ENVIRONMENTAL LAW INSTITUTE

Wetland Avoidance and Minimization in Action:
Perspectives from Experience

ENVIRONMENTAL LAW • INSTITUTE®

April 2009

Wetland Avoidance and Minimization in Action:
Perspectives from Experience

Acknowledgements

This publication is a project of the Environmental Law Institute (ELI). Funding for this project was provided by a Wetland Program Development Grant from the U.S. Environmental Protection Agency. This report was authored by Sandra S. Nichols and James M. McElfish, based substantially on interviews conducted by T. Nikki Powell. Annie Brock and Amanda Martin also conducted several interviews. The interview template was devised by Austin Kane with valuable guidance from the Wetlands Division of EPA.

We gratefully acknowledge the information and guidance provided by Wetlands Division staff, as well as Jennifer McCarthy of the U.S. Army Corps of Engineers. Finally, we thank the many state, federal, and private consultant respondents who generously shared their time and expertise. The Environmental Law Institute is responsible for the views and information contained in this report.

About ELI Publications—
ELI publishes Research Reports that present the analysis and conclusions of the policy studies ELI undertakes to improve environmental law and policy. In addition, ELI publishes several journals and reporters—including the Environmental Law Reporter, The Environmental Forum, and the National Wetlands Newsletter—and books, which contribute to education of the profession and disseminate diverse points of view and opinions to stimulate a robust and creative exchange of ideas. Those publications, which express opinions of the authors and not necessarily those of the Institute, its Board of Directors, or funding organizations, exemplify ELI's commitment to dialogue with all sectors. ELI welcomes suggestions for article and book topics and encourages the submission of draft manuscripts and book proposals.

Wetland Avoidance and Minimization in Action: Perspectives from Experience

ELI Project No. 0828-01.

An electronic retrievable copy (PDF file) of this report may be obtained for no cost from the Environmental Law Institute Website www.eli.org; click on "ELI Publications," then search for this report.
[Note: ELI Terms of Use will apply and are available on site.]

TABLE OF CONTENTS

Wetland Avoidance and Minimization in Action: *Perspectives from Experience*

I. Introduction

Avoidance and minimization are the first two steps in the dredge and fill permitting mitigation sequence.[1] The Clean Water Act (CWA) prohibits most discharges of dredged or fill material in "waters of the United States," including wetlands, without a permit. Wetlands are regulated under CWA § 404, which is administered by the U.S. Army Corps of Engineers (the Corps) with oversight by the U.S. Environmental Protection Agency (EPA). The basic premise of the § 404 permitting program is that no discharge shall be permitted if (1) a practicable alternative exists that is less damaging to the aquatic environment, or (2) the discharge would cause the nation's waters to be significantly degraded. In order for a project to be permitted, it must be demonstrated that, to the extent practicable: steps have been taken to avoid impacts to wetlands and other aquatic resources, potential impacts have been minimized, and compensation will be provided for any remaining unavoidable impacts. This process is commonly referred to as mitigation sequence and is described in detail in the 1990 Corps-EPA Mitigation Memorandum of Agreement.

Significant attention has been paid over the past 20 years to improving the third step in the process—compensatory mitigation—to ensure that the compensation being provided is ecologically effective, self-sustaining, protected in perpetuity, has assurances of long- term sustainability and stewardship, and ultimately meets the program's goal of no net loss. This report focuses on the first two steps in the sequencing process which, to date, have received far less attention at a national level: avoidance and minimization. Last year, the Environmental Law Institute conducted two studies on the history and current status of avoidance and minimization in state and federal laws, regulations, and policies.[2] This study looks at how the requirements are applied by permitting officials in state and federal regulatory and resource agencies.

In order to learn about how those involved with the permitting process implement the avoidance and minimization process, we conducted interviews with ten Corps District officials, six other people involved in the process at the federal level, ten State officials, and seven members of the regulated community and consultants. We talked to them about how they carry out avoidance and minimization, where they find weaknesses, and how the process could be improved. As such, this report includes only information that was described to ELI during the interview process. The scope of this project did not include all possible sources of information about avoidance and minimization practices. ELI did not examine any permit files or permit support documents. Analysis of the information contained in such documentation would be a valuable supplement to this report and would provide further insight into the implementation of avoidance and minimization.

This report presents the major findings from the synthesis of the 33 conversations described above, including the importance of creativity in accomplishing the program's goals, the need for strengthening the role of resource agencies, and the need for more guidance about standards, approaches, and techniques. Statements by respondents are footnoted by category of respondent in order to maintain confidentiality.[3] The authors chose this format in order to encourage candor on the part of the study participants. While an argument could be made that unattributed quotes have less weight and might better be presented as summaries, we chose to share the responses in their original form to best present the spirit and specific perspective of the regulators, regulated community, and resource agency respondents who participated.

II. Information for Applicants

While people planning projects that require dredging or filling in U.S. jurisdictional waters can get information about

1 33 U.S.C. § 1344; CWA § 404; 40 C.F.R. § 230.

2 Sandra S. Nichols, James McElfish, Jr., and Jessica Wilkinson, State Wetlands Protection Programs: Avoidance and Minimization Requirements, Environmental Law Institute, March, 2008, available at: http://www.elistore.org/reports_detail.asp?ID=11256&topic=Wetlands; Jessica Wilkinson, Sandra S. Nichols, and Jared Thompson, The Federal Wetlands Protection Program: Avoidance and Minimization Requirements, Environmental Law Institute, March, 2008, available at: http://www.elistore.org/reports_detail.asp?ID=11275&topic=Wetlands.

3 The locations and affiliations of the respondents are identified in the Appendix.

complying with CWA § 404(b)(1) law and regulations in a variety of ways, as the lead regulatory agency, the Corps district office (or state in the case of assumed programs) is usually the main point of contact for regulatory compliance with this program.

Giving applicants the best opportunity to comply with laws, regulations, and to apply best practices requires providing information about how to do so as early as possible in the project review process. Districts provide a range of materials to § 404 permit applicants. Though not all Corps districts provide any particular set of materials as a matter of course,[4] other Corps districts noted that they ordinarily provide to applicants the following kinds of information relevant to avoidance and minimization –

- Federal regulations and policies
- District policies, including guidelines on stormwater management, use of Low Impact Development, subdivision permitting, etc.
- Checklists
- Fish and Wildlife Service (FWS) Standard Local Operating Procedures for Endangered Species (SLOPES)[5]

States also provide information, some posting laws and regulations on their agency website or providing applicants with guidelines or a checklist.[6] One state regulator explained that the office provides applicants with Guidance on Evaluating Feasible and Prudent Alternatives.[7] A resource agency project reviewer says that the office provides an article on the alternatives analysis requirements in the Section 404(b)(1) Guidelines to permit applicants at pre-application meetings.[8]

While there is variety in these practices, very few of those interviewed reported providing resource-specific or practical information to applicants to help them understand what is expected by way of avoidance or minimization in specific terms. One respondent stated that the district does not provide applicants with any information specifically aimed at facilitating avoidance and minimization.[9] Another suggested that in order to increase the focus on the front end of the mitigation sequence rather than on compensation, avoidance and minimization should be emphasized in guidance initially given to permit applicants.[10]

In contrast, one regulator described providing several guidance documents, including guidelines on how subdivisions are reviewed, calculators for evaluating return on investment, and Low Impact Development and Better Site Design guidelines, to applicants as appropriate during various stages of the permitting process.[11]

III. Avoidance and Minimization Policy Framework and Implementation

Avoidance and minimization is a regulatory process for assuring that only projects that are located on the least environmentally damaging practicable alternative (LEDPA) site and designed to minimize impacts to the aquatic environment will receive legal authority to discharge. The Corps can only permit the LEDPA. While this sounds straightforward, there are many variables at play and they multiply in complexity depending on the type of project, the local market, the geographic context, and the type, functionality, and local importance of wetlands involved.

In 1993 the Corps issued a guidance memorandum explaining that flexibility should be used when making determinations of compliance with the Section 404(b)(1) Guidelines, particularly with regard to the alternatives analysis. The memorandum states that the 404(b)(1) Guidelines afford flexibility in making regulatory decisions based on the relative severity of the environmental impact of proposed discharges, or when there is only a minor difference between impacts of the proposed activity and those of the potentially practicable alternatives.[12]

To effectively implement the Section 404(b)(1) Guidelines and Corps permitting regulations, regulators must have meaningful and consistent standards and gather sufficient information regarding each proposed project to be able

4 Federal Regulatory Respondents.
5 Federal Regulatory Respondent.
6 State Regulatory Respondent.
7 State Regulatory Respondent.
8 Federal Resource Agency Respondent.
9 Federal Regulatory Respondent.
10 Federal Resource Agency Respondent.
11 Federal Regulatory Respondent.
12 RGL 93-02, Memorandum to the Field: Guidance on Flexibility of the 404(b)(1) Guidelines and Mitigation Banking (Aug. 23, 1993 – Dec. 31, 1998, Department of the Army and Environmental Protection Agency).

to thoroughly evaluate compliance with program requirements.

In conducting the alternatives analysis, which includes consideration of avoidance and minimization of impacts to waters, regulators have the authority to deny permits if there is a practicable alternative location or configuration for the project that would avoid or minimize impacts – although some interviewees explicitly acknowledge the expectation on all sides that most permits will be granted.

a. District Standards and Policies

While federal laws and regulations are applicable nationwide and State standards apply statewide, the context for applying them varies. The Corps trains federal permit managers on concepts related to avoidance and minimization through two voluntary national training programs known as the Prospect courses. But specific technical information needed to apply the requirements may be different, for example, in urban Chicago and in rural Arizona. Thus, guidance on local approaches and standards can help applicants know how to comply, and regulators know what avoidance and minimization consists of in the context of particular aquatic resource complexes. One district has found it useful to supply guidelines for specific types of project, though that district was the exception.[13] The other Corps districts consulted did not mention having a policy or local standards for complying with avoidance and minimization other than national law and regulations.

b. Avoidance

First in the mitigation sequence, applicants must avoid impacts. In order to comply with the avoidance requirement, EPA's Section 404(b)(1) Guidelines require applicants to show that the project they are proposing represents the least damaging practicable alternative.[14] How do districts and states understand avoidance, and do they define this understanding for applicants?

Effective regulators are able to communicate the meaning of this requirement in concrete terms. One regulator told an applicant to think of the wetland as a cliff; the developer radically designed his shopping mall in an L-shape as a result.[15] Many Districts have a simple operational definition of avoidance, generally expressed straightforwardly as not filling or impacting waters of the U.S. One Corps respondent explained "… avoidance is when they were proposing to place fill material and as part of the permit review process that did not happen so the direct impact was avoided"[16] Another says avoidance is, "Not creating an effect; not placing fill on the wetland."[17] Yet another defines avoidance as, "Not impacting the wetland."[18]

From an operational perspective, one respondent says, "Avoidance is where they actually physically avoid direct impacts to water including wetlands… I try to get them to concentrate impacts to previously impacted areas… We also try to have them concentrate impacts in a small footprint… Not avoiding areas but putting it closer to an existing road. I call that avoidance. Anything related to alternative analysis I consider avoidance."[19] Another explained, "I have my high aspirations and my bottom point, and we end up in mid-range. If I get to my bottom, I don't pass it… Let's be real, this is not a prevention program, it is a regulatory program. I need to find ways to keep certain elements out, look at the fact that they own the land and see what is important to them… An attempt constitutes avoidance. We ask them to document plans and show how they get to where they are. If I think you can do more, I'm going to show you. The burden of proof is on the applicant to show me where they've been in this journey."[20]

Some take a "know it when we see it" approach, which does not provide clear standards for applicants. One regulator did not offer any definition or standard for avoidance, explaining that permitting officials evaluate proposals to see if they meet the standard.[21] One member of the regulated community stated that avoidance happens as part of project design and that project proponents will "take the path of least resistance and design a project in the way that triggers the least regulatory requirements."[22]

13 Federal Regulatory Respondent.
14 40 C.F.R. § 230 et. seq.
15 State Regulatory Respondent.
16 Federal Regulatory Respondents.
17 Federal Regulatory Respondent.
18 Federal Regulatory Respondent.
19 Federal Regulatory Respondent.
20 Federal Regulatory Respondent.
21 Federal Regulatory Respondent.
22 Regulated Community Respondent.

i. Project Purpose

Effective avoidance depends in substantial part upon the alternatives analysis. The first step in completing an alternatives analysis is defining the project purpose. Defining the project purpose is critical, as it has a profound effect on the set of alternatives to the permit applicant's proposed site which must be considered.

However, interviewees reflect different views about the role of the project purpose and how and when it should be established. Only one respondent mentioned ensuring that the overall project purpose is defined early in the process as a baseline for making decisions and shaping the alternatives analysis.[23] Unless the project purpose is well-defined and understood by applicants, regulators, and reviewers alike, the alternatives analysis may be unclear. Some regulators assume the responsibility for determining the project purpose.[24] Others leave this task up to applicants; while still others require confirmation of the applicant's stated purpose by the regulators.[25] One District takes the "basic purpose"[26] from the applicant and requires the Corps project manager to define the "overall purpose, a distinction that EPA does not make.[27]

ii. Standards for avoidance

More than just defining the regulatory term "avoidance," applicants and regulators need to know how to interpret this requirement in practical terms given the type and size of the project, and the type and function or quality of the wetland. Most of the participants in this study said that their office or the district with which they interact does not have standard approaches for evaluating avoidance practices for specific types of projects.

One Corps district said, "There are no standard approaches for specific types of projects other than the difference between individual and general permits." However, the same district has standardized approaches for requiring offsite analysis for individual permits. Applicants must check real estate listings for properties available at the time they purchased the property they are proposing as the project site.[28] Another said, "Our district has very limited amounts of written documentation. A lot of the onus falls to the project manager."[29] Another regulator respondent said, "When it is an individual project we do alternatives and minimization related to the size of the project… As the impacts increase, we require more analysis. Cost is also a factor."[30] Yet another explained that the approach to avoidance "doesn't change from project to project. We look at percentage-wise what can be avoided, and the avoidance changes from wetlands to other types of aquatic resources."[31]

One state respondent said, "There aren't standard written down procedures for types of projects. But we are developing a more standardized approach. Generally we do handle subdivisions impacting wetlands differently than bridge projects, for example. For subdivisions we want them to give us alternative sites, other properties that the developer could have purchased, and alternative designs on project site that reduce the impacts. We wouldn't do the same for a bridge repair project."[32] Another said, "It's all the same. Avoidance is easy; no impact, period. The conundrum is how much minimization is enough minimization. Avoidance is a piece of cake."[33]

Lack of established standards puts much more pressure on the regulator in deciding when an alternatives analysis is sufficient. Some regulators feel that their professional judgment about the appropriate degree of rigor needed for the alternatives analysis for a certain application is eclipsed by fear of public reaction.[34] One respondent stated that a more rigorous alternatives analysis is triggered by the public visibility of the project.[35] A permit reviewer said that the

23 Federal Regulatory Respondent.
24 Federal Regulatory Respondent.
25 State Regulatory Respondent.
26 The Corps separates the Guidelines' concept of project purpose into two analytical elements, distinguishing between the "basic purpose" (a regulatory term from EPA's § 404 Guidelines) of the project and the "overall purpose" (a guidance term from HQUSACE's guidance resulting from the Twisted Oaks Venture and Old Cutler Bay Elevation Requests) of the project. The Corps Standard Operating Procedures state that the overall project purpose is more specific to the applicant's project than the basic purpose. EPA's final interpretation of the Guidelines' use of the terms "basic purpose" and "overall project purposes" came in 1990 in the veto of the Two Forks application. EPA clarified that these terms were intended to be used interchangeably.
27 Federal Regulatory Respondent.
28 Federal Regulatory Respondent.
29 Federal Regulatory Respondent.
30 Federal Regulatory Respondent.
31 Federal Regulatory Respondent.
32 State Regulatory Respondent.
33 State Regulatory Respondent.
34 Federal Regulatory Respondent.
35 Federal Regulatory Respondent.

degree of rigor in the alternatives analysis in some districts depends on which project manager is responsible. "It is more project manager-specific whether they will require a full-fledged alternatives analysis."[36] One district considers cost data to be standard information required for evaluating the sufficiency of avoidance.[37]

It is also important to have standards regarding the geographic scope of the required analysis of avoidance measures. One respondent said the district defines the geographic scale of alternatives analysis based on the project purpose, which usually means that multiple towns or an entire county is analyzed.[38] Practical considerations limit the scope for analysis for some projects, such as a school having to be constructed within the school district.[39] Another interviewee said that the scope of alternatives depends on the expected impacts of the proposed project, suggesting that in addition to project purpose, the breadth of alternatives to be considered might differ if more or less impacts to the wetland were expected.[40] One state explained they take a different approach "if it is a project that is wetland-dependent. If not wetland dependent, the type of project is irrelevant."[41]

Of course, a greater degree of avoidance is possible for some projects than others – a bridge that needs repair cannot be worked on elsewhere. Another study participant agreed that the scope of geographic analysis depends on the project purpose, but stated that unlike for individual permits, for nationwide permits, avoidance can only be considered on site.[42]

c. Minimization

After applying the avoidance requirement outlined in the Section 404(b)(1) Guidelines, agencies must then assure that adverse impacts to aquatic resources are minimized. As a part of the permitting requirements, some minimization efforts can play a role in finding the LEDPA. But remaining adverse impacts must also be minimized. In this way, minimization has a dual identity, playing a role in the alternatives analysis and in the next step of minimizing remaining impacts.

The Section 404(b)(1) Guidelines list examples of how unavoidable impacts may be minimized, including: changing the location of the discharge, changing the material to be discharged, controlling the material after discharge, changing the method of dispersion, changing the technology used, changing the affects on plants, animals, and human uses. The actions described largely relate to § 404 permits for the narrow purpose of the disposal of dredge spoil in the context of the dredging of harbors and river channels, but the Guidelines are in fact used to prescribe mitigation for a much wider variety of wetland fill projects.

As such, regulators recommend a variety of minimization techniques and approaches depending on the type of project being proposed and the wetland involved in order to reach the minimum impact-level. One Corps district has a very environmental science-based and analytical approach to evaluating whether minimization in certain cases is sufficient. "We're a strong believer in function. We have a standard functional assessment method. We're protecting the function." The function that should be prioritized, "depends on what part of the State you are in. In some places coral is important; in other places mangrove habitat is important; in others it's water quality amelioration."[43] For example, if a project is proposed for an area where there are mangroves, we might require that they move it, even to another, less valuable wetland. It might have more impacts to wetlands overall, but less impacts to valuable wetlands."[44]

As with avoidance, however, standards have not been quantified nor is there much guidance or informational material to help comply with the minimization requirement for various project types. Perhaps even more than with avoidance, interviewees report that a lack of standards for minimization measures and guidance for how to meet the standards. An interviewee pointed out, "The rule language is twice as long for avoidance than for minimization."[45] One district has minimization standards for single-family

36 Federal Resource Agency Respondent.
37 Federal Regulatory Respondent.
38 Federal Regulatory Respondent.
39 State Regulatory Respondent.
40 Federal Regulatory Respondent.
41 State Regulatory Respondent.
42 Federal Regulatory Respondent.
43 Federal Regulatory Respondent.
44 Federal Regulatory Respondent.
45 State Regulatory Respondent.

docks, but otherwise, "Depending on the scope of the project we may require an entire redesign or fewer units."[46]

Another regulator said, "The question is, how much is enough? It's all judgment. It depends on the person's mood and is extremely variable."[47] Minimization seems to be a process that generally takes place through an iterative process rather than being a set of standards applicants can simply meet. The iterative approach was illustrated by an anecdote the interviewee shared. "For example, there was a wetland where they convinced us about their proposed location but we required them not to put the parking lot on the side where the wetland was – a redesign – they refused and we denied the permit."[48] Another interviewee explained, "We can define it case-by-case, what each project manager with their best professional judgment can do. I don't want to cut creativity."[49]

Study participants did not identify a standard scale for requiring minimization measures other than that it must take place on the project site. One respondent explained, "I don't think we have a standard scale other than requiring minimization with every permit. We don't give a certain distance; it will vary with the type of resource and activity."[50] Another person said they require minimization, "mostly on site, within the property owner's purview. It's tough because sometimes people have access to other people's property. Indirect effects propagate downstream and the best way to control is on-site. But that can be considered sort of off-site."[51] Yet another said, "Any minimization measure, they only have control over their site… We won't have them go off-site to minimize on-site impacts."[52]

One respondent, in explaining that the district does not have standard approaches for evaluating minimization procedures, said that because the district lumps avoidance and minimization together, any measures to reduce impacts usually are applied to satisfy both requirements.[53] One respondent asserted that no minimization can be done for projects that meet the standards for a general permit because by definition, the impacts of such activities are minimal.[54]

Some regulatory respondents were concerned about limiting flexibility in the minimization process. "Standardizing would be bad because there are too many factors. Headquarters would not want to impose standards on districts."[55] "It all depends on how people want their information regionally, what kind of product each district develops to get permits done. I would like to keep it as open and creative as possible. The more we standardize, we take the flexibility out of doing business. I like to be a rule maker with regard to work I've done, but the more I standardize, the more I restrict myself with regard to finding possible solutions."[56]

Study participants from the regulated community were frustrated with the lack of uniformity in permit reviewing. "The biggest problem with current policies towards wetlands avoidance and minimization is that the Corps is not necessarily consistent among individuals. In other words, because judgments on which impacts are more avoidable or more important exist in a grey area, a lot of the decision making within the Corps depends on professional judgment, causing a lot of variability."[57]

But they are wary of more requirements. "Checklists that I have seen are not detailed enough to address the complexity of wetlands avoidance and minimization. Those in consulting already have an understanding of the kinds of things usually presented."[58] Another person said, "I don't know. I'd have to see an example. I'm not a huge fan of checklists."[59] But the same person later added that what works well is when the regulators have "their process established, written out in manuals – having a level of consistency."[60] Another member of the regulated community said that a checklist would be helpful. "We've developed one here in North Carolina. We call it Techniques. The checklist was developed with the Corps."[61]

46 Federal Regulatory Respondent.
47 State Regulatory Respondent.
48 Federal Regulatory Respondent.
49 Federal Regulatory Respondent.
50 Federal Regulatory Respondent.
51 Federal Regulatory Respondent.
52 State Regulatory Respondent.
53 Federal Regulatory Respondent.
54 Federal Regulatory Respondent.
55 Federal Regulatory Respondent.
56 Federal Regulatory Respondent.
57 Regulated Community Respondent.
58 Regulated Community Respondent.
59 Regulated Community Respondent.
60 Regulated Community Respondent.
61 Regulated Community Respondent.

Another person said, "My experience is that a checklist is not effective. It creates another aspect of the hoop process. It creates a form that has to be checked off, that results in an exercise in creativity by the consultant to check it off in the way the Corps wants. He doesn't libel [sic] himself but it doesn't take long to figure out how to check the thing off and still not libel yourself. In general that doesn't change anything." The person elaborated, "There are times when the agency will pressure the applicant to do more avoidance or minimization during the permitting process. There are times when they won't sign off because they want a certain thing. That's the subjective aspect and I think that is the way it ought to work. If you have qualified, experienced people involved with the process, rather than having a checklist that can be manipulated and is not effective, the qualified experienced people in the regulatory agency will see ways to avoid. Even if you have a checklist, it's not going to accomplish that. There's a considerable human variance factor and I don't think you can take that away by creating a form or checklist."[62] But later on, the person said that the weakest aspect of avoidance and minimization is, "that it's subjective."[63] An agency respondent maintained that in the districts with which the respondent interacts, standards are "up to the project manager. It's what they feel. They will say that they felt like they've done enough, but there'll be no justification for that."[64]

Several regulators did express interest in having guidance on standardized approaches for evaluating minimization procedures for different types of projects. "I would love to see if other districts are utilizing a more step-wise approach."[65] "I like guidance, sideboards, but nothing written in stone."[66]

Districts seem to take varying approaches to which factors to address or prioritize when evaluating applications to determine if they have met the requirement for minimization:

- Protecting wetland acres versus wetland function
- Balancing cost with practicability

Some districts consider protecting habitat or water quality function to be important, as opposed to simply considering impacts on acreage. Some conduct functional assessments as part of the permitting process.[67] One district went so far as to say, "we're predominantly function based."[68] Another uses a standard functional assessment method to determine the quality of the function of the wetland in question and prioritizes protecting wetland function over simple acreage.[69]

Others do not emphasize the value of function during the avoidance and minimization process. "We're a strong believer in function… When talking avoidance and minimization we do look at acres. For compensation, we do function."[70]

One study participant said that the importance of conserving acreage is secondary to the importance of conserving function, but that the district doesn't have a functional assessment, so they based their permitting decisions on the preservation of acreage.[71]

d. Process: Pre-application Meetings and Interagency Coordination

Consistently, respondents described the importance of pre-application meetings for communicating the regulatory requirements to applicants and explaining how the proposed project can meet the requirements.

One respondent explained how valuable such meetings are for ensuring that all of the resource agencies' requirements are considered early in the process, in time to make a difference in the process.[72] One respondent noted that several districts with which the respondent worked regularly invited participation by resource agencies, while another did not, making inter-agency coordination for projects in that district a challenge.[73] A federal resource agency respondent said that the agency did not feel that its role in influencing the application of avoidance and minimiza-

62 Regulated Community Respondent.
63 Regulated Community Respondent.
64 Federal Resource Agency Respondent.
65 Federal Regulatory Respondent.
66 Federal Regulatory Respondent.
67 Federal Regulatory Respondent.
68 Federal Regulatory Respondent.
69 Federal Regulatory Respondent.
70 Federal Regulatory Respondent.
71 Federal Regulatory Respondent.
72 Federal Resource Agency Respondent.
73 Federal Resource Agency Respondent.

tion practices is effective. "We're routinely blown off." [74] Another respondent said that the respondent's avoidance recommendations are followed only approximately 20% of the time.[75]

e. Documentation of Avoidance and Minimization

Years of agency policy-making and judicial decisions have clarified that the responsibility for carrying out the requirements of the Guidelines lies with the Corps. The permit applicant must demonstrate compliance with the Guidelines in order to obtain the permit, though the Corps may supplement the analysis with its own information. The Guidance states that ultimately the Corps must make an independent finding that the proposed activity complies with the applicable standards and may deny a permit if the information supplied by the applicant is insufficient.

Any information gathered and analysis conducted is only meaningful if the regulators have sufficient information by which to evaluate it. Some project proponents felt that they do not get appropriate credit for the steps that they take to avoid and minimize impacts of their projects. One member of the regulated community agreed that the process fails to show steps that permit applicants take, or consider but do not take, prior to submitting the permit application. The regulated community has become more sophisticated about requirements and will often take steps to meet them prior to submitting the application.[76]

A representative of a government agency and a permittee felt that government agencies were held to a higher standard as applicants than non-governmental applicants, both in terms of providing documentation and making changes to proposed projects, given the difficulty of documenting all the changes made in the design prior to the permitting process. The respondent expressed interest in whether any other members of the regulated community have developed methods for documenting avoidance and minimization that takes place prior to the permitting process.[77]

In contrast, another member of the regulated community explained that the company seeks to avoid documenting avoidance and minimization actions considered or incorporated prior to submitting an application. "Typically I don't because it would almost put me in a position of being a regulator to the client… I can't force the client to avoid, but I can tell him this is going to be an issue and it would be great if they could modify the project. I want to at least be able to say that I told the client about the issue." The person elaborated, "Typically, you have a permit. People mention avoidance, mention minimization, then you move on to mitigation after the exercise in creative writing."[78]

The April 10, 2008 Compensatory Mitigation Rule amendments create a requirement for a statement that might lead to more opportunity to address pre-application avoidance and minimization. The new language says: "For an activity that requires a standard DA [Department of the Army] permit pursuant to section 404 of the Clean Water Act, the public notice for the proposed activity must contain a statement explaining how impacts associated with the proposed activity are to be avoided, minimized and compensated for. This explanation shall address, to the extent that such information is provided in the mitigation statement required by § 325.1(d)(7) of this chapter, the proposed avoidance and minimization…"[79] This requirement establishes a baseline or starting point to measure avoidance and minimization.

While most regulators consulted for this study gave a generalized description of the type of material they often review to ascertain compliance with avoidance and minimization requirements, one Corps district specifically requires documentation from local government authorities showing their approval of the project, as well as proof of the necessity of other aspects of the proposal. "We require a waiver [related to local wetland board requirements] from the local government or a statement the waiver can't be obtained. The applicant needs to document why they can't avoid the impacts completely, document the project scope, and to provide financial arguments."

One respondent acknowledged that there are no standards for documentation and that even different project managers within one district may ask for different materials.[80]

74 Federal Resource Agency Respondent.
75 Federal Resource Agency Respondent.
76 Regulated Community Respondent.
77 Regulated Community Respondent.
78 Regulated Community Respondent.
79 33 CFR 332.4(b)(1), 40 CFR 23.94(b)(1). Meeting this requirement would be facilitated by guidance about appropriate standards for mitigation.
80 Federal Regulatory Respondent.

An interviewee from Corps headquarters explained that the ranges of impacts, variability of condition and quality of resources to be impacted, and range in project types and project purpose make establishing documentation standards inappropriate.

One resource agency permit reviewer expressed frustration with the lack of level of detail provided for some large projects; the respondent explained that it is a challenge to propose minimization measures without sufficiently detailed information.[81] "It's often hard to get minimization measures in these large projects because some of the EIS's don't have that level of detail. It's continually frustrating when reviewing draft EIS's that you don't have the level of detail you would if you were to subdivide the project. It's hard to give that level of attention to hundreds of acres of impacts, like in linear transportation projects."[82]

On the other hand, another regulator gave detailed examples of material required to meet the burden of proof for various aspects of the process.[83] "The scale varies. If you're talking about a small project, like the driveway example, it might be as simple as a map to demonstrate that the only way to access property is by crossing a wetland… If they are looking at larger-scale project, we've had businesses in [the] County provide us with a map of the entire County, locating every vacant parcel suitable for development, whether or not it is for sale, or if it includes wetlands… A lot of times it's a matter of a real estate search, vacant parcels or property for sale.[84] One respondent talked about a new application form that HQUSACE is developing that would require a statement of how the applicant avoided and minimized. The respondent asserted that having a more robust documentation requirement will make applicants more aware of avoidance and minimization.[85] A Headquarters respondent gave a different perspective on requirements for documentation, "There are no standards. It depends on what the situation is, the level of impacts or the purpose of the project. Standardizing locks them in. We want accountability but this process cannot be a cookbook."[86]

81 Federal Resource Agency Respondent.
82 Federal Resource Agency Respondent.
83 State Regulatory Respondent.
84 State Regulatory Respondent.
85 Federal Regulatory Respondent.
86 Federal Regulatory Respondent.

f. Tracking and Evaluating Avoidance and Minimization Activities and Outcomes

A common theme throughout the interviews was that the picture of the actual results of the avoidance and minimization requirements is not very clear.[87] One regulator believes that more data collection and improved tracking of how projects change throughout the course of the permitting process can be useful to show project achievements.[88] Another says that only the final version of the permitting documents is preserved and the original application is discarded, so there is no record of changes or improvements in the project proposal that take place during the permitting process.[89]

One district calculates the percent of wetlands avoided through the avoidance and minimization process and looks at maps and aerial photos to evaluate success.[90] To evaluate the success of minimization practices, another respondent explained that a regulatory official must visit the site, which is costly.[91]

One respondent explained that in order to determine how often recommendations from other agencies are implemented, the FWS has developed a new tracking system. The new system, called Tracking and Integrated Logging System (TAILS), records incoming 404 applications, records steps the FWS conservation planning assistants took to make recommendations, and what was actually permitted. This database could be combined with ORM-2[92] to provide a more comprehensive picture of the approaches recommended and the actual outcomes of the avoidance and minimization processes.[93] A state respondent notes that it is also in the process of updating its computer permit tracking system which will give the opportunity to track impacts cumulatively and better track changes during the

87 Federal Resource Agency Respondent.
88 Federal Regulatory Respondent.
89 Federal Regulatory Respondent (the requirement for an avoidance and minimization statement in the new mitigation rule may help to elucidate how the avoidance and minimization process actually changes a project proposal, depending on the quality and accuracy of the information provided by applicants).
90 Federal Regulatory Respondent.
91 Federal Regulatory Respondent.
92 ORM2 is the Army Corps' National Wetlands Inventory geospatial database for their online permit system, Operation and Maintenance Information Business Link Regulatory Module version 2.
93 Federal Resource Agency Respondent.

permit process, and comparing initial permit application acreage to permitted acreage.[94]

IV. Improving Avoidance and Minimization Practices

a. Incentives for Avoidance and Minimization

One regulatory respondent suggested that one way to encourage reductions in impacts to wetlands would be to impose a significant fee for permits which would create a meaningful incentive to avoid impacts to wetlands.[95] Another regulator suggested that an expedited process would be an incentive to encourage industry to apply more avoidance and minimization techniques.[96]

One respondent pointed out that the greatest avoidance incentive is to get below the thresholds for general permits. This guarantees a permit, avoids the public comment process, moves faster, and adds certainty to the process.[97] A member of the regulated community agreed. "What would prove to be a great incentive for my clients would be more predictability in timing (for both permit processing and the negotiation process) and a set mechanism for reaching agreements. Oftentimes, developers will go through the entire negotiation process and when they go to submit their request for a permit, the Corps will have changed staff and this new individual will have a different conception of what's most important to avoid and the best way to minimize impacts."[98] Another member of the regulated community suggested looking at financial incentives using in farm programs such as the wetlands reserve program or permit process streamlining.[99]

b. Standard Practices for Alternatives Analysis

If there were an established set of criteria which served as a guide for determining the necessity for a rigorous alternatives analysis the process would be uniform and predictable across the system, not only between project managers, but among districts. Such criteria could be based on best professional judgment founded in meaningful, articulated environmental standards. Such guidance would give regulators the institutional support to stand up to public criticism. One regulator said, "[W]ith guidance people understand the rules of the game before the game starts. Now, things can come across as being a requirement of the project manager and not the district."[100]

This is further supported by another suggestion from a regulator, that better communication to better educate the public would improve the current system.[101]
Another regulator suggested that guidance on general standards, lessons learned from other districts, and any useful tools developed by other districts would be an improvement on the current regulatory framework: "A major improvement would be guidance, not so much regulation, but guidance in terms of what should usually be required, lessons learned from different districts, the tools that various districts that have been developed should be shared."[102]

Several other regulators maintained that guidance or examples of standardized approaches would be useful.[103] One person from a resource agency agreed that a checklist or quantifiable guidance on practicable steps for avoidance and minimization for certain types of projects would improve implementation.[104]

Some regulators suggest that it would be helpful to have more guidance on the appropriate amount of avoidance and minimization for certain kinds of projects.[105] Some types of routine minimization requirements or technical assistance might be helpful. Several respondents explained that avoidance is not possible for small projects, for example in the case of very small businesses or homeowners who already own the property where the project is proposed. One regulator pointed out that while small landowners may be limited in the changes they can make to their projects, the regulator works with them, on-the-ground, to minimize impacts as much as possible.[106]

94 State Regulatory Respondent.
95 Federal Regulatory Respondent.
96 Federal Regulatory Respondent.
97 Federal Regulatory Respondent.
98 Regulatory Community Respondent.
99 Regulatory Community Respondent.
100 Federal Regulatory Respondent.
101 Federal Regulatory Respondent.
102 Federal Regulatory Respondent.
103 Federal Regulatory Respondents.
104 Federal Resource Respondent.
105 Federal Regulatory Respondent.
106 State Regulatory Respondent; (the person explained that this is an example of the good partnership between the state and EPA since the state has

c. Weakest Aspect of Avoidance and Minimization

Several regulators expressed concern that the current structure of the program, which takes the proposal as designed by the applicant as a starting place, and then requires improvements from that watermark, creates an incentive for bad faith. This is because avoidance and minimization standards are based on the starting point. The applicant who presents a good faith proposal has an equal responsibility to avoid and minimize as an applicant who proposes a project with more impacts than they expect to be permitted, or need, knowing that negotiation will bring the project down to a level acceptable to them. "It's almost like the entity that wants to work with us and does a good job up-front gets punished."[107]

One member of the regulated community likened the permitting process to buying a used car. "Developers low-ball the Corps in what they're initially willing to offer because they assume, often correctly, that the Corps will just ask for more. The Corps knows that they're being low-balled by developers, and so the negotiations process extends the timing of permitting."[108]

This phenomenon could potentially be mitigated by the development of guidance on standard practices showing the expected impacts from certain types and sizes of projects and standard minimization processes. In order to be feasible, a Corps headquarters interviewee explained that guidance would have to be local and be developed based on watershed or physiographic characteristics. A member of the regulated community explained, "I know from my clients, if they can save time and have more predictability, developers will give up more."[109] Also, documentation of pre-application avoidance and minimization, as required by the new mitigation rule, would also improve transparency.

Another aspect of avoidance and minimization review that respondents expressed concern about is economic valuation. While one person went so far as to say that economics are not the domain of the regulator, most participants indicated that they consider economic feasibility or costs as one factor in determining the practicability of an alternative, as required in the 404(b)(1) Guidelines. However, several of them expressed uncertainty about standards for the economic factors.[110] One regulator said that the weakest aspect of avoidance and minimization procedures is, "our economic analysis review; determining whether or not economic assessment of the applicant can be considered prudent, feasible, or practicable. There's no yardstick for that."[111] A permit reviewer said, "What's lacking most is good economic information that allows the agencies to do that balancing act. It's very difficult for us to say what the impacts to the environment will cost the people. We need to get environmental resource economics on par with the economics of construction and development. That's really hurting the program. The economics typically always favor the developer."[112] Financial considerations are one area where standardization could help reduce agency costs for carrying out this determination and avoid having to do so on a case-by-case basis.

A few respondents gave a very specific response about a shortcoming of current avoidance and minimization procedures. In many cases, while avoidance and minimization may be applied correctly, the permitted project may nonetheless result in fragmenting habitat, cutting resources off from the rest of the ecosystem. Such changes result in the loss of functional systems that provide habit and connectivity between various ecosystems.[113] Study participants pointed out that the superficial application of avoidance and minimization requirements is not all that is necessary for the best environmental outcome and that there are subjective aspects of the application of these requirements that could be clarified.[114]

d. Successful Techniques

The importance of pre-application meetings was emphasized by respondents as a place for developing and using successful techniques for several reasons. These events provide an opportunity to educate the permit applicant and ensure that it has all of the information relevant to the project it hopes to carry out. If coordinated with the other resource agencies, these meetings also provide

been delegated the implementation of the CWA § 404 program).

107 Federal Regulatory Respondent.

108 Regulated Community Respondent.

109 Regulated Community Respondent.

110 Federal Regulatory Respondent.

111 Federal Regulatory Respondent.

112 Federal Resource Agency Respondent.

113 Federal Resource Agency Respondent.

114 Regulated Community Respondent.

the opportunity for the various government agencies to speak with one voice and to coordinate the standards and demands on the permit applicant.[115] The same principle applies to site visits.[116] Another respondent explained that the pre-application meetings are the step in the process where a federal resource agency has the best opportunity to have input into the process.[117] And so it is important for these meetings to be held routinely and for all agencies with relevant authority to be included."[118]

While the purpose of general permits is to reduce administrative process and expedite the permitting process, on-site avoidance and minimization requirements still apply to general permits. The need to be vigilant for opportunities to apply conditions to nationwide permits that result in minimization of impacts is important, according to one permit reviewer.[119]

While avoidance and minimization requirements are important for protecting aquatic resources, it does take funding and staff to carry them out, so measures for improving efficiency are desirable. This might include regular meetings with other agencies, standards, and collaboration. Coordinating the alternatives analysis with related programs can be very productive and improve efficiency of avoidance and minimization processes. One district has its 404 program so integrated with the CZMA program that they are not treated as separate processes. The District has created a set of procedures that incorporate the requirements of both regulatory programs.[120] One resource agency staff member explained that they are much more likely to be heeded when their recommendation is also made by other agencies or regulators.[121]

Several regulators emphasized the potential improvement that could come from improved communication to the public that would allow applicants to present proposals in a useful way.[122] One member of the regulated community explained that while sometimes he can find information on district websites, the system works better when new information is sent to him for example through a listserv. "What happens is, you send in a request and they say 'you were supposed to do so-and-so' and you say 'where is that stated?' and they'll say 'on the website.' It's a problem to only find out about new guidelines or regulations when you do something wrong."[123] One study participant described a District's "Person of the Day" program where staff, including the chief, rotate the duty of answering general calls that come in to a dedicated line. "It brings us in touch with the public. It's a more organized way of getting the public satisfied."[124]

Reinforcing technical capacity is another area for improvement and focus. A respondent suggested that while avoidance and minimization have long been in the 404(b)(1) Guidelines, the requirements are not quantified in a meaningful way. Spatial parameters for how Corps regulators should apply avoidance and minimization would allow the requirements to be applied effectively.[125] "We need to apply some actual parameters to spatially dictate how to avoid a particular type of resource."[126] The participant suggested that states and localities have such standards that could serve as models.[127]

One respondent expressed concern about the institutional knowledge that would be lost as the upcoming wave of retirement occurs, but this respondent also maintained that more guidance would not be a replacement for years of work experience in the field.[128] Standardization and the encapsulation of best professional judgment in guidance documents, as discussed above, preserve this knowledge into the future. One respondent described a district's field support program. This respondent explained that having staff members with time dedicated to coordination, research, and other support is a helpful structure for the effectiveness of the district.[129] This approach supports the work of the permitting staff, including in their efforts to determine necessary levels of avoidance and minimization.

115 Federal Resource Agency Respondent.
116 Federal Resource Agency Respondent.
117 Federal Resource Agency Respondent.
118 Federal Regulatory Respondent.
119 Federal Resource Agency Respondent.
120 Federal Regulatory Respondent.
121 Federal Resource Agency Respondent
122 Federal Regulatory Respondent.
123 Regulated Community Respondent.
124 Federal Regulatory Respondent.
125 Federal Resource Agency Respondent.
126 Federal Resource Agency Respondent.
127 Federal Resource Agency Respondent.
128 Federal Regulatory Respondent.
129 Federal Regulatory Respondent.

V. Conclusions

The federal government has been using the mitigation sequence as part of its wetland permitting process for decades. Recent efforts to strengthen the compensatory mitigation step of the sequencing process have greatly increased the predictability and value of this part of the process. While in many ways, the avoidance and minimization parts of the process have matured with knowledgeable and experienced stakeholders, experience suggests some ways to increase the effectiveness, predictability, and technical soundness of avoidance and minimization in decision making.

a. Develop Guidelines Identifying Common Approaches and Quantifiable Standards

While a few regulators and members of the regulated community expressed concern about the addition of more requirements, most respondents expressed interest in having guidelines or models, and in some cases, clearer standards. This would make application of the requirements more uniform, and would give more authority to specific decisions made by project managers. Guidelines, sideboards, checklists of required documents and other supporting information were discussed in a variety of contexts. Some information could be national, while other aspects would have to be regional or even district-specific. The respondents expressed interest in getting some guidelines or model approaches for:

- evaluating project purpose
- scope of alternatives, based on impacts or project type
- evaluating avoidance practices for specific types of projects
- evaluating minimization techniques and procedures for specific types of projects.

b. Improve Interagency Coordination

While the Corps is the lead agency in the mitigation sequencing process, EPA and the other federal resource agencies have important roles to play as well. This study revealed a range of practices regarding interagency coordination and uncovered some frustration when resource agencies felt that the process is not inclusive of or responsive to the information they provide and recommendations they make. Respondents from resource agencies, the regulated community, and some regulators agreed that pre-application meetings are an important opportunity for clarifying and communicating requirements in such a way that applicants can comply with them in a timely manner. While some districts have standard approaches to pre-application meetings, such as holding regular monthly meetings and inviting all of the relevant agencies or holding meetings for certain types of applications, many are operating in an ad hoc way. Convening regular meetings, inviting all relevant agencies, and providing all of the relevant information, so that the agencies can provide clear information to the applicant and to one another at the beginning of the process would address the expressed concerns.

c. Recognize Avoidance and Minimization: Give Credit Where Credit is Due

While development projects causing impacts to wetlands will only be permitted when they comply with applicable law and regulations– including avoidance and minimization requirements – the regulated community could be encouraged to be even more effective.

Effectively documenting and tracking avoidance and minimization will increase awareness of these requirements and associated techniques, will provide models for other applicants, and will improve the consistency of evaluations by regulators. Improved documentation of the decisions made during the permitting process, including through the new requirement that a statement describing avoidance and minimization of project impacts is required for individual Section 404 permits, would help to identify those applicants taking steps to avoid and minimize impacts to special aquatic resources. The regulated community should be encouraged to engage the regulators at the earliest stages of project conception, and to do so consistently – not just the repeat players in the most active districts.

APPENDIX

Interview Respondents

Chicago Corps District, Chicago, Illinois, July 8, 2008
Consultant, Rosemont, Illinois, April 21, 2008
Consultant, Sacramento, California, May 5, 2008
Consultant, Saltillo, Mississippi, July 10, 2008
Corps Headquarters, Washington, DC, September 5, 2008
EPA Region 9, Sacramento, California, July 7, 2008
EPA Region 9, Sacramento, California, July 28, 2008
Federal Highway Administration, Columbus, Ohio, July 28, 2008
Florida Department of Environmental Protection, June 4, 2008
Florida Department of Environmental Protection, June 4, 2008
Jacksonville Corps District, July 25, 2008
Jacksonville Corps District, September 2, 2008
Los Angeles Corps District, June 26, 2007
Los Angeles Corps District, July 2, 2008
Maine Bureau of Land & Water Quality, Portland, Maine, August 18, 2008
Michigan Department of Environmental Quality, Lansing, Michigan, May 22, 2008
Minnesota Board of Water and Soil Resources, Minneapolis, Minnesota, April 2, 2008
Minnesota Board of Water and Soil Resources, Minneapolis, Minnesota, April 2, 2008
Minnesota Board of Water and Soil Resources, Minneapolis, Minnesota, April 2, 2008
National Association of Homebuilders, Washington, DC, May 29, 2008
National Marine Fisheries Service, Washington, DC, July 16, 2008
National Marine Fisheries Service, Washington, DC, July 21, 2008
New England Corps District, July 15, 2008
National Oceanographic and Atmospheric Administration, Washington, DC, July 10, 2008
National Oceanographic and Atmospheric Administration, Washington, DC, July 21, 2008
Norfolk Corps District, April 3, 2008
North Carolina Department of Energy and Natural Resources, Raleigh, NC, June 25, 2008
North Carolina, Department of Transportation, Raleigh, NC July 16, 2008
Omaha Corps District, August 21, 2008
Oregon Department of State Lands, Salem, Oregon, July 1, 2008
Oregon Department of Transportation, Salem, Oregon, July 14, 2008
Portland Corps District, July 14, 2008
U.S. Fish and Wildlife Service, Arlington, Virginia, July 11, 2008