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A Call for Clarity: The Weaknesses of the Louisiana Wetlands Rapid Assessment Method and Its Contribution to the Failure of “No Net Loss”

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I. INTRODUCTION

The Louisiana Wetlands Rapid Assessment Method (LRAM) is a tool developed by the United States Army Corps of Engineers (USACE) to assist in quantifying the adverse impacts associated with Clean Water Act (CWA) § 404(b)-permitted wetland filling, as well as the amount of compensatory mitigation required to account for those impacts.¹ The overall goal of the nation's environmental agencies and permitting authorities since 1989 has been "no net loss" of wetlands.² The LRAM is, for this purpose, a seriously deficient tool. Most troublingly, it allows developers to launder acute environmental impacts through dubiously effective out-of-kind mitigation banking. To propose a realistic and plausibly achievable set of changes to bring the LRAM closer in line with the nation's no-net-loss policy, this Article accepts the proposition that "off-site mitigation" is meaningfully possible and desirable in certain circumstances when compared to a "no action alternative."³

This Article advocates for four alterations to the way in which wetland impacts are accounted for: (1) the weight that Rare, Imperiled, or Difficult to Replace (RID) wetlands are afforded in the LRAM impact formula should be significantly increased, and (2) the weight that the various Mitigation Types (Re-Establishment, Rehabilitation, Enhancement, and Preservation) are afforded in the calculation of mitigation credits should be reduced according to their objective performance. These portions of the LRAM are especially problematic because they encourage damage to Louisiana's most vulnerable wetlands, and compound this damage through baselessly optimistic Mitigation

1. See U.S. ARMY CORPS OF ENG'RS, NEW ORLEANS DIST., LOUISIANA WETLAND RAPID ASSESSMENT METHOD FOR USE WITHIN THE BOUNDARIES OF THE NEW ORLEANS DIST., VERSION 2.0 (2017), https://ribits.ops.usace.army.mil/ords/f?p=107:15012148416457072::NO::P150_DOCUMENT_ID:49612 (last accessed May 16, 2024) [hereinafter LRAM].

2. Todd Bendor, *A Dynamic Analysis of the wetland Mitigation Process and its Effects on No Net Loss Policy*, 89 LANDSCAPE & URB. PLAN. 17 (2008). The "no net loss" policy emerged out of the work of the National Wetlands Policy Forum, which was convened in 1987 at the request of the Administrator of the Environmental Protection Agency. U.S. ENV'T PROT. AGENCY, OFFICE OF WETLANDS PROT., WETLANDS ACTION PLAN (1989). The Forum's recommendations were adopted by the Bush Sr. Administration in 1989. See STACEY BANKS ET AL., U.S. ENV'T PROT. AGENCY, OFF. OF INSPECTOR GEN., NO. 14-P-0191, EPA NEED TO CLARIFY ITS CLAIM OF "NO NET LOSS" OF WETLANDS (2014).

3. For a compelling example that cuts against this proposition, see Morgan Robertson & Nicholas Hayden, *Evaluation of a Market in Wetland Credits: Entrepreneurial Wetland Banking in Chicago*, 22 CONSERVATION BIOLOGY 636, 642 (2008). Tellingly, "the majority of compensation at entrepreneurial banks takes the form of wetlands that have not met any ecological performance criteria at the time of the impact for which they compensate," although "this is currently true for all compensation mechanisms." *Id.* at 644.

Type overweighting. (3) Self-reporting by mitigation banks should be de-emphasized in favor of more regular monitoring visits, and (4) preservation should be removed from the LRAM formula entirely.

RID wetlands

are those habitats that are classified by LNHP as rare or imperiled and/or exhibit extreme difficulty in restoration. Imperiled habitats are defined by LNHP (2009) as those which have approximately 20 or less known occurrences and are extremely vulnerable to extirpation. Rare habitats are defined by LNHP (2009) as those which may only be found in a single region within Louisiana or have only up to 100 known occurrences.⁴

The four Mitigation Types are (1) Re-establishment, which returns “natural/historic functions to a former aquatic resource”; (2) Rehabilitation, which repairs “natural/historic functions to a degraded aquatic resource”; (3) Enhancement, which involves “the manipulation of . . . an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s)”; and (4) Preservation,” which removes “a threat to, or prevent[s] the decline of, aquatic resources by an action in or near those aquatic resources.”⁵ Notably, “[p]reservation does not result in a gain of aquatic resource area or function.”⁶ The same is true of enhancement.⁷

This Article begins by attempting to trace the total loss of wetlands in the conterminous United States from the American Revolution to the present day, a task that is disturbingly difficult to achieve. Before addressing the LRAM formulae themselves we discuss the legal and regulatory background undergirding the LRAM,. We proceed to address some deficiencies in the mitigation banking industry. We also address how a pivotal case before the Fifth Circuit Court of Appeals effectively erased the regulatory requirement for in-kind mitigation and opened the door to relentless and unaccountable destruction of wetlands. Finally, this Article proposes several adjustments to the LRAM and USACE’s mitigation banking oversight, which could rectify these failures.

4. LRAM, *supra* note 1, at 12-13.

5. *Id.* at 2-4. USACE accepts that Enhancement operations “may also lead to a decline in other aquatic resource function(s).” *Id.* at 2.

6. *Id.* at 3. How, then, can preservation be a valid Mitigation Type for a project which involves wetland loss? That circle is never squared, so it should come as no surprise that this Article’s recommendation is to remove Preservation entirely. Preservation is certainly better than nothing, but recall that the goal that the LRAM serves is *no net loss*.

7. *Id.* at 2. The case could be made that enhancement should not be a valid mitigation type either. This Article does not defend enhancement, except as a preferable alternative to preservation, which is a low bar. At the very least, enhancement confers *some* benefit through “the gain of selected aquatic resource function(s).” *Id.*

II. TAKING STOCK: THE EMERGENCY WETLANDS RESOURCES ACT AND THIRTY-FOUR YEARS OF “NO NET LOSS”

In 1986, Congress passed the Emergency Wetlands Resources Act, charging the United States Department of the Interior with “promot[ing] . . . the conservation of the wetlands of the Nation . . . by—(1) intensifying cooperative efforts among private interests and local, State, and Federal governments for the management and conservation of wetlands.”⁸

The Secretary of the Interior, acting through the Fish and Wildlife Service, was charged with producing a series of National Wetlands Inventory maps.⁹ The timetable for the production of these maps was staggered, in order of importance, between 1988 and 2004, beginning with “maps for the areas that have been identified by the Service as top priorities for mapping, including—

- (A) the entire coastal zone of the United States;
- (B) floodplains of major rivers; and
- (C) the Prairie Pothole region;”¹⁰

A decade later, the Fish and Wildlife Service was due to produce “inventory maps for those portions of the contiguous United States for which final maps have not been produced earlier,” completing the mosaic of wetlands maps covering the conterminous United States.¹¹ Finally, a wetlands inventory of Hawaii and Alaska was ordered for delivery by 2000.¹²

The Department of Fish and Wildlife was also directed to produce a report on the loss of wetlands in the United States between the time of the American Revolution and the 1980s.¹³ The results of that report were grim. The Fish and Wildlife Service estimated that the land area of the United States once contained approximately 392 million acres of wetlands, with 221 million of those acres located in the mainland United States and the rest located in Alaska and Hawaii.¹⁴ Of those 392 million acres of wetlands, 274 million remained through the 1980s.¹⁵ This represents a loss of approximately 37% of the United States’ wetlands

8. 16 U.S.C. §§ 3901(b)-(b)(1).

9. *See* 16 U.S.C. §§ 3931(a)-(a)(1).

10. *Id.* § 1391(a)(1).

11. *Id.* § 1391(a)(2).

12. *Id.* § 1391(a)(3).

13. *Id.* § 1391(a)(5).

14. Thomas E. Dahl, *Wetlands Loss Since the Revolution*, 12 NAT’L WETLANDS NEWSL. 16 (1990).

15. *Id.*

over the lifetime of the nation, with the losses concentrated heavily in the lower forty-eight states.¹⁶ Of Alaska and Hawaii’s original 171 million acres of wetlands, 170 million acres remained in the 1980s.¹⁷ Only 104 million acres remained of the mainland United States’ original wetlands area of 221 million, for a loss of around 53%.¹⁸ In the 200 years between the 1780s and 1980s, “it is estimated that, on average, over 60 acres of wetlands have been lost every hour in the lower 48 states.”¹⁹

Separate from the National Wetlands Inventory maps themselves, the Department of Fish and Wildlife are responsible for producing reports on the “Status and Trends of Wetlands and Deepwater Habitat in the Conterminous United States” at ten-year intervals.²⁰ The most recent report, published in 2024, covers the ten-year period between 2009 and 2019.²¹ No such report was produced in the thirteen years between 2011 and 2024.²² The language of 16 U.S.C. §3931 is mandatory, not permissive: “The Secretary, . . . *shall* continue the National Wetlands Inventory Project and *shall*— . . . (4) produce, by September 30, 1990, *and at ten-year intervals thereafter*, reports to update and improve the information contained in [the original report on the Status and Trends of Wetlands].”²³

The current report on Status and Trends, covering 2009-2019 and expected in 2021, was three years late and five years out of date the instant it was released.²⁴ The first modern (post-1986) Status and Trends report covers the years 1986-1997, and was published in 2000.²⁵ As a result of differing definitions and methodologies between the 2000 Status and Trends report and the summary covering the 1780s to the 1980s, the Fish

16. *Id.*

17. *Id.*

18. *Id.*

19. *Id.*

20. 16 U.S.C. § 3931(a)(4).

21. See UNITED STATES FISH AND WILDLIFE SERVICE, STATUS AND TRENDS OF WETLANDS IN THE CONTERMINOUS UNITED STATES 2009 TO 2019 (2024) (available at <https://www.fws.gov/sites/default/files/documents/2024-04/national-wetlands-status-and-trends-report-2009-to-2019.pdf>) [hereinafter 2024 STATUS AND TRENDS].

22. UNITED STATES FISH AND WILDLIFE SERVICES, *National Wetlands Inventory*, <https://www.fws.gov/program/national-wetlands-inventory/wetlands-status-and-trends> (last visited May 16, 2024).

23. 16 U.S.C. §§ 3931(a), (a)(4) (emphasis added).

24. See 2024 STATUS AND TRENDS, *supra* note 21.

25. See U.S. FISH & WILDLIFE SERV., STATUS AND TRENDS OF WETLANDS IN THE CONTERMINOUS UNITED STATES 1986 TO 1997 (2000), <https://www.fws.org/wetlands/documents/Status-and-Trends-of-Wetlands-in-the-Conterminous-United-States-1986-to-1997.pdf> [hereinafter 2000 STATUS AND TRENDS].

and Wildlife Service reported 105.5 million acres of wetlands in existence in the mainland United States in 1997.²⁶ A net wetland loss of approximately 644,000 acres occurred between 1986 and 1997.²⁷

The Fish and Wildlife Service computes their estimates based on “a scientific probability sample of the surface area of the conterminous 48 States,” involving the examination of “4,375 random sample plots.”²⁸ “The reliability of each estimate generated is expressed as the percent coefficient of variation (% C.V.) associated with that estimate. . . . The percent coefficient of variation indicates that there was a 95 percent probability that an estimate was within the indicated percentage range of the true value.”²⁹ As an example, if one of the Status and Trends reports listed a total wetland area of 100 acres, with a coefficient of variation of 2.5%, there is a 95% chance that the true total wetland area is within the range 97.5-102.5 acres.

The Fish and Wildlife Service estimated a total wetland area of 105,491,700 acres with a C.V. of 2.8% in 1997, for a range of 102,537,900-108,445,500 acres.³⁰ In the 2006 Status and Trends report, covering 1998-2004, the Fish and Wildlife Service reported 107.700 million acres of wetlands in 2004.³¹ This welcome reversal was “acquired through the contributions of restoration and creation activities,” totaling “a net gain of 191,750 wetland acres” between 1998 and 2004.³² The discrepancy between the 1997 figure of 105.500 million acres and the 2004 figure of 107.7 million acres would require 2.2 million acres of net gain, more than ten times the net gain that was reported. This extra gain could be accounted for by the 2.8% C.V. on the 1997 national estimate, which set an upper bound of 108,445,500 acres.³³ The C.V. of the 2004 estimate was 2.7%, for a range of 104,844,600-110,663,400 acres.

In the 2011 Status and Trends report, covering the years 2004-2009, the Fish and Wildlife Service announced a net wetland loss of 62,300

26. *Id.* at 9.

27. *Id.*

28. *Id.* at 22. The number of sample plots increases with every new report, up to 5,048 in the 2024 Status and Trends. 2024 STATUS AND TRENDS, *supra* note 21, at 14.

29. *Id.* at 23.

30. *Id.* at 29.

31. U.S. FISH & WILDLIFE SERV., STATUS AND TRENDS OF WETLANDS IN THE CONTERMINOUS UNITED STATES 1998 TO 2004 (2006), <https://www.fws.org/wetlands/documents/Status-and-Trends-of-Wetlands-in-the-Coterminous-United-States-1998-to-2004.pdf> [hereinafter 2006 STATUS AND TRENDS].

32. *Id.* at 15.

33. *Id.*

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acres.³⁴ They also announced a national estimate of 110,059,800 acres of wetlands, with a C.V. of 2.7%.³⁵ This is 2.4 million acres more than the 2004 figure, which is difficult to reconcile.³⁶ From 1997 to 2009, the net changes reported by the Fish and Wildlife Service were -644,000 acres by 2000, +191,800 acres by 2006, and -62,300 acres by 2011, for a twelve-year net loss of 514,000 acres.³⁷ The 2011 Status and Trends report includes a caveat that

Because portions of the Pacific coastal region had not been sampled in previous wetland status and trend studies, there has been an adjustment to the total wetland area estimate for the conterminous United States. There has also been a statistical adjustment to the estimate of total wetland area for the United States.³⁸

This is how it is possible to report a long-term loss of 514,000 acres, but also 4.6 million more acres more than you started with.

The 2024 Status and Trends Report estimates a net loss of 221,000 acres.³⁹ It also announces a national estimate of 116,437,000 acres of wetlands, 6.3 million acres more than the 2009 figure, 9.4 million more than the 2004 figure, and 11.4 million more than the 2000 figure.⁴⁰ This estimate was made with an amazing C.V. of 0.7%, for a total range of 115,621,900-117,252,000.⁴¹ The Gulf South, and Louisiana especially, are identified as suffering the densest loss of vegetated wetlands in the nation.⁴²

Is this new national estimate compatible with previous national estimates? No. The lower end of the 2024 Status and Trends' 95% confidence interval is 115,621,900 acres.⁴³ The higher end of the 2011 Status and Trends' 95% confidence interval is 113,031,400 acres, for an

34. See UNITED STATES FISH AND WILDLIFE SERVICE, STATUS AND TRENDS OF WETLANDS IN THE CONTERMINOUS UNITED STATES 2004 TO 2009 16 (2011), <https://www.fws.gov/sites/default/files/documents/Status-and-Trends-of-Wetlands-in-the-Coterminous-United-States-2004-to-2009.pdf> [hereinafter 2011 STATUS AND TRENDS].

35. *Id.* at 38.

36. *Id.*; 2006 STATUS AND TRENDS, *supra* note 31, at 44.

37. 2000 STATUS AND TRENDS, *supra* note 25, at 29; 2006 STATUS AND TRENDS, *supra* note 31, at 44; 2011 STATUS AND TRENDS, *supra* note 34, at 38.

38. 2011 STATUS AND TRENDS, *supra* note 34, at 37.

39. 2024 STATUS AND TRENDS, *supra* note 21, at 17.

40. *Id.*; 2000 STATUS AND TRENDS, *supra* note 25, at 29; 2006 STATUS AND TRENDS, *supra* note 31, at 44; 2011 STATUS AND TRENDS, *supra* note 34, at 38.

41. 2024 STATUS AND TRENDS, *supra* note 21, at 17.

42. *Id.* at 26.

43. *Id.* at 43.

inconsistency of *at least* 2,590,500 acres.⁴⁴ The 2024 Status and Trends report contains no reference to a statistical adjustment, like the 2011 Status and Trends report, which might explain the discrepancy. From 1997 to 2019, the Fish and Wildlife service reported a net loss of 735,000 acres of wetlands, but ended up with a national estimate 10,937,000 acres higher than they started.⁴⁵ Comparing that figure to the lower end of the 1997 estimate range and the higher end of the 2019 estimate range, the recordkeeping discrepancy involves 9.3-10.6% of the nation's entire wetland area. Does this mean that the 2024 Status and Trends estimate is wrong? No, not necessarily. These discrepancies only mean that the Fish and Wildlife Service were wrong by 9.3-10.6% *at some point*.

To summarize, it is difficult to say what impact thirty-four years of “no net loss” has had on the nation's wetlands. The federal agency responsible for tallying the nation's total wetland acreage reports, at irregular intervals, both serious losses and a constantly increasing total estimate. Who can say whether they are over or underestimating? Is it reasonable to assume that, at least in the Gulf Coast, net loss of wetlands is occurring? Perhaps, but the truth is that *no one knows*.

III. LRAM LEGISLATIVE AND REGULATORY BACKGROUND

The Clean Water Act (CWA) was passed by Congress to “restore and maintain the chemical, physical, and biological integrity of the Nation's waters.”⁴⁶ The Environmental Protection Agency was charged with executing this task.⁴⁷ Section 404 of the CWA, codified at 33 U.S.C. § 1344, creates a permitting program for the discharge of dredged or fill

44. 2011 STATUS AND TRENDS, *supra* note 34, at 37.

45. 2000 STATUS AND TRENDS, *supra* note 25, at 29; 2006 STATUS AND TRENDS, *supra* note 31, at 44; 2011 STATUS AND TRENDS, *supra* note 34, at 38; 2024 STATUS AND TRENDS, *supra* note 21, at 17.

46. 33 U.S.C. § 1251(a).

47. *Id.* at § 1251(d).

material into navigable waters⁴⁸ for which the Secretary of the Army is responsible.⁴⁹

USACE's CWA regulations direct the District Engineers to develop tools to enable the rapid estimation of the amount and type of mitigation necessary to offset a permitted project's impacts. "The Corps is a highly decentralized organization," so "[m]ost of the authority for administering the regulatory program has been delegated to the thirty-six district engineers and eleven division engineers."⁵⁰ In evaluating a proposed project, the District Engineer is responsible for considering "the probable impacts, including cumulative impacts, of the proposed activity"⁵¹ USACE has an ongoing obligation to examine methods of "avoiding, minimizing, rectifying, reducing, or compensating" for project impacts to Waters of the United States.⁵² The regulations broadly outlining what factors to consider in "avoiding, minimizing, rectifying," or "reducing" impacts are enumerated at 40 C.F.R. §§ 230.70-77. Additional mitigation measures "may be required as a result of the public interest review process."⁵³ 33 C.F.R. § 325.4 empowers the District Engineer to condition a permit on the "mitigation of significant losses which are specifically identifiable, reasonably likely to occur, and of importance to the human or aquatic environment."⁵⁴ Regretfully, these "conditions may be accomplished . . . off-site"⁵⁵

Compensatory mitigation is "the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved."⁵⁶

48. Navigable waters "means the *waters of the United States*." 33 U.S.C. § 1362(7) (emphasis added). The current Waters of the United States rule, announced on December 30, 2022, and published in the Federal Register on January 18, 2023, covers: "traditional navigable waters, the territorial seas, and interstate waters," "impoundments" of those waters, and "tributaries to" those waters when the tributaries "meet either the relatively permanent standard or the significant nexus standard." Revised Definition of "Waters of the United States," 88 Fed. Reg. 3005-06 (Jan. 18, 2023) (codified at 40 C.F.R. § 120.1). The Supreme Court's 2023 decision in *Sackett v. EPA* has removed the "substantial nexus" test in favor of a "continuous surface connection" test. *See* 598 U.S. 651 (2023).

49. 33 U.S.C. § 1344(a).

50. 33 C.F.R. § 320.1(a)(2).

51. *Id.* at § 320.4(a)(1).

52. *Id.* at § 320.4(r)(1).

53. *Id.* at § 320.4(r)(1)(iii).

54. 33 C.F.R. § 325.4(a)(3).

55. *Id.*

56. 33 C.F.R. § 332.2.

Restoration, establishment, enhancement, and preservation are defined in terms not substantially different from the LRAM.⁵⁷ If compensatory mitigation becomes necessary to “offset unavoidable impacts to waters of the United States,” the District Engineer must determine the necessary amount.⁵⁸ Unfortunately, this decision can be made with the assistance of “functional or condition assessment methods”⁵⁹ Mitigation banking is listed as a valid alternative to developing specific off-site mitigation projects.⁶⁰ “The principal units for credits and debits” at a mitigation bank are “acres, linear feet, [or] functional assessment units.”⁶¹

IV. LRAM FORMULA

The LRAM is a functional assessment method developed by USACE’s New Orleans District, which works by balancing the results of two simple formulae: the Impact Factors formula calculates “LRAM debits” by quantifying various aspects of a 404(b)-permitted project site and assigning them an “i-value.”⁶² All i-values are summed to arrive at an “impact value (I).”⁶³ This impact value is multiplied across the total acreage of the relevant project parcel to calculate the final LRAM debit.⁶⁴ The Mitigation Factors formula operates the same way, but it calculates LRAM credits using positive attributes of a mitigation banking site.⁶⁵ “[M] factors” are summed to arrive at the “mitigation potential (M),” which is multiplied across the acreage of the parcel of the mitigation bank being utilized.⁶⁶ The LRAM Impact Factors and Mitigation Factors charts are included in this section, with an example LRAM credit and debit sheet included at the end.

57. Compare 33 C.F.R. § 332.2, with LRAM, *supra* note 1, at 2-4.

58. 33 C.F.R. § 332.1(a)(1); 33 C.F.R. § 332.3(f)(1).

59. 33 C.F.R. § 332.3(f)(1).

60. See 33 C.F.R. § 332.8.

61. 33 C.F.R. § 332.8(o)(1).

62. LRAM, *supra* note 1, at 1, 12.

63. *Id.*

64. *Id.*

65. *Id.* at 32.

66. *Id.* at 33.

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A. LRAM Impact Factors Chart⁶⁷

Factor	Option	i value
Wetland Status	Rare, Imperiled, Difficult to Replace (RID)	3
	Secure	2
	Degraded	1
Habitat Condition	High	3
	Medium	2
	Low	1
Hydrologic Condition	High	3
	Medium	2
	Low	1
Negative Influences	High	-0.5
	Medium	-0.2
	Low	0
Impact Type	Full/Permanent Loss	3
	Partial/Temporary Loss	0.5

In calculating a project's impact factors, the District Engineer will select between the enumerated factors and sum their i-values to calculate the final i-value.⁶⁸ Under "Wetland Status," the affected wetlands can be categorized as "RID," "Secure," or "Degraded," with associated values of 3, 2, or 1.⁶⁹ In the example LRAM debit and credit sheet, the District Engineer identified the wetlands as "RID."⁷⁰ The Habitat Condition of the impacted site is assessed next: the District Engineer identifies the type of habitat to be impacted, and determines its condition using objective qualifiers such as vegetation cover and the presence of "exotic plant species" (not necessarily invasive; these species are not specifically identified in that portion of the LRAM).⁷¹ Grades of "High," "Medium," and "Low" correspond to i-values of 3, 2, and 1.⁷² Note that a single acre of any kind of "High" quality wetland,⁷³ which can be up to 50% covered

67. LRAM Impact Factors Chart, in LRAM, *supra* note 1, at 12.

68. LRAM, *supra* note 1, at 12.

69. *Id.*

70. LRAM EXAMPLE, *infra* note 100, at 13.

71. LRAM, *supra* note 1, at 14. Examples of common wetland habitats in the New Orleans District include Fresh, Brackish, Intermediate, and Saline Marsh, Pine flatwoods, Bayhead swamp, or Baldcypress/tupelo swamp. *Id.* at 15-28. There are a total of sixteen enumerated wetland habitats. *Id.*

72. *Id.* at 12.

73. For a representative example of what this entails, *see id.* at 15. A "High Condition" Baldcypress/tupelo swamp contains more than 50% tree stratum of specifically enumerated species of tree, or shrub stratum greater than 50% of specifically enumerated shrubs, or tree and shrub stratum of exotic species between 15% and 50%. *Id.*

by locally exotic species, is equivalent within the LRAM formula to an acre of RID wetlands, of which there could be “approximately 20 or less known occurrences.”⁷⁴ In the example LRAM debit and credit sheet, the District Engineer identified the Habitat Condition as “High.”⁷⁵ Under “Hydrologic Condition,” the project site will be classified as having a “High,” “Medium,” or “Low” level of existing hydrological damage as a result of anthropogenic disturbances.⁷⁶ A “High” site may have no existing damage, or transient damage that will self-correct over time, while a “Low” site is already seriously impaired.⁷⁷ In the example LRAM debit and credit sheet, the District Engineer identified the Hydrologic Condition as “High,” with a value of 3.⁷⁸ “Negative Influences” do not weigh very heavily within the LRAM formula, so to address them briefly: “Low” negative influences mean that the site is not already subject to significant deleterious anthropogenic activity, such as the presence of a large road or industrial developments, while “High” negative influences indicate the presence of those activities.⁷⁹ The attached LRAM credit/debit example does not address Negative Influences.⁸⁰ Finally, under “Impact Type,” the LRAM assigns a value of 3 to total, permanent loss of wetland functions, and a value of 0.5 to partial or temporary loss of wetland functions.⁸¹ The attached LRAM credit/debit sheet contemplates a total loss.⁸² Summing all of these Impact Factors, the attached LRAM credit/debit sheet arrives at a debit of 12.⁸³

In calculating a project’s mitigation factors, the District Engineer will select between 3-4 options for each enumerated factor and use the selected options to sum the mitigation value.⁸⁴ This value is subtracted from the impact value, and the result must be zero or negative. The attached LRAM credit/debit worksheet lists a bank value of 5.9, and the District Engineer ends with an impact score of 12.0.⁸⁵

74. *Id.* at 12.

75. LRAM EXAMPLE, *infra* note 100, at 13.

76. LRAM, *supra* note 1, at 29-30.

77. *Id.*

78. LRAM EXAMPLE, *infra* note 100, at 13.

79. LRAM, *supra* note 1, at 30-31.

80. LRAM EXAMPLE, *infra* note 100, at 13.

81. LRAM, *supra* note 1, at 12.

82. LRAM EXAMPLE, *infra* note 100, at 13.

83. *Id.*

84. LRAM, *supra* note 1, at 32-33.

85. LRAM EXAMPLE, *infra* note 100, at 13. 5.9 is not actually a possible value, unless several parcels with different attributes are being considered together: no permutation of the sum of the values [6, 5, 3, 0.4], [0, -1, -2], [0, -0.5, -1], [0.5, 0, -0.5], and [0, 0.2, 0.5], taking one element from each set, can equal 5.9. A worthwhile topic of research for another paper would be: is this

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*B. LRAM Mitigation Factors Chart*⁸⁶

Factor	Option	m value
Mitigation Type	Re-Establishment	6
	Rehabilitation	5
	Enhancement	3
	Preservation	0.4
Management	None	0
	Passive	-1
	Active	-2
Negative Influences	Low	0
	Medium	-0.5
	High	-1
Size	> 500 acres	0.5
	500 : 100 acres	0
	< 100 acres	-0.5
Buffer/Upland	None	0
	Buffer/Upland Inclusions	0.2
	Restored Buffer/Uplands	0.5

The District Engineer would begin by evaluating the proposed “Mitigation Type.” The highest weighted options in this category are, as defined earlier, “Re-Establishment,” “Rehabilitation,” and “Enhancement,” with m-values of 6, 5, and 3.⁸⁷ In violation of the principle of no net loss, “Preservation” is also considered a valid Mitigation Type.⁸⁸ There is a 50% restriction on the mitigation site acreage that can be devoted to Preservation;⁸⁹ while interesting, this does nothing to address the inconvenient detail that zero new acres of wetlands can never equal a non-zero number of lost or damaged acres. There are five more factors to consider before allowing preservation as a mitigation

sort of error ever made in practice? And, if so, do the errors favor over- or under-purchasing mitigation credits? LRAM credit and debit calculations are included in the administrative records of the relevant 404(b) permitting decisions, and there is currently no easy way to access them electronically. At time of writing, there is no evidence that these errors occur in practice.

86. LRAM Impact Factors Chart, *in* LRAM, *supra* note 1, at 35.

87. LRAM, *supra* note 1, at 33.

88. *Id.*

89. *Id.* at 33-34.

type, explained in 33 C.F.R. § 332.3(h)(1)(i)-(v): addressed briefly, these factors are (1) the wetlands provide important functions, (2) the wetlands are significant to the watershed, (3) the District Engineer decides preservation is “appropriate and practicable,” (4) the wetlands are under threat of destruction, and (5) the preserved site will be permanently protected.⁹⁰ Factors (1), (2), and (4) are, in fairness, compelling reasons to preserve a wetland, just not *in exchange for destroying another wetland*. Factor (3) is a circular restatement of the other factors,⁹¹ and factor (5) is an absurdity; for the LRAM to have any credibility, it must be the case that every Mitigation Type is permanent. None of these criteria can make zero new acres of wetlands equal a non-zero number of lost acres. There are many good reasons why an individual or a government agency might want to preserve wetlands in perpetuity: mitigating a loss of wetlands elsewhere is not one of them, it is an open door to legally sanctioned net loss of wetlands.

The District Engineer would proceed to consider “Management” of the mitigation bank.⁹² The LRAM’s Management values, as well as the other remaining factors, are admirably restrained: it is mostly only possible to lose m-value at these stages. The mitigation bank can require no management, where the “project site functions in a self sustaining manner without dependence on long-term structural management,” it can require passive management such as “open culverts, breaches or other passive management structures,” or it can require active management, such as “gated structures or variable crest weirs that function to regulate water levels” or other significant wetland attributes.⁹³ No management receives an m-value of 0, passive incurs a penalty of -1, and active incurs a penalty of -2.⁹⁴

The District Engineer would then evaluate the mitigation banking site for “Negative Influences,” “Size,” and “Buffer/Upland.”⁹⁵ Generally speaking, m-value is subtracted for any negative values, added or subtracted for unusually large or small mitigation bank parcels, and added if the mitigation bank acts as a buffer to, or includes, uplands. “High” Negative Influences are anthropogenic effects from structural or hydrologic alterations, such as multiple wide roadways or any kind of

90. *Id.*

91. Preservation is *appropriate* when factors (1), (2), and (4) are met, and preservation is *practicable* when factor (5) is met.

92. LRAM, *supra* note 1, at 34-35.

93. *Id.*

94. *Id.* at 32.

95. *Id.* at 35-38.

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development, while “Medium” Negative Influences can be single wide roadways or several above-grade access roads.⁹⁶ High and medium negative influences incur penalties of -1 and -0.5, while low negative influences do not alter the site’s mitigation potential.⁹⁷ Recognizing that “larger tracts . . . have a greater potential for habitat diversity,” mitigation bank parcels larger than 500 acres have their m-value incremented by 0.5, and the opposite is true for parcels smaller than 100 acres.⁹⁸ Mitigation banking sites buffering or including uplands have their m-values incremented by 0.2, and sites that restore buffers or uplands are incremented by 0.5.⁹⁹

Pulling all the threads together, suppose that a site was being evaluated for use in mitigating the debit of 12.0 incurred by USACE’s example project. A site dedicated to Rehabilitation of existing wetlands would begin with an m-value of 5; an Active Management strategy would incur a penalty of -2; no Negative Influences would not change the m-value; a parcel greater than 500 acres would increment the m-value by 0.5; and restored buffers or uplands increments the m-value by 0.5. The mitigation potential per acre for this tract would be 4.0. A minimum of 3 acres of this tract would be required to mitigate the example impacts.

The LRAM, in its current state, is unfit for the purpose of preventing net loss of wetlands in the New Orleans District. Many sections of the two formulae are ridiculous at face value and self-defeating in application. Some sections are suitable for their intended purpose, and a few reflect serious commitment to the goal of no net loss. If the LRAM is to function as an instrument for guiding the mitigation requirements of the 404(b) permitting program, its most glaring failures need to be rectified.

96. *Id.* at 35-36.

97. *Id.* at 32.

98. *Id.*

99. *Id.*

C. LRAM Example¹⁰⁰

A	B	C	D	E	F	G	H	I	J
Louisiana Wetland Rapid Assessment Method (LRAM)									
	CEMVN Acct #								
	Acres Impacted	1							
	Watershed Basin								
		Imp 1	Imp 2	Imp 3	Imp 4	Imp 5	Imp 6	Imp 7	Imp 8
Impact Factors	Wetland Status	RID	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
		3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Habitat Condition	High	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
		3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Hydrologic Condition	High	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
		3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Impact Type	Full/Perm	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
		3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Sum:	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Area:	1							
	Sum x Area Affected:	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
								Σ Impacts:	12.0
		Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	Bank 8
Bank Mit	Select Bank:	Chef Mente	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
	Bank Value:	5.9	0	0	0	0	0	0	0
	Kind:	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Mitigation Potential:	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Acres Required:	2.0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

V. LOCAL AND NATIONAL USE OF “PRESERVATION” AS A MITIGATION TYPE

USACE tracks mitigation banking and in-lieu fee program information through a service called RIBITS, or the Regulatory In-lieu Fee and Bank Information Tracking System.¹⁰¹ RIBITS contains a Credit Ledger Summary, “a brief summary of the balance of credits for each credit classification associated with [a] bank.”¹⁰² Three transaction types

100. LRAM EXAMPLE, in U.S. ARMY CORPS OF ENG’RS, NEW ORLEANS DIST., LOUISIANA WETLAND RAPID ASSESSMENT METHOD 13 (2015), https://www.mvn.usace.army.mil/Portals/56/docs/regulatory/publicnotices/20151020_LRAM_PubMtg.pdf [hereinafter LRAM EXAMPLE].

101. See U.S. ARMY CORPS OF ENG’RS, *Regulatory In-lieu Fee and Bank Information Tracking System*, <https://ribits.ops.usace.army.mil/> (last visited May 15, 2024) [hereinafter RIBITS].

102. U.S. ARMY CORPS OF ENG’RS, NORFOLK DISTRICT, *Understanding the Credit Ledger 1*, https://ribits.ops.usace.army.mil/ords/f?p=107:150:1484578655631::NO::P150_DOCUMENT_ID:64100 (2021) (last visited May 15, 2024).

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can be monitored within a Credit Ledger: (1), initiation transactions “describe the potential credits a bank may have once it meets all of its success criteria,” (2), release transactions “describe credits which have been released for sale or debit, typically be meeting a performance milestone,” and (3), withdrawal transactions “describe credit sales or debits.”¹⁰³

In the New Orleans District, as of May 15, 2024, 128 approved mitigation banks have initiated a total of 53,650.9 wetland acres.¹⁰⁴ Of that area, 8.7%, or 4,658.04 acres, is initiated for the purpose of preservation.¹⁰⁵ Nationally, 2,168 approved mitigation banks have initiated a total of 553,982.14 wetland acres.¹⁰⁶ Of that area, 14.3% , or 79,226.41 acres, is initiated for the purpose of preservation.¹⁰⁷

The significance of these figures is difficult to gauge for two reasons: (1) the LRAM is not the only Functional Assessment Tool, the 36 District Engineers can all set their own District’s mitigation credit and debit schemes, and (2) even in the New Orleans District, the LRAM is relatively new.¹⁰⁸ Therefore, the credit value of an acre of preserved wetlands can be different depending on the district and time in which they were withdrawn.

For a rough estimate of the wetland loss contemplated by these initiations, consider a mitigation bank where preservation is the only mitigation type in use on the wetland parcels, no management scheme is necessary, there are no negative influences, the size of the parcels are between 100 and 500 acres, and the parcels do not include buffer or uplands. The mitigation value of this bank would be 0.4 credits per acre.¹⁰⁹ Imagine an arbitrarily large dredge and fill project affecting secure wetlands, with a medium habitat condition, medium hydrologic condition, low negative influences, in which all the affected wetlands will be fully and permanently lost. The impact value of this project would be 9 credits per acre.¹¹⁰ The 128 credit banks in the New Orleans District,

103. *Id.* at 2-3.

104. U.S. ARMY CORPS OF ENG’RS, *Mitigation Type Summary*, <https://ribits.ops.usace.army.mil/ords/f?p=107:89:1484578655631>: (last visited May 15, 2024). Filter results for the New Orleans District using the drop-down menu in the bottom-left corner of the left column.

105. *Id.*

106. *Id.* Sort by All Districts in the same drop-down menu as before. 553,982.14 is the sum of all initiated acres as of May 15, 2024.

107. *Id.* 79,226.41 is the sum of all acres initiated for the purpose of preservation as of May 15, 2024.

108. 33 C.F.R. § 332.1(a)(1); 33 C.F.R. § 332.3(f)(1); LRAM, *supra* note 1, at 1.

109. *See* LRAM, *supra* note 1, at 32.

110. *See id.* at 12.

and the 2,168 credit banks in existence nationally, could facilitate the credit cost of this project up to 207.024 and 3,521.174 acres respectively.

These estimates are rough but illustrative. The point is twofold: first, preservation of existing wetlands is a desirable outcome, but its use as a method of mitigating the destruction of other wetlands *will always lead to the net loss of wetlands*; second, USACE has approved the credit-equivalent destruction of a couple hundred acres of wetlands locally, and several thousand nationally, *for no benefit*. This destruction is only visible in aggregate. USACE is playing a shell game with off-site mitigation and credit banking, such that the missing wetlands cannot be identified except as a percentage.

VI. FAILURES OF THE MITIGATION BANKING SYSTEM

According to the Government Accountability Office, in 2005 USACE was not performing oversight at mitigation banking sites.¹¹¹ USACE and EPA amended their regulations in 2008 to require mitigation plans to “contain performance standards that will be used to assess whether the project is achieving its objectives.”¹¹² These performance standards “must be based on attributes that are objective and verifiable,” and they must be “based on the best available science that can be measured or assessed in a practicable manner.”¹¹³ Unfortunately, this assessment regime is still based on self-reporting. Project managers must submit “monitoring reports to assess the development and condition of the compensatory mitigation project,” but only for “a monitoring period that is sufficient to demonstrate that the compensatory mitigation project has met performance standards.”¹¹⁴ The regulatory minimum monitoring period is five years.¹¹⁵ Put another way, under a national program of no net loss of wetlands, developers are fully in compliance with the law when they destroy a wetland ecosystem for all time and absolve themselves of any further obligation after five years. Further, the only actual oversight is provided for by 33 C.F.R. § 332.6(a)(2) and 40 C.F.R. § 230.96(a)(2), which stipulate that “the district engineer *may* conduct site inspections on a regular basis (*e.g., annually*), during the monitoring period to evaluate

111. See U.S. GOV'T ACCOUNTABILITY OFF., GAO-05-898, CORPS OF ENGINEERS DOES NOT HAVE AN EFFECTIVE OVERSIGHT APPROACH TO ENSURE THAT COMPENSATORY MITIGATION IS OCCURRING 17 (2005).

112. 33 C.F.R. § 332.5(a); 40 C.F.R. § 230.95(a).

113. 33 C.F.R. § 332.5(b); 40 C.F.R. § 230.95(b).

114. 33 C.F.R. §§ 332.6(a)(1), (b); 40 C.F.R. §§ 230.96(a)(1), (b).

115. 33 C.F.R. § 332.6(b); 40 C.F.R. § 230.96(b).

mitigation site performance.”¹¹⁶ To summarize, mitigation banking requirements are enforced through a system of self-reporting lasting only five years, during which a project site *may not even be visited by USACE authorities*. If a project site is actually inspected, the statutorily-recommended frequency is one visit per year, or five visits over the lifetime of a project.

USACE and the Environmental Protection Agency sold mitigation banking to the American public as a way to bring “economies of scale, greater scientific resources, . . . and consolidation of inspection sites” to bear on the problem of wetland loss.¹¹⁷ “There is scant evidence that the purported advantages of mitigation banking have in fact resulted in more consistently successful wetland mitigation.”¹¹⁸

The number of mitigation banking sites and the traffic in credits at these sites are growing at alarming rates.¹¹⁹ The geographic dispersion of these sites is also rapidly increasing.¹²⁰ USACE’s capacity for oversight and verification, already virtually non-existent in 2008, has not kept pace with the growth of the mitigation banking industry.¹²¹ Studies by non-governmental organizations are marred by inconsistent definition and assessment of performance standards.¹²² Worse yet, fewer and fewer studies are being performed every year, and significant geographic blind spots are developing where no studies are performed at all.¹²³

VII. ATCHAFALAYA BASINKEEPER: THE WILD WEST OF “OUT-OF-KIND MITIGATION”

In July of 2018, the Honorable Thomas M. Reavley of the United States Court of Appeals for the Fifth Circuit committed the cardinal sin of reading USACE’s regulations and comparing them to what USACE is actually doing.¹²⁴ For the crime of paying attention to the functional

116. 33 C.F.R § 332.6(a)(2); 40 C.F.R. § 230.96(a)(2) (emphasis added).

117. R. Kyle Alagood, *The Mythology of Mitigation Banking*, 46 ENV’T L. REP. NEWS & ANALYSIS 10200, 10202 (2016).

118. *Id.*

119. See Palmer Hough & Rachel Harrington, *Ten Years of the Compensatory Mitigation Rule: Reflections on Progress and Opportunities* 49 ENV’T L. REP. NEWS & ANALYSIS 10018, 10023 (2019).

120. *Id.*

121. See *id.* at 10026-27.

122. Joseph A. Morgan & Palmer Hough, *Compensatory Mitigation Performance: The State of the Science*, 37.6 ENV’T L. INST. NAT. WETLANDS NEWSLETTER 5, 12 (2015).

123. *Id.*

124. See *Atchafalaya Basinkeeper v. U.S. Army Corps of Eng’rs*, 894 F.3d 692, 704-07 (5th Cir. 2018) (Reavley, J., dissenting).

assessment tool behind the curtain, Judge Reavley was sentenced to write the dissent in *Atchafalaya Basinkeeper v. United States Army Corps of Engineers*. In *Atchafalaya Basinkeeper*, the Fifth Circuit overturned a preliminary injunction preventing the construction of a pipeline in the Atchafalaya Basin watershed.¹²⁵ USACE's permitting decisions implicate their authority under the CWA and the National Environmental Policy Act, so they are reviewable by courts under the Administrative Procedure Act's "arbitrary and capricious standard."¹²⁶ USACE had permitted damages to 455.5 acres of wetlands; 313.5 acres would be temporarily affected, and 142 acres would be permanently converted from "forested to herbaceous wetlands."¹²⁷ Some of this acreage would be cypress-tupelo swamp, and some would be bottomland-hardwood.¹²⁸

Relevant to our discussion, the lower court enjoined construction of the pipeline in part because the LRAM determined "the purchase of 232.8 acres of cypress-tupelo swamp and 80 acres of bottomland-hardwood forests" would be necessary, while USACE had ordered the purchase of a much smaller amount of cypress-tupelo swamp and a much larger amount of bottomland-hardwood forest.¹²⁹ This was because "one of the chosen mitigation banks did not have the number of cypress-tupelo acres necessary to match a fully in-kind mitigation."¹³⁰ USACE, relying on the LRAM, determined that out-of-kind mitigation substituting some bottomland-hardwoods for some cypress-tupelo swamp would suffice: instead of the required 232.8 acres of cypress-tupelo swamp and 80 acres of bottomland-hardwood forests, the permit-seeker would need to purchase 69 acres of cypress-tupelo swamp and 243.8 acres of bottomland-hardwood.¹³¹ USACE would permit the pipeline in exchange for in-kind mitigation in the amount of 69 acres of cypress-tupelo swamp and 80 acres of bottomland-hardwood forests, and out-of-kind mitigation in the amount of 163.8 acres of bottomland-hardwood forest.

Is this permissible under USACE's regulations?: "(2) If the district engineer determines . . . that out-of-kind compensatory mitigation will serve the aquatic resource needs of the watershed, the district engineer

125. *Id.* at 695.

126. *Id.* at 696 ("A court will uphold an agency action unless it finds it to be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.") (citing 5 U.S.C. § 706(2)(A)).

127. *Id.* at 697.

128. *Id.* at 704-05.

129. *Id.* at 705.

130. *Id.*

131. *Id.*

may authorize the use of such out-of-kind compensatory mitigation.”¹³² However, “the basis for such authorization . . . must be documented in the administrative record for the permit action.”¹³³ The Fifth Circuit did not interpret that second clause to create a new burden of explanation. In other words, the calculation of “the aquatic resource needs” and the “basis for authorization” of out-of-kind mitigation can be the same.

A divided panel of the Fifth Circuit interpreted 33 C.F.R. §§ 332.3(e)(1) and (2) to mean that the LRAM can serve as both a functional assessment tool for quantifying wetlands impacts and an unassailable basis for the validity of those calculations across.¹³⁴ The Code of Federal Regulations notes that “in general, in-kind mitigation is preferable to out-of-kind mitigation,” but that out-of-kind mitigation is acceptable “as provided in paragraph (e)(2).”¹³⁵ The Fifth Circuit did not interpret the language of § 332.3(e)(2) (“the basis for such authorization . . . must be documented in the administrative record for the permit action”) to create any new requirements. The LRAM is its own justification. Under the *Atchafalaya Basinkeeper* doctrine, the requirement for in-kind mitigation for 404-permitted wetlands impacts is effectively a dead letter.

VIII. POLICY PROPOSALS

As murky as the situation appears, two things are clear: first, we are moving very quickly in the wrong direction. Congress and the executive branch have issued insufficient guidance, federal agencies are not monitoring the nation’s wetlands with an acceptable level of regularity, nor are they issuing permits and ordering mitigation in line with their regulations, and the federal courts are granting legal sanction to this sorry state of affairs; second, if “no net loss” of wetlands really is our nation’s goal, this situation is unworkable. There is no real mechanism in place to determine how many acres of wetlands exist, let alone determine what is happening to them. “No net loss” is a worthy goal, but we are in a de-

132. 33 C.F.R. § 332.3(e)(2).

133. *Id.*

134. *Atchafalaya Basinkeeper*, 894 F.3d at 705 (Reavley, J., dissenting). “The LRAM lacks a critical explanatory component and thereby leaves the Corps’ out-of-kind mitigation unsubstantiated.” *Id.* “[W]hen the Corps applies in-kind mitigation to the LRAM’s calculated acreage, there is no need to manipulate the end product because the Corps’ path is self-explanatory . . . But when the Corps substitutes on the back end a resource that is out of kind . . . the LRAM can no longer rely on a presumption of like functions for like resources.” *Id.*

135. 33 C.F.R. § 332.3(e)(1).

facto state of poorly managed retreat. Policymakers need to determine if “no net loss” is still an achievable objective, and, if not, what comes next?

Unless and until we decide to accept some losses, USACE should step up direct monitoring of mitigation banks. This monitoring should be carried on in perpetuity. If USACE’s RIBITS portal is accurate, it appears that very few monitoring visits are ever performed. This is appropriate under EPA and USACE’s current regulations: as it stands, the district engineer or their staff “may” conduct inspections, with a suggested frequency of once per year.¹³⁶ The mitigation banking industry currently operates on a system of self-reporting. While that might be acceptable under more favorable conditions, it is harder to accept when we know so little about the long-term viability of mitigation banking projects.

USACE should overhaul its LRAM formula to reflect a serious commitment to the policy of “no net loss.” As desirable as wetlands preservation is, it is self-defeating as part of the LRAM for two reasons: first, preserving existing wetlands with one hand cannot balance out destroying wetlands with the other, the net result will always be negative; and second, USACE is only required to follow up on preservation efforts for five years. Wetlands preservation should be encouraged, but the CWA 404(b) permitting process is not the time to do it.

Likewise, USACE should adjust the value of RID wetlands within the LRAM formula much higher, and even consider splitting the RID category into several sub-categories. As it stands, it is trivially easy to account for destruction to RID wetlands by purchasing out-of-kind mitigation credits. As long as *Atchafalaya Basinkeeper* stands as good law in the Fifth Circuit, we will never escape the easy availability of out-of-kind credit balancing. We can mitigate the harm to the Gulf Coast’s most valuable wetlands by increasing the value of RID wetlands beyond three credits, with the most vulnerable ecosystems elevated much higher. It is worth considering if development in these ecosystems should be allowed at all. Even if USACE lacks the authority to bar development, it is within their prerogative to set the credit cost of certain ecosystems at a level that accurately reflects their value.

Once more effective mechanisms for monitoring mitigation banks are in place, USACE should adjust the credit values for re-establishment, rehabilitation, and enhancement based on their objective performance. CWA 404-permitted development is just one part of our nation’s overall wetlands policy, and it presents excellent opportunities to build up a reserve of wetlands rather than deplete them. There is a startling lack of

136. 33 C.F.R. § 332.6(a)(2); 40 C.F.R. § 230.96(a)(2).

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information regarding the performance of wetlands mitigation banks over time, and what information is available does not paint a positive picture. USACE could lower the mitigation credit values associated with these mitigation types to a realistic value, targeting an enduring net gain of wetlands even after five or ten years of degradation. Aiming higher, USACE could use the permitting stage as an opportunity to replenish the nation's wetland area. Even if USACE took on no greater monitoring responsibilities, incrementing the values of re-establishment, rehabilitation, and enhancement downwards could result in net gain of wetlands and the creation of an acreage buffer.

IX. CONCLUSION

The LRAM directly and unambiguously permits net loss of wetlands. On a national scale, net loss of wetlands is most likely occurring year after year, although the rate of loss is, disturbingly, unknown. More must be done, both within the New Orleans District and across the nation to properly account for, monitor, and increase our nation's wetlands. There are several changes to the LRAM that might place the New Orleans District on better footing. We know enough to say that development of RID wetlands is a disastrously bad idea, that preservation of wetlands is desirable but not an appropriate factor to consider in permitting decisions, and that in any case re-establishment, rehabilitation, and enhancement can serve as levers to start building up a buffer of wetlands. Even if *Atchafalaya Basinkeeper* remains good law, and the current regime of out-of-kind mitigation is allowed to persist, every CWA 404 permitting decision offers an opportunity to reverse the United States' historical wetlands losses.