cnty., 254 P.3d 606, 608 (Nev. 2011); Glass v. Goeckel, 703 N.W.2d 58, 63-64 (Mich. 2005) (citation omitted); City of Montpelier v. Barnett, 2012 VT 32, ¶ 17, 191 Vt. 441, 450, 49 A.3d 120, 127 (citation omitted); Rettkowski v. Dep't of Ecology, 858 P.2d 232, 243 (Wash. 1993) (citation omitted).

the sea."[394] The purpose of this law was stated in the five accompanying sections of the *Institutes*.[395] Specifically, the express purpose was to protect the public's right to use certain public resources (the sea and the seashore) to fish and freely navigate.[396] The public rights (unencumbered access and use) were thus defined by the public's needs (fishing and navigation) of the public trust resources (sea and seashore).

Prior to the Magna Carta, English citizens had little to no Public Trust Doctrine protections in that country.[397] In a revolutionary moment in the Thirteenth Century, the Magna Carta enshrined important legal protections for citizens against state power, and included within this set of public interest protections was the Public Trust Doctrine.[398] Where the Roman Doctrine was adapted to the context of the Roman era, so was the English Doctrine adapted to life in the medieval era in England. The Magna Carta established that certain public interests were paramount, such that certain rights (navigation, fishing, and commerce) were inherent to the public for certain public trust resources (water, navigable

---

394. While there are slight variances in translations of the Institutes of Justinian, the version quoted here is the version quoted by the Louisiana Supreme Court in 1887. *See* Morgan v. Negodich, 40 La. Ann. 246, 251 (La. 1887). In full, Sections 1 through 5 provide that,

> (1) Things common to mankind by the law of nature, are the air, running water, the sea, and consequently the shores of the sea; no man therefore is prohibited from approaching any part of the sea-shore, whilst he abstains from damaging farms, monuments, edifices, & c. which are not in common as the sea is. (2) Rivers and ports are public; hence the right of fishing in a port, or in rivers are in common. (3) All that tract of land, over which the greatest winter flood extends itself, is the sea-shore. (4) By the law of nations the use of the banks is as public as the rivers; therefore all persons are at equal liberty to land their vessels, unload them, and to fasten ropes to trees upon the banks, as to navigate upon the river itself; still, the banks of a river are the property of those who possess the land adjoining; and therefore the trees which grow upon them, are also the property of the same persons. (5) The use of the sea-shore, as well as of the sea, is also public by the law of nations; and therefore any person may erect a cottage upon it, to which he may resort to dry his nets, and haul them from the water; for the shores are not understood to be property in any man, but are compared to the sea itself, and to the sand or ground which is under the sea.

2 THOMAS COOPER & GEORGE HARRIS, THE INSTITUTES OF JUSTINIAN (3d ed. 1852), tit. I, §§ 1-5, at 67.

395. *Id.*

396. *Id.*

397. Kelly *Lowry, Zoning the Water: Using the Public Trust Doctrine As A Basis for A Comprehensive Water-Use Plan in Coastal South Carolina*, 5 S.C. ENVTL. L.J. 79, 97 (1996).

398. The U.S. Supreme Court placed the Public Trust Doctrine in Seventeenth Century England:

> In England, from the time of Lord Hale, it has been treated as settled that the title in the soil of the sea, or of arms of the sea, below ordinary high water mark, is in the King . . . and that this title, *jus privatum* . . . is held subject to the public right, *jus publicum*, of navigation and fishing.

Shively v. Bowlby, 152 U.S. 1, 13 (1894).

water bottoms, and tidelands), and that any title granted was subject to the inalienable rights of the public ("*jus publicum*").[399] The purpose of protecting the public's interest in public resources was because "their natural and primary uses are public in their nature, for highways of navigation and commerce, domestic and foreign, and for the purpose of fishing by all the King's subjects."[400] Thus, as in Roman law, the English version of the Public Trust Doctrine was similarly defined by the needs of the public in the context of the place and time.

The Roman/English concept of the Public Trust Doctrine was later planted firmly in the New World during the colonial era.[401] The U.S. Supreme Court in *Martin v. Waddell's Lessee* stated that the English king's land grants in the New World were made subject to the same Public Trust Doctrine limitation that existed in England.[402] Later Supreme Court rulings under the Equal Footing Doctrine established that new states joining the Union received the same ownership rights to navigable water bottoms, subject to the public trust.[403] For this reason, even for the Civil Code-based State of Louisiana, at least one way that the Public Trust Doctrine reached Louisiana was as an English import.[404]

The Equal Footing Doctrine thus had two concepts bundled together. The first is that title (ownership) of the beds of navigable waters was given to the states upon entry into the Union.[405] The second

---

399. Helen Ingram & Cy R. Oggins, *The Public Trust Doctrine and Community Values in Water*, 32 NAT. RES. J. 517, 518 (1992) (citing Charles Wilkinson, *The Headwaters of the Public Trust: Some Thoughts on the Source and Scope of the Traditional Doctrine*, 19 ENVTL. L. 425, 430 (1989)).

400. *Shivley*, 152 U.S. at 11.

401. Martin v. Waddell, 41 U.S. 367, 413 (1842) (stating that colonial charters incorporated public trust doctrine concepts); Fred P. Bosselman, *Limitations Inherent in the Title to Wetlands at Common Law*, 15 STAN. ENVTL. L.J. 247, 254-55 (1996) ("Each of the thirteen original colonies, including Massachusetts, adapted its own common law rules from the English common law; each colony owed some sort of allegiance to the Crown, and their charters spoke explicitly of the duty to conform their laws to English laws.").

402. *Martin*, 41 U.S. at 412-13.

403. *See* Pollard v. Hagan, 44 U.S. 212, 216, 222-24, 229 (1845); State *ex rel.* Sprynczynatyk v. Mills, 523 N.W.2d 537, 539-40 (N.D. 1994).

404. Not all commenters appear to be in agreement. For example, Wilkins and Wascom refer to a "double dose" of the Public Trust Doctrine, as stemming from both the Equal Footing Doctrine (and, thus, English common law), as well as the French and Spanish versions, which, in turn, were rooted in Roman law separately. "Thus, the English common law version of the public trust doctrine was superimposed over Louisiana's civil law version in 1812." *See* James G. Wilkins, & Michael Wascom, *The Public Trust Doctrine in Louisiana*, 52 LA. L. REV. 861, 863 (1992).

405. For a thorough history on this, see Sean Morrison, *Public Trust or Equal Footing: A Historical Look at Public Use Rights in American Waters*, 21 HASTINGS W.N.W. J. ENVTL. L. & POL'Y 69 (2015). Morrison points out that the English version of the rule established ownership based on the ebb and flow of the tide, but that this determination was ill-suited to America, where

concept is that the Public Trust Doctrine, in which both private and public lands may be subject to public trust protections.[406] Whether the Public Trust Doctrine arrived via the Equal Footing Doctrine is a matter of debate. Importantly, the issue of public/private title to the beds of navigable waters is distinct from that of Public Trust Doctrine protections in the sense that the Doctrine's protections can extend to both public and private lands, such that the title issue does not determine the extent of the independent Doctrine's protections.[407]

In addition to the Equal Footing Doctrine, some of the early Louisiana case law citing the Public Trust Doctrine refers to the Justinian *Institutes*, and also to both the early Louisiana Civil Code and the original French Civil Code that served as the foundation for Louisiana's Civil Code.[408] The early Louisiana Civil Codes of 1808, 1825, and 1870 defined "public things" and "common" things and ascribed rules to them.[409] For example, "public things" included navigable rivers, while "common things" included the sea and seashore.[410] Eventually, in 1978, the classification of the sea and seashore was changed from "common" to "public" things.[411] The early Louisiana case law's consideration of the Roman Public Trust Doctrine concepts as the evolutionary precursor to these Nineteenth Century Louisiana Civil Codes suggests that there may be several bases for the Public Trust Doctrine in Louisiana. As such, the 1921 and 1974 state constitutional provisions of the Public Trust Doctrine (discussed below) may not be the sole state law bases for the Public Trust Doctrine.

---

water bodies often were not subject to ebb and flow of the tide. *See id.* at 74-75 (citations omitted). Instead, the New World adopted a navigability rule in place of the ebb and flow of tide rule. *Id.* at 75.

406. *Shively*, 152 U.S. at 11-26 (explaining the Public Trust Doctrine as linked with the Equal Footing Doctrine).

407. *See, e.g.*, Elder v. Delcour, 269 S.W.2d 17 (Mo. 1954) (distinguishing public use rights from title to submerged lands); Day v. Armstrong, 362 P.2d 137, 151 (Wyo. 1961) (distinguishing public use rights from title to submerged lands).

408. *See, e.g.,* Ruch v. City of New Orleans, 43 La. Ann. 275, 281-82 (La. 1891); Morgan v. Negodich, 40 La. Ann. 246, 251-53 (La. 1887); State v. Bayou Johnson Oyster Co., 130 La. 604 (La. 1912).

409. *See* 2 LA. CIV. L. TREATISE, PROPERTY §§ 3:2, 3:4 (5th ed. 2015) (quoting LA. CIV. CODE ANN. art. 449 (2016)) (citing LA. CIV. CODE ANN. art. 450 (1870); LA. CIV. CODE ANN. art. 441 (1825); LA. CIV. CODE ANN. art. 3 (1808); 3 LAS SIETE PARTIDAS, pt. 3, tit. 28, at 1,3 (Robert I. Burns ed., Samuel Parsons Scott trans. University of Pennsylvania Press 2001) (1265) (describing "common" things as Justinian concepts); 2 LA. CIV. L. TREATISE, PROPERTY §§ 3:5, 3:7, 3:13 (5th ed. 2015) (citing LA. CIV. CODE ANN. art. 453 (1870) (discussing history public things and common things distinction)).

410. LA. CIV. CODE ANN. art. 441 (1825); LA. CIV. CODE ANN. art. 453 (1870).

411. *See* Wilkins & Wascom, *supra* note 404, at 868.

C. The Public Trust Doctrine's Evolution in American Courts

As in the Roman and English versions of the doctrine, in the United States, courts applied the Doctrine based on the specific public interests in the natural resources at issue.[412] Thus, it is not the old Roman and English versions of the Doctrine that define the public interest, but rather the public interest that shapes the extent of the Doctrine.[413] Courts stress the flexibility of the Doctrine's protections in coastal environments, at the site of the historical application of the Doctrine. For example, in *Marks v. Whitney*,[414] the California Supreme Court addressed the doctrine's flexibility depending on the public's needs associated with tidelines. The court stated that "[t]he public uses to which tidelands are subject are sufficiently flexible to encompass changing public needs. In administering the trust the state is not burdened with an outmoded classification favoring one mode of utilization over another."[415] In *Marks*, the California court extended public trust protection to tidelands in their natural state,

> so that they may serve as ecological units for scientific study, as open space, and as environments which provide food and habitat for birds and marine life, and which favorably affect the scenery and climate of the area. It is not necessary to here define precisely all the public uses which encumber tidelands.[416]

The Doctrine's evolution in American courts demonstrates strong protections to coastal lands based on the public's needs related to those lands.[417] This evolution also includes an expansion of the scope of natural resources protected.[418]

---

412. *Shively*, 152 U.S. 1; Marks v. Whitney, 491 P.2d 374 (1971).

413. *See, e.g., Marks*, 491 P.2d at 380 ("The public uses to which tidelands are subject are sufficiently flexible to encompass changing public needs. In administering the trust the state is not burdened with an outmoded classification favoring one mode of utilization over another." (citations omitted)).

414. *Id.*

415. *Id.*

416. *Id.*

417. *See* Morrison, *supra* note 405, at 98.

418. *See, e.g.*, Raleigh Ave. Beach Ass'n v. Atlantis Beach Club, Inc., 851 A.2d 19, 30 (N. J. Super. Ct. App. Div. 2004). In *Raleigh Ave. Beach Ass'n*, the Superior Court of New Jersey ruled that Public Trust Doctrine protections extended to all beaches (both public and privately owned), for the purpose of protecting the public's interest in recreation and need to access both public and private beaches. *Id.* at 33 (citation omitted). The court noted that the public's rights had expanded beyond navigation and fishing, to include "recreational uses, including bathing, swimming and other shore activities." *Id.* at 27 (citation omitted). These expanded needs of the public necessitated, in turn, a right of access (right to cross privately owned beaches to reach the publicly owned foreshore) and the right to sunbathe and enjoy recreational activities. *Id.* at 28 (citation omitted); *see also* Nekoosa-Edwards Paper Co. v. R.R. Comm'n, 228 N.W. 144, 147

Several early American cases establish the foundations of the Public Trust Doctrine under United States law, and how it is applied creatively by courts to protect public interests. As noted before, the 1842 *Martin v. Waddell's Lessee* case reiterated the presence of the Doctrine in the New World.[419] Fifty years later, the U.S. Supreme Court penned the seminal American case on the Doctrine, *Illinois Central Railroad Co. v. State of Illinois* (*Illinois Central*).[420] In *Illinois Central*, the U.S. Supreme Court voided sale of certain tracts of Lake Michigan's lakebed in Chicago.[421] The sale had been consummated by act of the state legislature, but the Court overruled the state legislature.[422] At the time, the land sale was

---

(Wis. 1929) (public trust doctrine encompasses public rights in navigable waters, including noncommercial "sailing, rowing, canoeing, bathing, fishing, hunting, skating, and other public purposes"); Mont. Coal. for Stream Access v. Curran, 682 P.2d 163 (Mont. 1984); Arnold v. Mundy, 6 N.J.L. 1 (Sup. Ct. Jud. N.J. 1821) (protecting "fowling, sustenance and all other uses of the water and its products . . ."); Ctr. for Biological Diversity, Inc. v. FPL Group, Inc., 83 Cal. Rptr. 3d 588, 595-99 (Cal. Ct. App. 2008) (wildlife, including birds, protected by the Public Trust Doctrine); Kelsey Cascade Rose Juliana v. United States, 6:15-cv-01517-TC, 2016 WL 6661146 at *20-21 (D. Or. Nov. 10, 2016) (territorial sea, which is between three and twelve miles from the coast); *see, e.g.*, Friends of Van Cortlandt Park v. City of New York, 750 N.E.2d 1050, 1055 (N.Y. 2001) (applying the doctrine to coastal tidelines); Nat'l Audubon Soc'y v. Superior Court of Alpine Cnty., 658 P.2d 709, 712 (Ca. 1983) ("The objective of the public trust has evolved in tandem with the changing public perception of the values and uses of waterways. As we observed in *Marks v. Whitney*,

> Public trust easements [were] traditionally defined in terms of navigation, commerce and fisheries. They have been held to include the right to fish, hunt, bathe, swim, to use for boating and general recreation purposes the navigable waters of the state, and to use the bottom of the navigable waters for anchoring, standing, or other purposes.

Marks, 491 P.2d at 380. The *Marks* court then held that the traditional triad of uses (navigation, commerce and fishing) did not limit the public interest in the trust res and stated:

> The public uses to which tidelands are subject are sufficiently flexible to encompass changing public needs. In administering the trust the state is not burdened with an outmoded classification favoring one mode of utilization over another. There is a growing public recognition that one of the most important public uses of the tidelands—a use encompassed within the tidelands trust—is the preservation of those lands in their natural state, so that they may serve as ecological units for scientific study, as open space, and as environments which provide food and habitat for birds and marine life, and which favorably affect the scenery and climate of the area.

Id. (citing Colberg, Inc. v. State, 432 P.2d 3 (Cal. 1967)). In *Parker v. New Hanover County*, a North Carolina court ruled that the Public Trust Doctrine supported a special assessment against private landowners to fund an inlet relocation project that, in turn, would ensure that a public beach area could be restored (and prevent loss of other beaches) and "protect property from hurricanes and other storms." 619 S.E.2d 868, 875-76 (Ct. App. N.C. 2005). Parker also demonstrates that states must actively protect public interests and public resources, and that such protection is part of the state's Public Trust Doctrine responsibilities. *See also* Avenal v. State, 886 So. 2d 1085 (La. 2004).

419. Martin v. Waddell's Lessee, 41 U.S. 367, 412-13 (1842).

420. *See* Illinois Cent. R.R. Co. v. State of Illinois, 146 U.S. 387 (1892).

421. *Id.* at 463-64.

422. *Id.*

seen as the result of powerful and undue political influence applied by industry to the state legislature.[423] *Illinois Central*'s context, and the role of the court, demonstrate at least one appropriate application of the Public Trust Doctrine: a state legislature under heavy pressure from a powerful industry ceded power over an important natural resource that the public depended on for commerce and navigation. In such a context, the Court found that it is for the courts to step in and ensure that the public rights are protected. The *Illinois Central* case has important commonalities with modern-day Louisiana's ceding of control over natural resources to oil and gas companies, in potential conflict with the needs of the public to sustain those public lands and other natural resources.

State courts apply the Public Trust Doctrine to suit an expanding set of public trust protections over an expanding set of public trust resources, all depending on the evolving nature of the public's needs in certain resources. The famous *Mono Lake* case demonstrates this.

In *National Audubon Society v. Superior Court* (the "*Mono Lake*" case), the California Supreme Court held that water quality problems could also trigger public trust doctrine protections.[424] In that case, water diversions would lower the water level, increase salinity in the water, increase pollution, and encroach on the ecosystem, ultimately affecting shrimp populations and damaging the bird population that relied on the shrimp population.[425] The court noted that the Public Trust Doctrine has evolved: "[t]he objective of the public trust has evolved in tandem with the changing public perception of the values and uses of waterways . . . the traditional triad of uses—navigation, commerce and fishing—did not limit the public interest in the trust res." The court then described the breadth of both the public trust resources and the public interest.[426] Specifically, the court found that it is "well settled in the United States generally and in California that the public trust is not limited by the reach of the tides, but encompasses all navigable lakes and streams." As to the public interests protected, the court found that:

> The public uses to which tidelands are subject are sufficiently flexible to encompass changing public needs. In administering the trust the state is not burdened with an outmoded classification favoring one mode of utilization over another. There is a growing public recognition that one of

---

423. See Joseph D. Kearney & Thomas W. Merrill, *The Origins of the American Public Trust Doctrine: What Really Happened in Illinois Central*, 71 U. CHI. L. REV. 799, 803-04 (2004).

424. Nat'l Audubon Soc'y v. Superior Court of Alpine Cnty., 658 P.2d 709, 712 (Ca. 1983).

425. *Id.* at 714-15.

426. *Id.* at 719.

> the most important public uses of the tidelands—a use encompassed within the tidelands trust—is the preservation of those lands in their natural state, so that they may serve as ecological units for scientific study, as open space, and as environments which provide food and habitat for birds and marine life, and which favorably affect the scenery and climate of the area.
>
> ***
>
> The principal values plaintiffs seek to protect, however, are recreational and ecological—the scenic views of the lake and its shore, the purity of the air, and the use of the lake for nesting and feeding by birds. Under *Marks v. Whitney*, it is clear that protection of these values is among the purposes of the public trust.

Thus, the court concluded that the water diversions constituted an impermissible encroachment on the public trust.[427] The importance of *Mono Lake* is that it demonstrates one of the strongest applications of the Public Trust Doctrine.

D. Louisiana's Public Trust Doctrine Constitutional Provision

Federal courts have recognized the Public Trust Doctrine for well over a century, but some states have also codified public trust doctrine protections as a matter of state law.[428] Louisiana is one such state. As noted above, aside from the traditional roots, there are also several state statutory bases for a Louisiana state Public Trust Doctrine. Specifically, the Civil Codes of 1808, 1825, and 1870, and the Louisiana Constitutions of 1921 and 1974 (along with the statutes that implement the Public Trust Doctrines enshrined therein).[429] The early Louisiana Civil Codes of 1808, 1825 and 1870 defined "public" and "common" things, and Louisiana courts have described these concepts as Justinian concepts while affording inherent rights of the public to those things.[430]

The State of Louisiana also wrote a Public Trust Doctrine into its state Constitution of 1921, in Article VI, Section 1:

> The natural resources of the State shall be protected, conserved and replenished; and for that purpose shall be placed under a Department of

---

427. *Id.*

428. Robin Kundis Craig, *A Comparative Guide to the Eastern Public Trust Doctrine: Classifications of States, Property Rights, and State Summaries*, 16 PENN ST. ENVTL. L. R. 1 (2007).

429. *See* Gulf Oil Corp. v. State Mineral Bd., 317 So. 2d 576 (La. 1975) (noting that Louisiana's public trust was created the moment that Louisiana attained statehood, suggesting an inherent and nonstatutory basis).

430. 2 LA. CIV. L. TREATISE, PROPERTY § 3:2, 4-5 (5th ed. 2015); Morgan v. Negodich, 40 La. Ann. 246, 251 (La. 1887); Ruch v. City of New Orleans, 43 La. Ann. 275, 281-82 (La. 1891); *see* State v. Bayou Johnson Oyster Co., 130 La. 604 (La. 1912); 3 LAS SIETE PARTIDAS, *supra* note 409.

> Conservation, which is hereby created and established. . . . The Legislature shall enact all laws necessary to protect, conserve and replenish the natural resources of the State, and to prohibit and prevent the waste or any wasteful use thereof.[431]

Fifty-three years later, the Louisiana Legislature rewrote the state Constitution and reincorporated the constitutional basis for Louisiana's Public Trust Doctrine in Article IX, Section 1 ("the natural resources provision"),[432] which provides:

> The natural resources of the state, including air and water, and the healthful, scenic, historic, and esthetic quality of the environment shall be protected, conserved, and replenished insofar as possible and consistent with the health, safety, and welfare of the people. The legislature shall enact laws to implement this policy.[433]

By its own words, the 1974 constitutional provision expressly provides that the State Legislature shall pass laws to implement the doctrine.[434] For this reason, the Public Trust Doctrine is found not only in the state constitution, but also in the state's laws (and regulations promulgated by law), so long as those laws and regulations affect natural resources.

That this provision incorporates natural resources broadly is not unique. For example, in Massachusetts, the Public Trust Doctrine protects natural resources such as swamps and state parks.[435] Similarly, national parks have also been made subject to the Public Trust Doctrine.[436]

---

431. LA. CONST. art. VI, § 1 (1921).

432. The state's Public Trust Doctrine was grounded in the 1921 Constitution (Article VI, Section 1), which was itself rooted in Louisiana Civil Code articles from 1812. LA. CONST. art. IX, § 1 (1974).

433. *Id.*

434. There was at least some optimism at the time. One student commenter from 1976 wrote, "If applied in the future, the public trust doctrine may serve as an effective weapon in preserving ecologically important areas in Louisiana." Francis J. Crosby, Note, *Ownership of Navigable Waterbottoms*—California Co. v. Price *Revisited*, 36 LA. L. REV. 694, 702 (1976); LA. CONST. art. IX, § 1 (1974); *see* Gould v. Greylock Reservation Comm'n, 215 N.E. 2d 114 (Mass. 1966).

435. *See, e.g.*, Robbins v. Dep't of Pub. Works, 244 N.E.2d 577 (Mass. 1969); *Gould*, 215 N.E.2d 114.

436. *See* Sierra Club v. Dep't of the Interior, 398 F. Supp. 284 (N.D. Cal. 1975).

E. A Dutiful Balance

1. Duty: The State's Public Trust Doctrine Obligations

Although the *Illinois Central* case dealt with alienation of land,[437] the concept of public interest was addressed in a way that is relevant to how the Doctrine operates to limit state actions. *Illinois Central* voided a state's sale of a public trust resource, and in doing so established the foundational standard (substantial impairment) that is still invoked by courts today when ruling on Public Trust Doctrine issues.[438] In *Illinois Central*, the State of Illinois ostensibly sold the land at issue in fee simple.[439] In ruling that a public trust resource could not be privatized *en toto*, the Court ruled that the state actually never conveyed the public interest and that it *could not* convey the public interest to a private party, at least to the point of substantial impairment.[440]

In short, the *Illinois Central* Court held that a "substantial impairment" of a public trust resource was forbidden.[441] Specifically, the impairment at issue was the sale to private interests of a public trust resource.[442] This ruling is not limited to circumstances involving alienation of public trust resources. The doctrine is much more powerful and much broader than that. It forbids "substantial impairment" of a public trust resource, which encompasses alienation in certain circumstances, but is not limited thereto.[443] The Court in *Illinois Central* voided the alienation, but only because it constituted a "substantial impairment."[444] In fact, the *Illinois Central* Court stated the "substantial impairment" standard three times.[445] Subsequent courts have adopted this

---

437. Illinois Cent. R.R. Co. v. State of Illinois, 146 U.S. 387, 464 (1892).

438. *Id.* at 452-53.

439. *Id.* at 433-34.

440. Conceptually, when a state does convey a public trust resource, and does so ostensibly in fee simple, it actually only conveys something smaller than the whole, namely the *jus privatum* or, private ownership interest. While the private citizen obtains ownership of that which is *jus privatum*, there remains the *jus publicum*, which is the public interest in the property. Ownership of the *jus publicum* remains with the state as an inherent and inalienable attribute of state sovereignty. *See* Wilkins & Wascom, *supra* note 404, at 867-68; Glass v. Goeckel, 473 703 N.W.2d 58, 65 n.8 (Mich. 2005) (cataloging cases that describe the *jus privatum*/*jus publicum* distinction).

441. *Illinois Cent. R.R. Co.*, 146 U.S. at 435 ("without any substantial impairment of the public interest in the lands and waters remaining").

442. *Id.*

443. *Id.*

444. *Id.*

445. *Id.* at 452-53.

standard, and it remains the bedrock standard for Public Trust Doctrine issues below which no state may fall.[446]

Despite this strict and supreme prohibition, a state can nevertheless encroach on a public trust resource to a certain degree. In other words, the state can encroach on a public trust resource, but it may not "substantially impair" the public interest in that resource. "Substantial impairment" is not a clear standard. However, courts have found violations of the "substantial impairment" standard when the government abdicates its protection of a public trust resource.[447] That the Doctrine would not act as an absolute is both intuitive and reasonable. The country could not progress if all man-induced changes to public trust resources were forbidden entirely. Instead, the difficult standard to apply is just how much change can occur before the public interest in the public trust resource is "substantially impaired" such that the state's public trust doctrine duty is violated.

The duty to refrain from substantially impairing the public interest in a public trust resource is part of the overall duty to preserve the public trust res. This overarching duty to preserve the public trust can be found nationwide throughout the Public Trust Doctrine jurisprudence.[448] For example, in *State v. Village of Lake Delton*, the Court of Appeals of Wisconsin considered an ordinance that regulated water traffic, boating, and water sports on a lake. The court considered whether the ordinance was a substantial infringement of the public's right.[449] The court concluded that the ordinance did not infringe unreasonably on the

---

446. *See, e.g.,* Shively v. Bowlby, 152 U.S. 1, 47 (1894) (citing *Illinois Cent. R. R. Co.*, 146 U.S. at 387, 435-437, 465, 474).

447. *Illinois Cent. R.R. Co.,* 146 U.S. at 452-53.

448. *See e.g.*, Rock-Koshkonong Lake Dist. v. State Dep't of Nat. Res., 833 N.W.2d 800, 821 (Wis. 2013) ("The public trust doctrine entails public rights in navigable waters, including noncommercial "sailing, rowing, canoeing, bathing, fishing, hunting, skating, and other public purposes."). The state's public trust duty "requires the state not only to promote navigation but also to protect and preserve its waters for fishing, hunting, recreation, and scenic beauty") (citations omitted); *In re* Complaint of Steuart Transp. Co., 495 F. Supp. 38, 40 (E.D.Va. 1980) ("Under the public trust doctrine, the State of Virginia and the United States have the right and the duty to protect and preserve the public's interest in natural wildlife resources. Such right does not derive from the ownership of the resources but from a duty owing to the people."); State v. Central Vt. Ry., 571 A. 2d 1128, 1132 (Vt. 1989) ("[T]he state's power to supervise trust property in perpetuity is coupled with the ineluctable duty to exercise this power."); *In re* Water Use Permit Applications, 9 P.3d 409, 453 (Haw. 2000) ("Under the public trust, the state has both the authority and duty to preserve the rights of present and future generations in the waters of the state."); Sec'y of State v. Wiesenberg, 633 So. 2d 983, 998 (Miss. 1994) ("Throughout this opinion, we have attempted to balance the concerns of the State, recognizing its duty to protect and preserve public trust tidelands with the interests of the coastal land owners and communities."); Phillips Petroleum Co. v. Mississippi, 484 U.S. 469 (U.S. 1988).

449. State v. Village of Lake Delton, 286 N.W. 2d 622, 630 (Wis. Ct. App. 1979).

public's right, in part because it did not destroy or greatly impair the public's interest.[450] That is, encroachments are permitted, but there is a substantive limit: the state cannot destroy or greatly impair the public interest in the resource.[451]

Also, the public trust duty is not a duty that can be limited or eliminated by legislative will.[452] Instead, it is an inherent duty that cannot be abdicated.[453]

Separately, and in addition to the substantial impairment standard, under the Louisiana Public Trust Doctrine constitutional provision, state agencies must actively protect, conserve, and replenish the state's natural resources insofar as possible and consistent with the health, safety, and welfare of the people.[454] Interpreting this provision, the Louisiana Supreme Court in *Save Ourselves, Inc. v. Louisiana Environmental Control Commission* ruled that Louisiana's Public Trust Doctrine constitutional provision places a duty on the State Legislature and state agencies to promulgate and enforce laws to protect, conserve, and replenish the state's natural resources.[455] In furtherance of this ruling, the Louisiana Attorney General and the Louisiana Secretary of the Department of Natural Resources issued a guidance memorandum asserting power to approve and disapprove consumptive water use of running water in the state, based on the State's Public Trust Doctrine rights and duties.[456] The memorandum demonstrates the State's own belief that its Public Trust Doctrine rights and duties empower and command it to actively protect and preserve public trust resources.

Under either the traditional structure or the state constitutional structure, the State has a duty to protect the public's interest in public trust resources.

---

450. *Id.*

451. *Id.*

452. *Id.*

453. *See, e.g.*, Lawrence v. Clark Cnty., 254 P.3d 606, 613 (Nev. 2011) ("The public trust doctrine is thus not simply common law easily abrogated by legislation; instead, the doctrine constitutes an inseverable restraint on the state's sovereign power"); United States v. 1.58 Acres of Land, 523 F. Supp. 120, 124 (D. Mass. 1981) (the trust "can only be destroyed by the destruction of the sovereign"); Illinois Cent. R.R. Co. v. State of Illinois, 146 U.S. 387, 463-64 (1892) (overturning act of state legislature that substantially impaired the public interest in public trust resources).

454. LA. CONST. art. IX, § 1 (1974).

455. Houck, Oliver A., *Save Ourselves: The Environmental Case That Changed Louisiana*, 72 LA. L. REV. 409, 435 (2012).

456. *See* Memorandum from James D. "Buddy" Caldwell, Attorney Gen., & Scott A. Angelle, La. Dep't Nat. Res. Sec'y, to All State Surface Water Managers (Feb. 2, 2010) (on file with author).

2. Balance: Agency Discretion

For a state like Louisiana, which expressly defines its Public Trust resources as inclusive of all natural resources, it would be unreasonable to interpret the legislative intent as a blanket prohibition on any natural resource extraction. When Louisiana defined its public trust resources in the state constitution, it could not have been intended to forever block oil and gas operations in the state. But how much encroachment on the public trust is tolerable? Consider the following hypotheticals:

(1) The state attempts to sell to a private party a 15,000-acre, publicly owned WMA in the coastal zone.
(2) The state attempts to sell to a private party a half-acre parcel of publicly owned land on the southern outskirts of Lafayette.
(3) The state issues a permit to a company to engage in commercial or industrial activity on a parcel in the coastal zone, where that activity contributes to coastal land loss in its immediate vicinity, and contaminates the parcel in a way that damages the vegetation and endangers wildlife at the site.
(4) The state issues so many permits that the aggregate effect throughout the coastal zone is one of significant contribution to the region's coastal land loss, and contamination of the land in a way that damages the vegetation and endangers wildlife in the region.
(5) The state fails to include meaningful permit terms (or terms in easements, etc.) that are adequate to protect the coastal zone from land loss and contamination associated with permittee actions.
(6) The state fails to enforce laws, regulations, and permit terms that would otherwise stem or halt destruction of the coastal zone in terms of land loss, contamination, and threats to wildlife.

In each of the scenarios above, an absolutist reading of the Public Trust Doctrine would suggest that the doctrine has been violated due to encroachment of the public trust. But Louisiana's statutory Public Trust Doctrine does not require a militant reading, because the duty to preserve the trust res extends *only* "insofar as possible and consistent with the health, safety, and welfare of the people."[457] The broader (nonstatutory) *Illinois Central* standard would also apply: the state cannot "substantially impair" its public trust resources.[458] Thus, a balance is struck. The

457. LA. CONST. art. IX, § 1 (1974).
458. *Illinois Cent. R.R. Co.*, 146 U.S. at 463-64.

myriad ways a state could encroach on a public trust resource presents a series of dilemmas that are at the heart of this Article:

(1) How much damage can the state do to its own public trust resources before it can be blocked as a violation of its public trust doctrine obligations to the public?
(2) Can the state grant permission to a private party to do activities that damage or destroy the public trust resource?
(3) What affirmative duty does a state have to protect public trust resources?

Some have interpreted the constitutionally imposed duty as solely a requirement of procedural consideration, similar to the procedural obligations found under the National Environmental Policy Act of 1969 (NEPA).[459] In fact, the Louisiana Supreme Court *Save Ourselves* decision does establish procedural requirements for state entities in regard to their public trust resource decision-making.[460] These procedural requirements are commonly referred to as the "IT Factors."[461]

Indeed, most would tend to agree that the *Save Ourselves* decision held that the Louisiana Constitutional Public Trust Doctrine provision "imposed a public trust duty of environmental protection on all state agencies and officials, established a standard of environmental protection, and mandated the legislature to implement these public trust responsibilities."[462] Yet, the key question becomes whether that duty is

---

459. See Houck, *supra* note 455, at 439-40 (noting that the *Save Ourselves* court created a "constitution-based procedural review").

460. *See id.*

461. After the *Save Ourselves* decision establishing the IT Factors, the Louisiana Legislature passed a bill that gives the state some power over consumptive use of surface waters, and also requires a public interest evaluation. *See* Act 955 of 2010 (House Bill No. 1486) (to be codified at LA. REV. STAT. 30:961-63). For a proposed restatement of the IT Factors and Save Ourselves review, see Ryan M. Seidemann, Daniel D. Henry, Jr., Irys L.V. Allgood, and Jackson D. Logan, III, *Drops in the Bucket: Historic Classifications and Recent Developments Related to the Legal Aspects of Surface Water in Louisiana*, 27 TUL. ENVTL. L.J. 61, 71 (2013) (citing *In Re* Rubicon, Inc., 95-0108, p. 12 (La. App. 1 Cir. 2/14/96); 670 So. 2d. 475, 483); RYAN M. SEIDEMANN, LA. DEP'T OF JUSTICE, THE PUBLIC TRUST DOCTRINE AND SURFACE WATER MANAGEMENT AND CONSERVATION: A VIEW FROM LOUISIANA 5 (2011) (describing the IT Factors: "(1) [Has the agency considered whether] the potential and real adverse environmental effects of the proposed project have been avoided to the maximum extent possible[?]; (2) [Has the agency performed] a cost benefit analysis of the environmental impact costs balanced against the social and economic benefits of the project [such that it has] demonstrated that the latter outweighs the former[?]; and (3) [Has the agency examined whether] there are alternative projects or alternative sites or mitigating measures which would offer more protection to the environment than the proposed project without unduly curtailing non-environmental benefits to the extent applicable[?]") (quoting *In Re Rubicon*, at p. 12 (La. App. 1 Cir. 2/14/96); 670 So. 2d. at 483).

462. Wilkins & Wascom, *supra* note 404, at 894. The state Constitution of 1921 also had these duties directly stated on the part of the legislature. It is Professor Lee Hargrave's contention

satisfied merely by taking certain procedural steps, or whether there are fundamental substantive duties and standards. While procedural protections can be powerful, they are not as unbending as substantive standards. Louisiana courts have described the nature of substantive and procedural laws.[463]

While some have argued that the *Save Ourselves* decision established only procedural safeguards, the decision also arguably establishes substantive standards. Here are a few examples of substantive standards expressed in *Save Ourselves*. A state "agency must act with diligence, fairness and faithfulness to protect this particular public interest in the resource."[464] Also, an agency must give "active and affirmative protection" to public trust resources.[465] Further, *Save Ourselves* could also be interpreted so that an agency's exercise of discretion must be "responsible" and that it may sometimes require substantive results in particular problematic instances.[466] Lastly, the *Save Ourselves* court suggests that agencies cannot exercise complete discretion, but rather only "a latitude" of discretion "to determine the substantive results in each particular case."[467] Based on *Save Ourselves*, a substantive challenge could exist that an agency's exercise of discretion was not "responsible;" that because of the particular instance, substantive outcomes are required of the State regardless of its attempt to use

---

that during the Constitutional Convention of 1973 that the Natural Resources and Environmental Committee sought to require only a legislative mandate, and not allow for judicial review. *See* Lee Hargrave, *Ruminations: Mandates in the Louisiana Constitution of 1974; How Did They Fare?*, 58 LA. L. REV. 389, 398-400 (1998); *see also* Lee Hargrave, *The Public Trust Doctrine: A Plea for Precision*, 53 LA. L. REV. 1535, 1542 (1993). Professor Hargrave also states that the Constitutional provision was something like a mere aspirational "statement of policy" that amounted to a "nonbinding mandate." LOUISIANA STATE LAW INSTITUTE, REPORT IN RESPONSE TO SCR 53 OF THE 2012 REGULAR SESSION: THE USE OF SURFACE WATER VERSUS GROUNDWATER 53 n. 204 (2014) (quoting W. LEE HARGRAVE, THE LOUISIANA CONSTITUTION 171 (2011)). The narrowing of the duty associated with the Public Trust Doctrine, such that it would only apply to the legislature, appears to be in conflict with the Louisiana Supreme Court's *Save Ourselves* decision, which provided that the Constitutional provision "imposes a duty of environmental protection on all state agencies and officials," aside from the charge on the legislature to enact laws to fulfill that goal. *Save Ourselves*, 452 So. 2d 1152. Further, the Louisiana Supreme Court in *State v. McHugh* suggested that the doctrine is enforceable. State v. McHugh, 630 So. 2d 1259, 1265 (La. 1994) ("Upon judicial review, a public trustee is duty bound to demonstrate that he has properly exercised his responsibility under the constitution and laws.").

463. Segura v. Frank, 630 So. 2d 714, 723 (La. 1994) ("Substantive laws establish new rules, rights, and duties or change existing ones. Procedural laws prescribe a method for enforcing a substantive right and relate to the form of the proceeding or the operation of the laws.") (citations omitted).

464. *Save Ourselves*, 452 So. 2d at 1157.

465. *Id.*

466. *Id.*

467. *Id.*

discretion to achieve an opposite outcome; or that the State has not given active and affirmative protection of a certain resource. These potential substantive standards are important when the State is confronted with a dilemma. For example, does the State have a *substantive* duty to protect the coastline from erosion, and does the State have a duty to protect state and federal public lands (WMAs and wildlife refuges) from the harms associated with oil and gas extraction and production?

This important aspect of the procedural and substantive Public Trust Doctrine protections is best illustrated by a hypothetical: if the State carefully engages in procedurally adequate self-reflection required by *Save Ourselves*, could the State (trustee) immunize itself from actions that would destroy the trust res? May a trustee destroy the trust res so long as he does so with methodically careful procedures? It would appear that under either the *Illinois Central* standard (prohibiting any a "substantial impairment" of a public trust resource) or the state constitutional doctrine as interpreted by Louisiana courts, there exist substantive standards below which the State may not fall. Trust law certainly would not permit complete destruction of the trust res.[468] It is intuitive under traditional trust law that a trustee has a duty to preserve the trust res and protect it from damage and destruction.

The extent to which a state must step in to protect public interests in public trust resources is important to the state in the context of oil and gas development on public lands. There is oil and gas development scattered across the State's public lands, and there is also extensive contamination associated with this development. Some of Louisiana's Public Lands have the added burden of land loss attributable to oil and gas companies operating under the auspices of both DWF and DNR.[469] Often, these public lands were originally and expressly earmarked as refuges for wildlife and birds.[470] These lands were later recognized by the Supreme Court of Louisiana in *Avenal v. State* as having the additional

---

468. *See, e.g.*, 76 AM. JUR. 2D TRUSTS § 404 (2012) ("One of the fundamental common-law duties of a trustee is to preserve and maintain trust assets. A trustee has the right and duty to safeguard, preserve, or protect the trust assets and the safety of the principal. A trustee is expected to use his or her skill and expertise in managing a trust. To perform this duty, the trustee must make the trust property productive, and must not suffer the estate to waste or diminish, or fall out of repair"); THE LAW OF TRUSTS AND TRUSTEES § 582 (2015) ("The trustee has a duty to protect the trust property against damage or destruction.").

469. *See* CH2M HILL, MUSSETTER ENGINERRING, INC., *supra* note 247; SHEA PEALAND ET AL., U.S. GEOLOGICAL SURVEY, PROCESS CLASSIFICATION OF COASTAL LAND LOSS BETWEEN 1932 AND 1990 IN THE MISSISSIPPI RIVER DELTA PLAIN, SOUTHEASTERN LOUISIANAN (2000).

470. Allan B. Ensminger, LA. WILD LIFE & FISHERIES COMM'N, *New Wildlife Management Areas: Pointe Au Chien and Salvador*, BULLETIN, no. 101-1969 (1969).

charge of serving as a buffer to protect coastal cities from hurricanes.[471] Assuming that every procedural step was correctly taken in the course of mineral leasing (DWF) and permitting (DNR), would it be a Public Trust Doctrine violation if the public interests in these refuges were completely destroyed? Can a "balancing" of competing interests satisfy Public Trust Doctrine standards if it results in the complete destruction of the express and implied public interest in favor of private, short-term economic interests? It would seem patently violative of the Public Trust Doctrine to destroy the public trust resource and the public's rights in that public resource.

By allowing such a high degree of contamination and land loss on public lands, the State has arguably violated its duty to protect the public's interest in the state's natural resources. The State may not "passively call balls and strikes."[472] Rather, instead, the State must act affirmatively, and with diligence, fairness, and faithfulness, to protect the natural resources.[473] The State has arguably failed to do so, and thereby violated the traditional and state constitution's Public Trust Doctrine duties.

Further, under *Save Ourselves*, the State has only a degree of "latitude" to determine the substantive rules in each particular case.[474] Here, it cannot be said that the State has unlimited latitude to encroach on the public's interest in the public trust resources. Lastly, the State is only afforded "responsible exercise of discretion."[475] However, the weak oversight of oil and gas activities on public lands, and the related consequences, is not a responsible exercise of discretion. In Louisiana, the State has arguably failed to adequately enforce remediation and restoration obligations, or to meaningfully enforce permit terms and regulations affecting oil and gas activity on public lands and along the coast.[476] This abdication of responsibility is fundamentally incompatible with the State's affirmative duty to protect natural resources.

---

471. Avenal v. State, 886 So. 2d 1085 (La. 2004).
472. *Save Ourselves*, 452 So. 2d 1157.
473. *Id.*
474. *Id.*
475. *Id.*
476. *See* LA. DEP'T NAT. RES., CONTRACT NO. 21912-88-10 DEVELOPMENT OF AN ENFORCEMENT FINE SYSTEM: FINAL REPORT 6-10 (1988); NAT'L OCEANIC & ATMOSPHERIC ADMIN & U.S. DEP'T OF COMMERCE, EVALUATION FINDINGS FOR THE LOUISIANA COASTAL PROGRAM FOR THE PERIOD FROM MAY 1986 THROUGH FEBRUARY 1988 (1989); NAT'L OCEANIC & ATMOSPHERIC ADMIN & U.S. DEP'T OF COMMERCE, EVALUATION FINDINGS FOR THE LOUISIANA COASTAL RESOURCES PROGRAM FOR THE PERIOD FROM NOVEMBER 1990 THROUGH FEBRUARY 1994 (1995).

F. The Dutiful Balance Examined: The Tension Between Oil and Gas Activities on Louisiana's Public Lands and the State Public Trust Doctrine

The state constitution established a policy of natural resource conservation pursuant to the Public Trust Doctrine, which the State Legislature was required to implement.[477] In furtherance of this mandate, the Legislature gave the state Department of Wildlife and Fisheries (LDWF) the responsibility of "conservation and management of all renewable resources on all wildlife management areas, wildlife refuges, scenic rivers, and wildlife preserves that it may own or lease."[478] Public refuges were originally set aside for conservation of wildlife, and the legislature formally designated WMAs to be primarily used for hunting, fishing, and recreation.[479]

The Legislature also required the LDNR to "conserve, manage, and develop water, minerals, timber, and other natural resources of the state and shall assure the maintenance of a proper ecological balance."[480] The Office of Conservation (OCM) within the LDNR is "charged with conserving and regulating oil, gas, and lignite resources of the state. This statutory responsibility is to regulate the exploration and production of oil, gas and other hydrocarbons and lignite; to control and allocate energy supplies and distribution; and to protect public safety and the environment from oilfield waste, including regulation of underground injection and disposal practices."[481] The LDNR has additional responsibility through its Office of Coastal Management. Through the OCM, the State regulates the activities that have a direct and significant impact on state public resources, which includes oil and gas activities on private and public lands.[482]

However, while Louisiana's public lands have apparent legal protection, they have also been exposed to environmentally destructive activities that are arguably in conflict with the Public Trust Doctrine and the original purpose of these lands. Specifically, the activities that pose the greatest threat to public lands are activities associated with the

---

477. LA. CONST. art. IX, § 1 (1974).
478. LA. STAT. ANN. § 36:602 (2015).
479. LA. STAT. ANN. § 56:109.2(A) (2015).
480. 1975 LA. ACTS 720.
481. *See* Office of Conservation, LA. DEP'T NAT. RESOURCES, http://dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=46&ngid=4 (last visited Jan. 23, 2016); LA. STAT. ANN. § 30:4 et. seq. (2015).
482. LA. STAT. ANN. § 49:214.21 et. seq. (2015).

extraction of oil and gas. On Louisiana's public lands, oil and gas operators have drilled thousands of wells.[483]

As discussed above, the Public Trust Doctrine does not forbid all encroachments of the public trust resource. For example, substantial impairments of the public interest, breaches of the *Save Ourselves* standards, and destruction of the trust res are all forbidden.[484] Competing and shared use of resources is permitted, but subject to limitation. The question is: how much public trust resource damage could a state allow before it runs afoul of its public trust doctrine responsibilities?

In the context of Louisiana's leasing of public lands for oil and gas development, this competing use of the public trust resource is in violation of the Public Trust Doctrine if it substantially impairs the public interest, or if it does not produce a benefit that furthers and promotes the trust purposes.[485] It can reasonably be argued that the degree of environmental harm done by oil and gas activities to Louisiana's public lands substantially interferes or impairs the public's interest, and that the failure to remediate that harm and prevent more harm is a further violation of the doctrine. In addition, it could also be argued that the oil and gas activity's benefit does not further or promote the trust purposes (and, in fact, encroaches on it) for certain public trust natural resources.

For example, at Pointe Aux Chenes WMA, which consists mostly of marsh interspersed with ponds, bayous, and canals, the LDWF manages the WMA to "increase productivity of the marshes for furbearers, waterfowl, alligators, and fish."[486] Management of the WMA is conducted in a manner to support, promote, and enhance public hunting, fishing, and recreational opportunities.[487] These opportunities are considered by the Louisiana Wildlife and Fisheries Commission as primary uses of WMAs.[488] Management decisions are based on criteria that include public hunting, fishing, and recreational opportunities as a primary consideration.[489] Yet, oil and gas operations on the WMA have led to a degradation of fish and wildlife habitat, resulted in the loss of opportunity for public use, and imposed unacceptable health risks to the environment and public.[490] The disappearance of land through oilfield

---

483. *See Oil, Gas, and Injection Wells in Louisiana*, *supra* note 243.

484. See above and below discussions of *Illinois Central* and *Save Ourselves*.

485. See above discussion of *Illinois Central*.

486. *Pointe-aux-Chenes WMA*, LA. DEP'T WILDLIFE & FISHERIES, http://www.wlf.louisiana.gov/wma/2790 (last visited Apr. 10, 2016).

487. LA. STAT. ANN. § 56:109.2 (2015).

488. LA. STAT. ANN. § 56:109.2(A) (2015).

489. *Id.*

490. *See supra* Section III.C.

waste disposal and alteration of hydrology has eliminated valuable wildlife habitat and drastically reduced the hurricane storm-surge reduction potential that helps to protect leveed areas, in which the public has a significant interest.[491]

G. The Dutiful Balance Examined: The Doctrine's Extension Beyond State-Owned Natural Resources

The Public Trust Doctrine in Louisiana has historically been applied to the determination of ownership and rights of use in state-owned water bottoms.[492] Under the Equal Footing Doctrine, the State upon its entry into the union acquired ownership of public water bottoms.[493] Disputes and related jurisprudence have examined this issue in some detail.[494] However, since the 1974 constitutional provision, application of the Doctrine has broadened to include the State's powers to regulate activities and things unrelated to water bottoms.

1. State Constitutional Public Trust Doctrine on Private Lands

The 1974 state Constitution provision Article IX defines the State's Public Trust Doctrine resources broadly. The plain meaning of the state Constitution is that the State's "natural resources" are the trust res. The Constitution specifically provides that "natural resources" "includ[es] air and water, and the healthful, scenic, historic, and esthetic quality of the environment."[495] Nothing indicates that the use of "including" was intended to serve as an exhaustive list. Instead, the provision's plain meaning—as well as the long tradition of reading "including" as forming an illustrative and nonexhaustive list[496]—establishes that the State

---

491. Avenal v. State, 886 So. 2d 1085, 1101 (La. 2004) ("We find that the implementation of the Caernarvon coastal diversion project fits precisely within the public trust doctrine. The public resource at issue is our very coastline, the loss of which is occurring at an alarming rate. The risks involved are not just environmental, but involve the health, safety, and welfare of our people, as coastal erosion removes an important barrier between large populations and ever-threatening hurricanes and storms.").

492. *See, e.g.*, Gulf Oil Corp. v. State Mineral Bd., 317 So. 2d 576, 589-90 (La. 1974) (citations omitted).

493. *See* Pollard v. Hagan, 44 U.S. 212 (U.S. 1845).

494. Wilkins & Wascom, *supra* note 404, at 894; *see* Hargrave, *supra* note 462; A.N. Yiannopoulos, *Five Babes Lost in the Tide—A Saga of Land Titles in Two States:* Phillips Petroleum Co. v. Mississippi, 62 TUL. L. REV. 1357 (1988); SEIDEMANN, LA. DEP'T OF JUSTICE, *supra* note 461; *Gulf Oil*, 317 So. 2d 576 (La. 1975); Phillips Petroleum Co. v. Miss., 484 U.S. 469 (U.S. 1988).

495. LA. CONST. art. IX, § 1.

496. *See, e.g.*, BRYAN GARNER, GARNER'S MODERN AMERICAN USAGE 454 (3d ed.) (2009) (describing "include" as having "traditionally introduced a nonexhaustive list but is now coming to be widely misused for consists of") (emphasis in original); *Include*, BLACK'S LAW DICTIONARY

classifies all its natural resources as Public Trust Doctrine resources. Ultimately, the constitutional language does not differentiate between publicly owned and privately owned natural resources. The Doctrine identifies the "natural resources of the state," and empowers and charges the State with conserving those natural resources.[497]

The *Avenal* case brought to the court the issue of whether "hold harmless" clauses in oyster leases granted by the State to oystermen prohibited recovery caused by damages associated with the opening of the Caernarvon Freshwater Diversion Structure.[498] The hold harmless provisions were found to be valid in the interest of the public, partially based on the Public Trust Doctrine:

> We find that the implementation of the Caernarvon coastal diversion project fits precisely within the public trust doctrine. The public resource at issue is our very coastline, the loss of which is occurring at an alarming rate. The risks involved are not just environmental, but involve the health, safety, and welfare of our people, as coastal erosion removes an important barrier between large populations and ever-threatening hurricanes and storms. Left unchecked, it will result in the loss of the very land on which Louisianans reside and work, not to mention the loss of businesses that rely on the coastal region as a transportation infrastructure vital to the region's industry and commerce. The State simply cannot allow coastal erosion to continue; the redistribution of existing productive oyster beds to other areas must be tolerated under the public trust doctrine in furtherance of this goal.[499]

The court expressly identified the Louisiana coastline as a public resource for which the Public Trust Doctrine was designed to protect.[500]

(Bryan Garner ed., 10th ed. 2014) (defining "include" as "[t]o contain as a part of something" and noting that it "indicates a partial list") (emphasis added); THE REDBOOK—A MANUAL ON LEGAL STYLE 243 (Bryan Garner, ed., 2nd ed. 2006) ("When laying out a list, introduce it with the term including only if the list is not exhaustive. Otherwise, use namely or comprising, both of which signal an exhaustive list. It is a maxim of judicial construction that including signals a nonexclusive list.") (emphasis in original); DIRECTV, Inc. v. Crespin, 224 F. App'x 741, 748 (10th Cir. 2007) (referring to "the normal use of 'include' as introducing an illustrative—and non-exclusive—list"); People v. Perry, 864 N.E.2d 196, 203 (Ill. 2007) (relying in part on "the plain and ordinary meaning" of the word includes in holding that the absence of additional verbiage such as but not limited to did not preclude the following list from being illustrative); Auer v. Commonwealth, 621 S.E.2d 140, 144 (Va. Ct. App. 2005) ("Generally speaking, the word 'include' implies that the provided list of parts or components is not exhaustive and, thus, not exclusive"); Cox v. City of Dallas, Tex., 256 F.3d 281, 293 (5th Cir. 2001) (citing cases supporting the conclusion that a list following the word "including" is an illustrative and nonexhaustive, nonexclusive list).

497. LA. CONST. art. IX § 1.

498. Avenal v. State, 886 So. 2d 1085 (La. 2004).

499. *Id.* at 1101-02.

500. *Id.*

While the Louisiana coastal zone contains public lands and water bottoms, it is largely composed of privately held property.[501] Thus, public trust resources include private lands. With the public interest of hurricane protection, recreation, and commerce vested in the coastline, a substantial impairment to the public's use of these resources could violate the Public Trust Doctrine, even on private lands.

The Louisiana Legislature has delegated authority over certain public trust resources to various state agencies. These agencies are on the frontlines of the struggle to preserve the State's public trust resources and accommodate harmonious economic and recreational uses. For example, under Louisiana Revised Statute section 36:602, the Louisiana Department of Wildlife and Fisheries (DWF) has public trust responsibility for wildlife and fisheries management, as well as responsibility for the conservation and management of all renewable resources on all WMAs, wildlife refuges, scenic rivers, and wildlife preserves that it owns and leases.[502] Minimizing threats to species of conservation concern and key ecosystem processes requires strategies of preserving large areas and maintaining landscape connectivity, in addition to creating and maintaining biological redundancies throughout the natural system. Yet, the protection of resources on public lands alone cannot accomplish these objectives. Refuge strategies for habitat management are necessarily confined to the ownership boundaries and recognize that public grounds are part of a larger ecosystem, which must be viewed as a whole to effectively manage habitats and species. NWR Comprehensive Conservation Plans state that the USFWS should approach management of refuges by partnering with adjacent private landowners.[503] However, "substantial oil and gas activities also occur

---

501. *Louisiana Environmental Restoration*, TEX. A&M U., http://srwqis.tamu.edu/louisiana/program-information/louisiana-target-themes/watershed-restoration/ (last visited Sept. 26, 2016) ("Approximately 80% of Louisiana's wetlands are privately owned."); *Funded by NFWF, Audubon Louisiana and Bertucci Contracting Corp. Announce Partnership to Demonstrate Small Dredge Technology*, AUDUBON LA. (Sept. 2, 2015), http://la.audubon.org/funded-nfwf-audubon-louisiana-and-bertucci-contracting-corp-announce-partnership-demonstrate-small-d ("More than 85 percent of Louisiana's 10-million-acre coastal zone is privately owned."); *The Louisiana Regional Restoration Planning Program*, LA. OIL SPILL COORDINATOR'S OFF. (Jan. 2007), http://www.losco.state.la.us/LOSCOuploads/RRPAR/la2395.pdf ("Approximately 80% of the Louisiana coastal zone is privately owned") (citation omitted); Paul D. Coreil, Landowners' Perceptions Related to Wetland Regulatory Policy in Coastal Louisiana, DIGITALCOMMONS@ UNIVERSITY OF NEBRASKA—LINCOLN (1996), http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1009&context=ewfsc8 ("Coastal wetlands in Louisiana are over 75% privately owned.").

502. LA. STAT. ANN. § 36:602 (2015); State v. McHugh, 630 So. 2d 1259, 1256 (La. 1994).

503. *See, e.g.*, J. BOHANAN, U.S. DEP'T OF THE INTERIOR, U.S. FISH & WILDLIFE SERV., BAYOU SAUVAGE NATIONAL WILDLIFE REFUGE COMPREHENSIVE CONSERVATION PLAN 75-76 (2009) ("A key element of this CCP is to establish partnerships with local volunteers, landowners,

outside but near refuge boundaries."[504] Thousands of wells and miles of flow lines reside within half a mile of the refuges.[505] These conditions become a challenge when considering future acquisition of lands bordering the refuge.[506]

> In the near term, refuge management is most likely to reflect realities of the surrounding landscape, including sometimes hostile land uses, high levels of contaminants, and insufficient connectivity. Nevertheless, longer-term planning should seek to remedy these problems; the integrity policy specifically instructs managers to forge solutions to problems arising outside refuge boundaries.[507]

Recent conservation strategies have recognized that management of designated conservation areas for quality habitat and ecosystem services becomes largely ineffective if areas are surrounded by incompatible land uses.[508] Preservation areas can become isolated habitat islands and undermined by activities taking place on surrounding private lands.[509] Recognizing this phenomenon, the USFWS instructs refuge management to focus on ecosystem functions and biological diversity at multiple

---

private organizations, and state and federal natural resource agencies. . . . The refuge staff can work with neighboring private landowners through the Partners Program or through agreements for managing neighboring land to complement the refuge management program."); U.S. FISH & WILDLIFE SERV., *supra* note 353, at 53, 102 ("The habitat management opportunities that Atchafalaya NWR offer are many and varied. Refuge staff and management adopt and incorporate appropriate various national, regional, and state plans (Chapters I and II) and coordinate with partners (LDWF, Universities, USACE, USGS), and other major public and private nearby land holdings to achieve the goals and objectives of the refuge.") (""A key element of this CCP is to establish a cooperative agreement with LDWF, partnerships with private organizations, and other state and federal natural resource agencies. Partnerships are critically important to achieve refuge goals, leverage funds, minimize costs, reduce redundancy, and bridge relationships. In the immediate vicinity of the refuge, opportunities exist to establish more partnerships with private organizations, and other state and federal natural resource agencies. Partnerships are critically important to achieve refuge goals, leverage funds, minimize costs, reduce redundancy, and bridge relationships. In the immediate vicinity of the refuge, opportunities exist to establish more partnerships with local landowners, Department of Animal Control Services, and with the USACE.") (citation omitted); U.S. DEP'T OF THE INTERIOR, *supra* note 54, at 56 ("A key element of this CCP is to establish partnerships with local volunteers, landowners, private organizations, and state and federal natural resource agencies. Partnerships are critically important to achieve refuge goals, leverage funds, minimize costs, reduce redundancy, and bridge relationships . . . . The refuge staff can work with neighboring private landowners through the Partners Program or through agreements for managing neighboring land to complement the refuge management program.").

504. B.T. HILL, *supra* note 340, at 6.

505. *Id.*

506. *Id.*

507. V. J. Meretsky et al., *New Directions in Conservation for the National Wildlife Refuge System*, 56 BIOSCIENCE 137 (2006).

508. BEAN & ROWLAND, *supra* note 51, at 428.

509. *Id.*

scales.[510] This policy addresses the need to incorporate into refuge management threats and stressors that originate from beyond refuge boundaries. Furthermore, the NWR system stresses cooperation and coordination with partners and local communities to effectively manage natural resource functions and services across ecosystems and landowner boundaries.[511] The USFWS has recognized the importance of the NWR System and the role refuge areas play in providing natural ecosystem services and functions across the landscape.[512] Refuges must look beyond their borders, work with partners, and think critically about the pressing issues affecting the species and ecosystems the Service and its partners strive to conserve.[513]

The State has also considered this larger ecosystem problem. During its early effort to assemble and properly manage public lands, the State recognized that efficient management within a public area "could well go for naught if activities away from these public lands are allowed to pollute the area without adequate control."[514]

Thus, for LDWF to comply with its legislative mandate to conserve natural resources on public lands it manages, the agency could possibly place restrictions on adjacent private lands to prevent substantial impairment to public resources pursuant to the Public Trust Doctrine.

Furthermore, public lands consist not only of *publicly* owned lands by the state or federal government, but also some *privately* owned lands that are contractually managed for the public benefit as WMAs.[515] Conservation of these privately owned resources as a public resource for a public use is within the State's Public Trust Doctrine duty of stewardship.[516]

2. State Public Trust Doctrine on Federal Lands

State Public Trust Doctrine protections could extend to federal NWRs in at least three ways.

---

510. U.S. FISH & WILDLIFE SERV., REFUGE MANAGEMENT (2001).

511. AMERICA'S WILDLIFE, U.S. FISH & WILDLIFE SERV., CONSERVING THE FUTURE: WILDLIFE REFUGES AND THE NEXT GENERATION 9 (2011).

512. *Id.* at 14.

513. *Id.*

514. *Commission Takes Firm Stand on Future Uses of Public Land*, *supra* note 30.

515. *Wildlife Management Areas (WMAs) and Refuges in Louisiana, Geographic NAD83, LDWF (2006), [wma_refuge_ldwf_2006]*, DATA.GOV, https://catalog.data.gov/dataset/wildlife-management-areas-wmas-and-refuges-in-louisiana-geographic-nad83-ldwf-2006-wma-ref-2006 (last updated Apr. 10, 2015).

516. Avenal v. State, 886 So. 2d 1085, 1101-02 (La. 2004).

First, each refuge located throughout the state serves a distinct purpose largely dependent on the habitat types that occur within its borders. The purpose of each refuge is often expressly stated in the refuge's foundational documents and comprehensive plans. For example:

- The USFWS acquired Bayou Sauvage, located in Orleans Parish, (1) to preserve wetlands, (2) to enhance the population of migratory birds, (3) to encourage diversity of fish and wildlife species, and (4) to protect endangered and threatened plants and animals.[517]
- The purpose of the Cameron Prairie NWR is: (1) to provide the highest quality wintering waterfowl habitat possible; (2) to provide for the needs of endangered plants and animals; (3) to allow compatible public uses such as hunting, fishing, trapping, wildlife observation, and photography; and (4) to promote research on marsh and aquatic wildlife.[518]
- The Delta NWR was set aside to further the purpose of the Migratory Bird Conservation Act as a refuge and breeding ground for migratory birds and other wildlife.[519]

The purposes associated with these various public lands reiterate that these lands are public trust resources. Even if you remove the

---

517. Stephanie Showalter & Lisa C. Schiavinato, *supra* note 39, at 79; *see also* Pub. L. 99-645, 100 Stat. 3590 (1986) (codified at 16 U.S.C. § 3901 (2012)); Pub. L. 104-253, 110 Stat. 3167 (1996) (codified at 16 U.S.C. 668dd n. (2012)). "Public Law 99-645 authorized acquisition of approximately 19,000 acres for the Bayou Sauvage Urban National Wildlife Refuge (Bayou Sauvage NWR) in Orleans Parish, Louisiana. The law established the purposes of the refuge and authorized such sums as may be necessary for acquisition and $5 million for development, all to be available until expended. Public Law 104-253 authorized the expansion of Bayou Sauvage NWR by 4,328 acres. . . . Management Goals: (1) To preserve wetlands; (2) to enhance the population of migratory birds; (3) to encourage diversity of fish and wildlife species; (4) and to protect endangered and threatened plants and animals." Showalter & Schiavinato, *supra* note 39, at 79.

518. U.S. DEP'T OF THE INTERIOR, FISH & WILDLIFE SERV. SOUTHEAST REGION, CAMERON PRAIRIE NATIONAL WILDLIFE REFUGE COMPREHENSIVE CONSERVATION PLAN (2006).

519. *See* U.S. DEP'T OF THE INTERIOR, DELTA NATIONAL WILDLIFE REFUGE COMPREHENSIVE CONSERVATION PLAN 23 (2008).

> Executive Order 7229, signed by President Franklin D. Roosevelt on November 19, 1935, formally established Delta Migratory Waterfowl Refuge (later named Delta National Wildlife Refuge). E. O. 7229 ordered approximately 8,000 acres, which the United States had contracted for purchase, to further the purpose of the Migratory Bird Conservation Act. These lands originally were set aside for use by the U.S. Department of Agriculture as a refuge and breeding ground for migratory birds and other wildlife. Executive Order 7538, signed by President Franklin D. Roosevelt on June 5, 1936, ordered approximately 900 acres of land, together with all buildings, pipe lines, and wharves thereon, to be reserved and set aside for use by the U.S. Department of Agriculture as an addition to Delta Migratory Waterfowl Refuge.

Showalter & Schiavinato, *supra* note 39 at 81.

express purpose of these public lands written into their foundational documents, these public lands are still "natural resources" within the plain meaning of the Louisiana Constitution.[520] These public lands serve as estuaries and habitat for wildlife of all sorts (avian, water, and land), and they form an essential part of Louisiana's "healthful, scenic, historic, and esthetic quality of the environment."[521] For these reasons, federal NWRs compose part of the State's Public Trust Doctrine resources.

Second, some state WMAs are located on federally owned land. Indian Bayou WMA, for example, is situated within property owned by the U.S. Army Corps of Engineers to provide public access and environmental protection in the Atchafalaya Basin.[522] Thus, in fulfillment of its duty to conserve natural resources on WMAs, Public Trust Doctrine protections arguably extend to these federal lands in this fashion.

Third, all state agencies, including DWF and DNR, must go about their business without violating the State's Public Trust Doctrine responsibilities.[523] This means, for example, that the oil and gas production permitting function of DNR is constrained by DNR's Public Trust Doctrine responsibilities. This includes granting permits, with relevant terms of operation, for Louisiana's Public Lands, state and federal.[524] As a result, the State's granting of permits for activity on federal land is subject to the State's constitutional Public Trust Doctrine duties.

The balance between development and conservation is not easy to establish, as illustrated by the example of the Bayou Teche National Wildlife Refuge. In St. Mary Parish, the 9000-acre Bayou Teche NWR was established to conserve and manage habitat for the Louisiana black bear, listed as a federally threatened subspecies under the Endangered Species Act.[525] The refuge lies within one of Louisiana's coastal wetland forests. The predominantly cypress-tupelo forest provides a tremendous economic, ecological, cultural, and recreational value to local residents

---

520. LA. CONST. art. IX, § 1 (1974).

521. *Id.*

522. *2014-2015 Hunting Guide to Indian Bayou*, U.S. ARMY CORPS ENGINEERS, http://www.mvn.usace.army.mil/Portals/56/docs/Recreation/Atch/2014-2015HuntingGuide.pdf (last visited Jan. 16, 2016).

523. Save Ourselves, Inc. v. Louisiana Envtl. Control Comm'n, 452 So. 2d 1152, 1156 (La. 1984).

524. *See id.* at 1155.

525. 73 Fed. Reg. 66831 (Nov. 12, 2008).

along with Louisiana and the nation.[526] These values can be realized in the functions and services that such forests provide, including flood protection, water quality improvement, storm protection, and mitigation of greenhouse gas emissions through carbon sequestration. These forests also contribute to billions of dollars of economic benefits from fishing, crawfishing, hunting, timber harvesting, and ecotourism.[527] In addition, this ecosystem serves as important fish and wildlife habitat including bird nesting colonies and Louisiana black bears.[528] Primary threats to black bears include continued loss of bottomland hardwoods, fragmentation of remaining forested tracts, and human-caused mortality.[529]

Within this environmental setting, oil and gas activities have been ongoing since the mid-1900s.[530] Exploration and production activities included the construction of elaborate oilfield infrastructure.[531] Water-based access for mineral extraction encroached upon the natural system as the interest in the oilfield grew, and important remnants of the oil and gas exploration and production activities remain.[532] Contaminants found within the soil and waters on the refuge serve as indications of past oil field operations.[533] Reaching several acres in size, dead cypress trees betray past flow line leaks, which released oil and brine into the water permeating the root mat progressively outward from the source, killing the surrounding trees.[534]

In the context of an environmentally delicate wildlife refuge subject to destructive oilfield operations, the State would seemingly have a clear Public Trust Doctrine duty to step in to ensure that the public's interest in the trust res is protected. A good argument can be made that oilfield operations can be conducted in a delicate wildlife refuge, so long as the operations are carefully conducted, where threats to wildlife and the environment are addressed, and where contamination is cleaned up and habitat restored. The Public Trust Doctrine requires both assertive action

---

526. J.L. CHAMBERS ET AL., CONSERVATION, PROTECTION, AND UTILIZATION OF LOUISIANA'S COASTAL WETLAND FOREST, FINAL REPORT TO THE GOVERNOR OF LOUISIANA FROM THE COASTAL WETLAND FOREST CONSERVATION AND USE SCIENCE WORKING GROUP iii (2005).

527. *Id.;* W.H. CONNOR, T.W. DOYLE & K.W.KRAUSS, ECOLOGY OF TIDAL FRESHWATER FORESTED WETLANDS OF THE SOUTHEASTERN UNITED STATES 447-60 (2007).

528. BAYOU TECHE NAT'L WILFLIFE REFUGE, *supra* note 54, at 15, 34.

529. *Id.* at 19.

530. *See Oil, Gas, and Injection Wells in Louisiana*, *supra* note 243.

531. BAYOU TECHE NAT'L WILFLIFE REFUGE, *supra* note 54, at 19.

532. *Id.* at 20.

533. Field observations.

534. Field observations.

on the part of the trustee, in addition to the prohibitory aspects of substantial impairment.

H. Doctrine Limitations, the Federal Public Trust Doctrine, and PPL Montana

The State of Louisiana has built state law Public Trust Doctrine protections into its Civil Codes and Constitutions.[535] But there is potentially an additional source of Public Trust Doctrine responsibilities and powers. That additional source is the arguable existence of a *federal* Public Trust Doctrine that would limit a state's ability to limit its own Public Trust Doctrine duties. The Public Trust Doctrine often appears as a legal concept of debatable shape, power, and source. This is in large part because the Doctrine has not been statutorily based.[536] For this reason, it is unsurprising that there would be much confusion about the Doctrine. For generations, courts have stepped in to apply the Doctrine without much regard to whether the Doctrine is based exclusively in federal or state law, and without considering whether the Doctrine's responsibilities are dischargeable by a state legislature. Some courts have accepted the Doctrine as a federal in nature, but even these cases are not entirely clear.[537] There are fundamental questions of doctrinal basis that have not been definitively answered for over a century. Yet a recent U.S. Supreme Court ruling, and subsequent District Court of Oregon ruling, may shake up the jurisprudence.

In 2012, the U.S. Supreme Court in *PPL Montana, LLC v. Montana* applied and distinguished the Equal Footing Doctrine and the Public Trust Doctrine.[538] In doing so, the Court suggested that states may have the power themselves to delineate the precise limits of the Public Trust Doctrine, which in turn might signify that a state legislature could even do away with the Doctrine. This would be a change of direction[539] that would subject the Doctrine to the whims of state legislatures. The *PPL*

---

535. *See supra* note 437; *supra* Section IV.D.

536. The Louisiana State Constitution and Civil Code provisions represent a source of Public Trust Doctrine protections that are independent of the historical import of Public Trust Doctrine protections from England and spread to states under the Equal Footing Doctrine.

537. *See, e.g.*, Light v. United States, 220 U.S. 523, 536-37 (1911); Alabama v. Texas, 347 U.S. 272, 273 (1954); United States v. 1.58 Acres of Land, 523 F. Supp. 120, 124 (D. Mass. 1981) (The public trust "is administered by both the federal and state sovereigns.").

538. PPL Montana, LLC v. Montana, 132 S. Ct. 1215 (2012).

539. Lawrence v. Clark Cnty., 254 P.3d 606, 613 (Nev. 2011) ("The public trust doctrine is thus not simply common law easily abrogated by legislation; instead, the doctrine constitutes an inseverable restraint on the state's sovereign power"); *1.58 Acres of Land*, 523 F. Supp. at 124 (recognizing the trust as applicable to both the federal and state governments, and providing that the trust "can only be destroyed by the destruction of the sovereign.").

Montana case was not about the Public Trust Doctrine; rather, it dealt with ownership of riverbed under the Equal Footing Doctrine.[540] The Court noted in dicta that,

> While equal footing cases have noted that the State takes title to the navigable waters and their beds in trust for the public, the contours of that public trust do not depend upon the Constitution. Under accepted principles of federalism, the States retain residual power to determine the scope of the public trust over waters within their borders, while federal law determines riverbed title under the equal-footing doctrine.[541]

This section of dicta in the *PPL Montana* decision has caused quite a fuss.[542]

Courts are beginning to interpret *PPL Montana*.[543] Some courts have arguably interpreted the ruling to mean that there is no overarching federal Public Trust Doctrine at all, rather that there may only be individual state Public Trust Doctrines, which are subject to the delineation, scope, and standards decided on by state legislatures and courts.[544] Interestingly, the *PPL Montana* Court cited to a book in support of the Doctrine's underpinnings,[545] where the same book expressed that there are "over fifty different applications of the doctrine, one for each State, territory or Commonwealth, as well as the federal government."[546] The *PPL Montana* ruling may provoke some misunderstanding. For example, *Illinois Central* most likely involved a federal law (or federal

---

540. *PPL Montana*, 132 S. Ct. at 1235.

541. *Id.*

542. *See* Morrison, *supra* note 405.

543 *See, e.g.*, Kelsey Cascade Rose Juliana v. United States, 6:15-cv-01517-TC, 2016 WL 6661146 (D. Or. Nov. 10, 2016).

544. *See* United States v. Walker River Irrigation Dist., 2015 U.S. Dist. LEXIS 69160, at *31 (D. Nev. May 28, 2015) ("The State of Nevada remains totally free to adopt or reject the public trust doctrine as it sees fit, within the boundaries of the federal Constitution."); Alec L. v. McCarthy, No. 13-5192, 2014 WL 3013301, at *1 (D.C. Cir. June 5, 2014) ("the public trust doctrine remains a matter of state law") (quoting *PPL Montana*, 132 S. Ct. at 1235); Idaho v. Coeur d'Alene Tribe of Idaho, 521 U.S. 261, 285 (1997) ("Illinois Central was 'necessarily a statement of Illinois law'") (quoting Appleby v. City of New York, 271 U.S. 364, 395 (1926)); Town of Nags Head v. Toloczko, 728 F.3d 391, 397 n.6 (4th Cir. 2013) ("The scope of the public trust common law doctrine remains the exclusive province of the North Carolina courts to define"); Phillips Petroleum Co. v. Mississippi, 484 U.S. 469, 475 (1988) (citing Shively v. Bowlby, 152 U.S. 1, 26 (1894)). In *Phillips Petroleum*, the Court ruled that states have "the authority to define the limits of the lands held in public trust and to recognize private rights in such lands as they see fit." *Id.* at 475 (citing *Shively*, 152 U.S. at 26). But this was a statement of dicta because the case did not involve the federal Public Trust Doctrine. In any event, *Phillips Petroleum* can be read as recognizing the states' roles in applying the Doctrine, but not that a federal Doctrine does not exist.

545. *PPL Montana*, 132 S. Ct. 1215, 1235 (2012) (citing DAVID C. SLADE, PUTTING THE PUBLIC TRUST DOCTRINE TO WORK 3-8, 15-24(1990)).

546. DAVID C. SLADE, PUTTING THE PUBLIC TRUST DOCTRINE TO WORK 4.

general common law) that was binding on state government, not a determination of state law.[547] In spite of this, as one district court put it, after *PPL Montana*, "[s]tate law, subject to federal power to regulate vessels and navigation, determines the scope of the public trust doctrine."[548] But a more recent case may put the misinterpretation of *PPL Montana* to rest. *See* Kelsey Cascade Rose Juliana v. United States, 6:15-cv-01517-TC, 2016 WL 6661146 at *19-24 (D. Or. Nov. 10, 2016) ("Juliana"). In *Juliana*, the federal District Court of Oregon noted that *PPL Montana* was "not a public trust case," and that it instead related to the Equal Footing Doctrine (and specifically, aspect of ownership of navigable waterbottoms). *Juliana* at *21. The Court noted divergent case law, but was ultimately persuaded by two federal court rulings that conclude that the doctrine does indeed apply to the federal government. *Juliana* at *22-23. This could help put to rest the misinterpretation of *PPL Montana* by other courts. The District Court of Oregon ruling makes it now a total now of at least three federal courts that have concluded that the federal government does indeed have public trust doctrine obligations. However, it is unclear what direction other courts will take in the future on this issue.

V. MANDAMUS AND INJUNCTION

The Public Trust Doctrine serves to prohibit certain actions while mandating others. The Equal Footing Doctrine is the basis for state law

---

547. The misunderstanding may stem from a statement in dicta by the Court in the *Appleby v. City of New York* ruling, which misinterpreted *Illinois Central* as applying state law. *See* 271 U.S. 364, 395 (1926). But *Illinois Central* does not reference any state law; and in fact it incorporates the federal Constitution's Reserved Powers. Second, the *Appleby* Court itself stated that the "general principle and exception" set forth by *Illinois Central* "have been recognized the country over," which suggests that the doctrine applies as binding on all states (i.e., not a matter of state law). *Appleby*, 271 U.S. at 395. Third, other federal cases have assumed the presence of an overarching federal Public Trust Doctrine. *See* United States v. 1.58 Acres of Land, 523 F. Supp. 120, 123 (D. Mass. 1981) (stating that the public trust "is administered by both the federal and state sovereigns" and that the federal government and state governments are trustee and cotrustee of the jus publicum) (citation omitted); *In Re* Steuart Transp. Co., 495 F. Supp. 38, 40 (E.D. Va. 1980). And if *Illinois Central* were not a statement of state law, then why, as according to one law review article, of the thirty five state courts to rely on Illinois Central, do twenty nine consider it to be controlling law. *See* Crystal Chase, *The Illinois Central Public Trust Doctrine and Federal Common Law: An Unconventional View*, 16 HASTINGS W.NW. J. ENVTL. L. & POL'Y 113, 151-53 (2010). *But see* Idaho v. Coeur d'Alene Tribe of Idaho, 521 U.S. 261, 285 (1997) ("Illinois Central was 'necessarily a statement of Illinois law'") (quoting *Appleby*, 271 U.S. at 395); Town of Nags Head v. Toloczko, 728 F.3d 391, 397 n.6 (4th Cir. 2013) ("The scope of the public trust common law doctrine remains the exclusive province of the North Carolina courts to define.").

548. Brigham Oil & Gas, L.P. v. N. Dakota Bd. of Univ. & Sch. Lands, 866 F. Supp. 2d 1082, 1088 (D.N.D. 2012).

concerning ownership of water bottoms.[549] State-owned water bottoms are public things, which pursuant to the Doctrine cannot be alienated to private interests.[550] This prohibitive facet of the Doctrine is firmly rooted in water bottom disputes and has undergone substantial review by commentators and the courts. However, the (nonownership) duty-to-preserve aspect has experienced much less consideration. The Louisiana Constitution requires the Legislature to implement the public trust policy.[551] It is this facet that the following discussion will further explore by evaluating how the State could be held accountable for failure to meet is mandates.

A. Resource Agency Legal Mandates

There is a clear duty on all state agencies and officials to protect and preserve public trust resources. Per the Louisiana Supreme Court in *Save Ourselves*, "[i]n summary, the Natural Resources article of the 1974 Louisiana Constitution imposes a duty of environmental protection on all state agencies and officials, establishes a standard of environmental protection, and mandates the legislature to enact laws to implement fully this policy."[552] In 1944, the Legislature directed that the LDWF protect, conserve, and replenish the natural resources of the state including wildlife of the state.[553] In 1975, the Legislature mandated that the LDWF:

> [C]ontrol and supervise all wildlife of the state, including fish and all other acquatic life, and shall execute the laws enacted for the control and supervision of programs relating to the management, protection, conservation, and replenishment of wildlife, fish and acquatic life in the state and the regulation of the shipping of wildlife, fish, furs, and skins.[554]

In addition, the Secretary of the LDWF was to "[d]etermine the policies of the department and, in accordance With the Administrative Procedures Act, make, alter, amend, and promulgate rules and regulations necessary for the administration of the functions of the department."[555]

Under this same organic Act, the LDNR was mandated to "conserve, manage, and develop water, minerals, timber, and other natural resources of the state and shall assure the maintenance of a proper

---

549. *PPL Montana*, 132 S. Ct. 1215.

550. There are some exceptions, specifically related to the sale of dry lakebeds.

551. LA. CONST. art. IX, § 1.

552. Save Ourselves, Inc. v. La. Envtl. Control Comm'n, 452 So. 2d 1152, 1156 (La. 1984).

553. 1944 La. Acts 1008.

554. *See* LA. STAT. ANN. § 36:602 (2015).

555. *See* LA. STAT. ANN. § 36:605(A)(2) (2015).

ecological balance."[556] In addition, the Secretary of the DNR was to "[d]etermine the policies of the department and, in accordance With the Administrative Procedures Act, make, alter, amend, and promulgate rules and regulations necessary for the administration of the functions of the department."[557]

A sampling of these rules and regulations are as follows:

Louisiana Administrative Code title 43, section 719 (DNR regulation on "Guidelines for Oil, Gas, and Other Mineral Activities"), which requires:

- "Access routes to mineral exploration, production, and refining sites shall be designed and aligned so as to avoid adverse impacts on critical wildlife and vegetation areas to the maximum extent practicable."[558]
- "Mineral exploration and production sites shall be cleared, revegetated, detoxified, and otherwise restored as near as practicable to their original condition upon termination of operations to the maximum extent practicable."[559]

Louisiana Administrative Code title 43, section 705 (1980), which is DNR's regulations on "linear facilities" (canals and pipelines), and which contain a host of rules on minimizing the effects on the coast including:

- "Linear facilities shall be planned, designed, located, and built using the best practical techniques to minimize disruption of natural hydrologic and sediment transport patterns, sheet flow, and water quality and to minimize adverse impacts on wetlands."[560]
- "Linear facilities shall be planned, designed, and built using the best practical techniques to prevent bank slumping and erosion, and saltwater intrusion, and to minimize the potential for inland movement of storm-generated surges."[561]
- "Areas dredged for linear facilities shall be backfilled or otherwise restored to the pre-existing conditions upon cessation of use for navigation purposes to the maximum extent practicable."[562]

---

556. *See* LA. STAT. ANN. § 36:351(B) (2015).
557. *See* LA. STAT. ANN. § 36:354(A)(2) (2015).
558. LA. ADMIN. CODE tit. 43, § 719(E) (2015).
559. *Id.* § 719(M).
560. *Id.* § 705(I).
561. *Id.* § 705(J).
562. *Id.* § 705(N).

Revised Statute 36, section 602 (Department of Wildlife and Fisheries; creation; domicile; composition; purposes and functions), which provides:

- "The department shall also be responsible for the conservation and management of all renewable resources on all wildlife management areas, wildlife refuges, scenic rivers, and wildlife preserves that it may own or lease. The department shall also exercise such powers and perform such functions as required with regard to all other duties delegated by law."[563]

Louisiana Revised Statute 56:765 (entitled *Donations for wildlife refuges, wildlife management areas, and public hunting grounds; applicability of certain laws*), which provides:

- "The provisions of [Louisiana Revised Statute 30:148.1-.7, 47:648 (Mineral Board leasing of public lands)] shall not authorize the breach of any term or condition of any donation which has been accepted by the state involving any state wildlife refuge, wildlife management area, or public hunting ground."[564]

Louisiana Revised Statute 56:109(C) (entitled *Wildlife management areas; wildlife refuges; public hunting grounds and recreation areas; notice; signs; hunters with disabilities*), which provides that:

- "No person shall knowingly take, attempt to take, disturb, or destroy any wild bird or wild quadruped or the nest, egg, or young thereof on lands set apart as wildlife management areas and wildlife refuges."[565]

Louisiana Revised Statute 56:109.2(A) (entitled *Preservation of wildlife management areas; wildlife refuges; public hunting grounds and recreation areas*), which provides that:

- "The commission shall exercise its authority to manage wildlife management areas, wildlife refuges, public hunting grounds and recreation areas in a manner to support, promote and enhance public hunting, fishing, and recreational opportunities to the extent authorized by law. The commission shall recognize, to the extent authorized by law, hunting, fishing, and recreational opportunities as primary uses of wildlife management areas, wildlife refuges,

563. LA. STAT. ANN. § 36:602 (2015).
564. LA. STAT. ANN. § 56:765.
565. LA. STAT. ANN. § 56:109.

> public hunting grounds and recreation areas that are available for public hunting, fishing, and recreational opportunities. The commission shall make land management decisions based on criteria that include public hunting, fishing, and recreational opportunities as a primary consideration."[566]

Statewide Order 29-B, 1986 Amendments (entitled *Amendments concerning the storage, treatment, and disposal of nonhazardous oilfield waste generated from the drilling and production of oil and gas wells; the construction, operation, monitoring, and closure of pits used to store produced water and other nonhazardous oilfield waste; and the reuse of physically, chemically, biologically, or otherwise processed nonhazardous oilfield waste*), which provides that "pits which are not to be utilized in the operation of oil and gas . . . must be permanently closed."[567]

1. Mandamus Actions

In the event a state agency has failed to comply with its legislatively mandated duties, an action could be brought against the state to require the state to fulfill those duties.

Pursuant to Louisiana Code of Civil Procedure article 3863, "[a] writ of mandamus may be directed to a public officer to compel the performance of a *ministerial duty* required by law."[568] A "ministerial duty" means one which is so "*clear and simple*" (or "clear and specific") that it does not call for *exercise of judgment and discretion* by officer or body at whose hands performance is required (i.e., that no element of discretion can be exercised in its performance).[569] Similarly, mandamus is also inappropriate where *evaluation of evidence* must be exercised.[570]

---

566. LA. STAT. ANN. § 56:109.2(A).

567. LA. ADMIN. CODE tit. 43, § 303 (H).

568. LA. CODE CIV. PROC. ANN. art 3863 (2015).

569. Ernest M. Loeb Co. v. Avoyelles Drainage Dist. No. 8 of Parish of Avoyelles, 60 F. Supp. 296, 306 (W.D. La. 1945); Naquin v. Lafayette Pub. Utilities Auth., 963 So. 2d 1045, 1048 (La. App. 3 Cir. 2007); *see also* LA. CODE CIV. PROC. ANN. art 3863 (Comment b) ("Mandamus will issue only when there is a clear and specific right to be enforced or a duty which ought to be performed. It never issues in doubtful cases. It may be used only to compel the performance of purely ministerial duties."). For an additional example, in the *Mouton v. Department of Wildlife & Fisheries for State of Louisiana* case, described in more detail above, plaintiff fishermen sought a writ of mandamus to compel the DWF to enforce a law banning certain trout fishing. 657 So.2d 622, 624 (La. App. 1 Cir. 1995). The DWF had sent a Secretary of DWF a letter to the DWF's Enforcement Division to advise that the DWF would no longer enforce the ban. The duty at issue seemed to be ministerial, but the First Circuit ruled on standing without reaching the issue of whether the duty was ministerial. 657 So.2d 622.

570. Allen v. St. Tammany Par. Police Jury, 690 So. 2d 150, 153 (1st. Cir. 1997) (holding mandamus is inappropriate in matters where discretion and evaluation of evidence must be exercised; mandamus is an extraordinary remedy which must be used by the court sparingly and

> The proper function of a writ of mandamus is to compel the doing of a specific thing. . . . It contemplates the *necessity of indicating the precise thing to be done*, and so it is generally held that it is not an appropriate remedy for the enforcement of duties generally, or to *control and regulate a general course of official conduct for a long series of continuous acts to be performed under varying conditions*.[571]

2. Ministerial Duties Examined

A mandamus action may be viable, only if a plaintiff can establish that the state has failed to perform a ministerial duty. Courts have addressed what constitutes a ministerial duty, and this case law is instructive.

Here, if the plaintiffs are to bring an argument that Louisiana state agencies must be compelled to enforce state laws and regulations, they must overcome *Peterson* and *Schoeffler*.[572] Under *Schoeffler*, there must be a ministerial duty on the state to enforce the law, and the plaintiffs will need something more specific than the introductory purpose, responsibility, and powers provisions of the respective state agencies (i.e., something more than DNR's public trust responsibility under Louisiana Revised Statute section 41:1701).

In addition, a mandamus action will only be effective if it seeks to compel agencies to perform a ministerial duty required *by law*. "Mandamus proceedings cannot be invoked to enforce a contract."[573] On their face, the deed of donation and lease provisions related to oil and gas exploration and production on Rockefeller Refuge seem to provide strong language identifying possible ministerial duties that would support a mandamus action.[574] However, these agreements would seemingly be regarded as contracts, and thus, not be available for use in a mandatory action as a ministerial duty.[575]

---

only to compel action that is clearly provided by law); Elliott v. East Carroll Par. Police Jury, 421 So. 2d 1196, 1998 (La. App. 1 Cir. 1982); Bonvillian v. Dep't of Ins., 906 So.2d 596, 599 (La. App. 1 Cir. 2005), 906 So. 2d 596, 599; Wiginton v. Tangipahoa Par. Council, 790 So. 2d 160, 163 (La. App. 1st Cir. 2001) (holding where officer has the slightest discretion to perform duty, there can be no action in mandamus; writ should not be used in doubtful cases).

571. State v. Mayor & Bd. of Aldermen of Tallulah, 549 So. 2d 891, 896 (La. Ct. App. 1989); *see also* Windjammer, Inc. v. Hardy, 458 So. 2d 493 (La. Ct. App. 4th Cir. 1984), *writ denied*, 460 So. 2d 606 (La. 1984).

572. Peterson v. May, 39470 (La. App. 2 Cir. 04/13/05), 900 So. 2d 297, 299-300; Schoeffler v. Drake Hunting Club, 05-499 (La. App. 3 Cir. 01/04/06), 919 So. 2d 822, 837-38.

573. State ex rel. New Orleans v. Louisiana Highway Com., 156 So. 806, 810 (La. 1934).

574. *See* Deed of Donation for Rockefeller, dated Nov. 8, 1920 (on file with authors).

575. Act 71 of 1920 authorized the Governor and Commissioner of Conservation to accept donation, incorporates reference to terms and conditions of acceptance, and declares deed as a

Application of these principles to the available duties and obligations of agencies contained in the regulatory and statutory framework does not appear to provide a simple or clear ministerial duty, but this is uncertain. For example, Louisiana Revised Statute section 56:109.2(A) requires the Commission to "exercise its authority to manage wildlife management areas . . . in a manner to support, promote and enhance public hunting, fishing, and recreational opportunities to the extent authorized by law."[576] One could argue that this statute mandates the Commission to manage the refuge properties but leaves the Commission the discretion on how to manage. Therefore, a mandamus action would not be proper because the law does not identify the precise thing to be done, but rather gives the LDWF discretion on how to accomplish management objectives. An opposing argument may state that allowing contamination to reside on a refuge is the antithesis of the statute's intended purpose of public use and flies in the face of any management that purports to support, promote, and enhance public hunting, fishing, and recreational opportunities. The LDWF is directed to manage refuges in a particular manner that is not being adhered to.[577] Thus, the act could be argued to create a ministerial duty to protect against things like pollution.

Another statute may establish a ministerial duty. Louisiana Revised Statute section 36:602 provides that "[t]he department shall also be responsible for the conservation and management of all renewable resources on all wildlife management areas."[578] At first blush, this statute seems to assign to LDWF general responsibilities of conservation and management, which would seemingly not provide the requisite specificity for a ministerial duty. However, the use of the term "all" seems to require the LDWF to ensure that no resource be neglected and every resource conserved and managed. Conservation can be defined as the wise management and use of natural resources.[579] Management can be defined as the art and science of manipulating the biota, habitat, or human users to produce some desired end result. If sites are contaminated with exploration and production wastes on refuge lands, the impacted resources certainly are not being conserved or managed as directed.

---

contract the violation of which is enforceable by the donor in state court. *See* LA. STAT. ANN. § 56:797(A)(1) (2015).

576. LA. STAT. ANN. § 56:109(A).

577. *See id.* § 56:109.

578. LA. STAT. ANN. § 36:602.

579. *Conservation*, BLACK'S LAW DICTIONARY (10th ed. 2014).

For some statutory ministerial duties, it may not be required that the duty be an affirmative action that a state has foregone. As such, where the law provides clear standards, certain actions may be required as "ministerial" duties even though they are not expressly stated. For example, in *Dore Energy Corp. v. Bohlinger*,[580] the Louisiana First Circuit Court of Appeals found that Louisiana Revised Statute section 30:2276(G)(3) contained a ministerial duty.[581] The statute provides, in part:

> In furtherance of the purpose of this Chapter, a person who has incurred remedial costs in responding to a discharge or disposal of a substance covered by this Chapter, without the need for an initial demand by the secretary, may sue and recover such remedial costs as defined in R.S. 30:2272(9) from any person found by a court to have performed any of the activities listed in Subsection A if the plan for remedial action was approved by the secretary in advance or, if an emergency, the secretary was notified without unreasonable delay and the secretary accepts the plan thereafter.[582]

The statute does not clearly or expressly provide that the DNR Secretary must review a plan. Instead, the statute only alludes to the DNR Secretary's approval.[583] But the court ultimately decided that review of a plan was indeed a ministerial duty that was established by the statute.[584] *Dore* may provide the basis for an argument that qualification as a ministerial duty does not require that affirmative action be stated in the law, but that the agency must take appropriate steps to accomplish the objective of the law.

Ultimately, the ministerial duty sought to be enforced in the requested relief would have to be carefully crafted to overcome the challenges it would face from an adverse party.

Further, in addition to finding the right "ministerial" duty in the laws, regulations, or Public Trust Doctrine, in a hypothetical matter to protect the state's public lands, the relief sought must be appropriately drafted narrowly and discretely. The relief sought must indicate the "precise thing to be done" and could not simply command the agency "to control and regulate a general course of official conduct for a long series

---

580. Dore Energy Corp. v. Bohlinger, 889 So. 2d 295 (La. App. 1 Cir. 2004).
581. *Id.* at 297-98.
582. LA. STAT. ANN. § 30:2276(G)(3).
583. *Id.*
584. *Dore Energy Corp.*, 889 So. 2d at 297-98.

of continuous acts to be performed under varying conditions."[585] As such, the relief sought could not simply be to "enforce the law" generally; it would have to be precise.

3. Mandamus Plaintiff

A cause of action under the Public Trust Doctrine would require a plaintiff with proper standing, and under the Public Trust Doctrine standing requirements are arguably heightened. Unlike injunctive relief, in a mandamus action, a plaintiff needs a special, peculiar, or financial interest that is not common to all people (i.e., that is not a duty of the agency which is equally due all citizens).[586]

The purpose for requiring this heightened standard was expressed by the Louisiana Supreme Court:

> The requirement that a plaintiff in a mandamus proceeding demonstrate a "special interest" in the action was imposed to insure a fair presentation and development of the issues by truly adverse parties. Without a showing of such a personal and special interest in mandamus cases, we feared interference by the judiciary would surpass the authority allocated by the tripartite system.[587]

Jurisprudence indicates that a mandamus action brought by an environmental group or some other generalized class like licensed fishermen may be barred for lack of standing.[588] However, neighboring landowners could seemingly have a specialized or particular interest in cleaning up contamination on refuge lands if contamination plumes extend off-site and impact the affected landowner's property. Also, individuals who have obtained permits to access and use refuge property could possibly serve as plaintiffs. Permits issued by the refuge give the permit holder a status and privilege not held by the general public. Further, for public lands that have eroded and are converting to water due to state mismanagement and careless oil and gas operations, nearby residents who rely on those public lands as buffers for storm surges may also have the requisite standing.

---

585. State v. Mayor & Bd. of Aldermen of Tallulah, 549 So. 2d 891, 896 (La. Ct. App. 1989); *see also* Windjammer, Inc. v. Hardy, 458 So. 2d 493, 495 (La. Ct. App. 1984) *writ denied*, 460 So. 2d 606 (La. 1984) (citation omitted).

586. Jumonville v. Hebert, 170 So. 497, 499 (La. App. 1936).

587. La. Associated Gen. Contrs., Inc. v. Calcasieu Par. Sch. Bd., 586 So. 2d 1354, 1358 (La. 1991).

588. *See infra*, discussion on Mouton v. Department of Wildlife & Fisheries for State of La., 657 So. 2d 622 (La. App. 1 Cir. 1995).

In *Mouton v. Department of Wildlife & Fisheries*, the First Circuit Court of Appeal of Louisiana denied the plaintiff standing because there was "no allegation or proof that the livelihood, health, welfare, or personal interests" of the plaintiff would be directly affected.[589] In *Mouton*, a recreational fisherman brought a mandamus action under the Public Trust Doctrine against the LDWF relating to commercial fishing regulations that prohibited commercial weekend speckle trout fishing.[590] The court did not reach the substantive issues because it found the petitioner lacked standing.

> Moreover, to bring a suit requesting the issuance of a writ of mandamus to a public official, a plaintiff must show some special interest separate and distinct from that of the public at large. In *League of Women Voters of New Orleans v. City of New Orleans*, the Louisiana Supreme Court held that a public right or duty may not be compelled or enforced by a private citizen without a showing of a personal grievance or interest in the outcome. Without a showing of some special interest in the performance sought of a public commission, which is separate and distinct from the interest of the public at large, a plaintiff will not be permitted to proceed. The *requirement* that a plaintiff in a mandamus proceeding demonstrate some special interest in the action was *imposed to ensure a fair presentation and development of the issues by truly adverse parties*. Without a showing of such personal and special interest in mandamus cases, interest by the judiciary may surpass the authority allocated by the tripartite system.[591]

Note that the *Mouton* case does not stand for the proposition that all Public Trust Doctrine cases require a heightened standard for standing. The *Mouton* court applied the heightened mandamus standard, and so it is logical that a different type of suit (e.g., injunction) would not require a heightened standard such that *Mouton* would not apply.

In the context of contaminated oilfield legacy sites, exposure to contamination by users of the resource could directly affect their health depending on the types of contamination present and the amount of exposure (i.e., risk). Also, exposure of fish and wildlife to contamination can affect reproduction success and survival, which can translate into an impact on commercial fishermen who rely on the resource for their livelihoods, as well as to those individuals who consume contaminated fish and game.

---

589. Mouton v. Dep't of Wildlife & Fisheries for La., 95-0101, pp. 6-7 (La. App. 1 Cir. 6/23/95); 657 So. 2d 622, 628.

590. *Id.* at 623-24.

591. *Id.* at 626-27 (citations omitted).

B. Injunction

If a mandamus action is not viable, there may be an alternative in a suit for injunctive relief; however, injunctive relief may be limited. Under Louisiana Civil Code article 3601, "[a]n injunction shall be issued in cases where irreparable injury, loss, or damage may otherwise result to the applicant, or in other cases specifically provided by law. . . ."[592] Unlike in a mandamus action, a plaintiff in an injunction action need not show a special and particular interest. Rather, if a citizen seeks merely to enjoin an agency's unlawful action, the Louisiana Supreme Court has ruled that the citizen may present a claim upon a mere showing of any interest, however "small and indeterminable."[593] However, this broad-standing ruling has been questioned by the Louisiana Third Circuit.[594] The plaintiff must have "real and actual" interest,[595] and that is a much easier standard to achieve than the "special and particular" interest required for mandamus standing. According to the Louisiana First Circuit, "a plaintiff must show that he has a legally protectable and tangible interest in the litigation," and "[e]ven when a plaintiff seeks to restrain a public body from an alleged unlawful action, the plaintiff must still demonstrate an interest that will be affected by the challenged action, however small and indeterminable."[596] Thus, here, in an injunction action, citizens and environmental groups would have a much easier path to establish standing than in a mandamus action.

Generally, injunctive relief available is limited to a court's prohibition of some act.[597] A "mandatory injunction" compels a defendant's affirmative act, but tends to be limited to when a defendant interferes with a plaintiff's enjoyment of a real right.[598] If there is a real

---

592. LA. CODE CIV. PROC. ANN. art. 3601.

593. *See* All. for Affordable Energy v. Council of New Orleans, 677 So. 2d 424, 428 (La. 1996).

594. Citizen Comm. for Better Law Enf't v. City of Lafayette, 95-1630 (La. App. 3 Cir. 11/20/96), 685 So. 2d 289, 293 *writ denied*, 96-3087 (La. 2/7/97), 688 So. 2d 507.

595. LA. CODE CIV. PROC. ANN. art. 681 ("Except as otherwise provided by law, an action can be brought only by a person having a real and actual interest which he asserts.").

596. Martin v. Dep't of Pub. Safety, 1997-0272 (La. App. 1 Cir. 2/20/98), 708 So. 2d 1182, 1184.

597. Prophet v. Builders, Inc., 462 P.2d 122, 126 (1969) (holding that while the granting of mandatory injunctions is governed by the same rules as granting of preventive injunctions, courts are more reluctant to grant mandatory injunctions than prohibitory ones and generally an injunction will not lie except in prohibitory form).

598. *See* 2 LA. CIV. L. TREATISE, PROPERTY § 11:45 (5th ed. 2015); City of Baton Rouge/Par. of East Baton Rouge v. 200 Gov't St., LLC, 2008 CA 0510, p. 4-5 (La. Ct. App. 1st Cir. 09/23/08), 995 So. 2d 32, 36 (explaining that generally, an injunction will issue only in its prohibitory form, but when a defendant obstructs the plaintiff in the employment of a real right,

right at stake in our matter, a plaintiff could seek "mandatory" (affirmative action) relief. However, if a "real right" is not at stake in a hypothetical Public Trust Doctrine suit, the relief available could be limited to a prohibition of some agency action.[599] While an agency could not be compelled by injunction to actively enforce laws, regulations, or permit violations, a court could enjoin an agency to prohibit the agency from taking certain steps.

Mandatory relief may be sought when a plaintiff has suffered loss of the enjoyment of a real right.[600] In Louisiana, there are many public lands that are privately owned but subject to contractual arrangements whereby they are managed under the auspices of the State as WMAs or wildlife refuges.[601] The private landowners have real rights at issue, which have been and are being compromised by the mismanagement of these lands. Further, in some instances, neighboring lands could be affected by oilfield operations taking place nearby. These private landowners might also have standing for injunctive relief. Given the nature and location of the environmental impacts at issue here, a plaintiff could bring an injunctive claim seeking mandatory relief if contamination migrated off-site from refuge property and impacted the plaintiff's property. Another possible scenario may include the decline in a plaintiff's property value caused by the stigma related to fear of contamination or exposure. Such a plaintiff could seek to compel an agency to take proactive steps to remediate or restore contaminated refuge lands.

A plaintiff with adequate standing but without a claim for the loss of a real right can seek prohibitory relief.[602] Seeking such relief might include, for example, a requirement to halt the continued migration of contamination from oilfield operations on public land.

VI. THE DOCTRINE'S NATURAL RESOURCE CONSERVATION POLICY

From a policy perspective, the intent of the Public Trust Doctrine's mandate to protect, conserve, and replenish is logically aimed at sustaining natural resources so that future generations have the opportunity to enjoy the benefits of those resources. With this notion commonly referred to as "conservation," Aldo Leopold, the father of

---

the latter may be entitled to a prohibitory injunction restraining the disturbance and also to a mandatory injunction for the removal of the obstruction or to undo what has been illegally done).

599. *See* 2 LA. CIV. L. TREATISE, PROPERTY § 11:45 (5th ed.).

600. *Id.*

601. See *Wildlife Management Areas (WMAs) and Refuges in Louisiana, Geographic NAD83, LDWF (2006), [wma_refuge_ldwf_2006]*, *supra* note 515.

602. *City of Baton Rouge/Par. of East Baton Rouge*, 995 So.2d at 36.

wildlife conservation, described the importance and complexity of its meaning:

> Conservation is a state of harmony between men and land. By land is meant all of the things on, over, or in the earth. Harmony with land is like harmony with a friend; you cannot cherish his right hand and chop off his left. That is to say, you cannot love game and hate predators; you cannot conserve the waters and waste the ranges; you cannot build the forest and mine the farm. The land is one organism. Its parts, like our own parts, compete with each other and co-operate with each other. The competitions are as much a part of the inner workings as the co-operations. You can regulate them cautiously—but not abolish them.
>
> The outstanding scientific discovery of the twentieth century is not television, or radio, but rather the complexity of the land organism. Only those who know the most about it can appreciate how little we know about it. The last word in ignorance is the man who says of an animal or plant: "What good is it?" If the land mechanism as a whole is good, then every part is good, whether we understand it or not. If the biota, in the course of aeons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is the first precaution of intelligent tinkering.[603]

Leopold likened the environment to a series of cogs and wheels, upon which concept he promoted conservation strategies.[604] Imagine a bicycle wheel and the many spokes that hold the shape and strength of that wheel. What affects one spoke affects the entire wheel. As stress is placed on a single spoke or a spoke is removed, more stress is placed on the remaining spokes to maintain the shape and strength of the wheel. The wheel could be viewed as an ecosystem with each spoke representing individual components, such as species of plants and animals. If a component of an ecosystem is stressed from some natural or anthropogenic force, the whole ecosystem is impacted.

These conservation ideals have been deeply rooted in the policies and practices of governmental natural resource management since the early 1900s.[605] Entering the twentieth century, this nation was in a state of consumption. Up to this time, neither industry nor the national government had taken any significant steps to curtail waste and promote conservation of natural resources.[606] In fact, the ideology of manifest destiny, the thought that man was destined to dominate North America

---

603. ALDO LEOPOLD, ROUND RIVER 212-13 (Luna B. Leopold, ed. 1991).

604. *Id.* at 213.

605. *Pollution Serious Menace in September and October*, *supra* note 271.

606. *See* CHARLES A. BEARD & MARY R. BEARD, THE RISE OF AMERICAN CIVILIZATION 545 (1 volume ed. 1930).

and all its resources, spilled over into the twentieth century.[607] Recognizing where this unbridled consumption of resources would lead the nation, President Theodore Roosevelt soon set into motion a national conservation movement.[608]

In a March 1903 speech presented to the Society of American Foresters at Gifford Pinchot's personal residence, Roosevelt dictated his initial conservation principles.[609] He explained forests were not to be preserved for the sake of preservation but as a means for providing security and prosperity to future generations.[610] In addition, Roosevelt recognized that the forests were part of a natural system that functioned in such a way as to provide beneficial services of irrigation and flood control.[611] Conserving timber resources impacted not only timber companies and landowners but the general public as well.[612]

In November of 1907, Roosevelt formally invited the Governors of the several states to attend a conference with clear emotion, "there is no other question now before the nation of equal gravity with the question of the conservation of our natural resources" and that the "conservation of our natural resources is the most weighty question now before the people of the United States."[613] Roosevelt firmly believed the conference would stand to be one of the most important in serving to benefit the general welfare of the country.[614]

An appointed committee was formed to organize the Conference's efforts and deliver a final proclamation of its findings, with former Louisiana Governor Newton C. Blanchard chairing the committee.[615] Blanchard and the Committee made a final recommendation to form a National Conservation Commission composed of state leaders assembled to inventory the natural resources of the nation and develop a plan for their conservation and use.[616] Gifford Pinchot, the first chief of the U.S.

---

607. *See id.* at 256.

608. *See* At a Meeting of the Society of American Foresters, Held at the Residence of Mr. Gifford Pinchot, Washington, D.C., Mar. 26, 1903, *in* THE WORKS OF THEODORE ROOSEVELT V (Memorial ed.).

609. *Id.*

610. *Id.*

611. *Id.*

612. *See id.*

613. N. C. BLANCHARD ET AL., PROCEEDINGS OF A CONFERENCE OF GOVERNORS, IN THE WHITE HOUSE, WASHINGTON, D.C., MAY 13-15, 1908 x (1908).

614. *See id.* at 3.

615. *See id.* at 13.

616. NAT'L CONSERVATION COMM'N, REPORT OF THE NATIONAL CONSERVATION COMMISSION, SPECIAL MESSAGE OF THE PRESIDENT 1 (1909).

Forest Service and future Governor of Pennsylvania, would serve as Chairman, with Newton C. Blanchard representing Louisiana.[617]

The National Conservation Commission would later meet and describe how the use and management of natural resources, public and private, can impact the public:

> The permanent welfare of the nation demands that its natural resources be conserved by proper use. To this end the States and the Nation can do much by legislation and example. *By far the greater part of these resources is in private hands. Private ownership of natural resources is a public trust; they should be administered in the interests of the people as a whole*. The States and nation should lead rather than follow in the conservative and efficient use of property under their immediate control. But their first duty is to gather and distribute a knowledge of our natural resources and of the means necessary to insure their use and conservation, to impress the body of the people with the great importance of the duty, and to promote the cooperation of all. No agency, state, federal, corporate, or private, can do the work alone.[618]

The country's leaders recognized early on the importance of private resources as part of the public trust.

Prompted by national efforts, the State of Louisiana carried forward these philosophies and set a clear policy of conservation that was instilled into the founding principles of Louisiana resource agencies.[619] Two principles of conservation laid down by the Louisiana Conservation Commission in 1912 still remain pertinent. These are:

> (1) He who severs and profits by the exhaustion of the natural resources of the state, in the creation of which he had no hand, should, in addition to the common burden of the expense of government, borne by all alike, bear an additional burden of taxation, the proceeds to go toward replacing either the resource which he had removed, or, if that be impossible, toward renewing one which by its nature is renewable.
> (2) That the controlling influences in human affairs, official and unofficial, must, for the sake of the safety of government and society, to a measurable extent, reverse our former course and apparently at least build up the country at the expense of the cities and industrial centers, instead of building up the cities and industrial centers at the expense of the country.[620]

These concepts have provided the foundation for management and consumption of the natural resources of the state and nation. We see

---

617. *See id.* at 136-39.
618. *Id.* at 25-26 (emphasis added).
619. *See Pollution Serious Menace in September and October*, *supra* note 271.
620. *Id.*

them drafted as policy statements in the organic statutes of environmental laws, and used to set the framework for how the rule of law is to be applied. However, the government's role is delicate. It has a duty to preserve for the public the natural resources on which our society relies for economic security. Yet, government must also not stand in the way of progress.[621]

Nonetheless, notwithstanding the economic benefits derived from oil and gas activities, environmental impacts have occurred.[622] For example, in permitting oil and gas canals used to access drilling locations, the state reviews permit applications and evaluates potential damages that may be caused by the dredging activity.[623] The list of potential and expected damages can be very long. However, when weighed against the possibility of striking oil and receiving severance or royalty payments, the state has overwhelmingly elected to allow such operations to occur, despite the environmental damages.[624]

This economic wealth is indelibly linked to environmental health. For instance, a reduced capacity of wetlands to buffer against storm surge "will increase the risk of significant damage to oil, gas, transportation, water supply and other private and public infrastructure and agriculture lands and urban areas."[625] "Many past practices of the energy industry led to these habitats' degradation, but the viability of that very industry now depends on restoring and sustaining these ecosystems."[626] Many exploration and production impacts remain intolerable and incompatible with existing uses of the resources.[627]

As industry and populations continue to grow and place increasing demands on finite resources, Louisiana must be prepared to support and demand sustainable management of available natural resources. If clean water and soil and an untainted food supply are important to future generations, then management of these resources should incorporate an

---

621. *See* LA. CONSERVATION COMM'N, *supra* note 384.

622. *See supra* Part I.

623. D.R. CLARK, ET AL., A REVIEW OF THE LOUISIANA COASTAL RESOURCES PERMITTING PROGRAM FROM 1980-1983, *in* PROCEEDINGS OF THE WATER QUALITY & WETLANDS MANAGEMENT CONFERENCE NEW ORLEANS, LOUISIANA: COASTAL ECOLOGY AND FISHERIES INSTITUTE 171-191, at 173 (1983).

624. *See* D.R. CLARK ET AL., *supra* note 623, at 183; *see* LA. DEP'T OF NAT. RES., PERFORMANCE AUDIT REPORT 2 (Audit Control No. 03702959) (2004).

625. U.S. ARMY CORPS OF ENG'RS, LOUISIANA COASTAL AREA (LCA): LOUISIANA ECOSYSTEM RESTORATION STUDY iii-iv (2004).

626. *The Economics of Stewardship: Conservation the Cornerstone of a Resilient Future*, 2012 May WATER MARKS, LOUISIANA COASTAL WETLANDS PLAN., PROTECTION & RESTORATION NEWS 12, 13.

627. JOHN F. BRAHTZ, COASTAL ZONE MANAGEMENT: MULTIPLE USE WITH CONSERVATION 13 (1972).

understanding of historical practices into strategies that advance the ideals that define conservation.

Prospectively, appropriate future public lands management will require comprehensive policies and programs that specifically address former and ongoing mineral extraction operations.[628] Extraction of nonrenewable resources should constitute a large part of planning strategies and management. If operations occur on public lands, mineral resources should be exploited with great care using the best available environmental and petroleum industry standards, information, and technologies as to not impair, destroy, or in any way place unnecessary burdens on the renewable resources or the public interests.[629] Assessment of historical and ongoing damages will provide an informed understanding of appropriate management strategies that will protect the public interest. Only then can Public Trust Doctrine principles be realized.

VII. CONCLUSION

The enormous economic, aesthetic, and vital intangible values of public lands are unquestioned. The healthy character of natural resources on public lands provides the basis for these values. Thus, "the renewable resources should be given highest priority and protection since they represent a continuing resource forever valuable to the population if managed properly."[630] If every citizen could walk through these wild places, each would choose restoration.

628. *See generally Commission Takes Firm Stand on Future Uses of Public Land*, *supra* note 30.

629. U.S. FISH & WILDLIFE SERV., *supra* note 353 (citation omitted).

630. *Commission Takes Firm Stand on Future Uses of Public Land*, *supra* note 30, at 22.