

The Mythology of Mitigation Banking

by R. Kyle Alagood

R. Kyle Alagood holds an M.S. degree from University College London and a J.D. from Louisiana State University Law Center.

Over the past 200 years, the United States has lost half its natural wetlands. Because they are home to disproportionately diverse plant and animal species compared to other landforms, wetlands are important habitats.¹ They also serve other purposes: Wetlands feed downstream waters, trap floodwaters, recharge groundwater supplies, drive local economies, and provide recreation.² The loss of wetlands is an ecological disaster that threatens already endangered species, as well as the safety and economic well-being of populations who live on or near coastal wetlands, particularly in places like Louisiana. Fragile but economically, culturally, and ecologically important, Louisiana's wetlands comprise 40% of all wetlands in the United States, but its wetland loss is 80% percent of the national total. The state loses the equivalent of a football field of wetlands to the Gulf of Mexico every hour—this, despite a decades-old national policy calling for “no net loss” of wetlands.

The United States has a complex wetlands-protection regime that purports to protect wetlands, but instead has resulted in irreversible destruction of natural wetlands. Part I of this Comment is a step-by-step overview of the Clean Water Act (CWA)³ permitting process and compensatory mitigation, both of which aim to prevent development or destruction of wetlands. It is a guide through the regulatory framework for establishing mitigation banks, the preferred form of compensatory mitigation in the United States. Part II questions whether compensatory mitigation, particularly mitigation banking, is a viable long-term replacement for destroyed natural wetlands.

Part III compares Ohio's inland wetlands mitigation with Louisiana's coastal wetlands mitigation. The failure of mitigation banking to offset wetlands destruction in Ohio, where wetlands are relatively stable, illustrates that even in a best-case scenario where the challenges of tides, subsidence, and sea-level rise are not present, mitigation banking fails the no-net-loss objective. Part IV discusses policy and law oversight mechanisms that bear upon the success (or failure) of mitigation banking in the United

States. The Comment concludes that wetlands mitigation is no replacement for wetlands protection in Louisiana's vast coastal wetlands ecosystem.

I. The CWA and §404 Permitting

The CWA is the primary legal mechanism to “restore and maintain the chemical, physical, and biological integrity of . . . [U.S.] waters.”⁴ The CWA prohibits the discharge of pollutants from a point source into navigable waters without a permit.⁵ Under the CWA, a pollutant includes virtually any tangible material, including “dredged spoil,” “rock,” and “sand.”⁶ A point source is “any discernible, confined and discrete conveyance.”⁷ And navigable waters are all “waters of the United States,”⁸ meaning, at the very least, “relatively permanent, standing or continuously flowing bodies of water” such as streams, oceans, rivers, and lakes.⁹ Navigable waters under the CWA are not limited to the traditional requirements of interstate commerce and navigability in fact. Rather, the waters must have a “significant nexus” to waters that fit the traditional definition.¹⁰

The regulatory scheme implementing the CWA always covers traditional navigable waters, their relatively permanent tributaries, and wetlands abutting either. Regulatory guidance also broadly encompasses “[n]on-navigable tributaries that are not relatively permanent . . . [w]etlands adjacent to [them] . . . [or] [w]etlands adjacent to but that do not directly abut [them],”¹¹ so long as the purportedly covered waters have a significant nexus to traditionally navigable waters.

But what are wetlands? The term came to prominence during the environmental movement of the mid-20th century. It replaced terms such as swamp and bog, which most people associated with disease and which farmers filled in for planting. As one scholar put it, “Ecologists argue that a

4. 33 U.S.C. §1251(a).

5. *Id.* §§1311(a) & 1362(12).

6. *Id.* §1362(6).

7. *Id.* §1362(14).

8. *Id.* §1362(7).

9. *Rapanos v. United States*, 547 U.S. 715, 716, 36 ELR 20116 (2006) (Justice Antonin Scalia writing for plurality).

10. *Id.* at 717.

11. U.S. ENVTL. PROT. AGENCY (EPA), MEMORANDUM, CLEAN WATER ACT JURISDICTION FOLLOWING THE U.S. SUPREME COURT'S DECISION IN *RAPANOS V. UNITED STATES* & *CARABELL V. UNITED STATES* 1 (2008).

1. Roddy Scheer & Doug Moss, *Why Are Wetlands So Important to Preserve?*, SCI. AM., June 19, 2013, <http://www.scientificamerican.com/article/why-are-wetlands-so-important-to-preserve/>.

2. *Id.*

3. 33 U.S.C. §§1251-1387, ELR STAT. FWPCA §§101-607.

wetland is a wetland; the courts have argued that a wetland is sometimes a wetland, and the Army Corps of Engineers argues that wetlands are wetlands only if the Corps says so”¹² Under the CWA’s regulatory scheme, wetlands are defined as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”¹³

A. Section 404 and Compensatory Mitigation

Although CWA §301 prohibits discharging any pollutant from a point source into navigable waters, §404 allows the U.S. Army Corps of Engineers (the Corps) to issue permits for “the discharge of dredged or fill material into the navigable waters” of the United States,¹⁴ including jurisdictional wetlands.¹⁵ Discharging dredged materials “means any addition of dredged material into, including redeposit of dredged material other than incidental fallback within, the waters of the United States.”¹⁶ Moving material, such as marsh grasses or dirt, from place to place during operations in jurisdictional areas constitutes discharge and therefore requires a §404 permit.¹⁷

The general policy toward wetlands in the United States is that there be “no overall net loss.”¹⁸ The §404 permitting process is the primary mechanism for achieving that goal (and the goals of the CWA more generally). Under the CWA regime, anyone who seeks to dredge or dump fill into the waters of the United States, including wetlands, must apply for a permit. The application goes through public notice and comment, after which the Corps decides whether to grant the permit. After the developer applies for the permit, the Corps analyzes the application in light of the public interest in “both protection and utilization of important resources.”¹⁹ As a condition for receiving a §404 permit for activity that would otherwise be prohibited under the CWA, the Corps generally requires the permittee to offset any unavoidable adverse wetlands impacts through some form of compensatory mitigation.²⁰

Compensatory mitigation is “a critical tool in helping the federal government to meet the longstanding goal of ‘no net loss’ of wetland acreage and function.”²¹ It is only an option if “all appropriate and practicable steps have been taken to first avoid and then minimize adverse impacts” on wetlands and aquatic ecosystems.²² There are three primary forms of compensatory mitigation: “permittee-responsible compensatory mitigation,” which requires the permittee to ensure that mitigation is completed; “in-lieu fee programs,” which involve paying a third party to complete mitigation; and “mitigation banking,” whereby restoration occurs before the adverse activity, thereby creating “credits” to be used or sold later.²³ According to the regulations, mitigation banking is generally “give[n] preference” over other forms of compensatory mitigation.²⁴

Throughout the §404 permit review process, the Corps takes into account measures proposed by the developer to mitigate the unavoidable effects of development on protected waters and/or wetlands.²⁵ Any required mitigation may be accomplished onsite, but often it occurs at an off-site location. The permit may be conditioned on actual implementation of the mitigation proposal.²⁶

Key to the concept of mitigation banking is that “the developer is not required to be the entity that accomplishes the mitigation. Rather, the regulations contemplate an option whereby the developer may secure mitigation ‘credits’ from a third party.”²⁷ The third party is the operator of a mitigation bank. Mitigation banks are lands where natural resources, such as wetlands or riparian areas, are “restored, established, enhanced, and/or preserved” in exchange for payment from developers required by §404 permits to offset their ecological damages by compensatory mitigation.²⁸ Mitigation banks’ operation and use must be pursuant to a “mitigation banking instrument.”²⁹

B. Mitigation Banking Framework

The mitigation banking instrument is the legal document that establishes a mitigation bank and sets forth its approved operation and use.³⁰ It is the result of a multi-step application process involving the mitigation bank sponsor, the Corps, other key agencies, and the public.

The mitigation plan is developed by the bank’s sponsor, usually after consultation with the local Corps. The plan describes the kinds of resources the bank will provide and

12. See Michael Kantor, *Banking on the Impossible: The Political Life of Wetlands in Southern Louisiana* 21-22 (Syracuse Univ. Maxwell Sch. of Citizenship & Pub. Affairs Geography Theses, Paper No. 5, 2013).

13. 33 C.F.R. §328.3(b).

14. 33 U.S.C. §1344.

15. 40 C.F.R. §230.3(s).

16. 33 C.F.R. §323.2(d)(1).

17. See *Avoyelles Sportsmen’s League, Inc. v. Marsh*, 715 F.2d 897, 922-24, 13 ELR 20942 (5th Cir. 1983).

18. See WHITE HOUSE OFFICE ON ENVTL. POLICY, *PROTECTING AMERICA’S WETLANDS: A FAIR, FLEXIBLE, AND EFFECTIVE APPROACH* (1993), <https://web.archive.org/web/20120322032001/http://www.wetlands.com/fed/aug93/wet.htm>.

19. 33 C.F.R. §320.4(a)(1).

20. Compensatory Mitigation for Losses of Aquatic Resources, 73 Fed. Reg. 19594 (Apr. 10, 2008) [hereinafter *Compensatory Mitigation*].

21. *Id.*

22. *Id.*

23. *Id.*

24. See 33 C.F.R. §332.3(b)(2).

25. *Id.* §320.4(r).

26. *Id.* §325.4(a).

27. *Pioneer Reserve, LLC v. United States*, 119 Fed. Cl. 201, 203, 44 ELR 20257 (Fed. Cl. 2014).

28. See 33 C.F.R. §332.2.

29. *Id.*

30. *Id.*

whether compensation will be by restoring, establishing, enhancing, or preserving resources on the site.³¹ It also lays out the proposed site's baseline "ecological characteristics," from which mitigation performance will be measured,³² and plans for achieving preservation, including whatever legal arrangements or instruments are needed to "ensure the long-term protection" of the site.³³ Once the sponsor develops the mitigation plan, it submits the plan to the Corps, along with a summary prospectus and other documentation relating to the proposed mitigation bank.³⁴

After the mitigation bank sponsor files the prospectus and attachments with the local Corps district, the Corps district engineer assembles an Interagency Review Team (IRT) to review the proposal.³⁵ The "primary role" of the IRT—a panel including the U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service, Natural Resource Conservation Service, and other interested public agencies—is to "facilitate the establishment of mitigation banks or in-lieu fee programs through the development of mitigation banking or in-lieu fee program instruments."³⁶ The IRT has 30 days to review the sponsor's proposal and "provide comments[, if any,] to the district engineer."³⁷ During this first phase of review, the district engineer must also give notice and allow the public at least 30 days to comment on the proposal.³⁸

After public comment, the district engineer reviews the IRT and public comments, then makes a written evaluation of the proposal's potential to provide compensatory mitigation for §404 permitted activities. If the district engineer decides the mitigation bank proposal has potential, he or she shares the evaluation and any comments with the sponsor. The sponsor ultimately gets to choose whether to proceed with the proposal.³⁹ To continue the process, the sponsor must prepare a draft instrument and submit it to the district engineer.⁴⁰ The draft instrument must contain the mitigation plan and a credit release schedule.⁴¹ After another round of comments, and provided the draft instrument is "generally acceptable" without "significant unresolved concerns," the sponsor can submit a final instrument, which triggers a final 30-day round of review by the Corps district engineer and the IRT.⁴²

Ultimately, the district engineer has "final authority for approval" for mitigation bank proposals, but must "give full consideration to any timely comments and advice of the IRT."⁴³ If the final instrument is approved, the district engineer arranges for its signing, and the mitigation bank

may begin to sell credits according to the agreed-upon credit release schedule.⁴⁴

The discretion afforded to the district engineer, policy preference for mitigation banking over other forms of compensatory mitigation, and IRT mission to facilitate the establishment of mitigation banking all but ensures that mitigation bank applications will face little scrutiny. Furthermore, the Corps' historically weak oversight of §404 permitted mitigation⁴⁵ suggests that mitigation banks' success will be at the whim of the sponsor, with no real assurance of success.

II. The Myth of Perpetuity

Although individual compensatory mitigation projects have been successful, the overall success of mitigation banking is debatable. As mentioned above, however, mitigation banking is generally "give[n] preference" over other forms of compensatory mitigation.⁴⁶

When they proposed rule changes in 2008, the Corps and EPA explained that mitigation banking was preferable because "a mitigation bank must have an approved mitigation plan and other assurances in place before any of its credits can be used to offset permitted impacts, . . . which reduces some of the risks and uncertainties associated with compensatory mitigation."⁴⁷ Economies of scale, greater scientific resources, perceived greater likelihood of success, and consolidation of inspection sites further support mitigation banking as the preferable means of compensatory mitigation.⁴⁸ Greater economies of scale, however, mean that a single failure of a large mitigation bank would cause substantial loss of wetlands, whereas failed small mitigation attempts would generally result in marginal losses. In any event, there is scant evidence that the purported advantages of mitigation banking have in fact resulted in more consistently successful wetland mitigation.

A threshold requirement for mitigation banking success is the issue of longevity: How long must a mitigation bank exist? And how long must a mitigation bank function as wetlands?

Two policy factors lead to what turns out to be an erroneous assumption that mitigation banks must exist and function as wetlands in perpetuity. First, the goal of U.S. wetland policy is that there be "no net loss" of wetland acreage and function.⁴⁹ Second, the "fundamental objec-

31. *Id.* §332.4(c)(2).

32. 33 C.F.R. §332.4(c)(7).

33. *Id.* §332.4(c)(4).

34. *Id.* §332.8(d)(2).

35. *Id.* §332.8(b)(1).

36. *Id.* §332.8(b).

37. *Id.*

38. *Id.* §§332.8(d)(4), 325.3.

39. *Id.* §332.8(d).

40. *Id.* §332.8(d)(5)(2), (6)(i).

41. 33 C.F.R. §332.8(d)(6).

42. *See id.* §332.8(d)(7)-(8).

43. *Id.* §332.8(b)(4).

44. *See id.* §332.8.

45. *See* U.S. GOV'T ACCOUNTABILITY OFFICE (GAO), WETLANDS PROTECTION: CORPS OF ENGINEERS DOES NOT HAVE AN EFFECTIVE OVERSIGHT APPROACH TO ENSURE THAT COMPENSATORY MITIGATION IS OCCURRING 5 (Sept. 2005) (describing the limited oversight of §404 compensatory mitigation); Amos Esty, *Banking on Mitigation*, AM. SCI., Mar.-Apr. 2007, at <http://www.americanscientist.org/issues/pub/2007/2/banking-on-mitigation> (describing the Corps' time line for oversight of many compensatory mitigation sites as inadequate).

46. *See* 33 C.F.R. §332.3(b)(2).

47. *Compensatory Mitigation*, *supra* note 20.

48. *See* John J. Mack & Mick Micacchion, *An Ecological Assessment of Ohio Mitigation Banks: Vegetation, Amphibians, Hydrology, Soil* viii (Ohio EPA Tech. Rep. No. WET/2006-1, 2006).

49. *Compensatory Mitigation*, *supra* note 20, 73 Fed. Reg. at 19594.

tive of compensatory mitigation is to offset environmental losses resulting from unavoidable impacts” on U.S. waters and wetlands.⁵⁰

Section 404 permits, which trigger the need for compensatory mitigation to offset unavoidable impacts on protected wetlands, presume development will destroy already existing wetlands. As the U.S. Court of Appeals for the Federal Circuit put it in 2012, “Section 404 permits allow landowners to conduct environmentally destructive activity on their land that they would normally be able to do but for the existence of government regulations.”⁵¹ There is no need for mitigation unless there is a §404 permit; and there is no need for a §404 permit unless there will be destructive activity. By light of reason, the compensatory mitigation scheme chosen to offset the permanent loss of wetlands due to development should also be permanent. Nevertheless, federal regulations require only that mitigation banks have “long-term protection.”⁵² They need not necessarily last in perpetuity.⁵³

A. How Long Must Mitigation Bank Real Estate Be Protected?

While the goal of regulations for compensatory mitigation is to “ensure permanent protection of all compensatory mitigation project sites,”⁵⁴ the goal belies the regulations’ plain language:

[T]he overall compensatory mitigation project must be provided long-term protection through real estate instruments or other available mechanisms, *as appropriate* . . . [and] [t]he real estate instrument, management plan, or other mechanism providing long-term protection of the compensatory mitigation site must, *to the extent appropriate and practicable*, prohibit incompatible uses.⁵⁵

This portion of the regulations addresses how long a mitigation bank must exist—how long the land itself must be protected from development. The answer is “long-term . . . as appropriate.” Such qualifying language gives the Corps, through its district engineer, wide latitude in determining appropriate conditions for a mitigation banking instrument.

Before 2008, the *Federal Guidance for the Establishment, Use and Operation of Mitigation Banks* provided that “[m]itigation banks should be protected in perpetuity with appropriate real estate arrangements.”⁵⁶ But the 2008 regulations explicitly superseded the earlier guidance⁵⁷ and replaced perpetuity with “long-term” protection.

During the notice-and-comment period for the 2008 regulations, the Corps and EPA received comments raising concerns with the rule’s discretionary language. Some comments supported the flexible approach; others urged that mitigation banks be protected in perpetuity through conservation easements. The Corps and EPA responded that language giving the Corps a great deal of discretion was necessary because, in some states, real estate or legal instruments are limited to a set number of years. In effect, some states prohibit perpetual protection of real estate.⁵⁸ “Therefore,” the Corps and EPA responded to comments, “we cannot require specific terms for real estate instruments in this rule. The terms for conservation easements, restrictive covenants, and other mechanisms are more appropriately addressed by district engineers on a case-by-case basis.”⁵⁹

B. How Long Must Mitigation Banks Function as Wetlands?

Protecting the real estate comprising a mitigation bank is only part of the mitigation equation. The real estate also must function as wetlands. If mitigation banking is the preferred means of offsetting permanent destruction of natural wetlands, how long must wetlands created by a mitigation bank function? According to the 2008 regulations, “To the *maximum extent practicable*[, mitigation banks] . . . must be planned and designed to be self-sustaining over time, but some active management and maintenance may be required to ensure their long-term viability and sustainability.”⁶⁰ Whereas natural wetlands are permanently destroyed by activity allowed by a §404 permit, the federal mitigation bank regime does not require their artificial replacements to function in perpetuity.⁶¹

III. Mitigation Realities: Ohio’s Stable Inland Wetlands and Louisiana’s Coastal Wetlands

The long-term protection of a mitigation site on paper is an entirely different matter from long-term protection in practice. Long-term protection and the policy goal of no net loss presume that wetlands are relatively stable, such as inland (nontidal) wetlands found along rivers and in low-lying areas.⁶² Coastal wetlands, such as those in Louisiana, are by nature unstable. The Louisiana coast is characterized by its instability and evolution over time, as the Mississippi River has shifted course, depositing sediments and carving new courses to the Gulf of Mexico over time.⁶³ For

50. 33 C.F.R. §332.3(a)(1).

51. *Hearts Bluff Game Ranch v. United States*, 669 F.3d 1326, 1329, 42 ELR 20020 (Fed. Cir. 2012).

52. See 33 C.F.R. §332.7(a)(1).

53. But the Corps may deny a sponsor’s application to create a mitigation bank that will not last in perpetuity—when a proposed reservoir will overlap with (and flood) a proposed mitigation site, for example. See *Hearts Bluff Game Ranch*, 669 F.3d at 1328.

54. *Compensatory Mitigation*, *supra* note 20, 73 Fed. Reg. at 19642.

55. 33 C.F.R. §332.7(a) (emphasis added).

56. 60 Fed. Reg. 12286, 12292 (Mar. 6, 1995).

57. 33 C.F.R. §332.1(f)(1).

58. *Compensatory Mitigation*, *supra* note 20, 73 Fed. Reg. 19646.

59. *Id.*

60. 33 C.F.R. §332.8(a)(2) (emphasis added).

61. State laws may require perpetual management of wetlands. See, e.g., FLA. STAT. §373.4136(1)(c) (2015).

62. U.S. Geological Survey, National Wetlands Research Ctr., *Inland Wetlands (Non-Tidal)*, <http://www.nwrc.usgs.gov/topics/wetlands/wetlandsInland.htm> (last visited May 11, 2015).

63. S. Jeffress Williams, U.S. Geological Survey, *Louisiana Coastal Wetlands: A Resource at Risk*, <http://pubs.usgs.gov/fs/la-wetlands/> (last visited May 11, 2015).

most inland wetlands, long-term protection is possible, so long as depressions where water collects remain. Coastal wetlands, on the other hand, are at the mercy of the tides, sea-level rise, and in some cases the natural delta cycle of rivers flowing through the wetlands.

Ohio and Louisiana have vastly different ecological characteristics, particularly concerning their respective wetlands. Ohio's wetlands are inland and, therefore, generally stable. Unlike Louisiana's coastal wetlands, Ohio's wetlands are not affected by the tides, waves, sea levels, or river delta cycles. Therefore, mitigation banks in Ohio benefit from stability and can plan for long-term replacement of natural wetlands with functional mitigation bank wetlands. The Ohio experience with mitigation banking is a better- or best-case scenario for mitigation banking success, given its steady-state environment. Louisiana's coastal wetlands, on the other hand, are part of an inherently unstable ecology that is affected by subsidence (the sinking of land), sea-level rise, waves, currents, tides, tropical storms, and the Mississippi River Delta. The failure of wetlands mitigation banking to produce "no net loss" of natural wetlands in steady-state Ohio should serve as a cautionary tale along the unstable Louisiana coast.

A. Ohio

In 2006, scientists with the Ohio Environmental Protection Agency undertook a comprehensive study of the state's mitigation banks. At the time, Ohio had 18 mitigation banks, 12 of which had been in place long enough for meaningful study. To evaluate the success of Ohio's mitigation banks, the scientists visited each of the 12 sites several times, studying their vegetation, soil, water, amphibious and microvertebrate species, and hydrology.⁶⁴ Their comprehensive analysis compared the mitigation banks' ecology with that of similar natural wetlands. The study's goal was "to evaluate whether banks in Ohio were in fact providing [the] consistently high quality wetland 'product'"⁶⁵ contemplated by regulations preferring mitigation banking over other forms of compensatory mitigation.⁶⁶ The results were dismal.

The scientists first evaluated "[b]asic vegetation and wetland establishment" to determine what acreage at each bank site was in fact "jurisdictional wetlands."⁶⁷ Jurisdictional wetlands are those covered by §404 permitting requirements, the destruction of which must be mitigated. The basic requirements for jurisdictional wetlands status are hydric soils, dominance of hydrophytic vegetation, and wetland hydrology.⁶⁸

The goal of compensatory mitigation being to pursue a no-net-loss policy, jurisdictional wetlands acreage at each bank should be at least equal to the acreage of jurisdic-

tional wetlands lost due to development. Instead, the Ohio study found that more than 100 hectares of jurisdictional wetlands had been lost and remained uncompensated for. Indeed, more than one-quarter of the acreage assessed was open water.

Mitigation banks with no more credits to sell or where all remaining credits have been freed for sale were responsible for more than 70 hectares of jurisdictional wetland loss. That loss would be a permanent net loss, because there was no longer an opportunity for reduction of credits to account for the failed acreage. One in 10 plots selected for evaluation were just ponds, completely lacking in vegetation.⁶⁹

The study evaluated the quality of Ohio mitigation banks as an amphibian habitat. Using the Amphibian Index of Biotic Integrity (AmphIBI), scientists can score amphibious habitats from 0 to 50. Scores from 0 to 9 indicate poor quality. The highest score at any Ohio mitigation bank was 3. Most of the banks scored 0.⁷⁰ Perhaps unsurprisingly, mitigation banks were of lower quality as an amphibious habitat than were natural forest and shrub-dominated wetlands (mature wetlands); but tellingly, the mitigation banks also scored lower than natural emergent wetlands.⁷¹

Open water and shallow, unvegetated ponds do not meet the Corps' criteria for wetlands under the 1987 Delineation Manual,⁷² yet one-quarter of mitigation bank acreage assessed in the Ohio study was just that. When researchers compared vegetation on the remainder of mitigation bank acreage with natural wetlands, one-quarter of the banks' acreage was of "poor" quality and less than one-fifth was considered "good." Amphibians, particularly more sensitive creatures such as spotted salamanders, did not fare well. Whereas at least one-half of the wetlands impacted by development in Ohio are forested wetlands that comprise protective habitats for less tolerant amphibians, almost all amphibians identified at mitigation banks were tolerant species such as green frogs.⁷³

Such results, the study concluded, "raise serious concerns with one of the fundamental premises of mitigation banking, i.e. mitigation banks are more likely than individual mitigations to be successful, either on a pure acre-for-acre basis or in terms of ecological quality."⁷⁴ The study's "overall conclusion" was "that mitigation banks are successful (or fail) for the same reasons that other wetland restorations, including individual mitigations, succeed or fail: poor design, planning, and/or management."⁷⁵

B. Louisiana

Mitigation banking was largely unsuccessful in Ohio, where wetlands are inland, primarily stable, and not sub-

64. Mack & Micacchion, *supra* note 48, at 2-5.

65. *Id.* at 1.

66. *See, e.g.*, 33 C.F.R. §332.3(b)(2).

67. U.S. ARMY CORPS OF ENG'RS, WETLANDS DELINEATION MANUAL 12-34 (1987); Mack & Micacchion, *supra* note 48, at 6.

68. Mack & Micacchion, *supra* note 48, at 17.

69. *Id.* at 7.

70. *Id.* at 10.

71. *Id.*

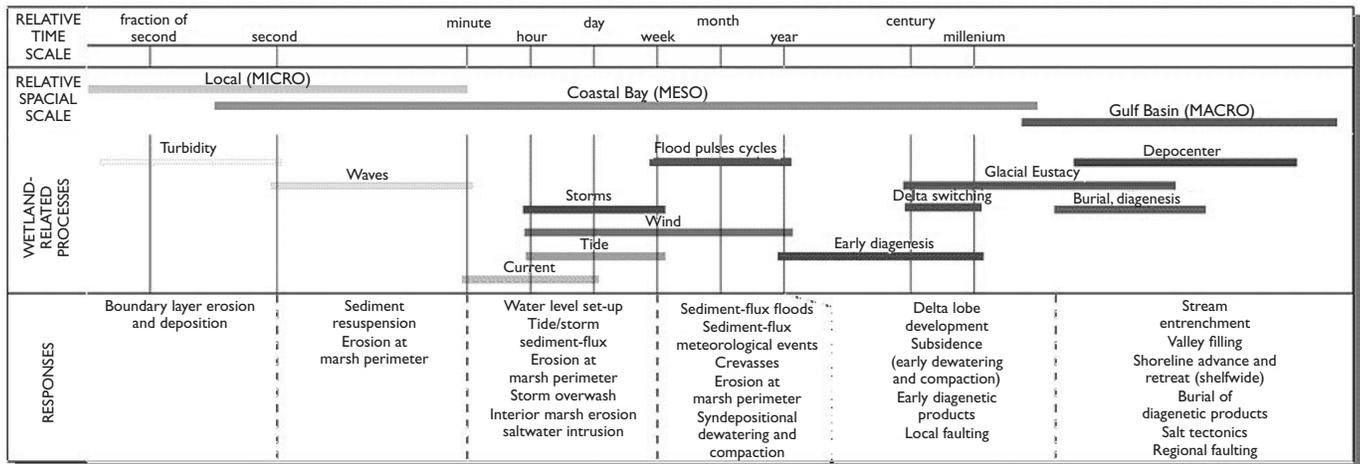
72. CORPS, *supra* note 67, at 2-3, 10.

73. Mack & Micacchion, *supra* note 48, at 17.

74. *Id.*

75. *Id.* at 19.

Temporal and spatial relationships of wetland-related processes and responses.



Source: U.S. Geological Survey, Louisiana Coastal Wetlands: A Resource at Risk, <http://pubs.usgs.gov/fs/la-wetlands/>.

ject to subsidence, sea-level rise, or the delta cycle of a major river. Louisiana’s coastal wetlands are characterized by their instability, making them a much riskier prospect for mitigation banking success. If the natural state of Louisiana’s coastal wetlands is constant change—from emergence to growth to destruction to inundation—the long-term success of a mitigation bank is questionable at best. Mitigation banks are tied to a location. Once all credits are sold, there is no means of ensuring no net loss of wetlands if the bank’s wetlands are destroyed. Further, the natural wetlands that mitigation banks replace are constantly growing, degrading, and moving with the river delta; but mitigation banks are limited by their boundaries to remain in one place despite natural changes in landscape.

Louisiana’s coastal wetlands are a product of the interaction of regional climate, the oceanic regime, and the Mississippi River.⁷⁶ As it flows into the Gulf of Mexico, the Mississippi River deposits sediments, creating a sedimentary basin. So long as the river stays its course, the sedimentary deposits build up, eventually constructing land upon which coastal marshes grow.⁷⁷ But the river changes course. When it does, the coastal marshes subside until they are sunk beneath the marine waters of the Gulf of Mexico.⁷⁸ The location of coastal marshes is also a product of oceanic changes, particularly changes in sea level.

During glacial maximums, water is captured as ice, which causes sea level to drop. The coast moves outward as formerly inundated ocean bottoms are exposed. The river carves a path through newly exposed land so that the river’s mouth remains at sea level. Louisiana’s coastal wetlands grow as the river lengthens. Indeed, the wetlands along Louisiana’s coast were 50% larger during the most recent ice age.⁷⁹ As global temperatures rise and ice melts, sea lev-

els rise and begin to cover exposed lands. The river delta recedes. Coastal marshes are inundated.⁸⁰

The Mississippi River Delta has evolved over millennia. Its delta lobes and associated coastal wetlands have never been in a steady state.⁸¹ The wetlands created by sedimentary deposit are constantly changing with the river’s delta cycle.⁸² Along with the delta cycle, Louisiana’s coastal wetlands are constantly bombarded by short-term processes associated with the intermix of the river system and the region’s subtropical climate. Waves, currents, tides, storms, and winds all shape Louisiana’s coastal wetlands, sometimes on a scale of mere hours or days. The graph above, from the U.S. Geological Survey, shows the temporal and spatial relationships of wetland-related processes and responses. It illustrates the instability and constant change that is characteristic of Louisiana’s coastal wetlands.

The fact that Louisiana’s coastal wetlands are inherently unstable makes compensatory mitigation virtually impossible. Because Louisiana’s coastal wetlands are not and have never been permanent, coastal wetlands restoration efforts are tantamount to chasing rainbows. Take the Chef Menteur Pass Mitigation Bank as an example. The bank is located east of New Orleans, in an area between Lake Borgne and Lake Pontchartrain. Its goal is to restore a land bridge that separates the two lakes and to recreate lost wetlands by pumping sediment from the bottom of Lake Borgne.⁸³ The project sponsor is a private company that ultimately hopes to restore 508 acres of wetlands in exchange for 508 compensatory mitigation credits it can then sell to offset wetlands loss from \$404 permitted activity.⁸⁴

The Chef Menteur Pass Mitigation Bank restoration project sounds good on paper, and its near-term success

76. JAMES G. GOSSELINK, THE ECOLOGY OF DELTA MARSHES OF COASTAL LOUISIANA: A COMMUNITY PROFILE 9 (1984).
 77. *Id.* at 15-16.
 78. *Id.* at 16-17.
 79. *Id.* at 15.

80. *Id.*
 81. *See id.* at 16.
 82. *Id.* at 17.
 83. John Schwartz, *Envisioning Profit in Environmental Good Works*, N.Y. TIMES, July 12, 2014, available at http://www.nytimes.com/2014/07/13/us/equity-firm-restores-louisiana-marshland-to-earn-credits-it-can-sell.html?_r=0.
 84. *Id.*

has been applauded. In reality, the project is premised upon the mythology of a steady-state wetlands system in southern Louisiana. The bank aims to restore wetlands that degraded as part of the Mississippi River Delta's natural cycle. The bank is located in the St. Bernard Delta, which the river began abandoning to subsidence and marine processes some 1,800 years ago.⁸⁵ Over time, the interior marshes deteriorated and islands at the end of the delta lobe sank or were washed away.⁸⁶ The Chef Menteur Pass Mitigation Bank is recreating wetlands lost as part of this natural system.

Far from restoring wetlands to their natural state, the Chef Menteur Pass Mitigation Bank is actually seeking to prevent nature from taking course. For stymieing the natural system, the Chef Menteur Pass Mitigation Bank will be rewarded with lucrative credits to offset wetlands destruction elsewhere.

IV. Law, Policy, and Politics: Mitigation Banking's Thin Veneer

By embracing mitigation banks as the preferred means of compensatory mitigation, federal law and policy arguably have encouraged destruction of natural wetlands. Mitigation banks have created a system by which developers can easily satisfy compensatory mitigation obligations without thinking deeply about the development project's impact on wetlands. Although mitigation banking is desirable because it purportedly protects wetlands before §404 permits are issued, scientific studies have shown that mitigation banking often falls flat as a conservation tool.

Mitigation banking is a veneer of environmentalism. Like gold plating on costume jewelry, mitigation banking looks like conservation, but eventually wears away to reveal its own worthlessness. The failures of mitigation banks in steady-state Ohio should serve as warnings. Why, then, has mitigation banking persisted?

A. Oversight by the Corps

The Corps has incentives to approve the creation of mitigation banks. In theory, having a few large compensatory mitigation sites would allow the Corps to better monitor mitigation projects' success than would on-site mitigation at each permitted location. However, a 2005 report by the U.S. Government Accountability Office (GAO) blew that theory out of the water. The title of the GAO's comprehensive report on compensatory mitigation is telling: *Wetlands Protection: Corps of Engineers Does Not Have an Effective Oversight Approach to Ensure That Compensatory Mitigation Is Occurring*.⁸⁷ Among other things, the GAO report found that the Corps had rarely inspected mitigation banks. Fur-

ther, nearly one-third of mitigation banks had not even submitted required monitoring reports.⁸⁸ As a result, mitigation banks largely are left to their own devices, and once their credits are sold, there is little incentive for them to ensure long-term ecology.

B. Suing to Enforce the CWA

Citizens and environmental groups asserting associational standing may rely on the Administrative Procedure Act (APA) to challenge certain actions by the Corps and EPA. In *South Carolina Coastal Conservation League v. U.S. Army Corps of Engineers*, for example, an environmental group invoked the APA to challenge the Corps' and EPA's approval of a mitigation banking instrument in South Carolina.⁸⁹ And in *Sierra Club v. St. John's River Water Management District*, an ongoing case in the Middle District of Florida, the Sierra Club is asserting that the Corps and a state water management district working in tandem with the Corps violated statutory and regulatory preconditions to issuances of permits relating to development of land in an existing mitigation bank.⁹⁰ Suits under the APA involving mitigation banks, such as these, challenge procedural problems with the approval process. Suits under the APA do not, however, address liability for a mitigation bank that fails to function as wetlands, as the eventual failure of a mitigation bank is not a final agency action.

Citizen suits are a potential mechanism for litigating the failure of a mitigation bank to function as wetlands. The citizen suit was built into the CWA as a means for public enforcement of the law, but it is unclear whether citizen suits are at all applicable to enforcement of mitigation banking performance. The citizen suit provision of the CWA defines specific parameters for citizen suit claims. Claims must be related to an "effluent standard or limitation" that has been allegedly violated.⁹¹ Under 33 U.S.C. §1365(f), an "effluent standard or limitation" is defined by specific statutes. The only listed statute relating to mitigation banking instruments and mitigation banks is 33 U.S.C. §1342, pertaining to the issuance of §404 permits. There is no mention under the CWA's citizen suit provision of any cause of action directly relating to mitigation banks themselves.⁹²

Further, there is a lingering question of the proper defendant. Once a permittee has purchased mitigation credits, the permittee has fulfilled his or her obligations under the §404 permit. Thus, the permittee likely is no longer liable as a defendant. Obligations for mitigation of wetland destruction are transferred to the mitigation bank sponsor, who may be liable for the bank's failure to function as a wetland.

88. *Id.* at "Highlights."

89. 789 F.3d 475, 479 (4th Cir. 2015).

90. No. 6:14-cv-1877-Orl-40DAB, Order at 3, 7-8 (M.D. Fla. Nov. 6, 2015).

91. 33 U.S.C. §1365(a)(1).

92. In *St. Johns River*, the Sierra Club's allegation that a mitigation bank sponsor had failed to comply with the CWA survived motions to dismiss. But that case centers on permits enabling removal of land and mitigation credits from a mitigation bank, not the failure of a mitigation bank to function as wetlands.

85. GOSSELINK, *supra* note 76, at 17.

86. *Id.* at 18.

87. U.S. GAO, WETLANDS PROTECTION: CORPS OF ENGINEERS DOES NOT HAVE AN EFFECTIVE OVERSIGHT APPROACH TO ENSURE THAT COMPENSATORY MITIGATION IS OCCURRING, GAO 05-898 (2005).

In the event that a mitigation bank sponsor is successfully sued for failure to perform compensatory mitigation obligations, bankruptcy is an option. In New Jersey, for example, a mitigation bank accidentally drained 19 acres of adjacent wetlands. The state successfully sued, receiving a multimillion-dollar judgment against the mitigation bank sponsor, who had failed to keep bond payments up to date. Subsequently, the sponsor sold its assets, but not all its debts. When the mitigation bank sponsor filed for bankruptcy, New Jersey's judgment was deemed an unsecured debt. As a result, the mitigation bank's depletion of wetlands left no adequate remedy for anyone, even the state, to pursue.⁹³

The New Jersey example is telling for two reasons. It illustrates that asset transfer and bankruptcy is a relatively painless process for mitigation banks to undergo in order to avoid costly obligations. Additionally, it shows that even bonding requirements for mitigation banks to operate are fraught with risk.

C. Oversight by Environmental Groups

What about environmental watchdogs? For many environmentally conscious people, environmental groups are presumably the front line for defending wetlands and wildlife. In 2013, charitable donations to environmental and wildlife groups in the United States reached \$9.72 billion.⁹⁴ EPA's budget that year was only \$7.9 billion.⁹⁵ Given the dearth of data showing that mitigation banking aids conservation, along with scientific evidence suggesting that mitigation banking actually results in a net loss of wetlands, conservation groups might be expected to oppose mitigation banking.

Nevertheless, many groups have embraced the practice. The Environmental Defense Fund, for example, describes mitigation banking as "a path to a better economy and healthier environment."⁹⁶ But the group's manager of habitat markets, Will McDow, is a board member of the National Mitigation Banking Association, the wetland mitigation banking trade group, whose board is dominated by mitigation banks.⁹⁷ The Nature Conservancy calls mitigation banking "a valuable conservation tool,"⁹⁸ but the Conservancy owns and operates mitigation banks—profiting handsomely from mitigation credit sales.⁹⁹ The chief investment officer of the Lincoln Institute of Land Policy,

a nonprofit that focuses on land use, described his organization's investment in the Chef Menteur Pass Mitigation Bank more transparently than most nonprofit groups: "This is not a charity for us."¹⁰⁰

V. Conclusion

Louisiana has embraced coastal restoration and mitigation banking as a cure-all to protect the state from hurricanes and improve the environment. But coastal restoration is largely based on the myth of a steady-state ecological system in southern Louisiana.¹⁰¹ Mitigation banking is, in turn, built on the assumption that economies of scale will produce better results. As the Chef Menteur Pass Mitigation Bank example shows, the myth of coastal restoration has resulted in mitigation banks opening in areas where wetlands degradation is a natural process. The failure of such banks is a *fait accompli*: Nature will win in the end.

The Ohio experience further calls into question the U.S. policy preference for mitigation banking over other forms of compensatory mitigation. In Ohio's relatively stable wetlands ecosystems, mitigation banks have, for a variety of reasons, largely failed. Even in areas where the mitigation bank had created jurisdictional wetlands, the quality of those wetlands was poor. Ecologically speaking, wetlands in mitigation banks fell short of their goal, which was to replace natural wetlands destroyed by §404 permitted activity. Ohio's findings should serve as a warning about the presumptions underlying U.S. wetlands policy: Mitigation banking does not replace natural wetlands, even in stable, inland wetlands systems.

Although Louisiana has not completed a comprehensive study like the one in Ohio, the natural history of the states' coastal wetlands strongly suggests that mitigation banking to offset §404 permitted activity will actually result in a net loss of Louisiana's wetlands. After all, "[t]he whole point of wetland mitigation banking—what makes its economic incentives work—is that developers get to wipe out wetland patches in the higher-priced land markets and bankers get to establish wetland banks in the less-pricy land markets."¹⁰² Given the myriad factors affecting wetlands loss along Louisiana's coast, including relative sea-level rise and the natural river delta cycle, mitigation banking is unlikely to deliver on its promise that there will be no net loss of wetlands. Rather than sinking money into rebuilding sunken wetlands that are destined to be inundated by the Gulf of Mexico, Louisiana's policymakers should focus resources on protecting natural resources from development and destruction by facilitating an orderly retreat from the coast.

93. Royal C. Gardner & Theresa J. Pulley Radway, *What Happens When a Wetland Mitigation Bank Goes Bankrupt?*, NAT'L WETLANDS NEWSL. 18-20 (July/Aug. 2006).

94. *Giving Statistics*, CHARITY NAVIGATOR, <http://www.charitynavigator.org/index.cfm?bay=content.view&cpid=42#.VVoezBduqHo> (last visited May 16, 2015).

95. U.S. EPA, *EPA's Budget and Spending*, <http://www2.epa.gov/planandbudget/budget> (last visited May 16, 2015).

96. Will McDow, *Mitigation: A Path to a Better Economy and Healthier Environment*, ENV'TL DEF. FUND, May 9, 2014, <http://www.edf.org/blog/2014/05/09/mitigation-path-better-economy-and-healthier-environment>.

97. National Mitigation Banking Ass'n, *Board of Directors*, <http://mitigation-banking.org/board-of-directors/> (last visited Dec. 13, 2015).

98. The Nature Conservancy, *Mitigation Banking in Mississippi*, <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/mississippi/mitigation/index.htm> (last visited May 16, 2015).

99. *See id.* (advertising sales of credits in Mississippi).

100. Schwartz, *supra* note 83.

101. *See generally* Edward P. Richards, *Rethinking Environmentalism and Sustainability for a Changing World: The Example of Sea Level Rise and the Mississippi Delta*, available at <http://sites.lsu.edu/seminar/files/2015/01/Rethinking-Sustainability-For-a-Changing-World.pdf> (draft).

102. J.B. Ruhl & James Salzman, *The Effects of Wetland Mitigation Banking on People*, 28 NAT'L WETLANDS NEWSL. 1, 8 (Mar./Apr. 2006).