
Evaluating Long-Term Stewardship of Compensatory Mitigation Sites: Preliminary Findings From California

Eight years after the 2008 Compensatory Mitigation Rule clarified requirements for compensatory mitigation, the author has begun reviewing the long-term stewardship of wetland mitigation banks. This article presents preliminary results from the evaluation of California's mitigation banks and a strategy for completing this review in other states across the country.

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Compensatory mitigation regulations issued in 2008 by the U.S. Army Corps of Engineers (the Corps) and U.S. Environmental Protection Agency (EPA) expanded and clarified requirements associated with the long-term stewardship of compensatory mitigation projects used to offset unavoidable impacts to wetlands, streams, and other aquatic resources under §404 of the Clean Water Act (CWA).¹ The author proposes a systematic evaluation examining how these long-term stewardship requirements have been implemented nationwide by mitigation banks and in-lieu fee (ILF) mitigation programs and shares preliminary findings from the first phase of this evaluation, which examines mitigation banks approved since 2008 in the state of California.

BACKGROUND

The CWA requires a permit to discharge dredged or fill material into waters of the United States, which includes all types of aquatic resources.² The §404(b)(1) Guidelines, the substantive environmental criteria used in making permit decisions, require that impacts must first be avoided and minimized and only remaining, unavoidable impacts may be offset via compensatory mitigation.³ The impacts compensatory mitigation projects are intended to offset are typically permanent, and so the compensation must also be permanent. In order to ensure a site's ecological values are maintained, some form of long-term stewardship is often required. Long-term stewardship must be properly planned and adequately funded for necessary work at a site to continue.

The 2008 Mitigation Rule (Rule) codified in regulations the long-term management provisions all mitigation projects must address in their mitigation plan.⁴ All mitigation plans must identify the party responsible for long-term management, include a description and annual cost estimate of necessary long-term management tasks,

and identify a funding mechanism that will provide for completion of these tasks into perpetuity.⁵

There are three general phases for all compensatory mitigation projects, which begin with working closely with the Corps and other agencies to achieve project approval. After approval, construction can begin on the site and regular monitoring is done to monitor progress on-site and determine if the project is meeting its performance standards. After a site has met all of its performance standards, it moves into the third phase: long-term stewardship. Long-term stewardship tasks may include activities such as ensuring the site continues to be protected for conservation purposes; the maintenance of physical structures on the property such as fences and gates; and, depending on the resource, more intensive (or extensive) management activities such as conducting prescribed burns or managing invasive species may also be necessary.

There are several entities involved in the long-term management of a mitigation site, outlined in Table 1. The endowment manager, the long-term steward, and the conservation easement holder need not always be separate entities. For example, a land trust may hold a conservation easement and also manage the endowment for a site. Or perhaps the easement holder will also serve as the long-term steward. The regulatory agencies (the Corps, EPA, and often the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and state resource agencies) are also involved in long-term stewardship, reviewing annual reports, providing oversight, and taking enforcement action, if necessary.

STUDY APPROACH

A permittee looking to fulfill their compensatory mitigation requirements has several options, including mitigation banks, ILF programs, and permittee-responsible mitigation. All of these forms of compensatory mitigation are expected to meet the same long-term stewardship requirements. To date, there

has not been a systematic evaluation of how the long-term management provisions of the Rule have been implemented at any mitigation projects, whether they be banks, ILF programs, or permittee-responsible mitigation. While data on permittee-responsible mitigation projects are not readily available, substantial data on banks and ILFs are publicly available through the Regulatory In-Lieu Fee and Bank Information Tracking System (RIBITS).⁶ RIBITS provides a comprehensive list of banks and ILF sites that have been approved since the requirements of the Rule went into effect, and additional documentation, such as a bank's instrument or ILF site plan detailing long-term plans, is also frequently publicly available on RIBITS. These documents are also always available to interagency review team agencies involved in the approval of a bank or ILF program.

Banks and ILFs are completing an increasing amount of compensation required nationwide.⁷ The Rule established a preference for permittees to first seek to fulfill their mitigation obligations through a mitigation bank, then an ILF, and finally through completion of a permittee-responsible project. As a result of this preference, the number of CWA §404 authorizations requiring compensatory mitigation provided by a bank or ILF program grew from 40% in 2010 to 64% in 2014. Considering the preference given to the use of banks and ILFs in the Rule, the resulting growth in the industry, and the greater data availability for these programs, this study is designed to focus on how long-term management has been addressed in bank instruments and ILF site plans. Some basic research questions include:

- How are the long-term management requirements of the Rule being addressed by banks and ILF programs?
- Are bank instruments, ILF site plans, or associated documents including itemized lists of long-term management tasks? Are estimated annual costs assigned to each task?
- What long-term financing mechanisms are commonly being used?
- Are long-term financing mechanisms including a contingency amount as well as accounting for inflation and, where appropriate, administrative fees?

Mitigation banks and ILFs cover much of the United States, with the most notable exception of less-populated areas of western states where banks and ILFs are not yet present.⁸ Given the geographic scope of banks and ILFs, any effort to look at how requirements of the Rule are being met must also consider a varied geographic range to account for possible regional differences. Accordingly, this effort is designed to be implemented in pilot states from across the contiguous United States, each selected for the unique characteristics or prevalence of banking or ILF programs in the state. The following states were selected as pilot states, given their geographic location and unique attributes.

- California has a robust banking program, with significant involvement in conservation banking.
- Virginia has many banks as well as a large number of ILF sites.
- Mississippi will provide data from the southeast United States and has many mitigation banks.
- Minnesota puts particular emphasis on selecting and designing self-sustaining sites and thus a review of banks from this state may provide a different perspective on long-term management.
- Maine has a very robust ILF program, utilizing a request for proposals approach to implementing projects.

In each of these states, data will be gathered from bank and ILF documentation in RIBITS, supplemented by information from IRT members. First, an examination of a 40% random sample of mitigation bank sites with nontidal wetland credits approved after June 9, 2008, the effective date of the Rule, will be completed. Following this review of mitigation banks, a 40% sample of ILF project sites producing nontidal wetland credits will also be reviewed. Because ILF programs had a longer period to come into compliance with the Rule, potentially up to June 9, 2013, ILF documentation will need to be carefully reviewed to ensure the project site was approved under the 2008 regulations. This exercise will also be repeated for banks and ILF sites with stream credits.

Entity	Role in Long-Term Management
Endowment or Fund Manager	Invests the endowment or other financial mechanism that is intended to provide the annual income necessary to fund annual long-term stewardship tasks.
Long-Term Steward	Implements the tasks identified in the long-term management plan, with costs covered by the endowment or other financial mechanism.
Conservation Easement Holder	Monitors the site for compliance with the terms of the easement and takes legal action, if necessary.
Regulatory Agencies	Review annual reports and may provide oversight or take enforcement action, if necessary.

Table 1. Entities Involved in Long-Term Management of a Mitigation Site.

DISCUSSION

California was selected as the first state to examine as long-term stewardship has received particular attention in the state. Conservation banking, which is prevalent in California, has always emphasized the need for long-term stewardship, and the state has also learned from past efforts.⁹ As a result, California is likely to be one of the most advanced states in the country when it comes to addressing long-term management and its funding. Since the Rule went into effect, 18 mitigation banks in California have been approved to sell credits to offset impacts permitted under §404 of the CWA. Taking a 40% random sample, eight mitigation bank instruments were reviewed. This discussion focuses on how the long-term stewardship requirements from the Rule have been addressed at California mitigation banks; subsequent articles may address a broader geographic range.

California Model Instrument Exemplary Provisions

In 2008, the Corps, EPA, the U.S. Fish and Wildlife Service, and the state of California developed templates for mitigation bank instruments, long-term management plans, and conservation easements. These materials were used by approved banks and include several provisions worth highlighting.

Itemized Task List to Estimate Funding Need. One of the most important elements of long-term management is accurately estimating the annual funding need of a site—or how much money the long-term steward will need each year to complete the tasks identified in the long-term management plan. Creating an itemized list of specific tasks and the associated annual cost is an important step toward doing this successfully. The California model long-term management plan makes it clear that this is the expectation, including a basic template for totaling costs associated with each task in the long-term management plan. More recent banking instruments sometimes include additional detail on the assumptions used in developing cost estimates, providing important information to long-term stewards and regulators as to how these estimates were developed. For example, one bank includes information on the number of hours estimated to be necessary to complete each task, and the assumed cost per acre-foot for water delivery.¹⁰ This kind of detailed documentation contributes to accurately estimating the funds needed each year to perform long-term management.

Fully Fund Endowment With Time to Mature. Once the annual funding need is calculated, an appropriate financial mechanism must be identified and funded to ensure funds will be available to allow the mitigation site to be maintained into perpetuity. In the state of California, endowments are used to fund long-term

management with the expectation that earnings on the principal amount will provide for annual long-term stewardship tasks. While there are many different potential approaches to tracking the funding of an endowment for long-term management, in California certain funding milestones must be met with each credit release. This does not require the regulators to know anything about the sale price of credits, simplifying the process. Additionally, the model template makes it clear that with the fifth credit release event, when the endowment is fully funded, only 85% of the total bank credits have been released. This endowment funding schedule ensures that the endowment will be fully funded with at least one year to mature and generate returns before spending for long-term management activities begins.

Inflation Adjustment for Endowment Principal. The template instrument in California also includes an explicit requirement that, until the endowment is fully funded, the endowment principal amount must be adjusted annually based on the California Consumer Price Index for Urban Consumers. When one considers that in some cases more than five years can pass from bank approval to the beginning of the long-term management phase, this type of inflation consideration can result in a very meaningful difference. For example, assume a mitigation bank was approved in March 2009 with an endowment principal amount of \$684,029, the average endowment amount from bank instruments examined for this article. Assume further that it takes this fictional bank six years to complete construction and achieve its fifth credit release event, when the endowment must be fully funded. With annual inflation adjustments over this time period, the final endowment principal would total \$753,816, an addition of nearly \$70,000 to the endowment. This adjustment helps prevent the endowment from losing purchasing power before it is fully funded.

In September 2015, draft revisions to the California mitigation bank instrument template were released for public comment.¹¹ The draft bank instrument template preserves the requirement that endowment amounts be adjusted based on inflation, but proposes that a greater percentage of the endowment be funded earlier in the credit release process. This change would result in a larger amount of the endowment principal being funded and earning returns for a longer period of time before withdrawals to fund long-term management begin. This investment period can allow the endowment to build a cushion of investment earnings, and these additional funds can help ensure the endowment will have sufficient money available to fund long-term management activities into perpetuity.

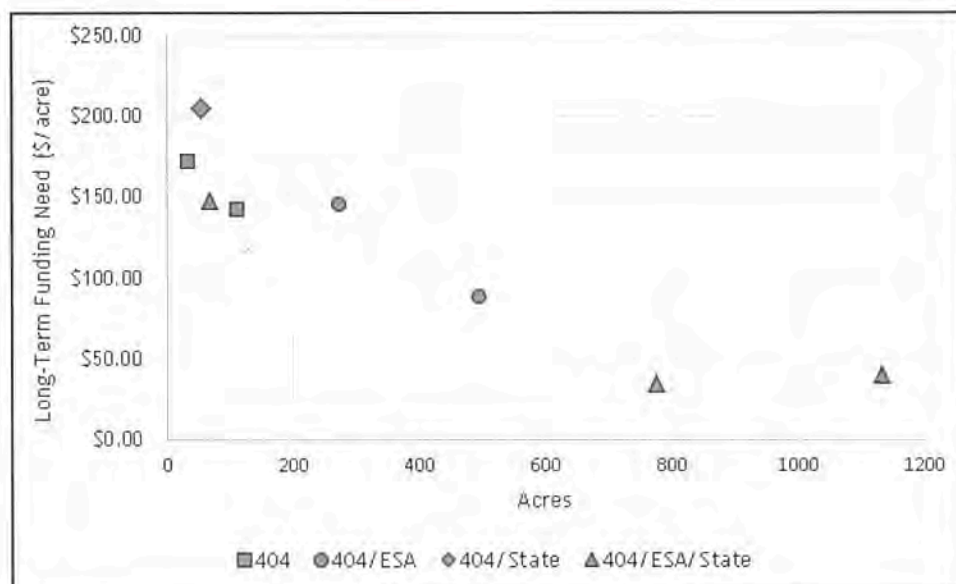


Figure 1. Annual Long-Term Funding Need (\$ per acre).

Mitigation Bank Instrument Review

The review of a random sample of eight mitigation bank instruments approved in California since the Rule also provided useful insights. All banks reviewed identified an itemized list of tasks, and provided cost estimates for those tasks. This detailed consideration of costs task-by-task is likely to produce a more accurate cost estimate than loosely estimating a total annual cost. Consistent with the California model instrument, all bank instruments included provisions for long-term monitoring, vegetation management, infrastructure and facilities management, monitoring the site for signs of trespass, and the cost of annual reporting to the agencies. Estimated annual funding needs per acre ranged from \$34.40 per acre for a 775-acre site selling \$404, Endangered Species Act (ESA), and state offset credits to approximately \$206 per acre for a 54-acre site selling \$404 and state offsets. The annual cost-per-acre for all banks examined appears in Figure 1. Annual cost estimates often included a contingency adjustment, with six of the eight banks reviewed including a contingency of 10% of costs. The other two banks did not include a contingency.

nominal return. Nominal or gross returns are not adjusted for inflation or other fees. Percentage deductions are made from this nominal value to account for inflation over the life of the endowment and any management fees, resulting in the capitalization rate or “cap rate.” This estimated cap rate is used to identify the endowment principal necessary to, on average, generate the funding necessary to complete annual long-term management tasks (see Table 2). In general, the higher the targeted rate of return, the more risk must be incorporated into an investment portfolio. For portfolios with very low targeted returns, the value of the fund may erode over time with inflation.

Mitigation bank documentation often does not discuss how a particular cap rate was developed, or how the management of the endowment fund will account for inflation or management fees. Cap rates reported in bank instruments reviewed ranged from 2.2% for an endowment held by the state of California to 4.5%. These are generally reasonable cap rates, but of course the nominal rate of return, or the targeted rate of return for which the endowment is invested, should be greater than the cap rate to account for inflation and administrative fees. This is an important consideration

Equation 1	Capitalization Rate = Nominal Rate of Return – Inflation – Endowment Management Fees
Equation 2	Endowment Principal = $\frac{\text{Annual \$ needed}}{\text{Capitalization Rate}}$

Table 2. Equations used to determine capitalization rate and endowment principal needed for mitigation banks.

and not giving careful attention to the relationship between the cap rate and the nominal rate of return could affect the viability of the endowment over time. Only a few instruments specifically acknowledged the nominal rate of return and corresponding administrative fees and inflation assumptions. Where they did, fees were identified at 1% and inflation was estimated at 3%.

In the state of California, it is a requirement that the conservation easement be held by an entity other than the long-term steward who is completing the work on-site. The responsibility of the conservation easement holder is to monitor the easement and ensure prohibited activities are not taking place at the site. In fact, the California conservation easement template specifically identifies that the conservation easement holder will, at a minimum, visit the site annually and submit a report to the agencies. However, in reviewing long-term management plans, long-term management cost estimates, and other bank documentation for the eight banks sampled, none appear to specifically allocate any long-term stewardship funds to the conservation easement holder to fund these activities. Subsequent communications with a banker revealed that, in fact, it is standard practice in California that when an entity agrees to hold an easement for a mitigation property, there is a separate transfer of money to support the activities surrounding the easement.¹² However, there is not presently a documentation of this transaction in bank instruments.

RECOMMENDATIONS

With the expectation that bank sites will be permanently protected, documentation is essential. Over the life of a bank, institutional knowledge about the site can be lost, especially given staff turnover at the entities involved in long-term management and its oversight. It is important that instruments be as explicit as possible about the tasks assigned to each entity, and how completion of those tasks should be funded.

In reviewing long-term management plans and bank instruments, it becomes clear that there is a wide variety of expertise involved in planning permanent mitigation sites. It is important that all of the entities involved in long-term stewardship be engaged during the development of the long-term management plan, which is an element of the bank instrument or ILF site plan. There are some best practices that mitigation bank sponsors, endowment holders, easement holders, and long-term stewards should adopt in developing and reviewing mitigation bank instruments and long-term management plans.

Mitigation bank sponsors should take care to document the sources of their cost estimates for long-term management tasks where possible and also incorporate a contingency into long-

term management cost calculations as even the best estimates are likely to be wrong. Endowment holders should confirm that the principal amount is calculated using a capitalization rate appropriate for their organization and investment strategy, and that the targeted rate of return fully accounts for inflation and any administrative fees. The endowment holder will also be involved in disbursing funds to the long-term steward and to prevent future disputes or fund shortages, the endowment holder should confirm the long-term steward is comfortable with the cost estimates provided for long-term management tasks. Accordingly, long-term stewards should review what their responsibilities will be and closely review the associated cost estimates and determine if they are appropriate for their organization. Stewards should also understand the process for accessing funds to implement annual management tasks. Easement holders should ask that funds specifically be budgeted for the easement holder to visit the site to check for compliance, and document these funds in the mitigation bank instrument.

Regulators also have an important role to play in the process of long-term planning as they are tasked with oversight, ensuring that all of these connections between entities involved in long-term management have been made and that there is sufficient documentation. However, regulators also rely on input from all of the players involved in long-term management. Every entity involved in long-term stewardship has unique expertise and regulators cannot replace active engagement from all of these entities. Successful long-term management is essential to protect the restoration work being done at compensatory mitigation sites, and active engagement from everyone can increase the likelihood of success. ■

DISCLAIMER

The views expressed in this article are the author's own and do not necessarily reflect the views or policies of EPA.

ENDNOTES

1. Federal Water Pollution Control Act, 33 U.S.C. §§1251 et seq. (1972).
2. 33 U.S.C. §1344 (1972).
3. Compensatory Mitigation for Losses of Aquatic Resources, 33 C.F.R. §332.1 (2008).
4. 33 C.F.R. §332.4(c)(11) (2008).
5. 33 C.F.R. §332.7(d)(1)-(3) (2008).
6. Regulatory In-lieu Fee and Bank Information Tracking System (RIBITS), U.S. ARMY CORPS OF ENGINEERS, at <https://ribits.usace.army.mil>.
7. *The Mitigation Rule Retrospective: A Review of the 2008 Regulations Governing Compensatory Mitigation for Losses of Aquatic Resources*, U.S. ARMY CORPS OF ENGINEERS INSTITUTE OF WATER RESOURCES (2015), available at <http://www.iwr.usace.army.mil/Portals/70/docs/iwrreports/2015-R-03.pdf>.
8. *Id.*

Endnotes continued on page 24

9. Sherry Teresa, *The Demise of the Environmental Trust*, ECOSYSTEM MARKETPLACE (2015), available at https://www.eli.org/sites/default/files/docs/events/6.3.13%20ILF%20Webinar/The_Demise_of_The_Environmental_Trust.pdf.
10. Westervelt Ecological Services, LLC. Bank Enabling Instrument Grasslands Mitigation Bank (2015).
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6. United States v. Anchordoguy et al., 2:13-cv-00848 (E.D. Cal. Nov. 7, 2014).
7. 33 C.F.R. §323.4.
8. 33 C.F.R. §323.4(a)(1)(ii).
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10. *Exemptions to Permit Requirements*, U.S. ENVIRONMENTAL PROTECTION AGENCY, at <http://www.epa.gov/cwa-404/exemptions-permit-requirements>.
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12. Rapanos v. United States, 547 U.S. 715 (2006).
13. Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, 531 U.S. 159 (2001).
14. 79 Fed. Reg. 22276 (Apr. 21, 2014).
15. In re Environmental Protection Agency, No. 15-3799 et al. (6th Cir. 2015).
16. Memorandum from the U.S. Army Corps of Engineers to the field on "Applicability of Exemptions Under Section 404(f) to 'Deep-Ripping' Activities in Wetlands" (Dec. 12, 1996), available at <http://www.usace.army.mil/Portals/2/docs/civilworks/RGLS/rgl96-02.pdf>.

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