A National Survey of Federal Mitigation Regulations and their Impacts on Wetland and Stream Banking

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Executive Summary

Introduction and Background

In April 2008, the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency jointly issued formal regulations ('The Rule'; 33 CFR parts 325 and 332; 40 CFR part 230) governing compensatory mitigation aquatic resource damage. The Rule was designed to improve the quality and success of compensatory mitigation projects by 1) establishing equivalent standards across different methods of compensatory mitigation, including mitigation banking, in-lieu fee (ILF) programs, and permittee responsible mitigation (PRM), 2) making the process of creating a mitigation bank more predictable by establishing disciplined timelines for the review of bank proposals, and 3) establishing preference for mitigation bank credits over other compensation methods, since the mitigation banks reduce several risks and uncertainties associated with compensatory mitigation.

The Rule's potential to transform the compensatory mitigation industry raises several questions about compensatory mitigation markets and mitigation banking in particular. During its first year, has the Rule made its intended impact? How has the Rule changed the operating parameters of establishing and running a mitigation bank (e.g. timelines for bank approval, geographic service areas, etc.)? How has the Rule affected the risk experienced by mitigation bankers?

Methodology

We conducted a confidential, web-based survey of members of the National Mitigation Banking Association and attendees of National Mitigation and Ecosystem Banking Conferences approximately one year after the Rule's implementation date (June 9, 2008). Our goal was to understand how the mitigation process could be improved to promote better ecological restoration, streamline implementation of critical water protection regulations, and better act as a model for future regulated ecosystem service markets (e.g. habitat conservation banking, tree mitigation, etc.). Survey questions were designed elicit banker and mitigation consultant perceptions of: 1) regulation of bank and ILF service areas, 2) the bank approval process, 3) competition among compensation practices, 4) regulator attitudes, behavior, and preferences, and 5) demand for mitigation credits.

The survey was distributed to 327 individuals during April - May 2009. A total of 156 completed responses were received (41.2% response rate) from individuals in 30 of 38 Army Corps Districts. Our results reveal a wide array of banker experiences with the Rule, between both firms and Corps Districts.

Equivalent Standards

A major objective of the Rule was to establish equivalent standards for the three mitigation mechanisms. First, our results reveal major differences between the service areas of ILF programs and mitigation banks. Approximately 70% of respondents reported that an ILF program was operating in their district. Although 8-digit watersheds most often defined ILF and bank service areas, a variety of physical and administrative boundaries are used to delineate service areas. Respondents perceived that state boundaries were nearly twenty times more common service areas for ILF programs than for banks (19.2% vs. 0.7%, respectively). If this perception were representative of actual ILF and mitigation bank instrument discrepancies, this would likely provide a competitive advantage for ILFs in markets with mitigation banks. On-going research by the Environmental Law Institute (ELI) will detail current ILF service area boundaries.

With regard to the Rule's equivalent standards specifically concerning ILFs, respondents felt that ILF programs have not yet conformed to the Rule's requirements. It should be noted that ILFs have up to 5 years to modify their instruments for compliance purposes (ILF compliance is discretionary to Corps Districts during 2010-2013); thus complete compliance was not expected (only two of approx. 50 operating ILF programs have been approved under the Rule). With regards to current ILF conformance status, however, 59% of respondents believed that limits had not been placed on ILF advance credit sales, 43.5% claimed that ILF programs had not established mandatory program accounts, 59.8% of respondents believed that public and regulatory review and oversight processes were not equivalent to that of mitigation banks, and 56.5% believed that ILF programs were not developing mitigation plans equivalent to those required of banks.

Respondent perceptions of ILF programs reflected frustration with Corps Districts that 1) did not believe that the Rule's ILF provisions applied to operating ILF programs, 2) had no

desire to comply with certain ILF provisions or actively sought disregard the Rule in certain cases, 3) were in conflict (or created complex relationships) with state regulations that interfere with the Rule's ILF provisions, or 4) place heavy preferences on non-profits and government agencies running ILF programs.

In addition, several respondents were concerned about conflicts of interest by government agencies (including the Corps and various state agencies) that both regulate impact permits and run ILF programs. Several respondents also blamed limited ILF provision enforcement on a lack of standardized policy for ILFs and non-existent examples on which to build compliant ILF programs. Lax enforcement was also attributed to regulators that see government agencies and non-profit organizations as more financially responsible than private entities, a theme echoed throughout the survey.

If bankers' perceptions are accurate, whereby ILF programs are not held to the same standards as mitigation banks (i.e., mitigation plans, regulatory review, public review, and limits on advanced credit sales), then the integrity of ILFs in some districts are understandably questioned. Better oversight and documentation will greatly improve ILF transparency, which is in the best interests of the environment, the public, ILF programs, and regulatory agencies.

Although a much higher fraction of respondents declined to respond to PRM questions (approx. 40%; presumably due to unfamiliarity with local PRM practices), only 23.4% believed that the Rule was responsible for substantial changes in PRM financial assurance requirements. Additionally, 21.1% of respondents saw changes in the implementation of the watershed approach for PRM under the Rule, primarily through increases in in-kind mitigation and additional attention towards watershed-scale concerns. Finally, 21.1% and 20.3% of respondents believed the Rule was responsible for changes in ecological performance and monitoring standards, respectively. Similar to mitigation banking standards, respondents primarily referenced stricter and more tightly defined ecological standards for PRM in the wake of the Rule.

Mitigation Banking

Among the most unexpected results of the survey was the common perception that the Rule has produced or re-enforced barriers to mitigation banking, including conflicts between

the Rule and existing state and local law, conflicts of interest between regulators and ILF programs, and inter-agency confusion and conflict (Inter-agency Review Team members that interpret the Rule differently).

Respondents described extensive inter-governmental conflicts among the federal agencies interpreting the Rule as a major source of difficulty under the Rule. Bankers primarily attacked the inconsistent implementation of timelines associated with the bank permitting and approval process, an issue that has bred surprising and problematic levels of banker distrust of regulators. While 44.2% of respondents saw no change in timelines for bank approval due to the rule, 35.7% of respondents indicated that the Rule had had at least some effect. Explanations were wide-ranging, with many respondents describing timely review of bank prospectuses, and others experiencing slowing due to IRT confusion and staff reorganization.

Usually in the form of increased requirements, 41.1% of respondents saw changes in financial assurances required for banks under the Rule. Only 34.9% saw changes in their district's implementation of a 'watershed approach' for mitigation banks (45.7% did not), primarily through changes in the size of bank service areas. Confusion as to the interpretation of 'watershed approach' continues among many bankers. For ecological performance and monitoring standards, only 31.0% and 29.5% of respondents, respectively, believed the Rule had affected changes, usually through increased standards that were more strictly enforced and better defined. In several cases monitoring periods had not been defined or enforced prior to the rule. However, respondents indicated the need for guidance relating to these standards, particularly given extensive interagency conflicts, slowing of credit releases, and altered incentive structures.

Conflicts of this nature increase uncertainty for bankers, permittees, and the regulatory community, creating significant barriers to private enterprise interested in prospectively building mitigation banks. In these and other districts, our results point to the need for increased coordination between IRT agencies (state and federal) and legislative bodies (state and federal). Additionally, these areas may require more extensive documentation from regulators that clarifies Rule interpretation, preference structure, and the role of ILF programs in providing compensatory mitigation within local jurisdictions.

Regulatory Preference

The Rule established a preference hierarchy through which mitigation banks were given regulatory preference over ILF sites and PRM. The Rule explores possible conditions where the stated preference structure may not be appropriate, formally authorizing each Corps District to make the final determination. Our results show that the banking community largely perceives that regulators see the preference structure as "soft," with many Districts ignoring the guided structure put forth in the Rule, viewing it merely as a suggestion to guide District decision-making. Just under half (48.3%) of respondents agreed that their district was applying this preference structure, although only 30.7% believed that the Rule affected a change in regulatory preference structure. A substantial number (35.5%) of respondents have not seen a change in their District's preference structure due to the Rule, while 25.8% of respondents perceiving changes in preference structure due to the Rule, and 21.0% believed their District was conforming prior to the Rule.

Of the respondents claiming that their District did not use the Rule's suggested hierarchy, 58.8% asserted that PRM was the most preferred choice of regulators, 42.6% believed that mitigation banking was the second preference, and 45.6% believed that ILF mitigation was the least preferred alternative. In Districts where the Rule has caused a change in preference hierarchies, PRM had also previously been the clear regulator preference, followed by mitigation banking and ILF programs. This suggests that prior to Rule implementation, PRM was the widely favored compensation method in most Districts. Where the Rule has not forced changes, PRM continues to be the preferred method. These results confirm documentation by the Environmental Law Institute (2007), which concluded that during FY 2003, 59.8% of wetland mitigation and 81.5% of stream mitigation was completed as PRM. This suggests that while bankers have focused substantial attention over the years to the threat posed by ILFs to banking interests, it appears that PRM has been, and continues to be a more important challenge to banking interests.

Related to regulatory preference, several respondents perceived that IRT members, and Corps Districts in particular, prefer compensation provided by non-profits and government agencies over that provided by mitigation banks. These concerns indicate significant distrust

between the private and public components of the compensatory mitigation industry. Based on the frequency and geographic extent over which they were raised in the survey, these perceptions are widespread, suggesting entrenched ideological barriers to the implementation of a Rule that might otherwise benefit private sector-sponsored compensation. If these perceptions mirror reality, several of the Rule's provisions – especially the preference structure – may be difficult to implement to any meaningful degree.

Financial Risk and Market Demand

Finally, 75% of respondents indicated that the Rule had not reduced the financial risk of establishing mitigation banks. Respondents reasoned that the new compensation hierarchy was merely a 'soft preference,' meaning that compensation requirements and decisions were largely left to the discretion of District-level regulators, whom respondents often felt were adverse to banks and the organizations that created them. Respondents also referenced several factors that negated decreases in financial risk that they hoped would accompany the Rule, including: uncertainty in timelines and service areas, continued preference for non-bank compensation by regulators, high up-front costs due to increased financial assurances and stricter ecological requirements under the Rule, and Rule implementation problems. To a lesser extent, respondents pointed to marked heterogeneity in the treatment of individual bankers by regulators in several Districts.

Respondents who did see reductions in financial risk primarily attributed it to increasing regulatory preference for banking in their Districts, consistent and predictable timelines for bank approvals and credit releases, consistency in application of the Rule, and increased certainty regarding service areas.

Approximately 23% of respondents claimed an increase in the availability of mitigation bank credit availability, primarily due to increases in bank development (although this widely varied across Districts), improvements in the bank approval process, increased investment in banking companies, and increases in the general acceptance and "credibility" of banking by regulators. However, 64.5% of respondents saw no effect on credit availability due to the Rule.

Many respondents claimed that no new banks had been established in their districts. Analysis revealed that this claim was uncorrelated with references to decline in market demand

for compensatory mitigation. "Soft" preferences, continued uncertainty in timelines, perceived 'interference' by competing ILF programs, interagency conflicts (both within the IRT and between state and federal agencies), and increased requirements for compensatory mitigation were referenced.

Implications

Although substantial changes have occurred in the short time since the issuance of the Rule in 2008, on-going efforts to improve implementation will be important in the coming years. Elevation of compensatory mitigation to higher, more ecologically sustainable standards will be difficult unless extensive social and economic hurdles to implementing the Rule are overcome. Perceptions of conflicts of interest that breed distrust between bankers and regulators, combined with multiple sources of uncertainty in the compensatory mitigation process, continue to present barriers to realizing the full potential of the Rule. As deadlines for ILF compliance approach, it will be important that regulators and bankers improve communication and work together to ensure transparency in standards for Rule interpretation and implementation, regulator intentions, and banker responsibilities.

Introduction

The U.S. Clean Water Act (CWA; 13 USC 1344) is a cornerstone of U.S. water policy that provides the U.S. Army Corps of Engineers (Corps) and U.S. Environmental Protection Agency (EPA) with the authority to regulate a broad range of threats to the "physical, chemical and biological integrity" of the nation's waters—including the regulation of discharges of dredged or fill materials into the "waters of the U.S."

In 1988, the federal government adopted an interpretation of the CWA that established a goal of "no net loss" of wetland acreage or function (National Wetlands Policy Forum, 1988). This interpretation, coupled with the dredge and fill permitting system established under Section 404 of the CWA, expanded the Corps and EPA's authority and set the stage for the development of an environmental offset industry for aquatic impacts.

This industry now forms the supply side of the most substantial U.S. ecosystem services market, in which permits for wetlands and stream destruction are traded for restoration performed by either private ecological restoration firms (known as 'mitigation bankers'; see Appendix for definitions of frequently used terms), government agencies, or the permittees themselves (usually land developers). Today the industry generates environmental offsets (traded as 'mitigation credits'; often required for permit issuance) through the restoration (or enhancement) and perpetual conservation of aquatic ecosystems. Referred to as "compensatory mitigation", this sector of the green economy is estimated to account for expenditures totaling approx. $2.9 billion annually (ELI, 2007), restoring, enhancing, or creating between 40,000 and 60,000 acres of wetlands annually (BenDor and Doyle, In Press) and ~ 240,000 total linear feet of stream (ELI, 2007). As of 2005, there were nearly 400 operating mitigation banks in the United States, while 200 were planned (Corps, 2006).

Over the 30-year history of compensatory wetland mitigation (Hough and Robertson, 2009), EPA and Corps guidance documents (establishing the formal positions of regulators on mitigation practices; Corps and EPA, 1990, 1995, 2000) had not held legal authority for mandating requirements or formalizing regulatory actions, behaviors and preferences. In April 2008, the Corps and the EPA jointly issued formal regulations (33 CFR parts 325 and 332; 40 CFR part 230) governing compensatory mitigation. Although the formal impetus driving the 2008

regulations was recommendations by the National Research Council (NRC, 2001) and U.S. Government Accountability Office (GAO, 2005), strong lobbying efforts by the mitigation banking industry also contributed to the form, content, and requirements now set into law (Strand, 2009).

The provisions in the Rule were designed to "improve the quality and success of compensatory mitigation projects" (Corps and EPA, 2008, pg. 19594). The regulations accomplished this by establishing "equivalent standards," articulated largely through measures supporting mitigation banking and by extending existing mitigation banking requirements to other mitigation mechanisms (ILF and PRM). The regulations also include provisions making "the process of establishing a mitigation bank more predictable by establishing disciplined timelines for the review of bank proposals" (Corps and EPA, 2008, Part 332.8 (d)). In addition, the Rule establishes a preference for mitigation bank credits over PRM or ILF credits, since the mitigation banks "reduce some of the risks and uncertainties associated with compensatory mitigation (Corps and EPA, 2008, Page 19594). Thus, it seems the Rule primarily seeks to "improve the quality and success of compensatory mitigation projects" by making mitigation banking more competitive and predictable.

The Rule's potential to transform the compensatory mitigation industry opens many questions about compensatory mitigation markets and mitigation banking in particular. Of specific interest are the experience of bankers, regulator behavior, and the impact of the Rule on the risks and opportunities of banking. During its first year, has the Rule made its intended impact, including establishing uniform ecological standards for compensatory mitigation? How has the Rule changed the operating parameters of establishing and running a mitigation bank (e.g. timelines for bank approval, geographic service areas, etc.)? How has the Rule affected the risk experienced by mitigation bankers?

As the mitigation banking community stands to gain more from the Rule's implementation than other mechanisms, we conducted a confidential, web-based survey of a broad constituency of the mitigation banking industry. Survey questions were designed to gauge the perspective of the mitigation banking community with regard to the Rule's implementation and effect. This survey assessed a broad array of banker experiences and

perceptions, which experience has shown to be widely divergent from those of regulators (Strand, 2009). In doing this, it is our goal to understand how the mitigation process could be improved to promote better ecological restoration, streamline implementation of critical water protection regulations, and better act as a model for future regulated ecosystem service markets.

Background

Since its inception, compensatory mitigation has evolved to consist of three primary mechanisms that now comprise the mitigation industry: permittee responsible mitigation (PRM), in-lieu fee mitigation (ILF), and mitigation banking (MB). Substantial criticism of PRM and ILF stream and wetland mitigation (on both ecological and administrative grounds; Bernhardt et al., 2005; Bernhardt et al., 2007; GAO, 2005; NRC, 2001; Palmer et al., 2005) have prompted a gradual shift in regulatory preference (Corps and EPA, 1995, 2008; EPA et al., 2003) from on-site mitigation performed by permittees (PRM) towards mitigation performed by third parties, including governments and non-profits (ILF) and private entrepreneurs (MB).

Contrasting this, mitigation banking was initially defined as restoration, enhancement or preservation performed entirely before it can be used to offset impacts (Corps and EPA, 1995). In reality, regulators allow bankers to gradually sell off a fraction of available mitigation prior to full establishment to recoup heavy, up-front investment costs (a practice known as 'advance credit release').

Conflict between mitigation bankers and regulators has expanded in recent years. The mitigation banking industry (Robertson, 2006) has largely argued that the Corps and EPA have allowed in-lieu fee programs—and to a lesser extent, permittee responsible mitigation—to operate with different, less stringent standards than those of mitigation banks (ELI, 2002; Urban et al., 1999), thereby tilting the industry towards lower quality ecological restoration. The industry's position has been established under the following logic:

> Unlike other compensation methods, mitigation banks reduce temporal losses of aquatic resources by providing compensation before impacts occur ("advanced mitigation"; BenDor, 2009). In-lieu fee programs accept money from permittees well

before compensation projects are identified, planned or implemented (ELI, 2002). Although PRM projects may provide compensation concurrent to impacts, they are often allowed to provide compensation well after permitted impacts occur. Such projects also have a high failure rate (NRC, 2001). Thus, according to the mitigation bankers' argument, eliminating in-lieu fee programs would ensure that mitigation credits available within a given market are based on previously implemented (or at least comprehensively planned and approved) projects, therefore reducing or eliminating temporal losses.

While the mitigation bankers' preference would have been for the complete abolition of in-lieu fee programs (as originally proposed in the initial draft of the Rule; Corps and EPA, 2006), the regulations instead preserved such programs, but required "equivalent standards" for all compensatory mitigation mechanisms. In addition, the EPA and Corps established an explicit preference for mitigation banks (when available) over other mitigation sources. In their final form, the regulations are unequivocally supportive of mitigation banking (Corps and EPA, 2008; Strand, 2009).

The final Rule (effective June 9, 2008) was intended to "improve the quality and success of compensatory mitigation projects" by establishing new requirements for PRM, ILF programs, and mitigation banking (Corps and EPA, 2008, pg. 19594). Specific objectives of the regulations include, but are not limited to, the following:

1) Establish equivalent standards for all mitigation mechanisms;

2) Require in-kind mitigation ("resource of similar structural and functional type to the impacted resource"; Corps and EPA, 2008, Part 332.2);

3) Require that new mitigation projects are proposed and considered within a watershed context, referred to as the "watershed approach". The watershed approach, as defined in NRC, (2001), involves collecting more information about the landscape in which mitigation is performed, including ecological assessments of existing and reference conditions in an area, collaborating with watershed landowners, and engaging in resource management planning (ELI, 2002). Specifically, this information includes trends in habitat loss or conversion, impacts of past development activities, current

development trends, presence and issues surrounding sensitive species (including threatened or endangered species), site conditions that could favor or hinder mitigation projects (including problematic soils or contamination), and chronic environmental issues such as flooding or poor water quality (ELI, 2002; Hough and Sudol, 2008);

4) Establish timelines for agency review of mitigation bank proposals and instruments;

5) Require financial assurances that restoration would be completed as planned (usually through bonds, letters of credits, or escrow funds);

6) Establish an explicit preference for mitigation bank credits (when available) over other forms of mitigation, and;

7) Require that individual Corps Districts establish 'service areas' for mitigation banks and ILF programs. Service areas are defined in the Rule as the geographic area within which impacts can be mitigated at a specific mitigation bank or in-lieu fee program, as designated in its instrument (Part 332.8(d)(6)(ii)(A)).

Methodology

To determine how the Rule has affected mitigation banking practice, we developed a web-based survey designed to elicit banker and mitigation consultant perceptions of: 1) regulation of bank and ILF service areas, 2) the bank approval process, 3) competition among compensation practices, 4) regulator attitudes, behavior, and preferences, and 5) demand for mitigation credits. In order to evaluate these factors, we attempted to census as many mitigation-banking practitioners as possible. Individuals were contacted if they had been members of the National Mitigation Banking Association (NMBA; http://www.mitigationbanking.org) or had previously participated in National Mitigation and Ecosystem Banking Conferences (trade association conferences focused on educating, networking, and growing the banking industry). While many bankers and consultants are not members of the NMBA and do not attend these conferences, this compound membership/attendance list comprises the most substantial list of banking practitioners available.

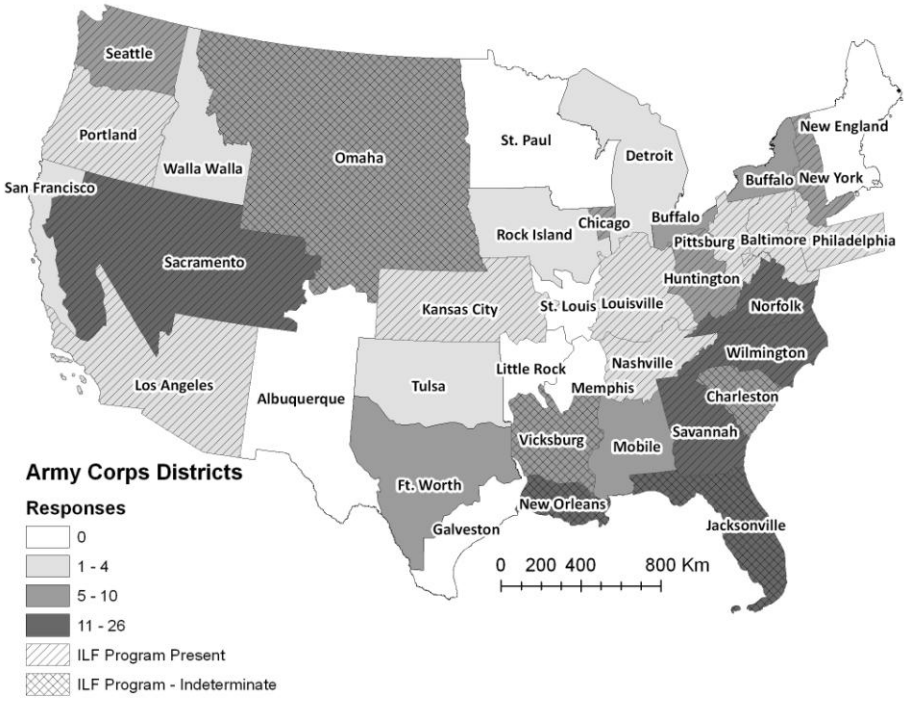
Meta-studies of web-based surveys have shown a range of response rates that vary with a variety of survey design factors, including a pre-survey notification, participation incentives, and reminder notices. As a result, differing response rates have been recorded, ranging from ~20% to ~75% (Cook et al., 2000; Fricker et al., 2005). The survey was designed using the Total Design Method (Dillman et al., 2008), whereby surveys are specifically constructed to enhance users' experience as a means of increasing response rates. This design entailed administration of a pre-survey notification email, which was followed by a questionnaire (approximately 20-30 minutes long), and several rounds of reminder emails sent to respondents who had not finished the survey. Small incentives were also offered to respondents to further induce participation. The survey was pre-tested on 13 respondents (~ 5% sample) to elicit feedback on length, structure, and question phrasing. Suggested changes were integrated into the final survey.

Respondents were allowed to take the survey for each District in which they were familiar with banking practices and/or were involved in operating or establishing banks (only once for each District). The experiences of bankers often differ substantially across Districts. We therefore reference respondents by each individual survey response, even if they submitted surveys for multiple districts.

In addition to standardized responses (indicated by percentage frequencies), we gave respondents the opportunity to provide optional, free form information to add detail to their responses. We then used inductive qualitative coding to categorize and analyze these responses (Patton, 2002). The authors coded responses independently, and any code discrepancies were reconciled through author discussions. Representative responses illustrating qualitative data trends are given in our results section, whereby N_{QR} indicates total qualitative responses received, and individual qualitative response counts are indicated in parentheses. Representative qualitative responses are given in block quote format.

Results

Figure 1: Map of Corps Districts and Responses

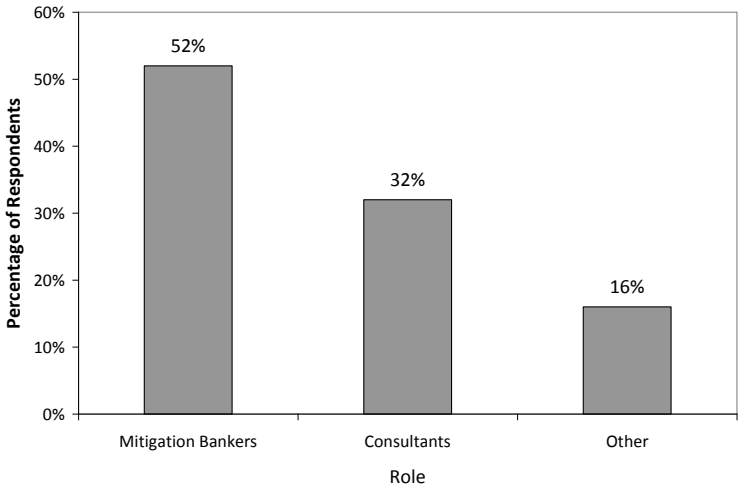


Notes: Response frequencies from each District are listed, along with the presence of ILF programs. In several Districts, respondents gave conflicting responses about the presence of ILF programs. These Districts were indicated with crosshatches as "ILF Program – Indeterminate." Rather than necessarily indicating the absence or presence of an ILF program, this indicates either 1) banker confusion as to the presence of ILF programs, or 2) ILF programs that do not operate across the entire District (perhaps operating without the knowledge of the respondent).

Respondent Characteristics

The survey was distributed to 327 individuals between mid-April and the end of May 2009. A total of 135 individuals took the survey and 156 completed responses were received, including 21 responses from individuals that filled out the questionnaire for more than one Corps District in which they did business. The resulting 41.2% individual response rate lies well within the bounds of response rates expected from web surveys administered with pre-survey notification and incentives to respond (Cook et al., 2000). Responses were received from individuals in 30 of 38 Corps Districts (Figure 1). Of the respondents, 52% identified themselves as mitigation bankers and 32% as consultants. The remaining 16% identified themselves as attorneys, environmental restoration suppliers, bank financiers, or a combination of these roles (Figure 2).

Figure 2: Respondent Roles in Compensatory Mitigation



Service Areas

We asked respondents about the relative spatial scale of mitigation bank service areas in their Corps Districts. Of the 134 responses (13 declined to respond; N=147) to this question, 96 indicated that service areas were determined by a single set of geographic boundaries, while the additional 38 respondents indicated that Districts used multiple boundaries (most of which are a combination of 8-digit HUCs and other boundary types; Table 1). Of those indicating alternative boundaries, qualitative analysis revealed many to be ad-hoc miscellaneous natural and political boundaries (10), including rail lines, dams, multiple county jurisdictions, state-defined watershed management districts (in the case of New Jersey and Florida), and water resource inventory areas (Washington State). By far, the most common boundary for service areas was the 8-digit watershed (37).

Table 1: Scales of Mitigation Bank and ILF Service Areas

	Mitigation Banking		In-Lieu Fee Programs	
Boundaries	**Responses**	**%**	**Responses**	**%**
Single Boundary	**96**	**65.4**	**79**	**79.8**
8-digit HUC	37	25.2	16	16.2
6-digit HUC	10	6.8	4	4.0
Physiographic region	4	2.7	6	6.1
EPA (2007) defined eco-region	2	1.4	2	2.0
County Boundaries	2	1.4	8	8.1
State Boundaries	1	0.7	19	19.2
Single Qualitative Response (see below)	40	27.2	24	24.2
Multiple Boundaries	**38**	**25.9**	**n/a**	**n/a**
Two boundary types	25[1]	17.0		
Three or more boundary types	13	8.9		
Non-Response	**13**	**8.7**	**20**	**20.2**
Total	**N=147**	**100%**	**N=99**	**100%**
Qualitative responses				
Miscellaneous boundaries (e.g. roads, rail lines, federal property, multiple counties, etc.)	10	19.6	4	16.7
Multiple 8–digit HUC	9	17.6	2	8.3
Watershed Management District (NJ and Florida)	8	15.7	1	4.2
Natural Boundaries (e.g. rivers, dams, ecological drainage units)	6	11.8	0	0.0
Determined on a case-by case-basis	5	9.8	2	8.3
Water Resource Inventory Area (Washington State)	4	7.8	2	8.3
State defined (e.g. state eco-regions, state-defined watersheds)	3	5.9	2	8.3
10-digit HUC	2	3.9	0	0
Costal Zone Boundaries	0	0	2	8.3
Undefined/unknown	4	7.8	9	37.5
Total	**N=51[2]**	**100%**	**N=24**	**100%**

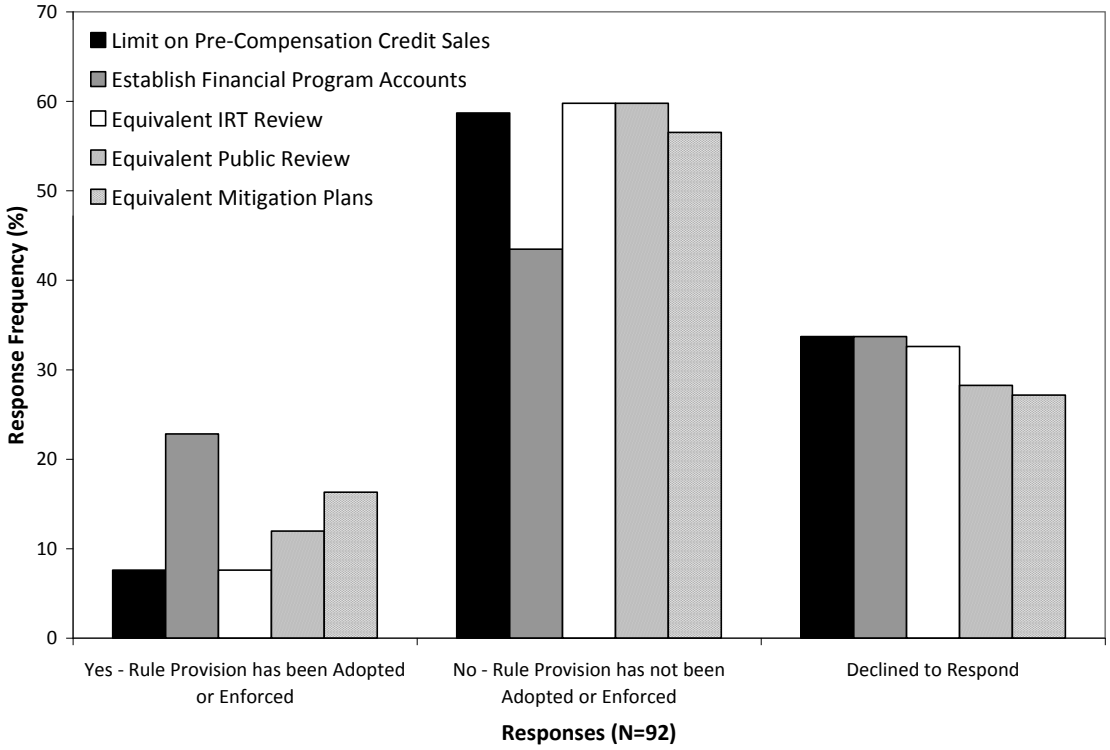
N/A: Not applicable. [1] Of the 25 two-boundary responses, 19 include HUC-8-digit watersheds. [2]Includes responses where respondents claimed multiple boundaries.

Approximately 70% of respondents reported that an ILF program was operating in their district (N=139; see Figure 1 for a map of ILF programs). Organizations operating these ILF programs (N=94) primarily consisted of state agencies (34.0%) and non-profit organizations (30.9%), with several run by Corps districts (6.4%), as well as cities, counties, or other agencies (including resource conservation and water management districts; 5.3%). The remaining respondents (19.2%) indicated a combination of these organizations.

State boundaries were more common service areas for ILF programs (N=99) than for banks (19.2% vs. 0.7%, respectively). ILF service areas were also often defined by 8-digit watersheds (16.2%), as well as a variety of other miscellaneous boundary types (4). Many respondents indicated that ILF service areas were not well defined or were unknown (9.1%).

Effects of Rule on In-lieu Fee Programs

Figure 3: Perceptions of Rule Impacts on ILF Programs



Notes: Respondents were asked whether they noticed changes in the various aspects of mitigation that the Rule regulated. We depict these responses together to demonstrate patterns in how the Rule has brought about changes in ILF Programs (Figure 3), Mitigation Banking (Figure 4), and PRM. (Figure 5)

An objective of the Rule was to establish equivalent ecological performance and monitoring standards for permittee-responsible mitigation, mitigation banks, and ILF programs. We asked respondents if they felt that their Corps District had applied new operating requirements for in-lieu fee programs that become mandatory in 2010 (See Figure 3; Part 332.2 and 332.8). Of the respondents with an ILF program in their District (N=92), 58.7% believed that a limit had not been placed on the number of credits an ILF program can sell before planning and acquiring a mitigation project site ["Advance Credits"; see Rule section

332.2]. Of the remaining respondents, 7.6% believed that a limit was in place and 33.7% declined to answer. Explanations (N_{QR}=27) for failing to establish a "pre-compensation" limit on credit sales primarily centered on banker beliefs that Corps Districts either 1) did not believe that ILF provisions applied to operating ILF programs (5; including programs established under prior agreements), 2) had no desire to comply with certain ILF provisions (4), 3) sought to actively disregard the Rule (3), or 4) were in conflict with state regulations over the Rule's ILF provisions (3).

> An example of 2): "Our district is currently reviewing the Rule to determine how the district will respond to its 'mandates'. At this point, the district views the Rule as a 'soft preference'…they are not likely to feel there is a need to limit advanced credit sales."
> An example of 4): "The [state program] is based in statutes, and it must be amended to comply with the new Federal Rule. To date, there has been little focus on achieving compliance."

Other respondents mentioned limitations on Corps resources and options for compensatory mitigation, as well as efforts on the part of Districts to maximize ILF efficiency and minimize transportation project delays. Over 25% of respondents stated that they did not know why these limitations had not been enforced.

ILF programs are also directed to establish financial program accounts that include criteria for account management which include: 1) fees must be kept in an FDIC institution; 2) funds accepted from sources other than permittees be kept in a separate account; 3) the ILF must submit proposed mitigation projects to the District for funding approval; 4) the ILF must submit annual reports to the District detailing account activities (e.g. expenditures, deposits, permitted impacts mitigated, etc.); and 5) the District must audit records pertaining to the program account (Corps and EPA, 2008, Part 332.8(i)). Approximately 43.5% of respondents claimed that ILF programs in their districts had not established these accounts, while 22.8% believed that accounts had been established, and 33.7% declined to answer. Explanations (N_{QR}=22) for failures to establish program accounts mostly referred to conflicts of interest by government agencies that both regulate and run ILF programs (5), including the Corps and state agencies.

> "The Corps runs it and they think they're running a great ILF program in [our District]."
> "[The District] controls the money."
> "Most of the in-lieu fee projects are derived and operated by government agencies or not for profit organizations."

Additional explanations were similar to those for the previous question, and include beliefs that the Rule is not applicable to operating programs (4; including those operating under prior agreements), unforeseen federal conflicts with state regulations/statutes (2), and a belief that Corps districts do not want to comply with the Rule (2). Additionally, several respondents blamed limited account enforcement on a lack of standardized policy for ILFs and non-existent examples on which to build compliant ILF programs (2). Finally, one respondent attributed lax enforcement on their belief that regulators saw "government agencies as more financially responsible than private entities," a theme echoed throughout the rest of the survey.

In terms of regulatory review, 59.8% of respondents believed that the review and oversight process for in-lieu fee compensation sites did not reflect the same level of inter-agency (by Inter-agency Review Teams; IRTs) review as mitigation banks, while 7.6% believed there was the same level of review, and 32.6% declined to answer. Respondents (N_{QR}=32) elaborated on previous theories for this behavior, whereby Districts: 1) place heavy preferences on non-profit or governmental organizations running ILF programs (8), 2) lack oversight or desire to comply with the Rule (6), 3) believe the Rule was not applicable to their program (4), or 4) come into conflicts with state regulations (2). Several respondents also pointed to conflicts of interest in cases where agencies enforcing mitigation regulations (state and federal) were also sponsors of ILF programs (4):

> Example of 1): "The Corps may feel that the in-lieu fee is more capable than mitigation banks. Furthermore, banks are made to make profits, and this may conflict with some peoples' view of the work at hand and duty to the environment.
> Example of 2): "In-lieu fee programs have flown under the radar of the regulatory process. There haven't been many of them. Who would voluntarily enter into a process akin to wetland mitigation banking in [our] state? From an implementation perspective, it's been a disaster, despite good will and support by regulatory agencies."
> Example of conflicts of interest: "To my knowledge, no IRT has reviewed any of the proposed [ILF compensation] sites in the field to establish ecological values. The [state agency] who implements the plan also approves the [state] department of transportation's impact permits."

Additionally, 59.8% of respondents thought that the review and oversight process for in-lieu fee compensation sites did not reflect the same level of public review (Rule Part 332.8(d)) as mitigation banks, while 12.0% believed ILF public review to be equivalent to that of banks, and 28.3% declined to answer. Respondents' explanations (N_{QR}=33) of these beliefs strongly

mirrored those given for IRT review, although a significantly higher number could not explain why public review did not occur (10).

> "They really don't know what it means to be in compliance with the new mitigation Rules."
> "Staff and environmental organizations that [normally] dominate public review don't want [more public review] because they gain from the in-lieu fee program."
> "The public is not a part of the review process for individual sites at all. Not sure why."

ILF programs are now required to develop mitigation plans that meet the same standards as those applicable to mitigation banks and permittee-responsible mitigation projects. However, 56.5% of respondents believed that ILF programs in their districts are not required to develop these types of mitigation plans. Of the remaining respondents, 16.3% believed that their District was now requiring ILF programs to develop these plans, while the remaining 27.2% declined to answer.

While many respondents (N_{QR}=22) re-iterated their perceptions of Districts' unwillingness to enforce the Rule, several additionally mentioned limitations on ILF programs themselves, including the ability of ILFs to find and establish quality compensation sites (4).

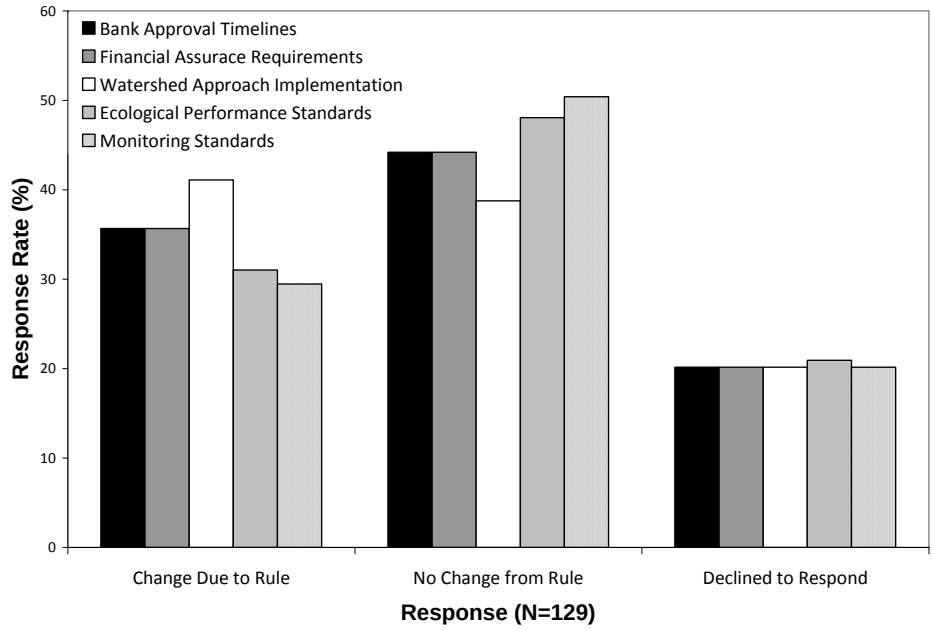
> "They have not fully identified sites to have plans prepared yet."
> "Without any sites it would be extremely difficult to prepare a mitigation plan."
> "The in lieu fee programs are unable to meet the same quality standard [as banks] with regard to site selection or returned functional value."
> "There isn't any public review and they seem to think they can manage the program (or a project) without the need to meet such standards."

Respondents also stated perceptions linking failures to enforce Rule provisions to preference for ILF programs (4):

> "…[S]ome Corps staff members like to work with local community groups and land trusts, [which] are not set up to develop rigorous mitigation plans. Additionally, it appears that standards for compensation are relaxed if a group proposes a popular acquisition of land."
> "Mitigation plans from the in-lieu fee program have not been reviewed under a years-long banking process but only through the 45-day NWP process. The IRT assumes that [the ILF program] will perform more environmentally appropriate work than private enterprise. The volume of work from the in-lieu fee precludes adequate involvement from the IRT. [ILF program] projects are the first ones allowed to 'slide through the cracks' to save time."

Effects of the Rule on Mitigation Banking

Figure 4: Perceptions of Rule Changes for Mitigation Banking



When asked how they believed the Rule has affected each District's inter-agency review (IRT) process for approving new mitigation banks, only 9.6% (N=135) of respondents (Figure 4) believed that the Rule made their District's bank approval process easier, mostly by substantially streamlined the inter-agency review team review process (8; N_{QR}=11), and to a lesser extent, by forcing regulators to be more accepting of banking through the mitigation hierarchy (2).

> "They are very responsive and timely in the review process. They hold monthly meetings and respond per the Rule timelines. They are standardizing the Prospectus format and [Mitigation Bank Instrument] approval process."
> "There seems to be more focus on coordinated and timely review."
> "…[T]he Rule has put in timelines that has increased the urgency [of approvals] and provided some "leveling of the playing field" in what is required of a bank. However, [there are] major differences in terms of how individual mitigation and banks are treated...."

Conversely, 31.1% of respondents thought the new had made approval more difficult, while 45.2% thought it made no change (14.1% declined to answer). Respondents (N_{QR}=35) pointed to difficulties resulting from District regulators unfamiliar with the Rule and its implementation (9):

> "The federal staff does not understand the Rule enough to facilitate the mitigation bank permitting process...."

Stemming from this, many bankers encountered interpretation problems (5) and new uncertainties in the bank approval process due to the Rule (3):

> "I don't think our IRT group…has figured out how to apply the Rule. If they have, they haven't conveyed the direction they want to follow."
> "[T]here are many broad concepts in the Rule which are in need of refining through the implementation of regulatory guidelines which [our] District has yet to do. We are told that they should be issued soon, but that remains to be seen."
> "We can't get a straight answer out of anyone as to how they are going to interpret the Rule…. [For Example,] if we want to add some acres to our existing bank, we cannot find out if our entire bank or only the new acres will fall under the Rules. No one has or wants to give us an answer."

Interagency conflict among federal regulators interpreting the Rule (7) was another major source of difficulty for bankers:

> "The [Corps] and the EPA are in a disagreement on the definition of long-term management. Once the Rule has been interpreted jointly by the IRT members, I feel as if it will make things run in much the same way as it did prior to the Rule."
> "The regulations seem to have created a moving target that changes from district to district. [There is a] huge learning curve for IRT members [and] other agencies are not bound to Rule."
> "[P]ublishing a prospectus…takes about a year…and disagreement within the IRT on assessment methodology has cost us another 9 months in approval time and many, many dollars…"

Additionally, several bankers pointed to difficulties caused by increased upfront investments required under the Rule (4):

> "Prior to the Rule, a [bank] prospectus essentially introduced a site and provided enough information to entice the IRT to carry out a site visit. With implementation of the Rule, that prospectus must also address, indirectly, the entire watershed as well as potential future permit specific mitigation sites. Carrying out all of this "due diligence" requires a banker to carry out much more work/invest more resources into a site before knowing if it is viable."
> "More costly up front, more money out of pocket required now, where before we had money from sale of credits to do restoration and hydrology work."

However, not all bankers agreed that increased difficulty in bank approvals or increased early investments was a bad thing (5):

> "I don't think "[more difficult]" is negative. The IRT is simply learning how to process banks consistent with the Rule. Bankers will also need to adjust as well."
> "More difficult means more thorough, which is not a bad thing. Banking instruments have to meet the requirements of the Rule."
> "First of all, this is a good thing. Financial assurance requirements are more stringent. Monitoring requirements are tougher. Site selection is scrutinized more heavily. Larger percentage of restoration and enhancement vs. preservation is required."

Finally, bankers attacked the implementation of timelines associated with the bank permitting and approval process (4). As further questions will reveal, implementation of timelines is a major criticism of Rule implementation by the banking community.

> "Staff has ignored the Rule's criteria and time lines. Permitting banks was hard to begin with, now we debate what the Rule allows and delay is the norm."

These types of problems have bred surprising levels of banker distrust of regulators:

> "Some of the project managers are trying to come up with ways to circumvent the Rule and keep control of the process in the hands of a very few…as it was before the Rule. Again, no oversight by higher management at [our District]."

We asked respondents whether the Rule had changed the way their District regulates mitigation banks in terms of bank approval timelines, financial assurances, watershed approach implementation, ecological performance standards, and long-term monitoring standards (Figure 4; these requirements are laid out in Parts 332.4-332,6, 332.8). In terms of bank approval timelines, 35.7% (N=129) of respondents indicated that the Rule had had at least some effect, while 44.2% saw no change. Respondents (N_{QR}=32) were split on whether the Rule has sped or slowed approvals, describing both improved, timely review of bank prospectuses (15), and slowing due to IRT confusion and staff reorganization (8):

> Examples of improvements: "Made the reviewing time for the IRT more stringent." "Depending on which field office is doing the review the process has improved. Where it used to take several years it now takes 12 to 18 months." "There is more attention on scheduled IRT meetings and response times." "…[T]here seems to be a greater sense of urgency." "[The Rule] has significantly shortened the time required to reach milestones…Accountability in the form of established timelines generates quicker responses from both [the Corps] and the IRT."
>
> Examples of problems: "Getting the prospectus published has been a nightmare…" "Longer review time by legal staff to ensure compliance with the Rule. However, there was massive personnel reorganization at the same time, which created longer time frames."
> Again, not all bankers believe that extended permitting is necessarily problematic: "Made them a bit longer, and more rigorous. It appears that it will make the process for obtaining an approval for a proposed bank harder, which should be a good thing."

Finally, it is evident that many bankers are angered by incomplete implementation of the Rule's timeline provisions (8):

> "Often the time lines are ignored by the USACE…allowing 30 days for review each time a change is made to a document even if its as simple as a map variation (do we use crosshatch or dots, wetland symbols or lines) things of that nature."

Usually in the form of increased requirements, 41.1% of respondents saw changes in financial assurances required for banks under the Rule, while 38.8% saw no change. Respondents primarily remarked on the type and extent of increased financial requirements under the Rule (12; N_{QR}=33), many of which respondents' perceived as new to their Districts (5).

> "IRT requires performance bonding, short-term maintenance escrow that is refundable, and long-term maintenance escrow (endowment)."
> "The Rule has required financial assurances to be provided for all future approved banks." "Was not required previously for the Corps in [my District]." "They are starting to address financial requirements."

Others did not agree that financial assurances were correctly implemented (5):

> "…I still see no check and balance to regularly confirm [financial assurances are required equally] for each and every transaction." "…There also appear to be no clear, consistent standards on what costs financial assurances should cover and to what extent."

Several respondents noted the importance of standardized, long-term visions for compensation sites conveyed by the financial provisions of the Rule (4):

> "[There is] much more emphasis on long-term maintenance funds (this is a good thing)."

Finally, respondents continued to note the extensive, inter-governmental conflicts they have recently experienced during the banking process (3):

> "Differences in opinion between the USACE and USEPA on this segment of the Rule have slowed the process greatly." "For the past ~8 months, the State and Corps have been seeking to coordinate efforts so that a single set of [financial assurances]…could be used, preventing bankers from having to post what in essence amounts to double the financial assurances. To date, no such forms have been developed."

As for the Rule's movement to direct use of a 'watershed approach,' 34.9% saw changes in their district's implementation of this approach, while 45.7% said they did not, and 19.4% declined to respond. The respondents who have seen increased usage in watershed approaches mostly referred to changes in the size of their service areas (4; N_{QR}=25):

> "Regions are more important now [and] cross county lines."
> "[Regulators] opened [the service areas] up from an 8 digit HUC to a 6 digit HUC."
> "Banking instruments and the prospectus has to describe [how their bank fits within] this approach, which previous bankers have not done adequately."

However, most respondents had either not seen changes (4), or were confused by the changes (4):

> "The district had already implemented a watershed approach, where possible. The only stream bank-related issued [involved] buying watersheds, whereas other mitigation applicants were often just leasing the exact width of the stream needed."
> "Banks in [my state] have always been based on watersheds. The Rule did not change that."
> "I am not sure that I understand what the "watershed approach" entails…."
> "[Our District] has worked closely with [state regulators] to base wetland mitigation banks on an understanding of watershed processes from an ecological perspective. This is appropriate ecologically, and an area in which the state and District excel; these [watershed approach-related] boundaries do not always match the state-defined [service areas], which has created some confusion in the public's mind."

Finally, the Rule advised changes to the standards governing both ecological performance of wetland banks and long-term monitoring efforts (e.g. frequency of monitoring reports, duration and reporting of ecological conditions). For ecological standards, 31.0% of respondents believed that the Rule had affected changes, while 48.1% saw no change and 20.9% declined to respond. Respondents (N_{QR}=24) primarily indicated that ecological standards were now better defined (6) and that the Rule had increased requirements substantially (5) and implemented more stringent standards (3):

> "[There has been an] increase in use of functional assessment models and focus on performance metrics tied to measurable increase in function. [This] facilitates standardization rather than arbitrarily developed performance standards based on opinion rather than science."
> "The IRT is more focused on functional assessment of credits as well as requiring ecological based performance standards for success criteria. The success criteria must be measurable."

However, several respondents (3) indicated the need for guidance relating to these standards, particularly given on-going interagency conflicts, slowing of credit releases, and altered incentive structures:

> "There is a lot of back and forth on performance standards. I don't think the IRT agencies have yet determined what they want as a group. An attempt is being made to compare the bank to a reference site. This works better for certain banks than others primarily due to availability of a reference site."
> "By taking a narrow view of the role of uplands and providing no credit for uplands preserved in the context of wetlands, the COE has created disincentives for including upland habitat as part of wetland protection."

Only 29.5% of respondents thought the Rule had brought about changes in monitoring standards (50.4% did not see changes and 20.2% declined to respond) by extending, or in

several cases creating, monitoring periods (6; N_{qr}=24), and increasing (6) and better defining (2) the requirements of monitoring procedures.

> "[The Rule] has better defined what they want to see and limited the amount of information required for each report."

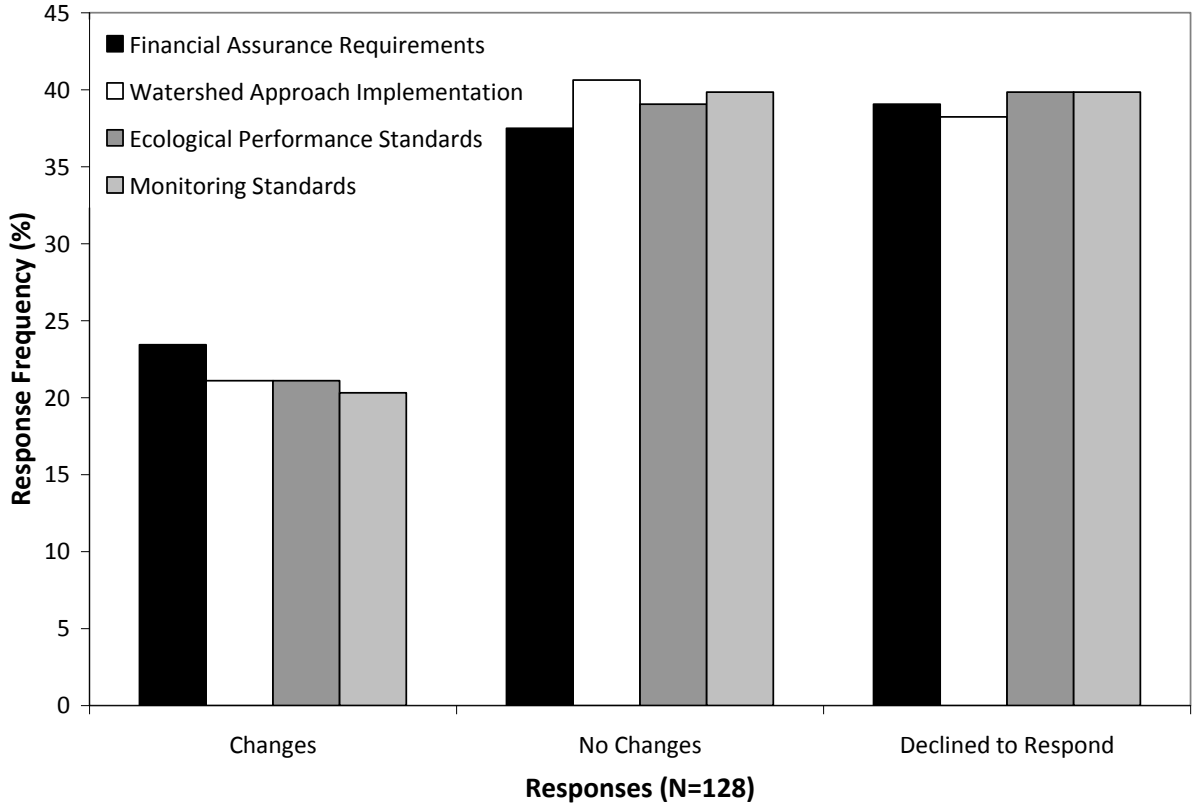
Several respondents (3) saw negative aspects of this, including increased costs and the need for additional guidance from regulators.

> "Guidance on this would be helpful… Instead of playing the 'bring me a bigger rock' game, it would be easier…if they provided guidance, including defining adequate sampling/area coverage for vegetation classification types."

Additionally, five respondents stated that their IRT was still crafting requirements.

Effects of Rule on Permittee Responsible Mitigation

Figure 5: Perceptions of Rule Effects on Permittee Responsible Mitigation (PRM)



We asked respondents (N=128) about how they perceived the Rule has changed the way that Corps Districts regulate permittee responsible mitigation in the same terms as ILF and banking, including financial assurances, watershed approach implementation, and ecological

performance and monitoring standards (Figure 5). Respondents were nearly evenly split regarding PRM financial assurances: 23.4% believed that the Rule was responsible for substantial changes, particularly the initial establishment of (7; N_{QR}=18), or increase in (4), PRM financial assurances, while 37.5% saw no changes, and 39.1% declined to respond.

> "The Corps is beginning to require more substantial assurance that projects will be implemented successfully."

Only 21.1% of respondents saw changes in the implementation of the watershed approach for permittee responsible mitigation due to the Rule, while 40.6% did not and 38.2% declined to respond. Respondents primarily saw changes in service area sizes and in-kind mitigation (3; N_{QR}=12), as well as attention towards watershed issues (3). Others also mentioned watershed approach as expressed through shifts in preference towards mitigation bankers (2).

Regarding ecological performance and monitoring standards, 21.1% and 20.3% of respective respondents believed the Rule was responsible for changes, while 39.0% and 39.8% of respondents did not. In both cases, 39.8% declined to respond

Similar to mitigation banking standards, respondents (N_{QR}=13) primarily referenced stricter (6) and more tightly defined (3) ecological standards for PRM in the wake of the Rule.

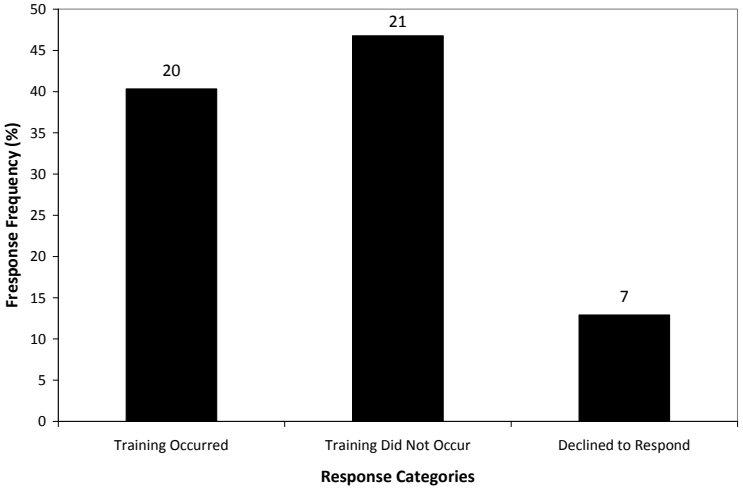
> "…[All] of the resource agencies appear to be taking advantage of a new atmosphere of heightened attention to ecological values in all compensatory mitigation programs, which I believe will redound to the great benefit of mitigation banks in particular, and to the whole concept of compensatory mitigation in general."
> "Now everyone has to show reference data and meet specific standards for vegetative strata, hydrology, and soils."
> "Performance standards include initial success (one year), short-term success (five-year) and long-term success (post five-year) and are typically specified in the mitigation plan and the permit special conditions, whereas before it was typically limited to short-term performance standards."

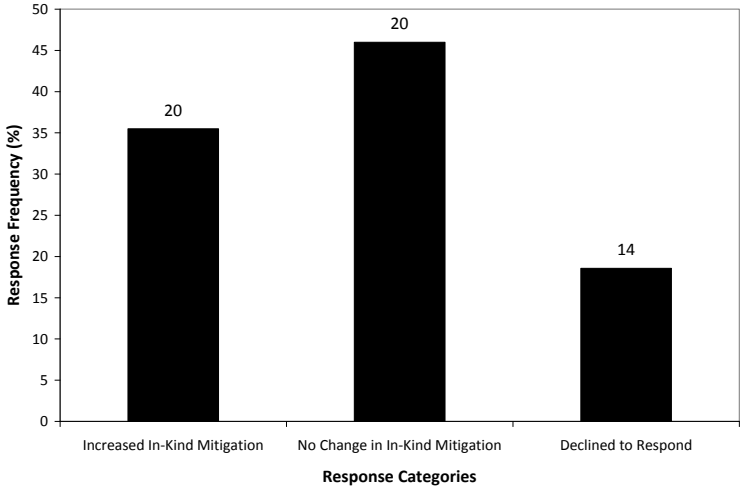
In terms of monitoring standards, respondents (N_{QR}=13), again referenced increases in standards and long-term requirements (4) that brought standards "more in line with what is required of a bank." Several respondents (4) also attacked what they believed was a low level of progress made by regulators in establishing PRM monitoring standards, generally stating, "It is unclear how the 'Rule' has changed the approach to PRM."

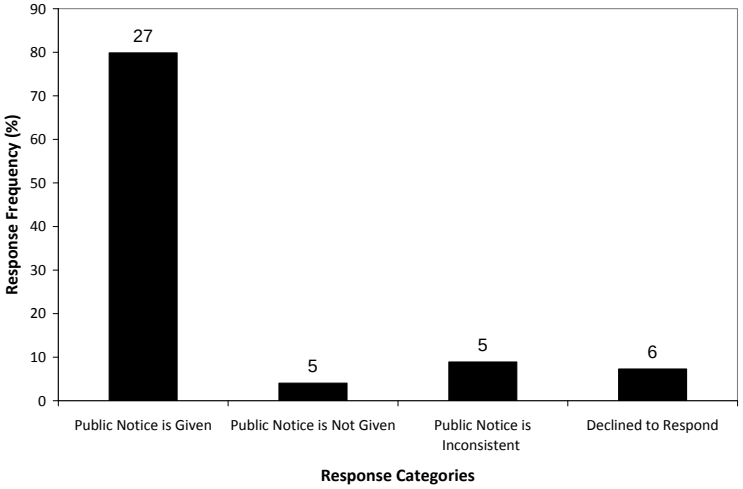
Regulatory Preferences for Compensatory Mitigation

We asked respondents (N=124) whether they believed their District engaged in any formal (agency facilitated) training program to inform regulatory personnel about the Rule (Figure 6). The results were mixed; 40.3% of respondents believed training had occurred, while 46.8% did not and 12.9% declined to respond. When respondents were asked if the Corps described proposed mitigation banks in formal public notices (as required in section 332.8(d)(4)), 79.8% replied that they did, while only 4.0% replied that they did not. Additionally, 8.9% indicated that banks were subjected to public notice "sometimes," suggesting some inconsistency in implementing this requirement. Finally, 7.3% of respondents declined to answer.

Figure 6: Regulator training, In-Kind Mitigation, and Public Notices.







To show the rough distribution of responses across Districts (responses were obtained from 30 Districts), the number of Districts for which a categorical response was given is shown above each bar. Within several Districts, conflicting responses were given, demonstrating varying respondent experiences.

The Rule establishes a preference for 'in-kind mitigation,' focused on preventing losses of specific classes of aquatic resources, such as forested wetlands and perennial streams (defined in Part 332.3(b)). When respondents (N=124) were asked if they believe that this preference led to more in-kind mitigation in their District, 35.4% indicated that it had, while 46.0% indicated that it had not. Another 18.6 % declined to respond.

Table 2: Change in Preference Structure (N=124)

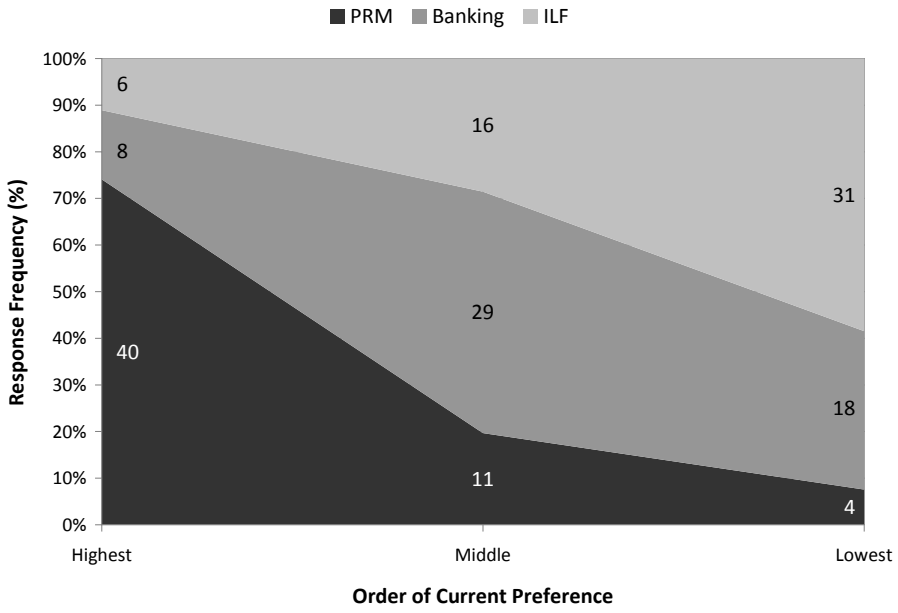
		When was District's Preference Structure Established?[1]	
		Before Rule	After Rule
Does the District Conform to Preference Structure put Forth in the Rule?[2]	Yes	26	32
	No	44	3

Notes: This table depicts the relationship between the time at which a District adopted a compensatory mitigation preference structure, and whether that preference structure conforms to that given in the Rule. [1]13 declined to respond. [2]12 declined to respond

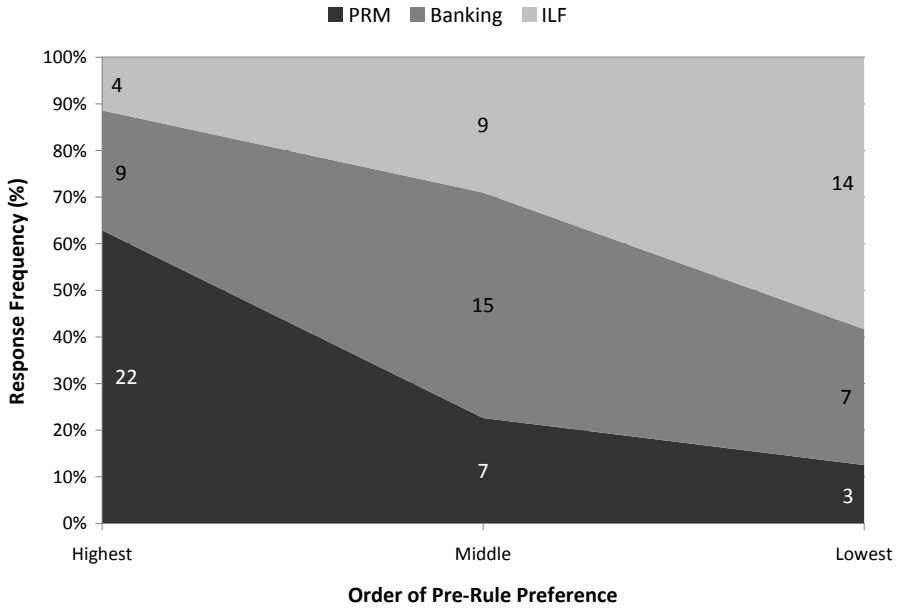
The Rule also established a preference hierarchy through which mitigation banks were given regulatory preference over in-lieu fee sites and permittee-responsible mitigation (Part 332.3(b)(2) through (b)(6)). Just under half (48.3%) of respondents agreed that their district was applying this preference structure, while 41.9% believed it was applied in a different order (9.7% declined to respond). When asked if their District's preference structure was established before or after the issuance of the Rule, 58.9% of respondents (N=124) believed that it was established prior to the Rule, while 30.7% believed that the preference was established after the Rule (10.4% declined to respond).

Table 2 breaks apart Districts with respect to 1) conformance to the Rule's preference structure and 2) the time at which a District adopted their preferences. A large fraction of respondents have not seen a change in their District's preference structure due to the Rule (35.5%). However, although we also see considerable conformance with the Rule's preference structure *before* the Rule was enacted (21.0%), we also see efforts to conform since its establishment, wherein 25.8% of respondents perceived changes in preference structure due to the Rule. Very few respondents believed that their District changed their structure to deliberately ignore the Rule.

Figure 7: Current (Top) and Former (Bottom) Regulatory Preference Structures



Notes: For non-conforming Districts. Respondents rank ordered perceived regulator preference for each compensation method. Response frequency is listed as percentage and numeric responses. PRM was seen as the most frequent first preference, while banking was seen as the most frequent second preference, and ILF as the most frequent third preference.



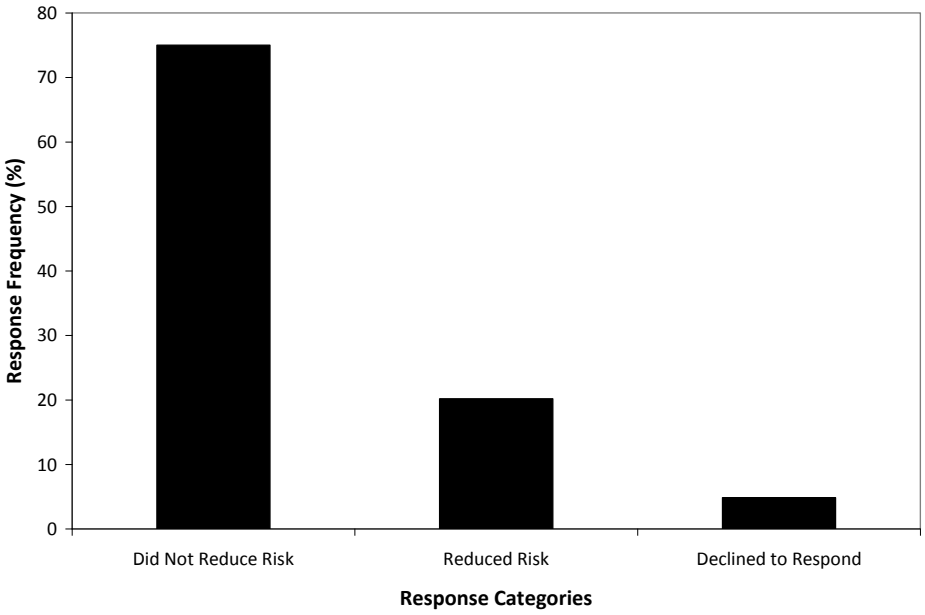
Notes: For Districts whose preference structure changed due to the Rule. Respondents rank ordered perceived regulator preference for each compensation method prior to the Rule. Response frequency is listed as percentage and numeric responses. PRM was again seen as the most frequent first preference, while banking was seen as the most frequent second preference, and ILF as the most frequent third preference.

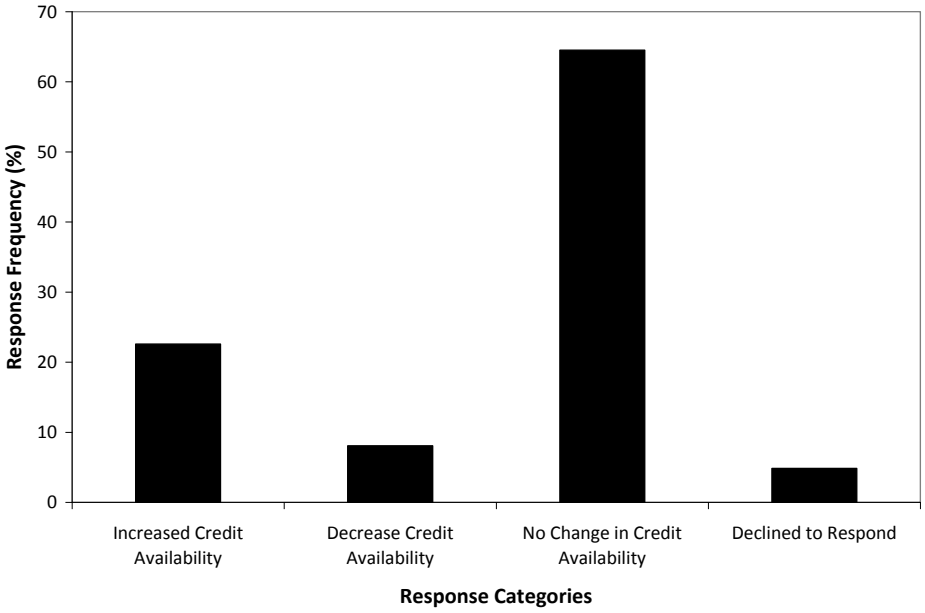
When those claiming that their Districts did not conform to Rule's hierarchy were asked what preference order regulators gave to compensation options, 58.8% (N=68) asserted that permittee responsible mitigation was the most preferred choice of regulators. Moreover, 42.6% believed that mitigation banking was the second preference, and 45.6% believed that ILF mitigation was the last preference (see Figure 7, upper panel). We then asked respondents who had seen a preference change due to the Rule about the preference structure prior to Rule issuance. In this case, PRM was, again, the clear preference (53.7% said this was the first choice), with mitigation banking as a second preference (36.6%) and ILF trailing far behind (see Figure 7, lower panel).

Financial Risk and Market Demand

Finally, when asked about financial risk, 75.0% of respondents (N=124) indicated that the Rule had not reduced the financial risk of establishing mitigation banks (4.8% declined to respond; Figure 8).

Figure 8: Rule Impacts on Mitigation Banker Financial Risk and Availability of Bank Credits





Reasons for this were diverse, and included respondents' belief that the new compensation hierarchy was merely a 'soft preference' (11; N_{QR}=75), meaning that:

> "…mitigation is left to the discretion of the district engineer. A bank may be formed, but staff can require mitigation elsewhere."

Respondents also pointed to uncertainty in timelines (7) and other sources such as service areas (4), continued preference for non-bank compensation by regulators (5), high up-front costs due to larger financial assurances (6) and stricter ecological requirements (5), and Rule implementation problems (4) as causes.

> "Staff does not facilitate quick resolution of problems, and allows IRT members to question decisions already covered in the signed BEI, creating uncertainty. Permittees are not routinely approved to use the bank, putting the bank at financial risk."
> "We have been forced to produce a $300,000 stream design BEFORE publishing a prospectus and it is costing me my investor relationship."

Many respondents (9) also pointed to the broader economy as the major determining factor in banking success, noting that "..[f]inancial risk is a function of site selection and market forces." Finally, two respondents pointed to the heterogeneity of banking itself:

> "The speed with which some banks get approved while others take forever cannot be explained by anything in the [Rule]. For that matter, neither the [Rule] nor Corps policy can explain why or how mixed pine and oak [permittees] get sent to a cypress swamp bank."

> "The approval process is slanted to a specific group of bankers that have been involved with the project managers. Delay tactics still exist despite the [new timelines]. This serves certain interest well, but delays others inexcusably."

Most of the respondents who saw reductions in financial risk (N_{QR}=20) attributed it to increasing regulatory preference for banking in their Districts (8), consistent and predictable timelines for bank approvals and credit releases (4), consistency in application of the Rule (3), and increased certainty regarding service areas (2).

> "[The Rule] lends greater predictability to [the mitigation] process, and promotes reasonable credit releases, predictable service areas, and virtual elimination of ILF programs."
> "[My District] has been proactive about the Rule….The IRT has created a consistent set of Rules that are applied equally to all bankers. Use of RIBITS [(Corps software for tracking credit ledgers)] creates a transparent atmosphere."
> "[The Rule] formalizes …standard for service areas…, thereby giving prospective bankers a good measure of what projected credit use could be expected within those areas. This allows the banker to determine the probability of credit sales, and gives them a handle on the anticipated financial risk involved with banking within a particular [service area]."
> "The process is now codified. The guidance left too much latitude and interpretation within Districts …. The District would never abide by suggested timeframes if they were not now codified in a Rule. Our bank was done before the Rule. The bank took [several] years to get through the [approval] process due to resistance to banking in the District."
> "[The Rule]…prevents banks and in-lieu fee programs from competing."

Linked to increased standards was the 'credibility' of banking:

> "More requirements and higher standards including financial assurances have raised the performance bar, eliminating some casual opportunists."

We also asked what effect, if any, the Rule had in changing the availability of compensatory mitigation credit from banks. Here, 22.6% of respondents (N=124) claimed an increase in credit availability, primarily due to increases in bank development (12; N_{QR}=23), improvements in the bank approval process (4), increased investment in banking companies (3), and increases in the general acceptance of banking (3).

> "The consistent and equally applied Rules have created an environment that bankers are willing to invest in." "With the focus on Bank credits an increased number of capital investment firms are entering the market to invest in creating credits to sell on the open market. More banks are now being proposed than ever, even though demand has decreased."
> "The monetary rewards for banks are greater than they were previously. Establishing banks is more attractive than it was before, and more banks are being established."
> "The rule has helped prompt every consultant to try and get as many banks approved as possible, which may flood hurt the market due to over supply of some potentially poor product."
> "Along with the Rule came state legislation that promoted private mitigation banking. This has led more bank sponsors to apply for banks. This should continue."

On the contrary, 8.1% of respondents indicated a decrease in credit availability, due to problems in maintaining timelines set out in the Rule (5; N_{QR}=8), and increased costs (4) due to a variety of factors (upfront investment, slower credit release, and uncertainty).

> "[Mitigation banking] is a very…front-loaded investment with strong risk and slow release schedules….In some instances, unequal treatment of banks [(by regulators)] has resulted in [banks of unequal quality] competing with each other,…[although] higher-priced banks [endure] greater scrutiny of what it takes to permit, design, and more importantly, secure release of credits. Being a good banker costs more than being a 'minimal effort' banker. Career bankers like our firm have more to risk than one-time bankers."

Finally, for the majority of respondents (64.5%), the Rule had had no effect in credit availability for a variety of reasons. First and foremost, no new banks were established in many districts (13; N_{QR}=63), which was surprisingly un-correlated with respondent references to decline in market demand (5; only 1 of 18 related responses mentioned a halt on bank establishment and the current economic recession). Soft preference for banking (10; including preference for explicit preference for ILF compensation) also had major impacts, along with continued uncertainty in timelines (6), perceived 'interference' by competing ILF programs (6), interagency conflicts (3; both within the IRT and between state and federal agencies), and increased requirements for compensatory mitigation (3). According to many respondents, the Rule has had little effect as a result of its recent issuance (6), or due to proactive steps on the part of their Districts to implement widespread banking prior to the Rule (6). Respondents also revealed a number of reasons for pursuing banking, as well as new banking strategies resulting from the Rule:

> "Credit availability is simply a function of individuals willing to take a risk in establishing a bank. There may be more people analyzing banking opportunities, but about the same number of banks are getting finalized that would have absent the Rule."
> "… I have recently joined a group with deep pockets who are financially capable to meet the new demands set forth by the Corps [in the Rule]. Our goal is to have every HUC covered in the state, therefore increasing the availability of credits, although at the same time making it harder for mom and pop mitigation banks to be approved."
> "Everyone is trying to figure out how to implement the Rule, when in fact each agency and even different offices within the same agencies interpret it differently – so each time a banker goes to bat for a bank, the game changes. We are just looking for consistency."
> "[Credit availability] is driven by markets - not by the Rule. The overbuilding of banks will soon lead to financial (and thus ecological) failures of several banks. Unfortunately, all this regulation missed the need to regulate the supply side of a regulated industry, as is done in most other regulated industries (i.e. certificates of need for hospitals)."

Another theme expressed by respondents had implications for the motives and purpose of the compensatory mitigation process:

> [Our District] has a culture of obstructionism. They do not want to see wetlands filled, so working backwards from that philosophy, they do not issue permits in a timely manner, nor do they review and approve mitigation banks in a timely manner. Regardless of the timelines in the Rule, and the prioritization of banks as an approved mitigation option, banks are still looked upon as quick tools that facilitate wetlands elimination. Therefore, there is no focus on improving the efficiency of project review and approval."

Discussion

This survey was conducted approximately one year after the Rule's implementation date (June 9, 2008). The Rule was comprehensive in its scope, as all three compensation mechanisms were affected. Although ILF and PRM communities will certainly be impacted, our survey was limited to those within the mitigation banking community, including bankers, consultants, lawyers and financiers (Figure 2). There were no participants representing the regulatory or ILF communities. Therefore, the analysis presented here is limited in that it addresses only the mitigation banking community's perception of the Rules' effectiveness.

Equivalent Standards

Mitigation bankers have long held the position that regulators require more from them than other compensation providers (Strand, 2009). As a result, bankers have advocated for policies requiring other compensation providers to meet the same standards. Their arguments found enough congressional support that related legislation was introduced on at least six different occasions between 1996 and 2003 (when the National Defense Authorization Act was passed) requiring the Rule's issuance (Strand 2009). In this respect, the Rule partly represents the result of a prolonged effort by mitigation bankers to "level the playing field" among ILF, PRM, and mitigation banking.

Among the Rule's preliminary intentions was the establishment of "equivalent standards" amid compensation mechanisms, which it aims to accomplish in several ways. Some provisions subject all three compensation mechanisms – MB, ILF, and PRM – to more stringent standards, as is the case with project ecological performance and monitoring standards (Corps and EPA, 2008, Parts 332.5 and 332.6, respectively). Other provisions, meet the equivalent standards objective by establishing new standards or restrictions formerly

required of MB only; for example, financial assurance requirements for PRM; Corps and EPA, 2008, Part 332.3 (n) and caps on advance credit releases for ILF programs; Corps and EPA, 2008, Part 332.8 (n). A final provision reaches for equivalency by introducing the "watershed approach" requirement for all mechanisms (Corps and EPA, 2008, Part 332.3 (c)). While not required prior to the Rule, some form of the "watershed approach" was predominately, if not solely, practiced by ILF programs through "watershed planning" (e.g. EEP, 2008).

Among the specific complaints lodged by bankers are concerns about the ability of ILF programs to accept fees without having identified a single compensation project (these concerns mirror examples in ELI, 2002). Mitigation bankers, on the other hand, are typically required to demonstrate ownership (e.g. via conservation easement) or investment in an approved site before selling bank credits (e.g. Corps, et al., 2008). This operational distinction between ILFs and MBs could imply two things: 1) ILFs incur less up-front financial risk; and 2) ILFs are initially in a poor position to anticipate program expenses, and therefore may be unable to accurately and appropriately set fees to cover the costs of future compensation (see BenDor et al., In Press; Penrose, 2006 for examples in North Carolina).

It appears that the "equivalent standards" specific to MB (30-42%) are more widely viewed as implemented than either PRM (20-24%) or ILF (10-20%) standards (Figures 3-5). This trend suggests that Corps Districts, and the Inter-agency Review Teams they chair, have more readily implemented MB standards than PRM and ILF standards. The trends we find in our data might be expected considering the operational differences among the legal instruments defining how individual mitigation banks ("mitigation bank instruments" or 'MBIs'), PRM sites (PRM permits), and ILF programs (ILF Instruments) are designed to function.

ILF instruments are designed to support operations that require little to no financial investment upfront (ELI, 2002), but may have nearly unlimited potential in creating compensation credits. Contrasting this, MB and PRM instruments (PRM instruments are defined in impact permits) authorize a finite source of credits, the creation of which comes at considerable risk. Because ILFs often assume little financial risk, and their instruments do not limit their credit potential, their instruments' life expectancies are considerably longer than those of MB (or PRM).

The authors of the Rule understood this distinction and added a provision that forced ILF instrument reconciliation with the Rule's equivalent standard provisions. Part 332.8 (v)(2) [page 19687] categorically stipulates that existing ILF instruments be modified for compliance purposes in no more than 5 years. This part also stipulates that all new MB instruments and any modifications to existing instruments (including site addition or expansion, or the inclusion of different resource credit types) require Rule compliance; older, unmodified instruments are grandfathered. So it should be expected that MB instruments, PRM permits, and ILF instruments will be introduced, reviewed, and rejected or approved at varying frequencies; thus requiring Corps Districts and IRTs to work toward Rule implementation for each mechanism at different rates.

Service Areas

Another common criticism leveraged by bankers against ILFs is that their service areas are more flexible than those of banks (PRM does not have service areas as their projects are largely designed to satisfy the compensation demand associated with a specific permit). This perception emerges in at least one respect within the survey's data. Specifically, bankers believe ILFs are nearly 20 times more likely than mitigation banks to use a state boundary to define its service area (service area was defined for respondents in the survey). If this perception were representative of actual ILF and MB instrument discrepancies, this would likely provide a competitive advantage for ILFs in markets with MBs.

Regulatory Preference

Part 332.2 (b) [Page 19673] of the Rule establishes a preference structure for the source of compensation credits used to provide offsets for permitted impacts. In general, the provision lists mitigation banks as the preferred source of credits, followed next by ILF and finally PRM sources. The text of the Rule explores possible conditions where this preference may not be appropriate, and the Rule formally authorizes each Corps District to make the final determination. This section's language has led to some disagreements as to whether the Rule's preference structure is "hard" – formalized and explicit – or "soft" – where the structure is merely a suggestion to guide District decision-making, and it is therefore not required for

permittees to use MB credits simply because they are available and within the appropriate service area.

Collectively, our results show that the banking community largely perceives that regulators see the preference structure as "soft," with many Districts ignoring the guided structure put forth in the Rule. Our results suggest that nearly half of the banking community feels their districts are complying with the Rule's preference (48%), while 42% felt a different preference structure was being applied (Figure 7). Given that only 31% of respondents believe the Rule to be responsible for preference changes in their Districts, our results indicate that several districts were pro-actively complying with the new preference structure, and that many other districts have either completed or partially implemented the new preference guidelines.

When we examined the preference structure in non-conforming districts, PRM was perceived as the most preferred option, while ILF was widely viewed the last preference. A similar trend was documented by the Environmental Law Institute (2007), which concluded that during FY 2003, 59.8% of wetland mitigation and 81.5% of stream mitigation was completed as PRM. While bankers have focused substantial attention over the years to the threat posed by ILFs to banking interests (Garner 2007, Strand 2009), it appears that PRM is actually a more important challenge to banking interests.

If banker perception accurately represents regulatory reality, this raises other ecological and policy concerns. PRM projects are the Rule's last option because it's seen as the mechanism with the most uncertainty (NRC, 2001). Therefore, regulatory preference for PRM can undermine the federal "no net loss" goal by permitting impacts without ensuring adequate and appropriate compensation is provided. The uncertainty of ecosystem restoration through compensation projects has been criticized as having too much uncertainty (Palmer and Filoso, 2009), which may be compounded through PRM preference.

Effects on Mitigation Banking

Financial Risk

Many within the banking community assumed that the Rule, with its equivalent standards provisions and preference for mitigation banking, would reduce mitigation banker risk (Strand, 2009). By increasing standards on PRM and ILF programs, banks would become

more competitive, generating more demand for banked credits, and thus reducing financial risks. The results, however, do not yet substantiate this expectation (Figure 8). The vast majority of respondents (75%) felt that the Rule has not affected bank financial risk. While the reasons were diverse for this position, one of particular prominence was that Corps discretion was the major element controlling risk. Only 20% of the respondents felt that the Rule has reduced the financial risks associated with banking. In fact, many respondents believed that the Rule had actually *increased* risk, whether by creating more onerous standards (e.g., higher performance standards and financial assurances) or regulatory (IRT) confusion, thus slowing what they believe to be an already protracted process.

Similar to financial risk perceptions, a majority of respondents (65%) felt that the Rule has not led to any change in MB credit availability. Rather, respondents primarily pointed to delays in Rule interpretation by the IRT as a primary source of risk. Other respondents suggested that the current economic recession, not the Rule, has dictated market conditions and by extension, the availability of MB credits. There did appear to be a wide variation in responses, suggesting that banking activity had, at least temporarily, halted in some districts, while it was booming in others. Robertson, (2006) time-series analysis of banking activity in the Chicago region remains one of the only efforts to understand the interplay between regulation and market demand for MB credits. As a result, we do not currently have a solid understanding of the exact effects of the macro-economy on the demand for MB credits. This is an area that should receive more attention from researchers, regulators, and the banking community in the future.

Mitigation Banking Barriers

Among the most unexpected results of the survey was the common perception that the Rule has produced or re-enforced barriers to mitigation banking, including conflicts between the Rule and previously existing state statutes or local ordinances, conflicts of interest between regulators and ILF programs, and interagency confusion and conflict (Inter-agency Review Team members that interpret the Rule differently).

Within a number of districts, including Seattle, Baltimore, Charleston, Jacksonville, New Orleans, Sacramento, and Savannah, there are conflicts among state statues or local ordinances

and the Rule. According to several respondents, these scenarios have halted the development of mitigation banking within their districts. For example, the Baltimore District runs an ILF program (the Maryland Nontidal Wetland Compensation Fund) created under a state law (MD Regs. Code tit. 26, §23.04.07 (2005); see ELI, 2006), which must be modified before the ILF is capable of complying with the Rule's provisions. Moreover, respondents from this District argued that the state prefers on-site mitigation (PRM), which conflicts with the Rule's preference and watershed approach provisions. One respondent concluded that, "[u]ntil the conflicting state regulations that discourage use of banking are resolved, there will be little ability for banks to be established successfully". In one Washington State county, local ordinances have authorized an ILF where respondents perceive that "county staff believe they have regulatory authority to implement their own program." In other words, the Corps does not seem to be involved and the local government may be uninterested in complying with the Rule.

From an alternative perspective, Corps representatives from North Carolina's Wilmington District have raised concerns publicly that recent North Carolina state statutes conflict (at least in part) with the Rule (N.C. PL 2008-152, PL 2009-337). The concern was that it is possible the Corps may require on-site or ILF compensation, while the state requires the acquisition of MB credits (if available). This could mean a permittee is forced to endure extensive delays while pursuing resolution, or be forced to provide twice the compensation that would otherwise be required.

Perhaps the most interesting example of conflicts between state/local and federal regulations was experienced in Florida, where a respondent described state and federal standards dictating different bank service areas. As a result, complications may arise in this District when banks attempt to use credits for compensatory aquatic mitigation (CWA Section 404 – administered federally by the Corps) and water quality mitigation (CWA Section 401 – administered by individual states). Forcing mitigation markets for multiple aquatic functions (e.g. water quality mitigation, wetland/stream compensation) to operate at different geographic scales can severely complicate market operation and permitting processes (Doyle and BenDor, In Press; Robertson and Mikota, 2007).

Conflicts of this nature increase uncertainty for bankers, permittees, and the regulatory community. As uncertainty increases financial risk, such conflicts can prove to be significant barriers to private enterprise interested in prospectively building mitigation banks. In these and other districts, our results point to the need for increased coordination between IRT agencies (state and federal) and legislative bodies (state and federal). Additionally, these areas may require more extensive documentation from regulators that clarifies Rule interpretation, preference structure, and the role of ILF programs in providing compensatory mitigation within local jurisdictions.

Inter-agency Review Teams: Confusion and Disagreement

Several respondents detailed scenarios in which interagency disagreements (among IRT members; including but not limited to disagreements between EPA and Corps representatives) have added confusion to the banking process and delayed MB approvals. Among the most confusing provision was the watershed approach, which respondents identified as vague in several respects. Moreover, the definition and interpretation of 'watershed approach' is left to individual Corps Districts, which raised respondent concerns that the provision will be applied inconsistently across districts. This concern confirms criticisms of the Rule made during its issuance by Mann and Goldman-Carter, (2008) and Murphy et al., (2009).

Further complications relating to confusion are rooted in the social dynamics associated with the "approval by committee" approach of the IRT process. While the Corps has final say regarding the approval of mitigation banks and impact permits, there are other agencies providing input, which expectedly slows (and perhaps strengthens) the approval process. According to some respondents, the Rule has further perpetuated this reality by: 1) presenting a new learning challenge for resource strapped agencies, and 2) introducing standards that state and local governments do not feel apply to their mitigation and permitting operations. The net result appears to be conflict, confusion and delay for permitting and bank approval.

Permitting Authorities, ILF Oversight and ILF Program Accounts

Bankers and their associates were quick to describe what they saw as conflicts of interests at several levels within their districts; the most commonly cited examples involved ILFs. For example, the North Carolina ILF program is administered by the same state agency

designated as the state's CWA Section 401 permitting authority (which handles all water quality provisions of the CWA). Another example includes the opinion that oversight of the Tennessee Stream Mitigation Program (TSMP; the state's stream ILF) is provided by a non-profit, the TN Wildlife Resource Foundation, and "for all intents and purposes" both are "run by the same guy".

Both scenarios raise concerns regarding the accountability of these and similar programs. Moreover, if the bankers' perceptions are accurate that ILF programs are not held to the same standards as mitigation banks (i.e., mitigation plans, regulatory review, public review, and limits on advanced credit sales), the integrity of ILFs in some districts are understandably questioned. Greater oversight and documentation will greatly improve ILF transparency, which is in the best interests of the environment, the public, ILF programs, and regulatory agencies (Corps and EPA).

Another potential conflict of interest originates from the Rule's granting of greater authority to individual Corps Districts, especially within the context of ILF program accounts. This conflict arises from the dual roles of Corps Districts in regulating impacts and managing ILF program investments. A District may decide that ILF compensation is more appropriate than bank credits (when available) for a given permit because the Corps has direct authority over, and provides direct approval of, ILF expenditures. By determining how and where ILF programs are used to provide compensation, Districts assume considerable control and influence over ILF programs –a potential threat to a free, transparent market for compensation credits.

Additional conflicts may arise given the Corps District's responsibility for renegotiating ILF instruments with other IRT agencies. In this case, the discretion authorized by the Rule may allow Districts to be lenient with ILF standards, providing more flexibility for Districts to operate ILF accounts. These results reflect concerns expressed by ELI, (2002), BenDor, (2009), and Urban et al., (1999) regarding the accountability of ILF programs. Districts should pay particular attention to these concerns and make every effort to ensure transparency, as they are likely to be points of contention with mitigation bankers and environmental interest groups.

Non-Profit and Government Preference

An on-going survey response theme involved the perception that IRT members, and Corps Districts in particular, prefer compensation provided by non-profits and government agencies over that provided by mitigation banks. One respondent felt that, "the members of the IRT…include individuals that are openly biased against private environmental mitigation policies, do not trust businesses, and do not like the concept of profit in environmental restoration." Another respondent described the process of bank approval as "unnecessarily combative" arguing that, "there is no private-public partnership here".

These concerns are not new to the mitigation banking community (Mogensen, 2006; Robertson, 2004) and indicate significant mistrust between the private and public components of the compensatory mitigation industry. Based on the frequency and geographic extent over which they were raised in the survey, these perceptions are widespread, suggesting entrenched ideological barriers to the implementation of a Rule that might otherwise benefit private sector-sponsored compensation. If these perceptions mirror reality, several of the Rule's provisions – especially the preference structure – may be difficult to implement to any meaningful degree.

Conclusions

Our results suggest that respondents perceive that Rule implementation has been somewhat patchy, but generally trending in the direction of compliance. It appears that the mitigation banking and permittee communities have seen more complete provision implementation than ILFs – an expected result based on the compliance schedule of the Rule, which provides anywhere from 2 to 5 years for each ILF program to renegotiate their instruments with Corps Districts (Part 332.8 (v)(2) [page 19687]). Therefore, ILF compliance should be more widespread in the years to follow.

Some of the most interesting results from our survey were unforeseen and provide insights into the barriers experienced by private bankers. Among these are perceptions that IRT members are more inclined to support compensation provided by non-profit and government entities. In addition, there are current and potential conflicts of interests that may give some

ILFs a competitive advantage over mitigation banks – a market condition that increases investor uncertainty. These conflicts must be addressed, particularly in areas where regulators administer ILF programs, thus giving them the ability to determine demand for compensation credits (approving impact permits), set prices for ILF compensation credits, and approve/regulate competing methods of compensation (PRM and banks).

Our results reveal a surprising variety of banker experiences with the Rule, among both individual firms and Corps jurisdictions. While the decentralized nature of the Army Corps of Engineers inevitably yields stark differences between Districts, the treatment of individual bankers by regulators remains an area that needs to be studied in more depth. How do relationships with regulators, expertise, and previous experiences factor into the ease of creating compensation credits?

Additionally, this survey points to a variety of areas where Rule clarification may be necessary in the coming years. Regulators, at both the national, District, and state level will need to clarify the exact meaning of 'watershed approach,' the new guiding philosophy of compensatory mitigation. Moreover, interpretation of various Rule provisions by disparate members of IRTs will need to be streamlined and clarified.

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Appendix: Term Definitions

Term	Definition	Reference
Functional assessment	Assessment methodologies based on variables or measures of ecosystem functional capacity	Corps and EPA, 2008, Part 332.5 (b)
Watershed approach	"...an analytical process for making compensatory mitigation decisions that support the sustainability or improvement of aquatic resources in a watershed."	Part 332.2
Mitigation Banking Instrument	"...the legal document for the establishment, operation, and use of a mitigation bank."	Part 332.2
In-Lieu Fee Instrument	"...the legal document for the establishment, operation, and use of an in-lieu fee program."	Part 332.2
Advance credit	"...any credits of an approved [ILF] program that are available for sale prior to be fulfilled in accordance with an approved mitigation plan."	Part 332.2
Interagency Review Team (IRT)	"...an interagency group of federal, tribal, state, and/or local regulatory and resource agency representatives that review documentation for, and advises the district engineer on, the establishment and management of a mitigation bank or an in-lieu fee program."	Part 332.2
Permittee-Responsible Mitigation (PRM)	"...an aquatic resource restoration, establishment, and/or preservation activity undertaken by the permittee (or an authorized agent or contractor) to provide compensatory mitigation for which the permittee retains full responsibility."	Part 332.2
In-Lieu Fee (ILF)	"…programs involving the restoration, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements for Department of the Army permits."	Part 332.2
Mitigation Bank (MB)	[1995] "…the restoration, creation, enhancement and, in exceptional circumstances, preservation of wetlands and/or other aquatic resources expressly for the purpose of providing compensatory mitigation in advance of authorized impacts to similar resources.	Corps and EPA 1995
	[2008] "...a site, or suite of sites, where resources (e.g., wetlands, streams, riparian areas) are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts authorized by DA [Department of the Army] permits. In general, a mitigation bank sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor."	Corps and EPA, 2008, Part 332.2
Service Area	"...the geographic area within which impacts can be mitigated at a specific mitigation bank or an in-lieu fee program..."	Part 332.2