



# Fourth Stakeholder Forum on Federal Wetlands Mitigation

Forum Report



*Sponsored by:*

Federal Highway Administration

Florida Department of Environmental Protection

USDA Natural Resources Conservation Service

NOAA National Marine Fisheries Service

Southwest Florida Water Management District

Stetson University – College of Law

Tampa Bay Estuary Program

U.S. Army Corps of Engineers

U.S. Environmental Protection Agency

U.S. Fish and Wildlife Service



ENVIRONMENTAL  
LAW • INSTITUTE®

---

# Fourth Stakeholder Forum on Federal Wetlands Mitigation

## Forum Report

September 20–22, 2004

William Reece Smith Jr. Courtroom

Stetson University – College of Law

Tampa Campus & Law Center

Tampa, Florida

Prepared by the  
Environmental Law Institute  
December 2004

*Sponsored by:*  
Federal Highway Administration  
Florida Department of Environmental Protection  
USDA Natural Resources Conservation Service  
NOAA National Marine Fisheries Service  
Southwest Florida Water Management District  
Stetson University – College of Law  
Tampa Bay Estuary Program  
U.S. Army Corps of Engineers  
U.S. Environmental Protection Agency  
U.S. Fish and Wildlife Service

---

---

## Acknowledgements

---

**T**he *Fourth Stakeholder Forum on Federal Wetlands Mitigation* was sponsored by the Federal Highway Administration, Florida Department of Environmental Protection, USDA Natural Resources Conservation Service, NOAA National Marine Fisheries Service, Southwest Florida Water Management District, Stetson University – College of Law, Tampa Bay Estuary Program, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, and U.S. Fish and Wildlife Service.

Funding for administration of the forum and for this report was provided by NOAA National Marine Fisheries Service and the U.S. Environmental Protection Agency. Environmental Law Institute staff on the project included Jessica Wilkinson, Roxanne Thomas, and Maria Placht. Steven Martin (U.S. Army Corps of Engineers), Katie McGlynn (NOAA National Marine Fisheries Service), and Brian Topping (U.S. Environmental Protection Agency) provided much appreciated information for the writing of this report.

---

### ***About ELI Publications—***

ELI publishes Research Reports and briefs 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 opinion 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.

#### *Fourth Stakeholder Forum on Federal Wetlands Mitigation*

Copyright © 2005 Environmental Law Institute®, Washington, D.C. All rights reserved.  
ISBN No. 1-58576-090-0, ELI Project No. 0422-03.

An electronic retrievable copy (PDF file) of this report may be obtained for no cost from the Environmental Law Institute website [www.eli.org](http://www.eli.org), click on “ELI Store,” then “Research Reports,” then “Wetlands” to locate the file. [Note: ELI Terms of Use will apply and are available on site.]

(Environmental Law Institute®, The Environmental Forum®, and ELR® – The Environmental Law Reporter® are registered trademarks of the Environmental Law Institute.)

#### *Cover Photos:*

Brandt Henningsen and Mark Brown display a map of the Cockroach Bay field trip site.

The Fourth Stakeholder Forum on Federal Wetland Mitigation was held at Stetson University College of Law in Tampa, Florida.

Forum participants learn about the Schultz Nature Reserve Park on a field trip.

*All photos by Rob Wood, U.S. Environmental Protection Agency.*

# Table of Contents

<b>Forum Participants</b> .....	iv	<b>Demonstration of New Section 404 Database (ORM)</b> .....	19
<b>Executive Summary</b> .....	1	<i>Tori White, U.S. Army Corps of Engineers</i>	
<b>Introduction</b> .....	3	<b>SESSION II: 2004 Draft Action Items</b>	
<b>Summary of Presentations and Facilitated Discussions</b> ... 5		<b>Guidance for Aquatic Resources that are Difficult to Replace</b> .....	21
<b>The Regional and Local Perspective</b>		<i>Melanie Harris, NOAA National Marine Fisheries Service</i>	
<b>Statewide Approaches to Linking Mitigation and Restoration Needs</b> .....	6	<b>Guidance on the Use of Preservation as Compensatory Mitigation</b> .....	25
<i>Connie Bersok, Florida Department of Environmental Protection</i>		<i>Jeanette Gallihugh, U.S. Fish and Wildlife Service</i>	
<b>Use of Mitigation to Accomplish Watershed Planning Goals – A Pasco County Case Study</b> .....	7	<b>Vegetated Buffer Guidance</b> .....	29
<i>Clark Hull, Southwest Florida Water Management District</i>		<i>Steve Martin, U.S. Army Corps of Engineers</i>	
<b>Creative Options for Mitigation Banking for Small Projects</b> .....	9	<b>SESSION III: Future Action Items</b>	
<i>Ron Van Fleet, Sarasota County Government</i>		<b>Watershed Context Guidance</b> .....	31
<i>Cindy Woods, U.S. Army Corps of Engineers</i>		<i>Bob Brumbaugh, U.S. Army Corps of Engineers</i>	
<b>SESSION I: Review of Mitigation Action Plan and Completed Action Items</b>		<i>Palmer Hough, U.S. Environmental Protection Agency</i>	
<b>Review of National Mitigation Action Plan and Regulatory Guidance Letter (RGL 02-2)</b> .....	10	<b>Performance Standards Guidance</b> .....	35
<i>Kathy Trott, U.S. Army Corps of Engineers</i>		<i>Bob Brumbaugh, U.S. Army Corps of Engineers</i>	
<i>Palmer Hough, U.S. Environmental Protection Agency</i>		<i>Steven Martin, U.S. Army Corps of Engineers</i>	
<b>Guidance on the Use of the TEA-21 Preference for Mitigation Banking to Fulfill Mitigation Requirements Under Section 404 of the Clean Water Act</b> .....	12	<b>Wrap-up and Closing Statements</b> .....	37
<i>Alex Levy, Federal Highway Administration</i>		<i>Kathy Trott, U.S. Army Corps of Engineers</i>	
<b>Grants to Improve Compensatory Mitigation</b> ....	12	<i>Palmer Hough, U.S. Environmental Protection Agency</i>	
<i>Palmer Hough, U.S. Environmental Protection Agency</i>		<b>Looking Forward</b> .....	39
<b>Stream Mitigation Compendium</b> .....	13	<b>Appendices</b>	
<i>Jeanette Gallihugh, U.S. Fish and Wildlife Service</i>		<b>Appendix A:</b>	
<b>Analysis of Existing Performance Standards Research</b> .....	14	<b>Final Agenda for Fourth Stakeholder Forum on Federal Wetlands Mitigation</b> .....	41
<i>Joanne Barry, U.S. Army Corps of Engineers</i>		<b>Appendix B:</b>	
<b>Federal Guidance on the Use of Off-Site and Out-of-Kind Compensatory Mitigation Under Section 404 of the Clean Water Act</b> .....	16	<b>National Wetlands Mitigation Action Plan</b> .....	43
<i>Susan-Marie Stedman, NOAA National Marine Fisheries Service</i>		<b>Appendix C:</b>	
<b>Model Mitigation Checklist and Incorporation of National Research Council's Guidelines into the Clean Water Act Section 404 Program (District Mitigation and Monitoring Guidelines)</b> .....	17	<b>National Mitigation Action Plan Production Schedule</b> .....	49
<i>Joanne Barry, U.S. Army Corps of Engineers</i>		<b>Appendix D:</b>	
		<b>Participant Contact Information</b> .....	51

---

## Forum Participants

Noel Ardoin  
*Louisiana Department of  
Transportation and Development*

Brian S. Barnett  
*Florida Fish and Wildlife  
Conservation Commission*

Joanne Barry  
*U.S. Army Corps of Engineers*

Constance Bersok  
*Florida Department of  
Environmental Protection*

Joshua Boan  
*Florida Department of  
Transportation*

Peg Bostwick  
*Michigan Department of  
Environmental Quality*

Doug Bransfield  
*Stetson University – College of Law*

Jim Brawner  
*Utility Water Act Group*

Mark Brown  
*Southwest Florida Water  
Management District*

Robert Brumbaugh  
*Institute for Water Resources  
U.S. Army Corps of Engineers*

Derb Carter  
*Southern Environmental Law  
Center*

Diane Caves  
*U.S. Government Accountability  
Office*

Jeanne Christie  
*Association of State Wetlands  
Managers*

Andre Clewell  
*Society for Ecological Restoration*

Stephen Collins  
*Florida Power and Light Company*

Kim Connolly  
*University of South Carolina, School  
of Law*

Hildreth Cooper  
*U.S. Fish and Wildlife Service*

Craig Denisoff  
*National Mitigation Banking  
Association*

Desmond Duke  
*Panther Island Mitigation Bank*

Mark Easley  
*URS Corporation, Southern*

Richard Eckenrod  
*Tampa Bay Estuary Program*

Jason Ester  
*Stetson University – College of Law*

Rhonda Evans  
*U.S. Environmental Protection  
Agency*

Don Ewoldt  
*Lake Erie Land Company  
National Mitigation Banking  
Association*

Tina Fischer  
*Stetson University – College of Law*

Jeanette Gallihugh  
*U.S. Fish and Wildlife Service*

Royal Gardner  
*Stetson University – College of Law*

George Getsinger  
*NOAA National Marine Fisheries  
Service*

Jennifer Gonzalez  
*Stetson University – College of Law*

Shannon Gonzalez  
*Biological Research Associates*

Charles Harman  
*Interstate Technology and  
Regulatory Council*

Melanie Harris  
*NOAA National Marine Fisheries  
Service*

Thaddeus Hart  
*U.S. Army Corps of Engineers,  
Jacksonville District*

Scott Hausmann  
*Wisconsin Department of Natural  
Resources*

Robert Holbrook  
*Wetland Technologies*

Palmer Hough  
*U.S. Environmental Protection  
Agency*

Clark Hull  
*Southwest Florida Water  
Management District*

John Iliff  
*NOAA Restoration Center*

Chet Janik  
*U.S. Government Accountability  
Office*

Haynes Johnson  
*U.S. Environmental Protection  
Agency, Region 4*

Robert Kessler  
*CH2M Hill, Inc.*

Suzanne Klimek  
*North Carolina Ecosystem  
Enhancement Program*

JoDale Legg  
*New Jersey Department of  
Environmental Protection*

Alex Levy  
*Federal Highway Administration*

Sheri Lewin  
*Mitigation Marketing, LLC*

Tom Linkous  
*Ohio Department of Transportation*

Dennis Longknife  
*Fort Belknap Indian Community*

Robin Mann  
*Sierra Club*

Cherise Maples  
*Seminole Tribe of Florida*

Steven Martin  
*Institute of Water Resources  
U.S. Army Corps of Engineers*

Katie McGlynn  
*NOAA National Marine Fisheries  
Service*

David McKay  
*USDA Natural Resources  
Conservation Service*

John Meagher  
*U.S. Environmental Protection  
Agency*

Richard Mogensen  
*EarthMark Companies*

Chandler Morse  
*National Association of Home  
Builders*

Vicki Murillo  
*Gulf Restoration Network*

Tracie-Lynn Nadeau  
*U.S. Environmental Protection  
Agency*

Doug Norris  
*Minnesota Department of Natural  
Resources, Board of Water and Soil  
Resources*

Eric Olsen  
*Hopping Green & Sams, P.A.*

Jeffrey Pardue  
*Breedlove, Dennis & Associates, Inc.*

Keith Parsons  
*Georgia Department of Natural  
Resources*

Craig Pittman  
*St. Petersburg Times*

Ann Redmond  
*WilsonMiller, Inc.*

Ken Reisinger  
*Pennsylvania Department of  
Environmental Protection*

Elizabeth Rockhill  
*Stetson University – College of Law*

Don Ross  
*EarthBalance Corporation*

John Ryan  
*Land and Water Resources, Inc.*

Ray Scott  
*Florida Department of Agriculture  
and Consumer Services*

Susan-Marie Stedman  
*NOAA National Marine Fisheries  
Service*

Tim Steele  
*Stetson University – College of Law*

Brian Topping  
*U.S. Environmental Protection  
Agency*

Katherine Trott  
*U.S. Army Corps of Engineers*

Ron Van Fleet  
*Sarasota County Government*

Daniel Wade Zeno  
*U.S. Government Accountability  
Office*

Tori White  
*U.S. Army Corps of Engineers*

Cynthia Wood  
*U.S. Army Corps of Engineers*

Robert Wood  
*U.S. Environmental Protection  
Agency*

### **ELI Staff/Support:**

Maria Placht  
*Environmental Law Institute*

Roxanne Thomas  
*Environmental Law Institute*

Jessica Wilkinson  
*Environmental Law Institute*

## Fourth Stakeholder Forum on Federal Wetlands Mitigation

**T**he *Fourth Stakeholder Forum on Federal Wetlands Mitigation* was held September 20-22, 2004, in Tampa, Florida. The forum was sponsored by the Federal Highway Administration, Florida Department of Environmental Protection, USDA Natural Resources Conservation Service, NOAA National Marine Fisheries Service, Southwest Florida Water Management District, Stetson University – College of Law, Tampa Bay Estuary Program, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, and U.S. Fish and Wildlife Service.

The 2 1/2-day meeting was designed to achieve the following objectives:

- Review progress on the actions set forth in the 2002 National Wetlands Mitigation Action Plan
- Solicit feedback on Mitigation Action Plan tasks to be completed in 2004; and
- Solicit input on future Mitigation Action Plan actions and goals for 2005.

The primary goal of the meeting was to provide a forum for representatives from a broad range of stakeholder interests to comment on and discuss these documents in order to inform efforts to improve federal wetland mitigation. The forum was not meant to yield consensus-based directives for the agencies. However, several themes that were revisited repeatedly by the forum participants warrant mention.

- Several participants supported a focus on preservation, with advice to “buy now and restore later.”
- Participants expressed concern over how the individual guidance documents relate to existing guidance, to each other, and to the forthcoming guidance on compensatory mitigation and the watershed approach.
- Participants raised several issues related to assigning credits for activities to offset mitigation requirements. Participants emphasized the need to avoid assigning mitigation credit for impacts approved under other regulatory programs. The criteria used to determine credits for DTR, buffers, and preservation, should be clear and publicly available.
- The permit review “time clock” may inhibit adequate review of mitigation plans.
- Participants felt that additional guidance is needed on stream mitigation and assessment. They also stated that the existing body of information on stream assessment methods might fail to fully consider the special conditions of wetlands and streams in the arid west.
- Participants discussed the appropriate scale for making compensatory mitigation decisions. There was significant debate about the relative strengths of relying upon ecosystem versus watershed scales.
- Participants repeatedly stressed the importance of regulatory agencies adhering to sequencing requirements when making permit decisions.
- Participants stated that long-term management issues, such as stewardship endowments and site protection mechanisms, need to be clarified.
- Participants stated that the guidance documents should allow for sufficient flexibility to enable regulators to address regional needs and concerns.
- Participants expressed an interest in seeing the MAP guidance documents supporting the efforts of other existing regulatory programs (i.e., nonpoint source pollution and stormwater management programs) in meeting the overall objectives of the Clean Water Act.
- In regards to the issue of public participation and local input, participants noted that “regional” MAP teams could be established to regionalize some of the national guidance documents.
- Several themes emerged related to ORM. Representatives from several other federal and state agencies expressed interest in the information in ORM and recommended that the database be able to link up to, and be compatible with, other data management programs.

---

This report is designed as a representative record of the issues discussed at the stakeholders forum. It can serve as a resource for those interested in improving compensatory wetland mitigation under §404 of the Clean Water Act. It can also serve as a foundation for federal and state agencies and others to develop specific and concrete actions for improving mitigation success.

Photos from the field trip on Day I, PowerPoint presentations, several audio recordings of the forum, and links to many of the policy and technical documents discussed in this report are available through the Environmental Law Institute's website at: (<<http://www.eli.org/research/wetlandsmitigationforum2004.htm>>).

The Mitigation Action Plan website, which includes information on the status of action items as well as final and draft policy documents, is: (<<http://www.mitigationactionplan.gov>>). Other information related to federal wetlands mitigation can be found on the websites of EPA's Wetlands Division (<<http://www.epa.gov/owow/wetlands>>) or the Regulatory Program of the U.S. Army Corps of Engineers (<<http://www.usace.army.mil/inet/functions/cw/cecwo/reg/index.htm>>).

**O**n September 20-22, 2005, the *Fourth Stakeholder Forum on Federal Wetlands Mitigation* was held in Tampa, Florida at Stetson University – College of Law's Tampa Campus & Law Center. The forum was sponsored by the Federal Highway Administration, Florida Department of Environmental Protection, USDA Natural Resources Conservation Service, NOAA National Marine Fisheries Service, Southwest Florida Water Management District, Stetson University – College of Law, Tampa Bay Estuary Program, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, and U.S. Fish and Wildlife Service. The forum provided an opportunity for a diverse group of stakeholders to provide feedback to the Mitigation Action Plan Workgroup on completed, draft, and developing mitigation policy. Stakeholders included representatives from federal and state government, non-profit organizations, academia, and the private sector (i.e., homebuilders, agriculture, and third-party mitigation providers).

The 2 1/2-day meeting was designed to achieve the following objectives:

- Review progress on the actions set forth in the 2002 National Wetlands Mitigation Action Plan;
- Solicit feedback on Mitigation Action Plan tasks to be completed in 2004; and
- Solicit input on future Mitigation Action Plan actions and goals for 2005.

Photos from the field trip on Day 1, PowerPoint presentations, several audio recordings of the forum, and links to many of the policy and technical documents discussed in this report are available through the Environmental Law Institute's website at: (<<http://www.eli.org/research/wetlandsmitigationforum2004.htm>>). The Mitigation Action Plan website, which includes information on the status of action items as well as final and draft policy documents, is: <<http://www.mitigationactionplan.gov>>. Other information related to federal wetlands mitigation can be found on the websites of EPA's Wetlands Division at: <<http://www.epa.gov/owow/wetlands>> or the Regulatory Program of the U.S. Army Corps of Engineers at: <<http://www.usace.army.mil/inet/functions/cw/cecwo/reg/index.htm>>.

The forum was designed to capture a variety of opinions on the progress of the Mitigation Action Plan. It was not designed to generate consensus opinions or develop consensus-based recommendations.

### Background

This stakeholder forum is the fourth in a series designed to provide an opportunity for the federal wetlands agencies to exchange information and solicit feedback on the development of federal wetland mitigation policy with a broad group of stakeholders.

The first forum, held in 1999 in Washington, D.C., was designed to solicit input on the development of joint interagency guidance on the use of in-lieu-fee (ILF) arrangements to meet compensatory mitigation requirements for impacts to aquatic

resources authorized under §404 of the Clean Water Act. Final interagency guidance on the use of ILF mitigation was released in 2000.

In 2001, several studies were released that sought to address the status of federal compensatory mitigation in the United States. In May 2001, the General Accounting Office (GAO) released a report entitled, "Wetlands Protection: Assessments Needed to Determine Effectiveness of In-Lieu-Fee Mitigation," and in June 2001, the National Academy of Sciences' National Research Council (NRC) released its study, "Compensating for Wetland Losses Under the Clean Water Act."

In October 2001, the Environmental Law Institute (ELI), in coordination with several federal agencies, the Maryland Department of the Environment, and the Baltimore National Aquarium, administered the *Second Stakeholder Forum on Federal Wetlands Mitigation* in Baltimore, Maryland. The forum was designed to give participants the chance to discuss the conclusions and recommendations of the NAS and GAO reports, as well as other reports and studies on compensatory mitigation. A report issued by the Environmental Law Institute summarized the presentations and discussions from the forum and was used by the federal agencies to guide development of future guidance on mitigation. That report, as well as audio recordings and the PowerPoint presentations, are available on ELI's website at: <<http://www.eli.org/research/wetlandsmitigationforum.htm>>.

---

In December 2002, the Corps issued a revised Regulatory Guidance Letter (RGL), which replaced an earlier one released in October 2001. The revised RGL was developed with input from the federal agencies that play a role in wetlands protection. The RGL was intended to improve compensatory mitigation implemented under the Clean Water Act in support of the Administration's "no net loss" of wetlands goal. For a copy of the RGL see: <<http://www.usace.army.mil/inet/functions/cw/cecwo/reg/RGL2-02.pdf>>.

The RGL was part of the National Wetlands Mitigation Action Plan (MAP), which was released in December 2002, by the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (EPA), in conjunction with the Departments of Agriculture, Commerce, Interior, and Transportation. The Plan is intended to provide the participating federal agencies with a roadmap to assist them with the development of a number of guidance documents, research, and other activities through 2005. The MAP lists 17 action items that are intended to improve the effectiveness of compensatory mitigation under §404 of the Clean Water Act.

Following the release of the Mitigation Action Plan, a federal interagency team, the Mitigation Action Plan Workgroup (MAP Workgroup), was formed to coordinate work on the action items outlined in the plan. For additional information about the MAP,

and an update on the status of the action items, see the National Wetlands Mitigation Action Plan website at: <<http://www.mitigationactionplan.gov/>>.

In July 2003, ELI hosted the *Third Stakeholder Forum* in Portland, Oregon. The forum was co-sponsored by the City of Eugene, Federal Highway Administration, NOAA National Marine Fisheries Service, USDA Natural Resources Conservation Service, Oregon Department of Transportation, Oregon Division of State Lands, Port of Portland, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and Washington Department of Ecology. The event was designed to review progress on the actions set forth in the Action Plan, solicit feedback on Action Plan tasks to be completed in 2003, and solicit input on future Action Plan items and goals for 2004-2005.

The following is a summary of the presentations and discussions that took place during the *Fourth Stakeholder Forum*. The meeting facilitators have summarized the comments of participants based primarily on notes taken during the discussion. Points made by participants are summarized and attributed where appropriate. ELI apologizes in advance for any misrepresentation of the speakers' meaning or intent.

The first day of the forum was devoted to an optional field trip, discussions of mitigation issues from a regional and local perspective, and the first part of Session I, which included an overview and update on the Mitigation Action Plan and completed action items.

The Southwest Florida Water Management District (SWFWMD) sponsored the field trips and tour. Field trip participants visited two restoration sites constructed and managed by SWFWMD: Cockroach Bay Habitat Restoration Project and Schultz Nature Preserve Park. Brief descriptions of the sites, as well as photos of the field trip, are available through ELI's website: (<<http://www.eli.org/research/wetlands/mitigationforum2004.htm>>).

Following the fieldtrip, the remainder of the first day was devoted to presentations. Participants convened at Stetson University – College of Law's Tampa Campus & Law Center. Opening remarks were given by Jessica Wilkinson, Environmental Law Institute; John Meagher, U.S. Environmental Protection Agency; and Royal Gardner, Stetson University – College of Law. These remarks were followed by several presentations on local and regional wetland mitigation issues in Florida. Connie Bersok from Florida Department of Environmental Protection discussed statewide approaches to linking mitigation and restoration needs. Clark Hull of SWFWMD reviewed a case study from Pasco County where mitigation was used to accomplish watershed planning goals. Finally, Cindy Woods, U.S. Army Corps of Engineers, and Ron Van Fleet, Sarasota County Government, discussed creative options for mitigation banking for small projects.

Session I provided an overview of the Mitigation Action Plan and completed action items. Kathy Trott, U.S. Army Corps of Engineers, and Palmer Hough, EPA, first reviewed the National Mitigation Action Plan and Regulatory Guidance Letter (RGL 02-2). A discussion of completed action items followed. Alex Levy, Federal Highway Administration, outlined the completed guidance on the use of the TEA-21 preference for mitigation banking to fulfill mitigation requirements under §404 of the Clean Water Act. Palmer Hough discussed grants to improve compensatory mitigation. Jeanette Gallihugh, U.S. Fish and Wildlife Service, continued Session I with a

presentation on the Stream Mitigation Compendium. Joanne Barry, U.S. Army Corps of Engineers, then concluded Day One with a summary of current research on performance standards. Each presentation was followed by a facilitated discussion.

Session I continued on the second day with further review of completed action items. Susan-Marie Stedman, NOAA National Marine Fisheries Service, discussed guidance on on-site/off-site and in-kind/out-of-kind mitigation. Barry then presented the model mitigation checklist and outlined completed guidance on how to incorporate the National Research Council's guidelines into the Clean Water Act §404 Program. Finally, Tori White, U.S. Army Corps of Engineers, gave a demonstration of the new §404 database. The remainder of Day Two was devoted to Session II: 2004 Draft Action Items.

Session II included presentations describing the 2004 draft action items, which were followed by facilitated discussions designed to solicit feedback from the forum participants. Melanie Harris, NOAA National Marine Fisheries Service, began Session II with a presentation on draft guidance for aquatic resources that are difficult to replace. Gallihugh and Bob Brumbaugh, U.S. Army Corps of Engineers, then proceeded with a discussion of the draft preservation guidance. Steve Martin, U.S. Army Corps of Engineers, concluded with an overview of the draft vegetated buffer guidance.

The third and final day of the forum was devoted to Session III: Future Action Items and closing statements. Session III featured a review and discussion of items to be completed in 2005-2006. First, Brumbaugh and Hough discussed guidance on making compensatory mitigation decisions in a watershed context. Brumbaugh and Martin then outlined guidance that will direct performance standards. These presentations were also followed by facilitated discussions designed to capture participants' comments and suggestions.

The forum concluded with a lunchtime wrap-up and closing statements given by Kathy Trott, U.S. Army Corps of Engineers, and Palmer Hough, EPA.

Details of each presentation and facilitated discussion are summarized below.

## The Regional and Local Perspective

### STATEWIDE APPROACHES TO LINKING MITIGATION AND RESTORATION NEEDS

**Connie Bersok, Florida Department of Environmental Protection**

Florida's wetland acreage has significantly decreased over the past 40 years due to population growth and associated rapid development. In 1960, Florida's population was five million people. In 2000, the population reached 16 million and has continued to increase.

Florida's state wetland regulatory program has existed since the mid-1970s and has undergone many changes as environmental perceptions and regulations have evolved. Florida currently has a state goal of no net loss of wetland functions. Regulatory decisions attempt to balance development with the natural environment in an effort to meet this goal.

Florida has a number of substantial state land and water management programs. Florida Department of Environmental Protection (FL DEP) works with state parks, aquatic preserves and buffers, national estuarine research reserves, the Florida Keys National Marine Sanctuary, and state and national forests. Other state programs include local government parklands, regional water management district plans, and Surface Water Improvement Management. Florida has 158 state parks, including some buffer preserves. These parks comprise over 700,000 acres that the state tries to manage in their natural condition. The state also manages 45 aquatic preserve sites and co-manages nearly five million acres of aquatic and submerged lands with a variety of federal agencies. In addition, there are 31 state forests encompassing over 900,000 acres. Given these extensive lands, the state struggles to reconcile the pressures related to the rate of development and population growth with land preservation.

Three Florida programs seek to link the state's land management needs with regulation: the Florida Ecological Restoration Inventory (FERI), the Mitigation Banking Program, and the FDOT Mitigation Program. FERI (<<http://www.dep.state.fl.us/water/wetlands/feri/index.htm>>) is a GIS-based inventory of current and proposed ecological restoration projects on public owned and managed lands. The database can be queried by agency, county, habitat, drainage, basin, and restoration type or technique. FERI is structured to help determine

where mitigation projects can be implemented on state lands.

Bersok then presented an example of how FERI has been used in Hillsborough County. A query of the county generates all local restoration projects. Selecting a specific restoration project reveals basic information for that project within these managed areas. If no managed areas are listed, then no projects exist in the inventory for the specified search. The list of restoration projects in Hillsborough County includes Cockroach Bay State Buffer Preserve (FL DEP, Office of Coastal and Aquatic Managed Areas), which is located adjacent to one of the fieldtrip sites (<<http://www.dep.state.fl.us/coastal/sites/tampabay/cockroachb/info.htm>>). Selecting this option reveals that Cockroach Bay State Buffer Preserve was not fully inventoried for this project. However, the query shows that there are Brazilian pepper removal and natural community restoration needs associated with past uses of this area as vegetable fields. Maps are also included. If the site matches the searcher's mitigation needs, they can contact the preserve management for more information regarding these and other restoration needs of the managed area.

While the FERI program is an excellent resource, it is not being used as much as FL DEP would like or expected. It is unclear whether this is because people are unaware of it or because its use is not mandated. FL DEP continues to publicize the advantages of this program and maintain it as an option to link mitigation and restoration needs.

Florida's Mitigation Banking Program is another way in which the state attempts to unite land management needs and regulation. In 1993, Florida became one of the first states to enact legislation establishing a mitigation banking program. The specific rules outlined in the statutes detail the goals of mitigation banks. First, banks must include restoration and enhancement of degraded systems, preservation of uplands and wetlands as intact ecosystems, and ecological communities that were historically present. Banks must also improve the ecological condition of regional watersheds. FL DEP is endeavoring to take a watershed approach in the banking program.

Since 1993, 38 banks have been permitted by the state, most of which also have federal authorization. The average bank size is 2,654 acres, with a range of

82 – 23,900 acres. Mitigation banks total 103,501 acres of land. The total number of potential credits is 33,016. Most service areas are found on the east coast and in the south. While there is the potential to locate banks on public lands, most are on private lands. When private projects are undertaken they are often not linked to the state lands program.

The third and final program that addresses land management needs and regulation is the Florida Department of Transportation's (FDOT) mitigation program. This program was established in 1996 by the state legislature<sup>1</sup> based on the belief that FDOT should let more qualified agencies mitigate wetland impacts. The water management districts (WMDs), therefore, are given the responsibility of producing mitigation plans each year. There are five regional water management districts in Florida, with South Florida the largest geographically.

FDOT develops an inventory of areas where they have proposed to build roads that will involve wetland impacts. They then present the inventory to the WMDs. Since 1997 there have been 260 proposed road projects that have impacted 1,551 acres of wetlands. There are funds associated with each one of these acres of impacts. A total of \$129 million has been appropriated for this mitigation work, resulting in 120 mitigation projects that the WMDs are implementing. Consequently, a large number of individual road projects have been consolidated into fewer mitigation projects.

Every year, each WMD prepares a plan for their region to address anticipated wetland impacts due to FDOT road projects. Each WMD tries to locate mitigation plans within their regional watersheds and basins. An effort is made to combine separate road projects into a single mitigation project that will offset the road project impacts in the same watershed.

In the vicinity of Tampa Bay there are 38 FDOT Transportation Projects, but just a handful of mitigation projects. The concept of consolidating mitigation into areas that are more meaningful seems to be one of the most effective components of this program. Meanwhile, other WMDs are trying to consolidate projects on WMD lands, county lands, and other public lands to offset FDOT impacts.

### **USE OF MITIGATION TO ACCOMPLISH WATERSHED PLANNING GOALS – A PASCO COUNTY CASE STUDY** **Clark Hull, Southwest Florida Water Management District (SWFWMD)**

The goal of the Pasco Corridors Pilot Project is to promote the establishment of ecologically meaningful mitigation alternatives where none presently exist. The challenge is that some basins (watersheds) have no available alternatives to traditional on-site mitigation. As a result, mitigation is often conducted on-site.

In the 16 counties of SWFWMD there are five permitted banks, fewer banks than in other districts. The district was concerned about the reasons for such a lack of interest. Consequently, they began to research mitigation alternatives with the knowledge that there is a need to consider the cumulative impacts in a drainage basin. SWFWMD adopted the primary USGS watersheds as their basins. The only way to avoid cumulative impacts in these basins is to mitigate in the same drainage basin.

The Florida statutes contain a provision that states, "the Department [FL DEP] and the water management districts are directed to participate in and encourage the establishment of public and private mitigation banks and offsite regional mitigation."<sup>2</sup> SWFWMD decided to develop mitigation banks themselves, and are working to encourage the establishment of public and private mitigation banks.

The Governing Board considered several mitigation alternatives, including using district-owned lands for district mitigation banks, public/private mitigation banks, regional offsite mitigation areas (ROMAs), and individual mitigation projects. After careful deliberation, the Governing Board decided that these options were not appropriate. The Board determined that providing ecologically meaningful mitigation alternatives to permit applicants would be beneficial to the economy and the environment. They realized that existing statutory impediments impair an agency's ability to collect funds for future land acquisition or restoration projects. Furthermore, the board determined that in lieu fee operations are not viable in Florida. The Board preferred that public agencies do not provide mitigation alternatives that

<sup>1</sup> Fla. Stat. ch. 373.4137 (2004).

<sup>2</sup> Fla. Stat. ch. 373.4135 (2004).

may undercut or provide market disincentives to private sector involvement. They also recognized that environmental restoration of public lands might divert dollars from the environmental restoration of private lands. Based on two examples from the adjacent South Florida Water Management District, it can take five to eight years after securing approval before a private-public mitigation bank is conducting restoration activities or selling mitigation credits. Finally, a recent SWFWMD study found that restoration of wetlands and aquatic habitats on current district-owned lands could be completed by 2011 without relying on mitigation funds to achieve the restoration goal.

There are three premises at the foundation of SWFWMD's mission to provide alternative mitigation options to permit applicants. First, the mitigation alternative should provide more ecological benefit than traditional mitigation options. Second, it should not undercut existing private sector mitigation providers or provide market disincentives for future private sector involvement. Third, the alternative should encourage preservation and restoration of privately owned lands with private mitigation dollars.

The Governing Board invited mitigation bankers to explain why mitigation banks have not been located in northern Tampa Bay. Two reasons cited were high land costs and hydrologic uncertainties, both due, in part, to rapid development. Lengthy and uncertain permitting processes are additional disincentives for private banks in the area.

The Governing Board chose to overcome these barriers by collaborating with local governments and private sector interests to promote preservation of wildlife corridors that link publicly owned mitigation lands. This will provide added value to the public land by providing connectivity between islands of preservation.

SWFWMD proposed and approved the Pasco Corridors Pilot Project to encourage preservation of wildlife corridors linking publicly owned lands using private sector mitigation dollars. Pasco County was chosen because it demonstrates "exceptional circumstances" due to its skyrocketing population. In the face of such development pressures, plans may become obsolete in

as short a time as two years. It is extremely important to buy land now and restore later, as these lands may not be available in the future. Pasco County was also chosen because this project complements the recently passed "Penny for Pasco" tax, an environmental land acquisition act. In addition, the county conducted a study that identified the environmental lands that most merited acquisition, about 90 thousand acres of land in total. The study noted that the most important lands were found in seven corridors, areas of land often following streams that provide the most environmentally desirable connections. Focusing on these corridors will result in more environmental bang for your buck.

The kickoff meeting for the Pasco Corridors Pilot Project was held in July 2004. SWFWMD, the Corps, Pasco County, private sector representatives, and one citizen activist representative attended the meeting. The project is seeking to identify how many mitigation sites would be necessary to preserve the seven corridors. Instead of waiting for a mitigation banker's assessment, mitigation credits would be estimated up-front. SWFWMD recognizes that federal agency involvement is critical to the success of the project. Pasco County and local water supply authorities will also be involved. Thus far there has been interest from mitigation bankers and large mitigation users. Pasco County is exploring additional incentives such as density transfers, since much of the land must be acquired from private landowners.

The Pasco Corridors Pilot Project has many benefits. For example, the project identifies best bank locations, does not compete with private sector, and uses private dollars to preserve private lands (i.e. private landowners will find it economical to build a bank instead of homes). In addition, it is less affected by hydrologic uncertainties since it is largely a preservation proposal, shortens permitting timeframes, and reduces permitting uncertainties (appropriateness, number of credits, service area, use of credits, etc.).

---

## **CREATIVE OPTIONS FOR MITIGATION BANKING FOR SMALL PROJECTS**

**Cindy Woods, U.S. Army Corps of Engineers**  
**Ron Van Fleet, Sarasota County Government**

---

It is extremely important for the Corps to work with local agencies in the states to help them meet their obligations for mitigating small wetland impacts. The Corps can help identify mitigation opportunities using the watershed approach. For example, the Corps can approve umbrella permits to facilitate the permitting of several smaller sites where one banking instrument covers all applicable sites.

One of the largest obstacles for mitigation banks in Sarasota County, Florida, is the extremely high cost of land. The County is concerned about the percentage of undeveloped land that is still available for mitigation sites. To ascertain where to place mitigation banks on the available land, Sarasota uses GIS modeling to determine wetland, water, and greenway proximity, soil type, and relation to agricultural lands.

A large component of Sarasota County's work is the Hydrologic Restoration Program. The first of the project's goals is to protect water quality by preventing further degradation of water resources and enhancing water quality where appropriate. To achieve this, the county will focus on protecting and improving surface water quality. The project also seeks to prevent and mitigate the losses, cost, and human suffering caused by flooding, and to protect the natural and beneficial functions of floodplains. The natural function of floodplains will be protected by developing and implementing cost effective management strategies. The third goal of the project is to enhance, protect, and conserve the hydrologic and ecologic functions of natural systems including estuaries, freshwater, and groundwater systems. The two accompanying objectives to this goal are: 1) determine and restore more natural hydrologic regimes to the natural water systems; and 2) protect and restore ecological habitat.

Opportunities to restore freshwater systems that have been altered through man-made drainage activities are seen as another way to restore freshwater flows to estuary systems. If accomplished through an interdisciplinary approach, hydrologic restoration projects may also enhance existing floodplain storage and improve surface water quality by increasing residence times. Examples of Sarasota County's hydrologic restoration projects include Sarasota Ranchlands, Redbug Slough, Caspersen, and Blind Pass Park. Each site uses a restoration model to predict its restoration potential.

## SESSION I: Review of Mitigation Action Plan and Completed Action Items

### REVIEW OF NATIONAL MITIGATION ACTION PLAN AND REGULATORY GUIDANCE LETTER (RGL 02-2)

**Kathy Trott, U.S. Army Corps of Engineers**  
**Palmer Hough, U.S. Environmental Protection Agency**

In 2001, several studies were released that sought to address the status of federal compensatory mitigation in the United States. In May 2001, the General Accounting Office released a report entitled, "Wetlands Protection: Assessments Needed to Determine Effectiveness of In-Lieu-Fee Mitigation." In June 2001, the National Research Council released its study, "Compensating for Wetland Losses Under the Clean Water Act." These independent studies raised significant concerns about the effectiveness of compensatory mitigation conducted under §404 of the Clean Water Act (CWA).

In response to these reports, an interagency workgroup released the Mitigation Action Plan on December 26, 2002, with the goal of improving the ecological performance and results of wetland compensatory mitigation under the CWA and related programs. The plan lists 17 tasks, to be completed by 2005, that will integrate compensatory mitigation into a watershed context, improve compensatory mitigation accountability, clarify performance standards, and improve data collection and availability. The National Wetlands Mitigation Action Plan homepage<sup>3</sup> was created in order to track the status of these tasks and provide the public with draft and completed documents.

In conjunction with the release of the MAP, the Corps issued a revised Regulatory Guidance Letter (RGL) in December 2002, replacing an earlier RGL released in October 2001. The revised RGL, developed with input from the federal agencies that play a role in wetlands protection, was intended to improve compensatory mitigation conducted under the Clean Water Act and to support the national "no net loss of wetlands" goal. RGL 02-2 focuses on the following major issues: the watershed approach to compensatory mitigation, functional assessment, stream mitigation, definitions of mitigation, preservation and buffers as mitigation, mitigation plans, and the NRC guidelines.

<sup>3</sup> See: <<http://www.mitigationactionplan.gov>>.

In 2003, the MAP Workgroup released guidance on the use of the Transportation Equity Act for the 21st Century (TEA-21) preference for mitigation banking over other forms of compensatory mitigation. The guidance addresses the application of the TEA-21 preference for mitigation banking for compensatory mitigation requirements under CWA §404 and outlines factors for consideration when making compensatory mitigation decisions, such as determining the suitability of banking to compensate for the proposed project's impacts and the choice of banking when multiple mitigation alternatives exist. The guidance also discusses streamlining environmental review, early coordination on the development of mitigation plans in the NEPA and §404 process, and participation in the banking process through a Mitigation Bank Review Team (MBRT).

The 2004 Department of Defense spending bill tasked the Secretary of the Army with developing consistent standards for all mitigation options. In response, the Corps is working to create uniform standards for mitigation across all Corps districts by June 2004. Public notices were sent to the 38 Corps districts in December of 2003. Each district was provided with 15 examples of mitigation guidelines to help them create guidelines specific to their district, including two completed MAP workgroup products: the "Model Compensatory Mitigation Plan Checklist" (2003) and guidance on "Incorporating the National Research Council's Mitigation Guidelines into the Clean Water Act Section 4040 Program" (2003).

Another MAP task is the development of guidance addressing the use of off-site and out-of-kind compensatory mitigation (site/kind guidance). The 2001 NRC study found that the current automatic preference for on-site, in-kind mitigation contradicts a watershed approach. Since compensatory mitigation decisions are not currently being made in a watershed context on a widespread basis, the site/kind guidance will guide mitigation decisions until the watershed approach is more widely applied.

The MAP Workgroup was also charged with developing guidance clarifying considerations for mitigating impacts to streams. In 2004, EPA and the Corps released, "Physical Stream Assessment: A Review of Selected Protocols for Use in the Clean

Water Act Section 404 Program.” The report is a compendium of technical approaches to stream assessment. This resource manual compiles and reviews 50 stream mitigation protocols from across the country.

The MAP was also tasked with clarifying performance standards, which led to the release of a report in June of 2004 titled, “Measuring Mitigation: A Review of the Science for Compensatory Mitigation Performance Standards.” The need for analysis of ecological performance standards for mitigation sites came about due to historic problems measuring success. The report summarizes the status of peer-reviewed literature on selected biological indicators, abiotic factors, functional assessments, and developmental trajectories to help evaluate the success of compensatory mitigation for authorized impacts to wetlands and other aquatic resources under Clean Water Act Section 404. This report will inform the development of performance standards and monitoring guidance in 2005.

Another of the MAP tasks, an evaluation of existing §404 permit tracking databases, has resulted in replacing the Corps’ Regulatory Analysis and Management System (RAMS) database with the OMBIL Regulatory Module (ORM). The Corps is currently piloting ORM in nine districts. ORM greatly enhances the Corps’ ability to track §404 permitting. Specifically, there has been a significant improvement in tracking the type and amount of resources impacted, as well as the type and amount of mitigation performed. The Corps and EPA are presently partnering to add advanced Geographic Information Systems (GIS) to ORM and to ensure the accessibility of data.

Coordination between various stakeholders has been important to the completion of the MAP tasks. The 2003 stakeholder forum in Portland, Oregon included a review of the action items completed in 2003 and solicited input on the 2004 and 2005 items. This process continued with this stakeholder forum in Tampa, Florida, and will conclude with a final stakeholder forum in 2005.

There are several additional MAP tasks that are and will be the main focus of the MAP Workgroup in 2004 and 2005. The MAP Workgroup is planning to

complete buffer guidance, preservation guidance, and guidance on aquatic resources that are difficult to replace (DTR) by the end of 2004. Additional tasks scheduled for completion in 2005 include performance standards guidance, a shared database, a national report card, and guidance on making compensatory mitigation decisions in a watershed context.

Significant efforts to understand the fundamentals of a watershed approach to compensatory mitigation are underway. With the assistance of the Environmental Law Institute, the MAP Workgroup has identified 18 watershed-based planning tools and/or resources that can be used as models for making mitigation decisions in a watershed context. In May 2004, ELI hosted the *National Symposium on Compensatory Mitigation and the Watershed Approach*. The symposium provided the MAP Workgroup with an opportunity to hear from a diverse group of experts and to discuss the strengths and weaknesses of existing planning tools and/or resources. Participants reviewed the identified watershed-based tools and resources, discussed the criteria used to analyze priorities and restoration options, and explored the potential use of the watershed approach in a regulatory context. The symposium provided the opportunity for participants to share their ideas and propose recommendations for how to pursue a watershed approach to compensatory mitigation.

### Questions and Facilitated Discussion

It would be helpful to have smaller stakeholder forums for field personnel on a regional basis (Johnson). The MAP Workgroup should take into consideration, and be aware of, the relationship between an ecoregional approach and a watershed approach (Cooper). The MAP Workgroup should clarify whether or not it is going to develop guidance on the use and identification of reference sites (Parsons).

A participant inquired about the origins of a recent study released by the Interstate Technology and Regulatory Council that provides technical and regulatory guidance on mitigation wetlands. The study seems to have been at least partially funded by the U.S. Environmental Protection Agency (Hausmann).

---

### **GUIDANCE ON THE USE OF THE TEA-21 PREFERENCE FOR MITIGATION BANKING TO FULFILL MITIGATION REQUIREMENTS UNDER SECTION 404 OF THE CLEAN WATER ACT**

**Alex Levy, Federal Highway Administration**

The purpose of the guidance document, “Guidance on the Use of the TEA-21 Preference for Mitigation Banking to Fulfill Mitigation Requirements Under Section 404 for the Clean Water Act,” is to direct the application of the TEA-21 preference for wetlands banks to meet compensatory mitigation requirements under CWA §404. Factors to consider in applying the TEA-21 banking preference include the suitability of banking, early coordination, streamlining the process, integration with NEPA and CWA §404, and the MBRT process. The guidance also states the importance of evaluating multiple alternatives.

The guidance document was signed by FHWA, USACE, and EPA on July 11, 2003 and is presently undergoing a domestic scan. In 2005, a series of field visits are planned with the purpose of discussing implementation and other mitigation issues with field personnel.

#### **Questions and Facilitated Discussion**

Ardoin asked whether or not FHWA will consider looking at non-DOT banks. Ryan suggested that FHWA conduct a study comparing the success of their mitigation investments in public lands to those completed on private lands. Mann expressed her impression that the banking preference applies only to private sector bankers. Connelly suggested that the guidance and field visits should address non-success stories. Denisoff inquired into how the states will address long-term monitoring and maintenance requirements.

---

### **GRANTS TO IMPROVE COMPENSATORY MITIGATION** **Palmer Hough, U.S. Environmental Protection Agency**

The U.S. Environmental Protection Agency’s Wetland Program Development Grant (WPDG) program was established in 1990. Its purpose is to provide direct support to states, tribes, and local governments (S/T/LG) to increase their participation in wetland protection. The program’s initial appropriation was \$1 million for State and Tribal Assistance Grants (STAGs). It currently appropriates \$15 million for STAGs.

The grant program was authorized by CWA §104(b)(3) and supports research, investigations, experiments, training, demonstrations, surveys, and studies related to the causes, effects, extent, prevention, reduction, and elimination of water pollution. Eligible applicants include S/T/LG, intertribal consortia, interstate agencies, and nongovernmental organizations (NGOs). The WPDG program guidelines state that regional offices are responsible for grant applications from S/T/LG, intertribal consortia, and interstate agencies, while EPA Headquarters reviews all NGO grant requests. CWA §104(b)(3) activities are aimed at developing and refining wetland management programs.

The grant program is competitive and requires a 25 percent match. The WPDG program has three funding priorities: improving compensatory mitigation, developing monitoring and assessment programs, and protecting vulnerable wetlands. For compensatory mitigation, the grants can be applied to developing and verifying assessment methods and/or tracking systems that document the technical adequacy of mitigation project plans, the ecological suitability of mitigation project sites, mitigation project compliance, and cumulative impacts.

Hough provided some examples of how states and organizations are using this grant program to improve compensatory mitigation. Florida is currently using a WPDG grant to evaluate the effectiveness of mitigation banking. North Carolina is expanding and updating its computerized tracking system for their Freshwater Wetland Permitting Program. Washington State is revising mitigation guidelines and developing “Landscape-Scale” wetland management guidance.

The San Francisco Estuary Institute, Southern California Coastal Water Research Project, and California Coastal Commission are working together to develop a California Rapid Assessment Method. California State Water Resources Control Board is also assessing mitigation effectiveness. Ventura County, California, is using a WPDG grant to conduct impact assessments and develop mitigation guidelines. The Iowa Department of Transportation is conducting an assessment of compensatory mitigation. Finally, NatureServe, which received its grant through headquarters, is conducting a mitigation site performance standards pilot program.

EPA is currently developing national guidelines for the 2005 WPDG program. The guidelines are under review and likely to maintain the S/T/LG priorities. Compensatory mitigation will also remain a priority with an emphasis on developing, improving, and/or refining performance standards.

## **STREAM MITIGATION COMPENDIUM**

***Jeanette Gallihugh, U.S. Fish and Wildlife Service***

The Corps and EPA released a report, "Physical Stream Assessment: A Review of Selected Protocols for use in the Clean Water Act (CWA) Section 404 Program," also known as the Stream Mitigation Compendium, in September 2004. The report was created because wetlands and streams are fundamentally different ecosystems and very limited guidance exists for field staff on how to manage stream ecosystems. The report was developed in response to one of the MAP tasks, which called for the federal agencies to clarify considerations for mitigating impacts to streams in the §404 program.

The compendium is a compilation and review of existing stream assessment and mitigation protocols. It also identifies target scales, geographic applicability, levels of effort, training requirements, and potential utility of the protocols to regulatory programs. Two research methodologies were used to compile information for the report. First, a questionnaire was developed for federal, state, and local agencies and private and NGO practitioners. The questionnaire is comprised of 28 questions designed to collect information on general programmatic uses of assessment methods, technologies, data reduction and synthesis, and future needs. Questionnaires have been sent to 11 federal agencies and 50 states. To date, responses have been received from 9 agencies, 20 states, and 1 municipality. The second method was an inventory and review of existing stream mitigation methods and protocols. Programmatic attributes of protocols are first reviewed to understand the target resource type, geographic applicability, and need for reference conditions. Technical attributes of protocols are then reviewed to assess their potential utility for the §404 program. The collection of qualitative and quantitative data and documented geomorphological and habitat characteristics is also reviewed. The evaluation of technical attributes also supplies details on the level of effort, expertise, and precision required to perform effective stream mitigation. The protocols contained in the stream compendium must be tailored to address regional variability.

The compendium includes a list of five characteristics that are recommended for programmatically complete stream assessment protocols to use in the CWA §404 regulatory program: 1) Classification – stream assessment should be preceded by classification to narrow the natural variability of physical stream variables; 2) Objectivity – the assessment procedure should remove as much observer bias as possible by providing well-defined procedures for objective measures of explicitly defined stream variables; 3) Quantitative Methods – the assessment procedure should utilize quantitative measures of stream variables to the maximum extent practicable; 4) Fluvial Geomorphological Emphasis – stream assessments undertaken to prioritize watersheds or stream reaches for management, or aid the design of stream enhancement or restoration projects, should be based on fluvial geomorphic principles; and 5) Data Management – data from stream assessments should be catalogued by designed entities in each region of the country.

## **ANALYSIS OF EXISTING PERFORMANCE STANDARDS RESEARCH**

**Joanne Barry, U.S. Army Corps of Engineers**

In April 2004, the Environmental Law Institute released a report, “Measuring Mitigation: A Review of the Science for Compensatory Mitigation Performance Standards,” which examines the science behind compensatory mitigation performance standards. Distinguishing between design and performance standards, the ELI study examined peer reviewed literature of biological indicators, abiotic factors, functional assessments, and developmental trajectories as they relate to performance standards for wetland mitigation. The ELI study provided background research that will help the federal agencies develop performance standards and monitoring guidance by 2005.

Several reports have called for mitigation standards. In 2001 the NRC report “clearly specified performance standards be adopted to enhance mitigation effectiveness.” The 2001 GAO report also specified the need for carefully established performance standards. This call for standards was partly due to the fact that the success of in-lieu-fee mitigation was impossible to assess because data were not collected and no standards were set.

In 1999, the Corps’ Wetlands Research Program published a report, “Examples of Performance Standards for Wetland Creation and Restoration in Section 404 Permits and an Approach to Developing Performance Standards.”<sup>4</sup> The report, which was included in the NRC report as an appendix, defines performance standards as “observable or measurable attributes that can be used to determine if a compensatory mitigation project meets its objectives.” The challenge in generating these performance standards is to develop and implement scientifically based performance standards that will work within a regulatory structure. Standards should be clear, measurable, and pertain to the desired ecological function of the replacement wetland. They should be developed from mitigation goals and

<sup>4</sup> “Examples of Performance Standards for Wetland Creation and Restoration in Section 404 Permits and an Approach to Developing Performance Standards.” January 1999. WRP Technical Note WG-RS-3.3.

objectives and outline a clear set of criteria that will identify the extent to which mitigation is functioning as a replacement for lost functions and values.

It is important to note that the science of wetland restoration is still relatively young. Literature in this field is dominated by studies of sites less than ten years old. The 1990 MOA was the first call for mitigation requirements.

The ELI study found that few long-term monitoring studies exist. Research typically takes place over just a few growing seasons or two years. In addition, there is often relatively little baseline information with which to compare data. Another finding is that it is important to have a landscape level perspective for monitoring and assessment. It is also necessary to enhance standardization in data collection and access, language and definitions, and sampling protocols. Finally, the transferability of standards should be facilitated between different regions and wetland types.

In general, the study suggests that performance standards can be developed and implemented. However, multiple parameters are necessary to accentuate strengths while minimizing the weaknesses of various metrics. The report surveyed the status of the peer-reviewed literature in three different categories: biological indicators (amphibians, fish, invertebrates, birds, algae, mammals, vegetation); abiotic factors (hydrology, soil, sediment, substrate, nutrients); and landscape perspectives and methodologies (HGM, developmental trajectories).

The study concluded that biotic parameters showed promise as potential biological indicators, but that there are problems using them as a sole parameter. Abiotic parameters are also a possibility, yet they require long monitoring periods. In regards to the landscape level parameters, hydrogeomorphic (HGM) reference sites are complicated and time consuming and may not always translate into replacement functions. Finally, trajectories are seldom available and difficult to establish.

### Questions and Facilitated Discussion:

More standardized stream mitigation procedures are needed (Mogensen). Additional guidance will be needed on stream mitigation to parallel the different guidance documents developed as part of the MAP (Christie). The stream compendium should include the southwest; performance standards should be applied to all forms of mitigation (Denisoff).

Bankers should invest in landscape level assessment and long-term monitoring (Parsons). Guidance on “difficult to replace” wetlands may require states to tighten stream protocols and federal guidelines (Mann). Additional literature on performance standards needs to be studied (Martin).

Compensatory mitigation in the watershed context must involve all water resources, including streams (Nadeau). Riparian corridors combine streams and adjacent wetlands (Norris). The surface water and wetland communities must collaborate at all levels, formally and informally (Wood). Total Maximum Daily Loads (TMDLs) represent an opportunity for stream mitigation (Parsons).

## **FEDERAL GUIDANCE ON THE USE OF OFF-SITE AND OUT-OF-KIND COMPENSATORY MITIGATION UNDER SECTION 404 OF THE CLEAN WATER ACT**

### **(Site/Kind Guidance)**

**Susan-Marie Stedman, NOAA National Marine Fisheries Service**

The 1990 Mitigation MOA includes a preference for on-site and in-kind compensatory mitigation. However, the 2001 NRC study found that an automatic preference for on-site and in-kind compensatory mitigation contradicts a watershed approach. The best way to address the appropriateness of on-site, off-site, in-kind, or out-of-kind mitigation is through a watershed plan or a watershed approach. Because watershed plans are not widely available, and interagency guidance on the watershed approach is not yet complete, the MAP Workgroup felt it necessary to develop federal guidance to help guide decisions about the use of off-site and out-of-kind compensatory mitigation.

A workgroup comprised of field staff from the agencies on the MAP Workgroup developed draft site/kind guidance in March 2003. This draft was presented at the 2003 stakeholder forum in Portland. Participants recommended that the guidance be more structured and specific. A second draft was released for public comment in April 2004. The Workgroup received approximately three-dozen comment letters from environmental groups, the regulated community, and state or federal regulators, containing roughly 200 individual comments. About half of the comments contained specific suggestions for changing language. The remainder were either general comments about the document or comments on topics not directly related to the draft guidance.

The environmental community generally expressed concern that the guidance exceeded the intent of the NRC report by allowing off-site and out-of-kind compensation outside the context of a watershed plan. These groups would prefer that the MAP Workgroup not issue the guidance and not allow off-site or out-of-kind compensation without a watershed plan. However, the use of off-site and out-of-kind compensation already occurs under existing Corps regulations, and the MAP Workgroup is seeking to clarify the context in which site/kind decisions should

be made. However, some changes were made to the guidance to clarify that the goal is to implement the environmentally preferable option.

Comments from the regulated community demonstrated general approval of the guidance as it was written. A few members of the regulated community stated that the guidance does not go far enough and suggested that all references to on-site and in-kind preference should be removed. However, the MAP Workgroup maintains that there are good reasons for maintaining a preference for on-site and in-kind compensation when no other option is environmentally preferable.

The site/kind guidance also reiterates the preference for making compensatory mitigation decisions in a watershed context, stating, “[t]he best tool for determining whether on-site, off-site, in-kind, or out-of-kind compensatory mitigation is environmentally preferable is a holistic watershed plan incorporating mitigation or restoration priorities.” In the absence of a holistic watershed plan, “a watershed-based approach to mitigation decisions is the most appropriate way to address the appropriateness of on-site, offsite, in-kind, or out-of-kind mitigation.”

The site/kind guidance emphasizes environmentally preferable mitigation. For example, the text states that an off-site mitigation option is considered acceptable when it is “identified as environmentally preferable to on-site mitigation in a holistic watershed plan.”

The workgroup also made several structural adjustments to the site/kind guidance. The background was condensed and the actual guidance moved to the beginning of the document. There are separate sections for the out-of-kind and off-site components. Language relating to difficult-to-replace wetlands and invasive species was removed. Finally, language addressing combined mitigation was added.

This guidance is currently in the process of being cleared for signature by the MAP agencies.

---

### Questions and Facilitated Discussion:

The guidance offers only a generic definition of a watershed plan. Stakeholders need clarification (Ross). The guidance should clarify who is responsible for the development of a holistic watershed plan (Olson). Another participant asked how the interim guidance fits into the watershed guidance (Connelly).

There was some discussion on the need to limit the watershed size. For example, limiting it to an 8-digit hydrologic unit code (HUC) or subregion (Carter). However, others thought the HUC size should be left for states to determine (Cooper).

There was also some concern among participants regarding off-site mitigation. Olson asked about the likelihood of success for off-site mitigation. Norris asked about the appropriateness of off-site in heavily impacted areas. He also asked about the MAP Workgroup's thoughts on a common request received in Minnesota. Permit applicants often ask if they can satisfy their compensatory mitigation requirements for impacts to wetlands in the southern parts of the state through mitigation in the northern area of the state (Norris). Stedman responded that there is a preference to preserve the existing wetland mosaic, rather than pooling all mitigation into large wetland mitigation projects.

Mann stated that it seemed as though the MAP Workgroup had tried to address the concerns of the environmental groups. She requested that the term "on-site" be interpreted to include contiguous areas. Morse asked about the role of practicability in this guidance.

### MODEL MITIGATION CHECKLIST AND INCORPORATION OF NATIONAL RESEARCH COUNCIL'S GUIDELINES INTO THE CLEAN WATER ACT SECTION 404 PROGRAM (District Mitigation and Monitoring Guidelines)

*Joanne Barry, U.S. Army Corps of Engineers*

The MAP calls for the development of a model mitigation plan checklist. The purpose of the checklist is to facilitate the submission of information by permit applicants early in the process, to identify the types and extent of information that agency personnel need to assess the likelihood of success of a mitigation proposal, to allow for more effective participation and project review during public notice, and to minimize delays in the permit decision-making process.

The following are the main components of the checklist: mitigation goals and objectives, baseline information for impact site and proposed mitigation site, mitigation site selection and justification, mitigation work plan, performance standards, site protection and maintenance, monitoring plan, adaptive management plan, and financial assurance.

The Corps also issued a memorandum to the field in October 2003 to provide guidance on incorporating the NRC's ten guidelines into the planning and implementation of successful mitigation projects. The ten guidelines are:

- Whenever possible, choose wetland restoration over creation;
- Avoid over-engineered structures in the wetlands' design;
- Restore or develop naturally variable hydrological conditions;
- Consider complications associated with creation or restoration in seriously degraded or disturbed sites;
- Conduct early monitoring as part of adaptive management;
- Consider the hydrogeomorphic and ecological landscape and climate;
- Adopt a dynamic landscape perspective;
- Pay attention to subsurface conditions;

- Pay particular attention to appropriate planting elevation, depth, soil type, and seasonal timing; and
- Provide appropriate heterogeneous topography.

The above ten guidelines have been organized into two categories: basic requirements for success and mitigation site selection. Supplementary text has also been added to the guidance in order to aid regulators in interpreting and implementing the guidelines and helping to achieve the goal of integration with the §404 Program.

Public notices on the district mitigation guidelines were sent to the 38 Corps districts in December of 2003. Each district was provided with 15 examples of mitigation guidelines to facilitate the creation of specific guidelines for their district, scheduled to be finalized in June 2004. These mitigation guidelines included two completed MAP Workgroup products: “Model Compensatory Mitigation Plan Checklist” (2003) and guidance on “Incorporating the National Research Council’s Mitigation Guidelines into the Clean Water Act Section 404 Program” (2003).

As of September 2004, 24 districts have posted checklists and guidance on their websites. Two states, Texas and Arkansas, have been given extensions to complete their consolidated checklists, and 12 districts have not yet posted their checklists.

### Questions and Facilitated Discussion:

The guidelines developed in each district should be consistent and uniform at the state level for those states that are covered by multiple Corps districts. Presently, the Corp handles mitigation plans on a case-by-case basis (Linkous).

There was a concern that statewide permitting may not be compatible with different states (Johnson). However, states can take the lead and create their own, agreed upon checklist that makes guidelines uniform—as in Wisconsin (Hausmann).

A participant asked if there is any specific procedure for streamlining a project that will meet the checklist requirements. The response was that presenting a project in a checklist format will expedite review (Olson). Consolidation of permitting in one district is also a concern (Mann).

The most difficult aspect of a checklist is dealing with time lag and risk. More specific guidelines are needed on how to handle risk (Hull). The Corps should be clear that although applicants are being asked to make a significant time investment into completing the checklist, the avoidance and minimization aspects of sequencing are not going to be circumvented (Carter). Another participant stated that the checklist expedites the review process, and it is important to remember that “no” is always an option in reviewing mitigation proposals (Hausmann).

Discussion of the checklist raised additional questions about the dissemination of information on the performance of mitigation. A participant asked whether or not the Workgroup provided the findings of national, regional, and local studies to the public in order to advise applicants on risk and time lag factors. Johnson asked if the findings of different mitigation studies could be reflected in the checklists. Redmond added that generally, there should be better dissemination on the findings of studies on mitigation success and failures. She expressed concern that the public has not been informed about the failures reported across the country since 1991 and suggested that the MAP

website provide links to these mitigation studies. Another participant agreed and said the MAP website should include mitigation information, i.e. the Washington Department of Ecology reports, and a forum for “lessons learned.”

Once the Corps receives a complete application, the formal review process begins and the Corps’ regulations<sup>5</sup> dictate that the regulatory program must meet certain deadlines. Parsons expressed concerns about the amount of time it may take to complete mitigation plans. He stated that by the time a mitigation plan is provided to the state for their review, little time remains before the Corps must make a decision and the state is pressured to issue an instant turnaround on §401 water quality certification, with little time for review. A participant responded by asking why the mitigation checklist is not used as the trigger for considering when an application is considered complete. The Corps responded that their regulations dictate when the permit review “time clock” starts. Parsons suggested that the Corps redefine when an application is considered complete. The Corps responded that the agency is refining the pre-application process. The agency believes that the mitigation checklist will be more helpful to the applicant in the preparation of a mitigation plan. Another participant agreed and stated that the appropriate parties should be given the opportunity to participate in the process (Parsons).

Project failure is often due to the follow-through on mitigation plans. Follow-through is often horrendous in terms of contract management (Van Fleet).

## **DEMONSTRATION OF NEW SECTION 404 DATABASE (ORM)**

**Tori White, U.S. Army Corps of Engineers**

The OMBIL Regulatory Module (ORM) is the new, automated information system for the Corps Regulatory Program. It is a component of the Operations and Maintenance Business Information Link (OMBIL). ORM will replace current automated information systems such as RAMS, RAMSII, and other proprietary systems used in six Corps districts.

The development of ORM began in 1999 with the goal of providing standardized and consistent collection of data that may be used to assess the Regulatory Program’s performance. It is an important tool for analyzing performance-based management and budgeting.

ORM consists of a central database with the option to deploy locally. It will be a standardized regulatory database used in all 38 Corps districts with Windows-standard functionalities. The system design is based on the Corps Regulatory Business Process. ORM supports the use of an electronic permit application, posting permit application status information on the Internet, and information exchange between regulatory agencies, states, and others. Although basic GIS capability is built into ORM, a more advanced GIS system is currently being developed. The ORM Steering Committee is also evaluating recommendations for changes to ORM.

An electronic permit application allows the public to submit permit applications and supporting documentation to the Corps via the Internet. Nightly data exchange occurs between ORM and the E-permit website, including submission of the E-application to the specified district and status updates of current applications. ORM is currently being tested by the Corps’ Jacksonville District.

ORM is capable of recording and interlinking 86 tasks and subtasks (“Regulatory Actions”). Some examples of these tasks include: Evaluate Standard Permit, Evaluate Nationwide Permit, and Danger Zone, as well as subtasks such as Application Complete Determination, Public Notice, and ESA consultation. For each task, ORM is capable of entering associated

<sup>5</sup> 33 U.S.C. §325.2, available at <http://www.wetlands.com/coe/coe325p2.htm>.

data (“attributes”) such as dates and acres. ORM can handle up to 1,000 possible unique entries, as well as multiple sites.

Inside ORM, each request from the public is placed into a folder. Each permit application is identified as either critical or normal, based on due dates for regulatory decisions. Electronic documents can be attached to the application entry. ORM can also define one or multiple site locations, subdivide a site into one or more areas, and reuse the location on multiple requests.

Geographic coordinates and a descriptive location are required for entry. However, there is also the option to enter the watershed, waterway, county, public land survey, etc. There is work underway to enhance this GIS tool by linking it to other local GIS systems. ORM uses National Wetland Inventory and HGM data to classify each site and contains matching data-types for compensatory mitigation. Mitigation types are based on definitions in the RGL 02-2. If tasks occur during review, ORM can add the formal and informal consultations.

The extensive capabilities of ORM also present challenges. Data entry is time consuming and must be balanced with other program tasks, such as site visits and permit analysis. In addition, it is difficult to determine the appropriate level of detail that should be included.

At present, Corps Headquarters has issued interim guidance on data entry and districts are also requiring the use of some of the optional attributes. Thus far, data will be needed for identifying staffing based on the number and type of tasks, and for the rollout of type, acres, and debits by watershed.

Eleven Corps districts have already received training on ORM and are in the deployment stage. Four additional districts are scheduled for training and deployment over the next few months. The remaining districts are scheduled for early 2005.

ORM’s release in Florida has not been without difficulties. The district experienced technical glitches with deployment and the learning curve was steeper than anticipated. There is still a large backlog of data that has yet to be entered. The district is

currently developing data-entry checklists and “often-used” form letters for the ORM letter generator and to test the electronic application system. Long-term goals include improving linkage to location, support for the watershed analysis, and adding tasks/attributes as Regulatory Program and data needs evolve.

### Questions and Facilitated Discussion:

A question was raised as to whether or not ORM will be compatible with the Corps’ Regional Internet Bank Information Tracking System, or RIBITS, which is used by the Mobile District. The Corps responded that ORM will be compatible with RIBITS.<sup>6</sup>

White added that ORM will have the capacity to send out electronic public notices twice a week with notifications of comments.

Norris asked how states could coordinate their own permit tracking systems with ORM. The Corps is currently working on this in Florida but has not yet resolved the issue (White).

ORM can add additional layers to track performance compliance and performance standards but at a large data entry cost. The Corps is also expanding the number of mandatory screens to share decision data with EPA (White).

Morse stated that permit applicants (homebuilders and consultants for example) would be willing to enter as much data as possible into ORM themselves if doing so will facilitate the permit decision-making process. White responded that only the Corps can enter data into the database (White).

Cooper asked when ORM will be able to provide other agencies with cumulative impact information. Historical data is necessary for cumulative impact analysis (Nadeau).

The Corps’ Online Permit Application Center can be found at: <<https://epermit.usace.army.mil>> (White).

<sup>6</sup> U.S. Army Corps of Engineers, Mobile District. October 27, 2004. Regional Internet Bank Information Tracking System. <<https://samribits.sam.usace.army.mil/ribits/>>.

DTR. DTR lists are considered advantageous because they would provide more predictability and help to avoid over-application of the term DTR. However, disadvantages of such lists include the possible limitation or exclusion of some resources due to differing assessments of what constitutes a DTR aquatic resource, the length and expense of the listing process, and limitations on the flexibility of case-by-case determinations.

A robust evaluation of alternatives provides the best protection of DTR. Avoiding impacts to DTR should be emphasized since mitigation is unlikely to compensate for impacts to these resources. The guidelines already include the rebuttable presumptions found at 40 CFR §230.10(a)(3). Additionally, when a proposal involves impacts to DTR aquatic resources, the review process should include a sequential rebuttable presumption that alternatives exist that do not involve adverse effects on DTR and these alternatives should be exhausted first. This may include considering alternatives that impact other resources (aquatic or non-aquatic).

The alternatives analysis should be comprehensive and consider the likelihood of restoration or creation success, recognizing the uncertainty associated with successful DTR restoration. The analysis may result in choosing an alternative that adversely affects a larger area of “non-DTR” over an alternative that adversely affects a smaller area of DTR. The analysis may result in a decision to not authorize a proposed project because the adverse effects would be contrary to the public interest or cause significant environmental degradation of the waters of the United States.

Corps Districts may wish to use programmatic tools to facilitate the protection of DTR, i.e., Advanced Identification, Special Area Management Plans (SAMPs), and Regional Special Conditions. Districts should also consider providing additional protection to DTR that could be affected by activities authorized under General Permits (GPs) by using their discretionary authority. For example, Corps districts may require an individual permit (versus GP) for all activities affecting DTRs. In addition, districts may add regional conditions for certain GPs or suspend one or more GP for activities within a region or state.

If impacts to DTR are unavoidable, planning and implementation of compensatory mitigation should occur well in advance of the impacts. Mitigation should focus on the spatial and temporal loss of functions associated with project impacts. Combination compensation, where compensation occurs in multiple locations that may be on-site, off-site, in-kind, and/or out-of-kind, may be the best option (see Site-Kind Guidance).

The establishment (creation) of DTRs is rarely practicable. However, in-kind restoration and/or enhancement may be feasible. In-kind mitigation may not re-establish pre-disturbance conditions but it may replace functions in-kind. Out-of-kind compensation fails to replace the specialized functions of DTR. When deciding between in-kind and out-of-kind mitigation, the risk of failure must be weighed against the need to replace that particular kind of habitat. When performing in-kind mitigation, special attention should be paid to monitoring, contingency planning, adaptive management, and the use of best available science. Restoration plans should incorporate performance bonds or other enforceable financial measures that can be used to conduct alternative mitigation if in-kind mitigation fails. Recognizing the uncertainty of success, in-kind mitigation may require higher mitigation ratios.

Out-of-kind mitigation could be used in addition to, or instead of, in-kind mitigation. It is important to focus on the lost functions, with a preference for using aquatic resource types similar to the affected aquatic resource. Out-of-kind mitigation may involve the location of mitigation at multiple sites in order to replace as many functions as possible. Such mitigation may involve combining on-site, off-site, and different resource types (classes that naturally occur in the watershed). Although it is not ideal to recreate the resource as a collection of independent features, each mitigating for a separate function, it is vital to account for all lost functions.

The preservation of DTR with a high mitigation ratio may provide a good option for in-kind compensation if there is a demonstrable threat of loss or degradation, and if the approach supports the identified needs of the watershed (see Preservation Guidance). Out-of-kind mitigation may be combined with in-kind preservation to achieve the broadest possible compensation.

Site protection is particularly important for protecting DTR aquatic resources. Compensatory mitigation plans should include a description of the legal means for protecting each site. Legal means could include conservation easements, deed restrictions, or title transfer for example. As stated in RGL 02-2, all aquatic resources in mitigation projects should be permanently protected.

In conclusion, special emphasis should be placed on avoidance of DTR in the alternatives analysis. If impacts are unavoidable, project managers should weigh the risk of failure against the need to replace that habitat in deciding between in-kind or out-of-kind mitigation. If in-kind fails or is not practicable, out-of-kind mitigation should be designed to replace as many lost functions as possible, even if this requires multiple sites or resource types. In-kind preservation may be appropriate, but a combination of restoration and preservation may be the best approach. Compensation should be considered in a watershed context. Finally, Corps districts should work collaboratively in determining DTR aquatic resources in their regions.

### Questions and Facilitated Discussion:

Bostwick stated that although the guidance does a good job of capturing the different types of DTR and specifying that impacts to DTR should be avoided, she is concerned that the guidance does not adequately clarify that it does not cover landscape level DTR, for example, wetlands adjacent to headwater trout streams. It is important to note that the system as a whole may be DTR, not only the specific wetland. Guidance should clarify what is not considered DTR and what DTR should and should not include on a site-specific level. Guidance also needs to clarify whether the DTR lists, which should be determined regionally, will serve as the definitive and complete list for the region.

Vernal pools, prairie potholes, and streams are considered DTRs. Local Corps districts should be required to provide a “preponderance of evidence” that a resource is DTR before adding it to a regional list. This determination should be based on the technical feasibility of replacement, not the intrinsic value of the resource (Denisoff).

The guidance emphasizes avoidance, but seems to overlook the part of the §404(b)(1) guidelines that encourages permit denial when a proposed impact would cause “significant degradation.” And, this is not mentioned in the conclusion (Carter).

Gardner stated that the guidance emphasizes avoiding impacts, but does not clarify whether or not this emphasis supersedes other existing Corps guidance. He asked about the interplay between this guidance and flexibility for small impacts.

Regarding regional listing, the Sierra Club is glad to see an emphasis on avoidance, but it is concerned that this would lead to a decreased emphasis on avoidance of non-DTR in the sequencing process. Regional listing gives a “red light-green light” approach. A case-by-case, project-specific analysis of the DTR classification is preferable to regional listing (Mann). Bersok responded that regional listing may exclude “yellow” categories that could be enhanced or restored. DTR implies creation but other mitigation options should not be overlooked.

Determination of DTR may be a circular argument. For example, if it can be replaced, is it not DTR (Olsen)? Bostwick responded that DTR does not mean that creation is not possible. Therefore, DTRs should remain on the list as aquatic resources that should be avoided.

Morse stated that permit applicants and inter-district coordinators would greatly appreciate a very clear list of what constitutes DTRs. It is currently quite frustrating because the lists of “Aquatic Resources of National Importance” seem arbitrary. He recommended that the MAP guidance force the Corps to be as specific as possible when making DTR lists.

DTR implies creation, but there are also mitigation options that include enhancement. This should not be overlooked (Bersok).

Redmond stated that a typical assumption is that the impact site is in good condition. She inquired whether or not the condition of the site will affect whether or not a site is DTR. For example, if the DTR is degraded and few of its functions are left, there is a question about whether or not it is still DTR with functions that are irreplaceable. The guidance should address the condition of the DTR. In addition, the condition of a DTR should also guide the appropriate mitigation, i.e., enhancement, creation, etc. (Redmond).

The definition of DTR is problematic. There is a need for clear, regional lists so that DTR will not be applied subjectively. Local agencies and the public should participate in the listing effort (Mogensen). Parsons agreed that listing should occur at the district level and should be fully transparent for all stakeholders. Periodic review of the lists will help drive the listing process. Furthermore, Corps districts should handle the regionalization of the DTR list and use wetland characteristics to determine DTR. In Georgia, bottomland hardwood forest/old climax communities could possibly be DTR. It is necessary to consider the age (maturity) of the site when making DTR determinations (Parsons). The MAP Workgroup welcomes the use of existing lists of DTRs (Stedman).

In regards to the legal protection section of the guidance, the phrase “in most cases” is confusing and should be explained. In addition, the discussion of

permanent protection needs to be addressed more clearly (Connelly). There is also a need to further define the reference to riffle and pool complexes in the document (Mogensen).

The guidance should be clear about the need for permanent protection through legal mechanisms (i.e. the mountaintop mining issue). The guidance should also require, not suggest, higher ratios for impacts to DTRs (Mann). If impacts are unavoidable, then higher mitigation ratios are appropriate (Mogensen). Boan suggested that there should not be higher ratios for out-of-kind mitigation.

There was some discussion about the size of DTRs. Ryan suggested that DTRs must be clearly mapped. He added that ADIDs are not DTR, they just cover large areas. During the process of creating regional lists, the Corps should not assume that all ADIDs are DTRs (Ryan).

Johnson asked how regional lists will be defined. An eight digit HUC may be more appropriate than a state line. When looking at substantial areas of land, large systems like elk habitat would be difficult to replace. We should cross reference the regional 1987 manual to see how many DTR are left (Johnson).

Bostwick commented that large areas considered DTR because of size, value, or location should be specified in the guidance. Understanding biodiversity, functions, and values is important to designating DTRs (Bostwick).

Large areas like coastal and coral resources should be included as special aquatic sites (Boan).

## **GUIDANCE ON THE USE OF PRESERVATION AS COMPENSATORY MITIGATION**

**Jeanette Gallihugh, U.S. Fish and Wildlife Service**

One of the MAP tasks is the development of guidance on the appropriate use of preservation for compensatory mitigation. The MAP states, “the agencies will develop specific guidance that will clarify the exceptional circumstances described in current guidance in which preservation may serve as an effective and environmentally appropriate approach to satisfy compensatory mitigation requirements.” The guidance will clarify the role of preservation articulated in earlier guidance documents, such as the 1990 MOA, 1995 mitigation banking guidance, and RGL 02-2.

The 1990 MOA asserts that the purchase or preservation of existing aquatic resources may only take place in exceptional circumstances. It also states that EPA and the Corps will develop specific guidance for preservation.

The 1995 mitigation banking guidance builds on the 1990 MOA by stating that credit will be given when preservation is implemented in conjunction with restoration, creation, or enhancement activities and when it is demonstrated that preservation augments functions of the restored, created or enhanced aquatic resources. The banking guidance states that preservation may only be used as the sole basis for generating credits in banks in exceptional circumstances. The guidance instructs that, when attempting to determine if preservation is an appropriate mitigation option, one should consider if the preservation of the aquatic resource’s physical and/or biological functions is important to the region and if there is a demonstrable threat of loss or substantial degradation, or, when “clear evidence of destructive land use changes which are consistent with local and regional land use trends and are not the consequences of actions under the control of the bank sponsor.”

Regulatory Guidance Letter 02-2 specifies that watershed and ecosystem approaches should be used when determining compensatory mitigation requirements. Protection, maintenance, or preservation should be carried out to remove a threat to, or prevent the decline of, wetland conditions by an action in or near a wetland. RGL 02-2 reiterates the section of the 1995 banking guidance that states that credit will be given for preservation only when it is done in conjunction with restoration, creation, or enhancement activities, and when it is demonstrated that preservation augments functions of the restored, created, or enhanced aquatic resources. It also reiterates that preservation can only be used as the sole basis for generating credits in banks in exceptional circumstances.

At the 2003 stakeholder forum, the MAP Workgroup had not yet started drafting the preservation guidance. At the forum, the MAP Workgroup solicited input from stakeholders on what should be included in the guidance. Stakeholders expressed concern that the guidance would lead to a net loss of acres and functions and that the significance of preserved resources would be lessened. Stakeholders stated that the agencies would need to articulate how regulators would evaluate the reality of “threats” posed to aquatic resources and that determining what is “at-risk” would need to be evaluated on a regional or watershed basis. Stakeholders asked about developing ratios and evaluating functional lift, and how the agencies would assign credits for preservation. Finally, they asked if the guidance would clarify whether agencies should give a preference to restoration, enhancement, and creation over preservation.

The 2003 stakeholder forum also raised some questions and issues. For example: Does overlapping protection really protect? Does it protect public lands? What about the supplanting of public lands acquisition? What are the allowable uses of protected wetlands? Should they only be used in excess of no net loss? Should they be used rarely, i.e. for threatened unique resources? Are substantial buffers needed? These questions are addressed in the draft 2004 preservation guidance.

The draft 2004 preservation guidance relies on the definitions for “protection/maintenance (preservation),” and “demonstrable threat” found in RGL 02-2. This draft guidance also includes additional recommendations beyond those found in the 1995 banking guidance and RGL 02-2. The guidance states that preservation should “generally only be considered as a compensatory mitigation component when the preserved resources will demonstrably augment or be integral in sustaining the functions of newly established, restored, or enhanced aquatic resources.” Preserved resources need not be contiguous and may serve to augment the protection of associated functions within a region.

The draft preservation guidance also discusses the use of preservation as the sole method of compensation. It states that if preservation is the sole method of compensation, the site in question must: 1) “perform regionally important physical, chemical, and/or biological functions and 2) be “under demonstrable threat of loss or substantial degradation.” Sites that perform regionally important functions may include those that are adjacent to or connect regionally important public lands. They can be specially designated aquatic areas or old growth/climax communities with unique habitat structural complexity likely to support rare native plants or animals. The sites may also be those that include habitat for listed species or are those identified as Source Water Protected Areas.

When preservation is used as the sole method of compensation to protect resources that are under a demonstrable threat of degradation or loss, the threat may not be the consequence of actions under the control of the applicant. In such cases it is crucial to examine the extent of potential adverse impacts or losses, the source and seriousness of the threat, and whether or not it is an aquatic resource protected by current rules and regulations.

The draft preservation guidance also includes general guidelines for selecting appropriate areas for preservation, either as a component of compensatory mitigation or as the sole method of compensation. The guidance recommends considering watershed objectives, targeting lands that have been identified in land acquisition and conservation programs, and

protecting lands in or adjacent to areas of national, state, or regional ecological significance. Sites may also provide connectivity to other systems and take advantage of refuges, buffers, and other green spaces. Furthermore, the guidance suggests that preservation sites may include those that are considered difficult to acquire or unlikely to be preserved by federal, state, or local acquisition programs.

Finally, the guidance addresses how compensatory mitigation credit should be granted for preservation. Since preservation does not directly replace aquatic resource areas or functions, the amount of compensation credit given for preservation activities may be less than that for other forms of mitigation. When evaluating the amount of compensation credit, the following should be considered: a) the extent of probable adverse impact; b) the value of hydrological relationships between preserved wetlands, other surface waters, and uplands; c) the proximity to areas of ecological importance; d) the ability of the parcel to provide connectivity; and e) its ability to meet watershed objectives.

A holistic watershed plan is the best tool for planning the appropriate form of compensatory mitigation. In the absence of such a plan, a watershed-based approach should be used because it takes into account a wide range of factors. The MAP Workgroup is currently developing guidance on making compensatory mitigation decisions in a watershed context that complements the other MAP guidance documents, including the draft preservation guidance.

---

### Questions and Facilitated Discussion:

The guidance should explicitly state that upland preservation is an option (with qualifiers) and that connections can be uplands. Connections should not have to be anchored by a mitigation site. Perhaps the guidance should discuss the benefits that wetlands provide in connecting two water bodies. It is important to preserve sites now. We should assume that these sites can be targeted for restoration later (Hull).

Ross responded that upland preservation is important to meet watershed goals and should be a part of the watershed approach. Uplands are less expensive than aquatic lands. However, uplands will not be preserved if there are no incentives or requirements for their protection.

Wood stated that the preservation guidance should be flexible and preservation should be allowed if it is determined to be the most environmentally preferable mitigation option. Gonzalez agreed and said that the guidance should allow flexibility in acquiring uplands within a mosaic or as a connection between wetlands/systems/complexes. Uplands have a preservation value. Without the surrounding uplands, protecting wetlands is difficult if not impossible (S. Gonzalez). Connelly pointed out that flexibility should not lead to the degradation of resources.

Caves asked if this guidance requires the protection of preservation sites in perpetuity. Hough responded that the guidance does state that “Preservation parcels should be permanently protected with appropriate real estate instruments,” but perhaps that could be stressed more clearly (Hough).

Forum participants discussed language in the guidance that states demonstrable threat must be “based on clear evidence of destructive land use changes that are *not the consequences of actions under the permit applicant’s control*.” However, the developer is often offering high value property. In reality, the applicant is forfeiting this land and should possibly receive preservation credit (Hull). Several

participants recommended removing this test of demonstrable threat. Morse agreed, stating that the land should be available for preservation even when the threat is under the applicant’s control. The guidance should also clarify that threats are not only due to anthropogenic factors, and should include an understanding that preservation could protect against natural threats such as erosion (Ardoin). It is important to avoid a situation where development threats lead to the approval of more preservation. Allowing preservation when the developer controls a threat may lead to more perceived threats and more approvals. Exceptions to this are the preservation of high quality, rare, or DTR lands under the applicant’s control (Mann).

Furthermore, the guidance does not distinguish between those sites that can be mitigated and those that cannot. When looking for potential adverse impacts, the difference between these two should be considered (Hull). Hull proposed allowing for the acquisition of non-jurisdictional wetlands, or at least considering the impacts to non-jurisdictional wetlands. For example, if an applicant comes in with a plan for a 3-acre impact to jurisdictional waters and a 1-acre impact to non-jurisdictional waters, regulators should take into consideration the fact that minimizing jurisdictional impact may lead to the increased destruction of non-jurisdictional waters.

A participant noted that it is important that the guidance includes criteria for preservation as the sole method and that the crediting section refers to the consideration of watershed objectives. However, Section A of the guidance should also address preservation as a component of watershed objectives (Klimek).

The guidance should require permanent protection for all preservation projects. The Sierra Club supports preservation where a watershed plan exists and only in conjunction with other forms of mitigation, such as restoration (Mann). Morse disagreed, stating that mitigation should not have to include other forms of compensation because the no net loss goal is programmatic, not project specific. Preservation puts the no net loss policy at risk. It should be used only in addition to the minimum 1:1 ratio (Denisoff).

The third bullet of Section III(C) is misleading. It discusses “large contiguous land areas,” but does not consider the complexities of smaller wetlands consolidated in certain areas. Preserving “large contiguous” land areas could be contrary to a watershed approach (Mann).

Preservation credits should be limited to aquatic resources, not uplands. Carter expressed concern that money for land acquisition is drying up. Wetland mitigation funds should not be used to replace land acquisition programs. In general, the guidance should be linked more to §404(b)(1) guidelines (Carter).

The language on permanent protection is stronger in the preservation guidance than in the DTR guidance. Nonetheless, some improvements can be made. In Section III(B)(1), the second bullet’s reference to essential fish habitat (EFH) is too broad. Not all EFH would be a good candidate for preservation and, therefore, it is misleading. Perhaps it would be better to change EFH to Habitat Areas of Particular Concern. EFH should not apply to the entire coast, but should rather be limited to special areas (Connolly).

The guidance neglects to consider how much wetland resources remain in an area. Michigan’s Upper Peninsula is one half wetlands and therefore a difficult area in which to find mitigation sites. This is a case where preservation makes the most sense. The guidance should address this idea and help states clarify what is appropriate, as well as what to do where there are a high percentage of wetlands combined with a low percentage of historical loss. In general, preservation should be considered in areas with a high percentage of wetlands, low percentage of loss, and few restoration options (Bostwick). Ryan responded that one should consider opportunities for enhancement before jumping to preservation (Ryan).

Murillo recommended the guidance include provisions for monitoring. However, there was a concern that the “sole method” language will lead to higher rates of preservation, lower rates of establishment and restoration and, therefore, a net loss of wetlands. Murillo also expressed concern over how “exceptional circumstances” will be defined. A large portion of Los Angeles’ wetlands would be considered exceptional. Allowing a lot of preservation

in this large area could result in net loss. The guidance should clarify whether or not exceptional circumstances include areas where there is a high percentage of permit approvals. Murillo added that a high percentage permit approval could be argued to equal an exceptional threat. Ross commented that the manner in which exceptional circumstance is defined in the RGL and in the preservation guidance is a big jump that facilitates the use of preservation.

The first bullet of Section III (D) also needs clarification. The guidance should clarify whether or not full credits can be given to *SWANCC* wetlands located in a mitigation bank site (Hart). Trott responded that credits could be assigned in such circumstances.

The §404 program rarely denies permits. Even though regulators are concerned about property rights issues, avoidance and denial should be considered more acceptable options. This fact, coupled with the consideration of preservation, will increase the monetary value of wetlands as wetlands (Gardner).

Bersok expressed concern that the guidance does not address management plans. Perhaps this could be included under Section III(D). Legal means may not be enough for the protection of functions.

There are often enhancement opportunities in areas with a high percentage of wetlands. The *SWANCC* bank justifies those resources as jurisdictional. Ryan asked if when *SWANCC* banks create non-jurisdictional waters, they must voluntarily relinquish jurisdiction over the wetlands in the bank (Ryan). Other participants had mixed responses.

---

## VEGETATED BUFFER GUIDANCE

**Steve Martin, U.S. Army Corps of Engineers**

The draft guidance defines a buffer as an upland and/or riparian area that protects aquatic resource functions at mitigation sites from disturbances or adjacent land uses. A riparian area is defined as the transitional area between terrestrial and aquatic ecosystems that connects aquatic ecosystems with adjacent uplands through surface and subsurface hydrology. These areas are usually found adjacent to streams, rivers, lakes, and estuarine-marine shorelines.

Riparian areas and buffers can enhance or provide the following functions: sediment removal and erosion control, excess nutrient and metal removal, stormwater runoff moderation, water temperature moderation, habitat diversity, and reduction of human impacts on aquatic resources.

Existing guidance that addresses vegetated buffers includes the 2000 Nationwide Permits and the Corps Regulatory Guidance Letter 02-2.

The vegetated buffer guidance includes recommendations for designing buffers. Mitigation plans should include buffers when it is necessary to protect aquatic resource functions at a mitigation site from disturbance or adjoining land use. Their primary function is to protect the integrity of a mitigation site. Required buffer widths vary based on the targeted functions. For example, a buffer width of 50-100 feet is recommended for water quality and 95-330+ feet to maintain wildlife habitat.

The "Buffer Design Considerations" section of the guidance may be revised. It might be more appropriate to say buffers are valuable when it is necessary to protect the quality, sensitivity, or functions of aquatic resources from disturbance or adjoining land use. A more suitable primary function may be to protect and enhance the integrity of the aquatic resource. Width requirements would be the minimum width necessary to perform the targeted function.

When deciding the proper buffer width, it is important to consider adjacent land use, type of aquatic resource, size and shape of the resource to be protected or enhanced, soil conditions, slope, and vegetation.

It is appropriate to assign credit for riparian areas and buffers to the extent that they enhance aquatic resource function and the function of the mitigation site or other aquatic resources in the watershed. Credits should be granted if they are best for the aquatic environment on a watershed basis, and if the associated aquatic resources 1) perform important functions to the region and 2) are under demonstrable threat of loss or degradation. Credits may be limited if they are compromised or provide questionable protection due to width, shape, condition, or other factors.

---

### Questions and Facilitated Discussion:

Denisoff voiced concern over the specific recommended buffer widths in Section III(A). He suggested not using numerical values because the field staff may interpret them too literally. He suggested that it may be more appropriate to include a table in an appendix. Denisoff added that the third bullet of Section III(A) is unnecessary. Morse disagreed and said the table will not provide adequate guidance since the range is so large. The literature review table should be dropped and the ranges kept in the text. The first bullet of Section III(A) should include "future land use" (Morse). Murillo agreed and said low impact land use can be changed to high impact if buffers are not present. Reisinger added that the riparian buffer width (Section III(A)) should be determined by width, length, and connection.

There was significant discussion on crediting buffers. Klimek asked what additional credits might be given if mitigation goes beyond what is required. Martin responded that quantitative credits could be offered, for example, ten to twenty percent of the value of the buffer. This could be specified in Section III(B) of the guidance. However, Mann felt that because buffers are necessary for success, they should not be credited. Mogensen responded by stating that there is no current requirement to include buffers in mitigation projects. They are only included if the

Corps requires them or credit is offered. Consequently, a formulaic approach is necessary. For example, if an applicant provides a 30-foot buffer on each side of a stream they could receive a mitigation ratio of 10:1. If the plan includes some preservation and a buffer, the ration may be 8:1, and so on. He added that wetland and stream buffers need to be considered separately. Mann commented that because buffers depend on wetland type and landscape criteria, a formulaic approach is not appropriate. One should look at the wetland type rather than its size. It is important that Section III states that the primary function of a buffer is to protect the mitigation site.

The discussion of buffer widths continued. White stated that current regulations and guidance do not give the Corps clear authority to require buffers. It is difficult to get an applicant to include buffers because they know that although national regulations provide clear authority for requiring open water buffers, the authority is not as strong for buffering isolated mitigation areas. Credit should be provided for buffers, even if only indirectly by assigning lower mitigation ratios (White). Hausmann suggested looking at nonpoint source and stormwater programs because they have had significant experience with requiring buffers.

There was agreement that buffer widths should be based on the functions they are designed to protect (White, Morse), and that the widths should be determined on a case-by-case basis. There was also agreement that the guidance is unclear on what is required and what will receive credit. Homebuilders will definitely want credit for buffers (Morse).

Hull suggested that credit should be applied when the buffer is wider than the required width. In this case, the guidance would need “added value” language. Parsons added that if credits are to be applied to a buffer, the buffer should provide a demonstrable lift in functions. Furthermore, monitoring should ensure that buffers perform their intended functions (i.e., protection against demonstrable threat).

There was some confusion about the definitions of upland and riparian areas. The definition of riparian areas suggests that an upland bridge between wetland areas would be a riparian buffer. What the

Southwest Florida Water Management District refers to as “uplands,” the guidance refers to as “riparian” (Hull).

The guidance is also unclear on whether credit should be provided for preservation or establishment of buffers. It should clarify whether or not credit will be assigned for the preservation of existing buffers or only as limited to Section B, paragraph two, which discusses “establishment of buffers.” The current version of the guidance only applies to establishment, rather than protection of existing buffers (Carter).

The first sentence of Section III(B) is confusing, particularly the phrase “under limited circumstances” (Redmond). Denisoff also felt that the second paragraph of Section III(B), beginning with “In making this determination...1) perform...; and 2) are under...” should not have the “and.” He suggested changing it to an “or” or deleting number 2 in its entirety.

Redmond asked how the buffer guidance differs from the preservation guidance. The buffer guidance needs to clarify what it means by “enhance.” She added that the design considerations are appropriate.

The guidance over-emphasizes water quality as opposed to habitat functions. For an example, the third bullet of Section III states that credit for buffers should be built into the habitat assessment method (Cooper).

Denisoff asked why Section IV is necessary. The watershed approach is enough. We do not need a holistic watershed plan.

## SESSION III: Future Action Items

### WATERSHED CONTEXT GUIDANCE

**Bob Brumbaugh, U.S. Army Corps of Engineers**  
**Palmer Hough, U.S. Environmental Protection Agency**

There have been many reports highlighting the need for a watershed approach to compensatory mitigation. The 1995 Federal Banking Guidance encouraged a watershed-based approach to making mitigation banking decisions. The 2001 NRC report, “Compensating for Wetland Losses Under the Clean Water Act,” recommended a watershed approach to improve permit decision-making. The U.S. Army Corps of Engineers’ Regulatory Guidance Letter 02-2 echoed this recommendation, instructing districts to “use watershed and ecosystem approaches when determining compensatory mitigation approaches” and “consider the resource needs of the watershed where impacts will occur, and also consider the resource needs of neighboring watersheds.”

The 2001 NRC report maintains that site selection for wetland conservation and mitigation should be conducted on a watershed scale in order to maintain wetland diversity, connectivity, and appropriate proportions of upland and wetland systems needed to enhance the long-term stability of wetland and riparian systems. Regional watershed evaluation should greatly enhance the protection of wetlands and/or the creation of wetland corridors that mimic natural distributions of wetlands in the landscape.

The 2001 NRC report outlines some important aspects of a watershed approach. A watershed approach is the structured consideration of wetland type, function, and location. It involves collaboration within the region and integration with other programs. It must be emphasized that a watershed plan is not necessary for making compensatory mitigation decisions in a watershed context. Developing a watershed plan may be impractical in many regions.

The MAP lists several action items for integrating compensatory mitigation into a watershed context:

- Develop guidance on the use of on-site versus off-site and in-kind versus out-of-kind compensatory mitigation (by the end of 2003)
- Develop guidance on the use of vegetated buffers as a potential component of compensatory mitigation (by 2004)
- Develop guidance on the appropriate use of preservation for compensatory mitigation (by 2004)
- Building on the guidance above, analyze the use of compensatory mitigation within a watershed context and identify criteria for making compensatory mitigation decisions in this context (by 2005)

The MAP charges the agencies to “develop guidance to encourage placement of mitigation where it would have the greatest benefit and probability for long-term sustainability.” This guidance, in turn, “will help decision-makers utilize the watershed-based planning tools/ resources already developed.”

The *National Symposium on Compensatory Mitigation and the Watershed Approach*, held in May 2004 in Washington, D.C., was designed to provide the MAP Workgroup with direction and input on the development of watershed guidance. Details of this symposium can be found at: <<http://www.eli.org/research/watershedsymposium.htm>>.

The desired outcomes of the symposium were to

- Identify and clarify what the science says about making compensatory decisions in a watershed context;
- Examine existing watershed-based tools, resources, and case examples of use in a regulatory context;
- Identify the most important criteria used by existing watershed-based planning tools and resources to analyze priorities and restoration options; and
- Clarify the “Logical Steps” of a watershed-based approach to compensatory mitigation.

---

### ***What the Science Says About Making Compensatory Decisions in a Watershed Context***

---

Preliminary research conducted by ELI and the discussions that took place at the 2 1/2-day symposium established several important considerations for making compensatory mitigation decisions in a watershed context. These considerations include: defining critical issues and objectives; determining the appropriate scale, i.e. watersheds or eco-regions; understanding watershed/landscape functions; conducting watershed/landscape assessments to determine how the landscape works; and establishing what are the current conditions, what happened in the past, what are future trends and, therefore, how sensitive the ecosystem is to future land management.

The above information will help decision-makers assess the importance of an individual wetland to overall hydrologic functions, thus helping to prioritize potential mitigation/restoration sites in a watershed context.

### ***Relevant Case Studies***

---

As part of the Watershed Symposium, the MAP Workgroup also reviewed case studies of watershed-based tools and resources that are being used in a regulatory context. Individuals involved in these efforts were invited to participate in the Watershed Symposium, including experts involved in the development of the Southern California Special Area Management Plans and the Advanced Identification study conducted in Blackberry Creek, Illinois. For the Southern California SAMPs, researchers are using GIS to examine the ecologic integrity of riparian ecosystems and restoration potential. The Blackberry Creek project uses GIS to conduct hydrologic simulation and alternative futures analysis.

### ***Criteria Used to Analyze Priorities and Restoration Options***

---

Another symposium objective was to identify criteria used by existing watershed-based planning tools. The symposium participants felt that the appropriate criteria will depend on scale and that rather than being prescriptive, the MAP Workgroup should develop flexible categories of criteria. When analyzing priorities and restoration options, ecological factors such as site and landscape condition should be

considered. Social and logistical factors such as site and community constraints must also be considered.

### ***The "Logical Steps" of a Watershed-based Approach to Compensatory Mitigation***

---

In preparation for the symposium, the MAP Workgroup offered participants five proposed "logical steps" to a watershed-based approach to compensatory mitigation for further consideration. These included:

- Landscape assessment
- Historic assessment
- Assessment of remaining resources
- Analysis of priorities and restoration options
- Determination of where, when and how much aquatic resources to be restored

At the May 2004 watershed symposium, these logical steps were modified. The participants suggested that the following steps would more effectively meet the MAP Workgroup's objectives:

- Identification of issues, goals, and objectives
- Inventory and assessment of the historic, current, and expected future conditions
- Establishment of desired future outcomes and references
- Analysis of opportunities and constraints
- Determination of priorities and recommendations
- Development of an ongoing implementation plan, monitoring and assessment provisions, feedback and adaptive management, and financing and data management details

Each of these steps includes collaboration with stakeholders and integration with other related programs, such as water quality and the threatened and endangered species programs.

In summary, the primary objective of the watershed context guidance is to provide a "logic" for regulators and to stimulate mitigation providers to use existing watershed information and assessment tools. Its secondary objective is to encourage watershed planners to include analysis that supports mitigation site selection. The scale of analysis should be related to the functions lost or impacted. A true watershed approach should include the use of GIS data and tools. It should also follow the MAP's watershed approach, RGL and district mitigation guidelines, and be integrated with ORM/GIS.

## Questions and Facilitated Discussion

There is a need to reconcile landscape priorities with land acquisition priorities. Another problem is that mitigation bankers find appropriate sites, but long-term management is not available if the agencies are not interested (Ryan).

A specific issue in Georgia involves the availability of land and opportunities for acquisition. One obstacle to watershed planning is that in order to relocate mitigation offsite or to a mitigation bank, property must be available from a willing seller. Public agencies will never be able to manage mitigation banks. It remains to be seen how agencies will ensure the long-term stability of private land. In addition, the obligation to consider on-site mitigation is a constraint for state agencies (Parsons).

Johnson responded that on the west coast, third parties such as NGOs often accept the long-term ownership of mitigation sites. Hough agreed that this is a constructive approach, but said the federal agencies needed to conduct more outreach to propagate these types of ideas and options. In regards to constraints, watershed partnerships need to go beyond state boundaries. Opportunities for lands trusts should be advertised (Johnson). Another participant agreed and said it is important to build the capacity of land trusts for becoming long-term stewards of mitigation sites. Land trusts could use some assistance in finding third party participants. Perhaps the Land Trust Alliance should be involved (Eckenrod).

Watershed planning has been around for a long time. The Association of State Wetland Managers is completing its own report on watershed planning, which seeks to characterize different types of watershed plans. Two major categories have been identified: 1) rural watershed plans, which are usually habitat based, and 2) urban watershed plans, which usually have multiple objectives (including stormwater control, etc.). Urban watershed plans generally fail to include habitat considerations because the systems are highly engineered and

hydrology changes rapidly. These plans are usually unsuccessful. Much of the permitting happens in these areas and, therefore, this is where protection is most needed (Christie). Eckenrod disagreed, stating that National Estuary Programs (NEP) do have a habitat focus.

Watershed planning should be conducted at the regional level rather than the field level. It is difficult to carry out watershed planning at the field level of the 404 Program. Watershed planning reverts to water quality and quantity. The MAP watershed context guidance should consider referring to wetland watershed planning (Cooper).

The watershed framework may not be applicable for small project developers (Morse). Morse asked who is responsible for doing watershed analyses in these cases. Martin replied that the responsibility for identifying mitigation sites does not fall on the permittee. Watershed planning needs to provide a range of options. At present it seems to be focused on water quality and quantity (Morse).

It is necessary to consider scale and physiographic provinces when discussing a watershed. Scale needs to be linked to functions that are lost at the site-specific level. Otherwise, functions are moved to where the land is cheap (Evans). Permittees should be able to mitigate functions separately (Easley). Norris responded that if the mitigation guidance is driven by watershed needs, care should be taken to ensure that the guidance does not facilitate the fragmentation of functions. Headwater protection needs to remain the primary focus of a watershed approach (Norris).

Florida recently completed a study on the cumulative effects of mitigation. The researchers quickly threw out watershed boundaries and instead the assessment boundaries focused on resource parameters. In order to evaluate ecological considerations, it may be necessary to expand the scale (Easley). Linkous responded that an ecological perspective must be incorporated into the watershed approach.

The range of comments during this session is an indication of the complexity of the watershed approach. Watershed planning efforts fall along a continuum, which on one end includes very detailed and well-funded plans and on the other end includes plans that rely upon the input of citizen groups. The

challenge is to develop guidance that will use the watershed context with or without a detailed watershed plan in place. The role of the federal government does not include planning on private or non-federal land, therefore, partnerships are very important. The MAP Workgroup needs input from the forum participants to help define this process (Nadeau).

In response to Nadeau's request for input, White stated that additional partnerships with state and local agencies would be helpful. Also, more proactive planning, such as pre-application meetings, would help improve permitting predictability. Off-site/out-of-kind guidance is a positive step away from the 1990 MOA, but this guidance needs to be integrated into the watershed approach. The watershed guidance should recommend the use of General Permits, which are the best tools for prioritizing mitigation areas and actions. Finally, there should be more focus on shaping the environment, not the project. Agencies focus too much on minimization, rather than defining the environment or identifying priority areas for mitigation, development, and other land uses. It may be necessary to reconsider the effectiveness of mitigation sequencing (White).

Parsons disagreed with White's comments about mitigation sequencing. He stated that lowering the standards for mitigation sequencing will not help meet habitat protection goals. The narrative part of water quality standards can be used to identify habitat considerations (Parsons).

Connelly expressed concern about the timing of the watershed guidance in relation to the other guidance documents. The buffer, DTR, preservation, and site-kind guidance documents rely on the watershed approach, yet this will be the last guidance document released. She added that the MAP is not paying attention to the long-term objective.

Klimek asked how flexibility fits into the watershed approach. She asked if the guidance would address crediting incentives for actions carried out in the watershed context. Guidance should include specifications on functional units, such as acres and miles, as well as flexibility (Klimek).

The watershed should be considered in context. There is no need for a formal plan, which takes time to develop. The phrase watershed "plan" is in many of the documents, but it should be "context." Furthermore, the mitigation priorities identified in the guidance should be recommended, not required. Planning should include ecosystem considerations. Finally, too often the government provides tools and recommendations and then tries to regulate, which is counterproductive (Denisoff).

Regulators should use de facto tools rather than create new ones, i.e. recovery plans (Martin). The best incentives are credits (Ross). The guidance should outline a general framework but allow the flexibility for states to try and address local objectives. An excellent model is Florida's achievements with the Uniform Mitigation Assessment Method (UMAM). UMAM assigns credits based on a variety of considerations such as the locale of the mitigation in the watershed. This example needs to be examined more closely. Finally, the guidance should caution against providing mitigation credit for engineered stormwater treatment (Bostwick).

---

## PERFORMANCE STANDARDS GUIDANCE

**Bob Brumbaugh, U.S. Army Corps of Engineers**

**Steven Martin, U.S. Army Corps of Engineers**

---

Performance standards consist of criteria used to determine a project's attainment of specific structural or functional goals as intended by design (Wetland Engineering Handbook 2000). The 2001 NRC report defines performance standards as "measures of wetland structure or type or a functional assessment score." The Model Mitigation Plan Checklist of 2003 describes them as "clear, precise, quantifiable parameters that can be used to evaluate the status of desired functions." Mitigation performance standards need to assure ecologically sustainable outcomes and be enforceable.

Examples of mitigation performance standards include specific hydrologic, soil, and vegetation conditions, percentage of vegetation cover, plant species survival, slope, sinuosity, bankfull width, percent cover of invasive species, and specific aquatic invertebrate taxa.

The 2001 NRC report listed several concerns with current mitigation practices. These include failure to construct/complete mitigation, unclear permit requirements, failure to satisfy permit conditions, failure to offset impact acreage/function, superficial description of intended functions, and lack of legal and financial mechanisms to ensure completion and protection.

The report also concluded that performance standards are often not included in permit/banking documents, are not measurable/observable, are often vague and unenforceable, and can be narrowly focused on vegetation.

The MAP Workgroup plans to use existing research on biological indicators/functional assessments to evaluate performance standards. The Workgroup will solicit and consider feedback from stakeholders and regulators and will clarify key concepts related to performance standards. Based on this analysis, the Workgroup will develop performance standards and monitoring/adaptive management guidance for mitigation sites by 2005.

Performance standards have several constraints. To be effective, they must be measurable, observable, repeatable, enforceable, cost-effective, and contain

direct and uncomplicated measures.

The MAP Workgroup has developed a framework that acknowledges different types of performance standards. These include administrative standards, physical and ecological standards, and adaptive management standards. Administrative performance standards consist of financial assurances, site protection, assignment of responsibility, construction schedules, monitoring, maintenance, and long-term management.

Physical and ecological standards are comprised of structural components and community or functional performance components. Structural components include site descriptions, hydrology, soils, vegetation, and stream characteristics. Community or functional components seek to address whether specific community objectives have been met and functions performed. These components are used to analyze indicators of biological and functional attainment.

Adaptive management standards are important because wetlands are complex and dynamic systems. The ability to predict a response is limited, as are available resources. It is difficult to know if the best results will be achieved by focusing on function, community, or process. There is a clear need for sustainable mitigation in the face of such uncertainty. Adaptive management standards involve a comprehensive feedback process that entails three steps: 1) monitor site and implementation, 2) analyze outcomes, and 3) incorporate results into future actions. These standards encourage experimentation, link administrative and physical/ecological standards, and increase the likelihood of sustainability.

---

### Questions and Facilitated Discussion

Redmond suggested that the MAP Workgroup consider looking at functional feeding guilds, such as avian populations based on structure, in combination with the Wetland Evaluation Technique functional assessment technique. She also supported the use of best professional judgment. Vegetated performance standards warrant further study. She stated that if additional funding is available for compliance enforcement, performance standards become even more necessary.

Johnson asked if the MAP Workgroup had solicited stakeholders for information on existing performance

standards. He recommended looking to the districts to see if they have constructive examples of performance standards, biological indicators, and reference sites. He added that EPA funded a water management district study on compliance with permit conditions. The study requires one more year of research before it can be completed.

Mogensen expressed concern about relying upon pristine reference sites when assessing mitigation requirements for impacts to degraded systems. Morse responded that reference sites should represent the expected conditions. Parsons commented that appropriate ecological models should be utilized. Wood suggested that the MAP Workgroup examine the Ohio Water Quality Standards as possible performance standards, as they are based on the expected condition.

Wildlife usage of a wetland may not always correlate with the status of that wetland. Wildlife habitat usage should be evaluated and monitored as a routine part of functional analysis (Barnett). Performance standards must include a full description of baseline conditions (Parsons).

The Society for Ecological Restoration (SER) has covered many of the MAP issues independently. See the SER Primer on Ecological Restoration (<[http://www.ser.org/content/ecological\\_restoration\\_primer.asp](http://www.ser.org/content/ecological_restoration_primer.asp)>). SER will issue universal restoration standards in the next one to two months. The performance standards guidance should clearly state restoration goals, otherwise it is not possible to develop specific objectives. Without clear objectives, there is no basis for performance standards. Performance standards must be sustainable and enforceable. Often mitigation focuses on vegetation in a narrow sense, such as dominants. Vegetation standards must focus on community composition and assemblage. "Ecological function" is really referring to structure. Ecosystems should be restored for complexity, functions, and social services, not what existed there in the past. Development of performance standards must occur in the context of implementation. The USFWS reference monographs that describe aquatic resources may provide a model for developing performance standards (Clewell).

Adaptive management requirements need to appropriately specify which parties are responsible

(Morse, Reisinger). The implementation of performance standards must be discussed during the development stage. Mitigation is getting more expensive, but if risks are being minimized by the use of better performance standards, mitigation ratios should be lowered in accordance with decreased risk (Morse).

Regulatory staff need more time and training for the regular review of mitigation plans. Regional agencies must be careful about being too prescriptive and not paying enough attention to the development of performance standards (Iloff). Hausmann replied that it is better to hire experienced mitigation reviewers than to train regulators. Wisconsin decided not to train at all. Instead, they hired three additional staff people to perform only mitigation reviews (Hausmann).

It is important to identify thresholds for determining when deed restrictions are necessary for protecting mitigation sites. Reference sites are critical for developing performance standards and can be linked to domains. The monitoring and assessment process must be easy and replicable given the high turnover of staff. Mitigation should focus on environmental improvement, not replacement (Reisinger).

Reference wetlands are needed for some types of wetlands like seagrass. Sampling amphibians is not reliable because of the daily fluctuations in populations. Performance standards should be cost effective (Easley). They should be reasonable and equitable, and their achievement should be considered a success (Denisoff).

Another participant agreed with Denisoff. Performance standards are key for banks and projects. However, regulators have often implied that attaining performance standards at a mitigation bank is not adequate. Meeting performance standards should infer achieving success. When performance standards of a site-specific project are not met, the consequences are often rebuilding, recreating, starting from scratch, etc. Adaptive management should mean there is the option to buy credits at a bank if on-site mitigation fails (Ryan). The MAP Workgroup should focus on developing smarter performance standards, not more performance standards (Bersok).

---

**Kathy Trott, U.S. Army Corps of Engineers**  
**Palmer Hough, U.S. Environmental Protection Agency**

---

**H**ough stated that the MAP Workgroup is committed to improving the long-term sustainability of compensatory mitigation. The Workgroup will consider and absorb all the information from the forum.

Hough and Trott extended their thanks to the participants at the forum for all their input on the various documents and issues discussed during the three days. They recognized the Environmental Law Institute staff for organizing and facilitating the forum. The MAP Workgroup is greatly appreciative of all the feedback and input from the non-governmental organizations, regulated community, public, and state and local agencies. Hough and Trott also recognized local partners, including the Florida Department of Environmental Protection, Southwest Florida Water Management District, Tampa Bay National Estuary Program, EPA Region 4, and Stetson University.

Hough then emphasized that individuals from the agencies that serve on the MAP Workgroup were present and registered the comments of the participants. These agencies include: U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, USDA Natural Resources Conservation Service, and Federal Highway Administration.

Hough and Trott highlighted some of the major themes and issues discussed at the forum. There was a continuous focus on preservation, with advice to “buy now and restore later” due to the rising cost of property. Common concerns included how the individual guidance documents relate to each other and the existing guidance, and how they will fit together with the forthcoming guidance on compensatory mitigation and the watershed approach. The Corps is aware that they need to

specifically clarify how the documents will be integrated and not conflict with each other.

Participants emphasized the need to avoid assigning mitigation credit for actions undertaken to meet regulatory requirements of other programs. The criteria used for classifying special resources and crediting practices should be clear and publicly available (i.e., DTR, determining buffer widths, and mitigation ratios for preservation). Many stakeholders also raised concerns over constraints created by the timing limitations of the permit application review process.

There is a need for more information on, and attention paid to, the special conditions of wetlands and streams in the arid west. Participants also called for more guidance on stream mitigation and assessment.

A common theme throughout the discussions was the issue of the appropriate scale for making implementing compensatory mitigation decisions, specifically whether the ecosystem or watershed scale is more appropriate. Trott stated that the Corps would produce very clear guidance on the dynamics of the watershed approach and how they relate to ecosystems. Another common theme was the need to not undercut sequencing requirements. Participants cautioned that when the MAP Workgroup focuses on improving the third step in mitigation sequencing, compensation, they must be mindful not to undercut the first two steps.

Participants stated that long-term management issues, like stewardship endowments and site protection mechanisms, need to be clarified. Hough acknowledged that the MAP Workgroup has not done a sufficient job of articulating these issues. Participants also stated that regulators must have the flexibility to adapt guidance to meet regional needs and concerns, particularly when trying to discern the appropriate scale for watershed and/or ecoregional analysis.

Participants agreed that the MAP Workgroup's efforts to improve compensatory mitigation should be integrated with the efforts of other existing programs (i.e., nonpoint source pollution and stormwater management programs) to achieve common water

quality goals. There is also a need for “regional” MAP teams to regionalize some of the national guidance.

Several themes emerged related to ORM. Participants noted that other federal and state agencies are interested in the information in ORM. ORM should be linked up to, and be compatible with, other data management programs. Eventually, the Corps will work to allow these agencies to have access to the Corp’s website. In the future, other agencies will have the ability to comment on public notices directly on the website instead of mailing in their comments. The Corps appreciates that the regulated community is willing to help with information management and data entry. Ultimately, civil works projects, dams, locks, and ecosystem restoration projects will all coexist on the same database.

The MAP team struggles with illustrating how this new guidance will tie in with the existing guidance. They are still unclear as to how it will all fit together, and what the final format will entail so users can quickly find what they are seeking. A solution they are contemplating is an electronic mitigation directory with two chapters. One chapter would discuss mitigation from a general perspective, with an overview of the avoid, minimize, and compensate steps. A second chapter would specifically address the third step, compensatory mitigation. There could be an additional section that would be a clearinghouse for recent evaluations or studies of compensatory mitigation.

Hough and Trott concluded with soliciting written comments or suggestions on the draft documents presented at the forum. Comments should be sent to Palmer Hough at EPA. Participants should also indicate if they are interested in reviewing and commenting on future guidance and policy or in attending future stakeholder forums.

This mitigation forum was the fourth in a series sponsored by the federal agencies participating in wetland protection activities. This forum was sponsored by the federal agencies that have served on the Mitigation Action Plan Workgroup: the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, NOAA National Marine Fisheries Service, U.S. Fish and Wildlife Service, USDA Natural Resources Conservation Service, Federal Highway Administration, and the U.S. Army Corps of Engineers, Institute for Water Resources.

For more information on this and future mitigation forums, please contact:

**U.S. Army Corps of Engineers:**

Mark Sudol  
 Chief, Regulatory Branch  
 U.S. Army Corps of Engineers  
 441 G Street, NW  
 Washington, DC 20314-1000  
 Phone: (202) 761-4750  
 Fax: (202) 761-4150  
 Email: mark.f.sudol@hq02.usace.army.mil

Kathy Trott  
 U.S. Army Corps of Engineers  
 441 G Street, NW  
 Washington, DC 20314-1000  
 Phone: (202) 761-4617  
 Fax: (202) 761-4150  
 Email: Katherine.l.trott@hq02.usace.army.mil

**U.S. Environmental Protection Agency:**

John Meagher  
 U.S. Environmental Protection Agency  
 Wetlands Division (4502T)  
 1200 Pennsylvania Avenue, NW,  
 Washington, DC 20460  
 Phone: (202) 566-1374  
 Fax: (202) 566-1353  
 Email: meagher.john@epa.gov

Palmer F. Hough  
 U.S. Environmental Protection Agency  
 Wetlands Division (4502T)  
 1200 Pennsylvania Avenue, NW  
 Washington, DC 20460  
 Phone: (202) 566-1374  
 Fax: (202) 566-1375  
 E-Mail: hough.palmer@epa.gov

**NOAA National Marine Fisheries Service:**

Susan-Marie Stedman  
 NOAA National Marine Fisheries Service  
 Office of Habitat Conservation  
 1315 East-West Highway  
 Silver Spring, MD 20910  
 Phone: (301) 713-2325  
 Fax: (301) 713-1043  
 E-Mail: susan.stedman@noaa.gov

**U.S. Fish and Wildlife Service:**

Robin Nims-Elliott  
 U.S. Fish and Wildlife Service  
 4401 North Fairfax Drive  
 Arlington, VA 22203  
 Phone: (703) 358-2183  
 Fax: (703) 358-1869  
 Email: Robin\_Nimselliott@fws.gov

Jeanette Gallihugh  
 U.S. Fish and Wildlife Service  
 4401 North Fairfax Drive, Room 400  
 Arlington, VA 22203  
 Phone: (703) 358-2183  
 Fax: (703) 358-1869  
 Email: jeanette\_gallihugh@fws.gov

**USDA Natural Resources Conservation Service:**

David McKay  
 Branch Chief  
 USDA-NRCS, Watershed and Wetlands Division  
 1400 Independence Ave SW, Rm 6023S  
 Washington, DC 20013  
 Phone: (202) 720-1835  
 Fax: (202) 720-4265  
 Email: david.mckay@usda.gov

**Federal Highway Administration:**

Fred Bank  
 Federal Highway Administration  
 Office of Natural and Human Environment  
 400 7th Street, SW  
 HEPN-30  
 Washington, DC 20690  
 Phone: (202) 366-5004  
 Fax: (202) 366-3409  
 Email: fred.bank@fhwa.dot.gov

**U.S. Army Corps of Engineers, Institute for Water Resources:**

Bob Brumbaugh  
 Army Corps of Engineers CEIWR-PD  
 77 Telegraph Road, Casey Building  
 Alexandria, VA 22315-3868  
 Phone: (703) 428-7069  
 Fax: (703) 428-6124  
 Email: robert.w.brumbaugh@usace.army.mil

Additional information about this forum, including photos from the field trip on Day I, PowerPoint presentations, and links to many of the policy and technical documents discussed in this report are available through the Environmental Law Institute's website at: <<http://www.eli.org/research/wetlandsmitigationforum2004.htm>>. The Mitigation Action Plan website, which includes information on the status of action items, as well as final and draft policy documents, is: <<http://www.mitigationactionplan.gov>>. Other policy documents related to federal wetlands mitigation can be accessed through the websites of U.S. Environmental Protection Agency's Wetlands Division at: <<http://www.epa.gov/owow/wetlands>> or the Regulatory Program of the U.S. Army Corps of Engineers at: <<http://www.usace.army.mil/inet/functions/cw/cecwo/reg/index.htm>>

# FINAL AGENDA: Fourth Stakeholder Forum on Federal Wetlands Mitigation

## September 20 – 22, 2004

Stetson University, College of Law  
William Reece Smith Jr. Courtroom – First Floor  
Tampa Campus & Law Center  
1700 North Tampa Street, Tampa, Florida

### Sponsored by:

Federal Highway Administration  
Florida Department of Environmental Protection  
USDA Natural Resources Conservation Service  
NOAA National Marine Fisheries Service  
Southwest Florida Water Management District  
Stetson University, College of Law  
Tampa Bay Estuary Program  
U.S. Army Corps of Engineers  
U.S. Environmental Protection Agency  
U.S. Fish and Wildlife Service

### Objectives:

- I. Review progress on the actions set forth in the 2002 National Wetlands Mitigation Action Plan
- II. Solicit feedback on Mitigation Action Plan tasks to be completed in 2004
- III. Solicit input on future Mitigation Action Plan actions and goals for 2005

## DAY 1 – Monday, September 20, 2004

<b>8:00–8:30am</b>	<b>CONTINENTAL BREAKFAST</b> ( <i>provided</i> )
<b>8:30–12:00pm</b>	<b>Optional Field Trip</b> <i>Report to William Reece Smith Jr. Courtroom on the First Floor.</i> Transportation provided. Tour guides courtesy of Southwest Florida Water Management District.
<b>12:00–12:45pm</b>	<b>LUNCH</b> ( <i>provided</i> )
<b>12:45–1:00pm</b>	<b>WELCOME &amp; OVERVIEW</b> <ul style="list-style-type: none"> <li>• John Meagher, <i>U.S. Environmental Protection Agency</i></li> <li>• Royal Gardner, <i>Stetson University College of Law</i></li> <li>• Jessica Wilkinson, <i>Environmental Law Institute (Facilitator)</i></li> </ul>
<b>1:00–2:15pm</b>	<b>The Regional and Local Perspective</b> <ul style="list-style-type: none"> <li>■ Statewide Approaches to Linking Mitigation and Restoration Needs</li> <li>• Connie Bersok, <i>Florida Department of Environmental Protection</i></li> </ul>

<b>2:15–2:30pm</b>	<ul style="list-style-type: none"> <li>■ Use of Mitigation to Accomplish Watershed Planning Goals – A Pasco County Case Study <ul style="list-style-type: none"> <li>• Clark Hull, <i>Southwest Florida Water Management District</i></li> </ul> </li> <li>■ Creative Options for Mitigation Banking for Small Projects <ul style="list-style-type: none"> <li>• Cindy Woods, <i>U.S. Army Corps of Engineers</i></li> <li>• Ron Van Fleet, <i>Sarasota County Government</i></li> </ul> </li> </ul>
<b>2:30–2:50pm</b>	<p><b>BREAK</b></p> <p><b>SESSION I: Review of Mitigation Action Plan and Completed Action Items</b></p> <p><b>Presentation:</b></p> <ul style="list-style-type: none"> <li>■ Review of National Mitigation Action Plan and Regulatory Guidance Letter (RGL 02-2) <ul style="list-style-type: none"> <li>• Kathy Trott, <i>U.S. Army Corps of Engineers</i></li> <li>• Palmer Hough, <i>U.S. Environmental Protection Agency</i></li> </ul> </li> </ul>
<b>2:50–3:00pm</b>	<b>Questions &amp; Facilitated Discussion</b>
<b>3:00–3:40pm</b>	<p><b>Presentation: Completed Action Items</b></p> <ul style="list-style-type: none"> <li>■ Guidance on the Use of the TEA-21 Preference for Mitigation Banking to Fulfill Mitigation Requirements Under Section 404 of the Clean Water Act</li> <li>■ Grants to Improve Compensatory Mitigation <ul style="list-style-type: none"> <li>• Alex Levy, <i>Federal Highway Administration</i></li> <li>• Palmer Hough, <i>U.S. Environmental Protection Agency</i></li> </ul> </li> </ul>
<b>3:40–3:55pm</b>	<b>Questions &amp; Facilitated Discussion</b>
<b>3:55–4:10pm</b>	<b>BREAK</b>
<b>4:10–4:30pm</b>	<p><b>Presentation: Completed Action Items (Continued)</b></p> <ul style="list-style-type: none"> <li>■ Stream Mitigation Compendium Analysis of Existing Performance Standards Research <ul style="list-style-type: none"> <li>• Jeanette Gallihugh, <i>U.S. Fish and Wildlife Service</i></li> <li>• Joanne Barry, <i>U.S. Army Corps of Engineers</i></li> </ul> </li> </ul>
<b>4:30–4:45pm</b>	<b>Questions &amp; Facilitated Discussion</b>
<b>4:45–4:50pm</b>	<p><b>Summary and Wrap-Up</b></p> <ul style="list-style-type: none"> <li>• Jessica Wilkinson, <i>Environmental Law Institute (Facilitator)</i></li> </ul>
<b>4:50pm</b>	<b>ADJOURN</b>

<b>DAY 2 – Tuesday, September 21, 2004</b>		<b>DAY 3 – Wednesday, September 22, 2004</b>	
	<b>SESSION I (Continued): Review of Mitigation Action Plan and Completed Action Items</b>	1:30–2:30pm	<b>Facilitated Discussion</b>
8:00–8:30am	<b>CONTINENTAL BREAKFAST</b> ( <i>provided</i> )	2:30–2:50pm	<b>BREAK</b>
8:30–8:40am	<b>Review of Agenda</b>	2:50–3:10pm	<b>Presentation:</b>
	<ul style="list-style-type: none"> <li>• Jessica Wilkinson, <i>Environmental Law Institute (Facilitator)</i></li> </ul>		<ul style="list-style-type: none"> <li>■ Vegetated Buffer Guidance <ul style="list-style-type: none"> <li>• Steve Martin, <i>U.S. Army Corps of Engineers</i></li> </ul> </li> </ul>
8:40–8:50am	<b>Presentation:</b>	3:10–4:10pm	<b>Facilitated Discussion</b>
	<ul style="list-style-type: none"> <li>■ On Site/Off Site In-kind/Out-of-kind Guidance <ul style="list-style-type: none"> <li>• Susan-Marie Stedman, <i>NOAA Fisheries</i></li> </ul> </li> </ul>	4:10pm	<b>ADJOURN</b>
8:50–9:10am	<b>Questions &amp; Facilitated Discussion</b>	<b>DAY 3 – Wednesday, September 22, 2004</b>	
9:10–9:30am	<b>Presentation:</b>	8:00–8:30am	<b>CONTINENTAL BREAKFAST</b> ( <i>provided</i> )
	<ul style="list-style-type: none"> <li>■ Model Mitigation Checklist &amp; Incorporation of National Research Council's Guidelines into the Clean Water Act Section 404 Program (District Mitigation and Monitoring Guidelines) <ul style="list-style-type: none"> <li>• Joanne Barry, <i>U.S. Army Corps of Engineers</i></li> </ul> </li> </ul>	8:30–8:40am	<b>Review of Agenda</b>
9:30–9:50am	<b>Questions &amp; Facilitated Discussion</b>		<ul style="list-style-type: none"> <li>• Jessica Wilkinson, <i>Environmental Law Institute (Facilitator)</i></li> </ul>
9:50–10:10am	<b>BREAK</b>		<b>SESSION III: Future Action Items</b>
10:10–10:30am	<b>Presentation:</b>	8:40–9:00am	<b>Presentation:</b>
	<ul style="list-style-type: none"> <li>■ Demonstration of New §404 Database (ORM) <ul style="list-style-type: none"> <li>• Tori White, <i>U.S. Army Corps of Engineers</i></li> </ul> </li> </ul>		<ul style="list-style-type: none"> <li>■ Watershed Context Guidance <ul style="list-style-type: none"> <li>• Bob Brumbaugh, <i>U.S. Army Corps of Engineers</i></li> <li>• Palmer Hough, <i>U.S. Environmental Protection Agency</i></li> </ul> </li> </ul>
10:30–10:50am	<b>Questions &amp; Facilitated Discussion</b>	9:00–10:00am	<b>Questions &amp; Facilitated Discussion</b>
	<b>SESSION II: 2004 Draft Action Items</b>	10:00–10:20am	<b>BREAK</b>
10:50–11:10am	<b>Presentation:</b>	10:20–10:35am	<b>Presentation:</b>
	<ul style="list-style-type: none"> <li>■ Guidance for Aquatic Resources that are Difficult to Replace <ul style="list-style-type: none"> <li>• Melanie Harris, <i>NOAA Fisheries</i></li> </ul> </li> </ul>		<ul style="list-style-type: none"> <li>■ Performance Standards Guidance <ul style="list-style-type: none"> <li>• Bob Brumbaugh, <i>U.S. Army Corps of Engineers</i></li> <li>• Steven Martin, <i>U.S. Army Corps of Engineers</i></li> </ul> </li> </ul>
11:10–12:10pm	<b>Facilitated Discussion</b>	10:35–11:35am	<b>Questions &amp; Facilitated Discussion</b>
12:10–1:10pm	<b>LUNCH</b> ( <i>provided</i> )	11:35–12:20pm	<b>LUNCH</b> ( <i>provided</i> ) and Wrap Up/Closing Statements
1:10–1:30pm	<b>Presentation:</b>		<ul style="list-style-type: none"> <li>• Kathy Trott, <i>U.S. Army Corps of Engineers</i></li> <li>• Palmer Hough, <i>U.S. Environmental Protection Agency</i></li> </ul>
	<ul style="list-style-type: none"> <li>■ Preservation Guidance <ul style="list-style-type: none"> <li>• Jeanette Gallihugh, <i>U.S. Fish and Wildlife Service</i></li> <li>• Bob Brumbaugh, <i>U.S. Army Corps of Engineers</i></li> </ul> </li> </ul>	12:20pm	<b>ADJOURN</b>

# National Wetlands Mitigation Action Plan

December 24, 2002

The Bush Administration affirms its commitment to the goal of no net loss of the Nation's wetlands. The Administration is hopeful of achieving that goal and in the near future to begin increasing the overall functions and values of our wetlands through the combined efforts of the numerous governmental programs and initiatives, including the Clean Water Act, and non-regulatory wetland conservation initiatives and partnerships among federal agencies, state, tribal and local governments, and the private and not-for-profit sectors. The primary purpose of this Action Plan is to further achievement of the goal of no net loss by undertaking a series of actions to improve the ecological performance and results of wetlands compensatory mitigation under the Clean Water Act and related programs. The actions, listed below and outlined in more detail in the attached Action Plan, will help ensure effective restoration and protection of the functions and values of our Nation's wetlands, consistent with the goals of our clean water laws. The themes guiding these actions include:

- working in consultation with the Tribes, States, and interested parties to provide a consistent voice on compensatory mitigation matters;
- focusing our guidance, research, and resources to advance ecologically meaningful compensatory mitigation, informed by science;
- emphasizing accountability, monitoring, and follow-through in evaluating compensatory mitigation;
- applying the same compensatory mitigation provisions to Federal projects and on Federal lands as we do to private parties, consistent with existing laws and policies;
- providing information and options to those who need to mitigate for losses of wetlands functions; and
- providing technical and research assistance to those who undertake the work of mitigation.

An interagency team will guide the development and implementation of the following action items. Recognizing that advances in science and technology will continue to improve our ability to protect and restore the Nation's aquatic resources, some of the following action items may be modified by the team consistent with our evolving understanding of effective wetlands management.

## Clarifying Recent Mitigation Guidance

- The Army Corps of Engineers (Corps), in consultation with the Environmental Protection Agency (EPA), the Department of Agriculture (USDA), the Department of the Interior (DOI), the Federal Highway Administration (FHWA), and the National Oceanic Atmospheric Administration (NOAA), has re-evaluated its mitigation Regulatory Guidance Letter and is reissuing it to improve mitigation implementation provisions.

## Integrating Compensatory Mitigation into a Watershed Context

- The Corps and EPA, in conjunction with USDA, DOI, and NOAA, working with States and Tribes, will co-lead the development of guidance on the use of on-site vs. off-site and in-kind vs. out-of-kind compensatory mitigation by the end of 2003.
- EPA and the Corps, in conjunction with USDA, DOI, and NOAA, working with States and Tribes, will co-lead the development of guidance on the use of vegetated buffers as a potential component of compensatory mitigation by 2004.
- The Corps and EPA, in conjunction with USDA, DOI, and NOAA, working with States and Tribes, will develop guidance on the appropriate use of preservation for compensatory mitigation by 2004.
- Building on the guidance above, EPA and the Corps, working with USDA, DOI, and NOAA, will co-lead an analysis with Tribes and States on the use of compensatory mitigation within a watershed context and identify criteria for making compensatory mitigation decisions in this context by 2005.

## Improving Compensatory Mitigation Accountability

- EPA, the Corps, and the FHWA will develop guidance that clarifies implementation of the TEA-21 preference for mitigation banking in 2003.
- EPA will continue to provide financial assistance through its wetlands State grants program to encourage Tribes, States, and others to increase the success of mitigation in their jurisdictions.
- EPA and the Corps, in conjunction with USDA, DOI, and NOAA, will develop guidance by 2004 for protecting those wetlands for which mitigation, restoration, or creation is not feasible or scientifically viable.
- EPA and the Corps, in conjunction with USDA, DOI, and NOAA, will clarify considerations for mitigating impacts to streams in the Section 404 program in 2003.

## Clarifying Performance Standards

- The Corps, EPA, USDA, DOI, and NOAA, working with States and Tribes, will develop a model mitigation plan checklist for permit applicants in 2003.
- EPA and the Corps, in conjunction with USDA, DOI, and NOAA, will review and develop guidance adapting the National Academies of Sciences' National Research Council-recommended guidelines for creating or restoring self-sustaining wetlands to the Section 404 program in 2003.

- EPA will analyze existing research to determine the effectiveness of using biological indicators and functional assessments for evaluating mitigation performance in 2003.
- Building upon the biological indicators and functional assessments research, EPA, in conjunction with the Corps, USDA, DOI, and NOAA, and working with States and Tribes, will lead the development of performance standards guidance on monitoring and adaptive management of mitigation sites by 2005.
- EPA and the Corps, in conjunction with USDA, DOI, and NOAA, will clarify key concepts related to performance standards.

**Improving Data Collection and Availability**

- The Corps, EPA, USDA, DOI, and NOAA, in conjunction with States and Tribes, will compile and disseminate information regarding existing mitigation-tracking database systems in 2003.
- Building upon the analysis of existing mitigation data base systems, the Corps, EPA, USDA, DOI, and NOAA will establish a shared mitigation database by 2005.
- Utilizing the shared database, the Corps, in conjunction with EPA, USDA, DOI, and NOAA, will provide an annual public report card on compensatory mitigation to complement reporting of other wetlands programs by 2005.

The signatories or their designated representatives shall meet annually to review the progress being made regarding the implementation of the Action Plan. EPA and the Corps may invite other relevant federal agencies to participate in one or more of the action items.

This plan may be modified as necessary, by mutual written agreement of all the parties.

The participating agencies intend to fully carry out the terms of this agreement. All provisions in this agreement, however, are subject to available resources and authorities of the respective gencies under Section 404 of the Clean Water Act.

/Signed/ \_\_\_\_\_ 12/24/02  
 Les Brownlee  
 Acting Assistant Secretary for Civil Works  
 Department of the Army (Civil Works)

/Signed/ \_\_\_\_\_ 12/24/02  
 G. Tracy Mehan, III  
 Assistant Administrator for Water  
 U.S. Environmental Protection Agency

/Signed/ \_\_\_\_\_ 12/24/02  
 Scott B.Gudes  
 for Vice Admiral Conrad C. Lautenbacher, Jr.  
 U.S. Navy (ret.)  
 Undersecretary of Commerce for Oceans and Atmosphere  
 U.S. Department of Commerce

/Signed/ \_\_\_\_\_ 12/24/02  
 Lynn Scarlett  
 Assistant Secretary of Policy, Management, and Budget  
 Department of Interior

/Signed/ \_\_\_\_\_ 12/24/02  
 Mark E. Rey  
 Under Secretary for Natural Resources and the Environment  
 U.S. Department of Agriculture

/Signed/ \_\_\_\_\_ 12/24/02  
 George E. Schoener  
 for Emil H. Frankel  
 Assistant Secretary for Transportation Policy  
 U.S. Department of Transportation

# Action Plan

---

## Introduction

Several recent independent analyses and public commentaries have provided a critical evaluation of the effectiveness of compensatory mitigation for authorized losses of wetlands and other waters of the United States under Section 404 of the Clean Water Act. These analyses and commentaries highlighted a number of shortfalls and identified a variety of technical, programmatic, and policy recommendations for the Federal agencies, States, and other involved parties.

In particular, the agencies are mindful of the comprehensive evaluation of wetlands compensatory mitigation completed by the National Academies of Sciences' National Research Council (NAS) last year. This report, in addition to the General Accounting Office (GAO) report on in-lieu-fee mitigation and others recently completed, provided the basis for a broad, independently facilitated stakeholder gathering in October 2001, during which the agencies gathered feedback from those with an interest in the future of compensatory mitigation, including representatives from academia, States, mitigation bankers, in-lieu-fee mitigation providers, environmental organizations, home builders, and industry. We recognize that success in our ultimate goal is dependent on effective interactions with these stakeholders as we proceed.

## Background

The Bush Administration affirms its commitment to the goal of no net loss of the Nation's wetlands. The Administration is hopeful of achieving that goal and in the near future to begin increasing the overall functions and values of our wetlands through the combined efforts of the numerous governmental programs and initiatives, including the Clean Water Act, and non-regulatory wetland conservation initiatives and partnerships among Federal agencies, state, tribal and local governments, and the private and not-for-profit sectors. A fundamental objective of the Clean Water Act Section 404 program is that authorized losses of wetlands and other waters are offset by restored, enhanced, or created wetlands and other waters that replace those lost acres and functions and values. Importantly, the regulatory program provides first that all appropriate and practicable steps be taken to avoid impacts to wetlands and other waters, and then that remaining impacts be minimized, before determining necessary compensatory mitigation to offset remaining impacts. This mitigation sequence parallels that which is embodied in the National Environmental Policy Act governing the review of other Federal actions as well. Compliance with these mitigation sequencing requirements is an essential environmental safeguard to ensure that Clean Water Act objectives for the protection of the Nation's remaining wetlands are achieved.

Federal guidance on compensatory mitigation has been provided in several interagency documents, including the 1990 Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation under the Clean Water Act Section 404(b)(1) Guidelines (MOA). In 1995, EPA and the Department of the Army were joined by the Departments of the Interior, Commerce, and Agriculture in developing the Federal Guidance on the Establishment, Use and Operation of Mitigation Banks (Banking Guidance). In 2000, the multi-agency Federal Guidance on the Use of In-Lieu-Fee Arrangements for Compensatory Mitigation under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act (In-Lieu-Fee Guidance) was issued. These interagency efforts have helped clarify compensatory mitigation objectives, endorse entrepreneurial mechanisms to achieve mitigation goals, and guide permit applicants in developing environmentally sound and enforceable mitigation projects. It is in light of this background that the agencies outline the following specific actions to improve wetlands compensatory mitigation under the Clean Water Act and related programs.

---

## Clarifying Recent Mitigation Guidance

**The Corps, in consultation with EPA, USDA, DOI, FHWA, and NOAA, has re-evaluated its mitigation Regulatory Guidance Letter and is reissuing it to clarify mitigation implementation provisions.** The GAO noted that in some circumstances where mitigation involved third-party providers that were not mitigation bankers or in-lieu-fee providers, permits did not clearly state who was responsible for the success of the compensatory mitigation. Consistent with previous joint guidance and independent recommendations, the Corps will reissue the mitigation Regulatory Guidance Letter to clearly identify the party responsible for the ecological performance and results of the compensatory mitigation, the level of documentation necessary by applicants and mitigation providers, and other relevant implementation issues to ensure that mitigation is properly completed.

---

## Integrating Compensatory Mitigation into a Watershed Context

**The Corps and EPA, in conjunction with USDA, DOI, and NOAA, working with States and Tribes, will co-lead the development of guidance on the use of on-site vs. off-site and in-kind vs. out-of-kind compensatory mitigation by the end of 2003.** Existing guidance provides that "compensatory actions...should be undertaken, when practicable, in areas adjacent or contiguous to the discharge site (on-site compensatory mitigation)" and that "generally, in-kind compensatory mitigation is preferable to out-of-

kind.” Existing guidance provides flexibility, however, by allowing the use of off-site mitigation where it is determined to be practicable and environmentally preferable to on-site mitigation and allows use of out-of-kind mitigation in circumstances where it is environmentally desirable, in the context of consolidated mitigation. To ensure effective and consistent use of off-site and out-of-kind compensatory mitigation, the agencies will clarify, and if necessary, expand upon, existing guidance. This effort will build on existing language developed for the 1990 MOA, Federal Banking Guidance, In-Lieu-Fee Guidance, and Mitigation RGL and provide examples illustrating when it may be appropriate to use off-site and/or out-of-kind mitigation in lieu of on-site and/or in-kind mitigation.

**EPA and the Corps, in conjunction with USDA, DOI, and NOAA, working with States and Tribes, will co-lead the development of guidance on the use of vegetated buffers as a potential component of compensatory mitigation by 2004.** Lands bordering open waters (e.g., rivers, lakes, estuaries) play important roles including but not limited to maintaining water quality, providing habitat for fish and wildlife, and providing flood storage benefits. To date, limited guidance has been provided to agency field staff on the appropriate use of vegetated buffers as a component of an overall compensatory mitigation plan. To ensure appropriate and consistent use of vegetated buffers, the agencies will provide guidance to clarify the use of vegetated buffers as mitigation in the Section 404 program. This effort will utilize performance goals/standards in recommending vegetated buffers and include examples of methodologies for determining mitigation credit for vegetated buffers. This effort will draw upon buffer information compiled for the non-point/agricultural water programs and existing wetlands/forestry best management practices.

**The Corps and EPA, in conjunction with USDA, DOI, and NOAA, working with States and Tribes, will develop guidance on the appropriate use of preservation for compensatory mitigation by 2004.** Typically, the preservation of existing aquatic resources has been accepted as compensatory mitigation only in exceptional circumstances. To ensure the appropriate and consistent use of preservation as compensatory mitigation, the agencies will develop specific guidance that will clarify the exceptional circumstances described in current guidance in which preservation may serve as an effective and environmentally appropriate approach to satisfy compensatory mitigation requirements. This effort will build on existing language developed for the 1990 MOA and Federal Banking Guidance and provide examples of acceptable preservation projects.

**Building on the guidance above, EPA and the Corps, working with USDA, DOI, and NOAA, will co-lead an analysis with Tribes**

**and States on the use of compensatory mitigation within a watershed context and identify criteria for making compensatory mitigation decisions in this context by 2005.**

As a general matter, compensatory mitigation decisions are made on a case-by-case basis and often do not consider the proper placement of mitigation projects within the landscape context, the ecological needs of the watershed, and the cumulative effects of past impacts. The Federal agencies will analyze the issues associated with better use of compensatory mitigation within a watershed context, with assistance from the States and agencies. Following this analysis, the agencies will develop guidance to encourage placement of mitigation where it would have the greatest benefit and probability for long-term sustainability. The guidance will help decision-makers utilize the watershed-based planning tools/resources already developed by the agencies as well as state (Basinwide Management Approach), regional (Synoptic Assessment, Southeastern Ecological Framework), and local (watershed plans, land suitability models) watershed planning efforts. This guidance will complement other non-regulatory watershed management initiatives and partnerships.

### **Improving Compensatory Mitigation Accountability**

**EPA, the Corps, and the FHWA will develop guidance that clarifies implementation of the TEA-21 preference for mitigation banking in 2003.** The statutory preference for mitigation banking in offsetting impacts to aquatic resources and natural habitats from federally-funded highway projects has caused some confusion in circumstances where onsite mitigation opportunities are available. The agencies will clarify how the mitigation banking preference may be used to most effectively mitigate for such projects with linear and scattered impacts to wetlands.

**EPA will continue to provide financial assistance through its wetlands State grants program to encourage Tribes, States, and others to increase the success of mitigation in their jurisdictions.** EPA has identified improving wetlands ecological performance and results of compensatory mitigation as a priority, along with wetlands monitoring and assessment and the protection of vulnerable wetlands and aquatic resources. The Wetland Program Development Grants, administered by EPA, provide recipients an opportunity to conduct projects that promote coordination and accelerate research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution. Priority is given to proposals that address EPA=s priority areas, including improving the effectiveness of compensatory mitigation. EPA will announce a set of Wetland Program Development Grants for projects that support the improvement of mitigation success in

achieving wetlands performance and results, in the context of building or enhancing wetlands protection, restoration, or management programs, and will publicize the annual availability of grants for this purpose.

**EPA and the Corps, in conjunction with USDA, DOI, and NOAA, will develop guidance by 2004 for protecting those wetlands for which mitigation, restoration, or creation is not feasible or scientifically viable.** As concluded by the NAS, there are a number of aquatic resource systems for which successful re-creation or restoration has not been effectively demonstrated and therefore avoidance of impacts to these resources was strongly recommended. Certain aquatic resource types require a specific combination of plant types, soil characteristics, and water supply that are currently difficult to create. To ensure that we meet our Clean Water Act goals, the agencies will provide guidance emphasizing the protection of the Nation's wetlands resources that are difficult to restore.

**EPA and the Corps, in conjunction with USDA, DOI, and NOAA, will clarify considerations for mitigating impacts to streams in the Section 404 program in 2003.** Historically, impacts to stream systems such as filling, impoundment, and channelization, have been compensated with wetland mitigation. To date, limited guidance has been provided to agency field staff in the appropriate considerations for mitigating impacts to streams. To ensure appropriate and consistent mitigation for impacts to streams, the agencies, working with States, will clarify considerations for mitigating impacts to streams in the Section 404 program. Many agency field offices are independently developing a variety of stream assessment approaches and stream standard operating procedures (e.g., NC, SC, GA, TN, KY, MS, and AL). Also, a number of stream and stream/wetland mitigation banks have been established or are currently under review by agency field offices. These and other ongoing stream restoration training efforts will help inform development of the guidance.

### Clarifying Performance Standards

**The Corps, EPA, USDA, DOI, and NOAA, working with States and Tribes, will develop a model mitigation plan checklist for permit applicants in 2003.** The type of information needed for mitigating impacts to wetlands and other waters is often unclear to permit applicants. Taking advantage of State and Corps District examples, this effort would result in a model compensatory mitigation checklist to facilitate permit applicants providing necessary information early in the permitting process. The checklist would also allow more effective participation during public notice and help minimize delays in the permit decision-making process.

The checklist could be regionally adapted to respond to specific needs of different areas of the country. A number of mitigation checklists are currently in use by various Districts, States, and Mitigation Bank Review Teams and could be readily consulted.

**EPA and the Corps, in conjunction with USDA, DOI, and NOAA, will review and develop guidance adapting the NAS-recommended guidelines for creating or restoring self-sustaining wetlands to the Section 404 program in 2003.** The NAS proposed ten operational guidelines that would aid agency personnel and mitigation practitioners in designing projects to become ecologically self-sustaining. As stated by the NAS, to become self-sustaining, aquatic resource mitigation sites must have the proper hydrological processes present and be able to persist over time. The agencies will adapt the NAS guidelines for use in the Section 404 program. The NAS-recommended guidelines could be adapted into a series of questions (e.g., checklist) that could be made available to permit applicants and answered by regulatory staff in consultation with other resource agencies during project review.

**EPA will analyze existing research to determine the effectiveness of using biological indicators and functional assessments for evaluating mitigation performance in 2003.** Independent evaluations of mitigation raised concerns that there was an over-reliance on the use of vegetation to measure wetlands mitigation success. Biological assessments (bio-assessments) are based on the premise that the community of plants and animals living in a wetland will reflect the health of a wetland. Typically, bio-assessments evaluate wetland health and could be used in conjunction with functional assessments, which are primarily designed to inform management decisions regarding proposed impacts to wetlands and restoration of wetlands to compensate for wetland losses. EPA will lead an effort to review potential biological indicators, functional assessments, and other reference site parameters for assessing compensatory mitigation. Literature reviewed by NAS in the completion of its report and work done by the Corps and EPA to develop several assessment methodologies will serve as a starting point.

**Building upon the biological indicators and functional assessments research, EPA, in conjunction with the Corps, USDA, DOI, and NOAA, and working with States and Tribes, will lead the development of performance standards guidance on monitoring and adaptive management of mitigation sites by 2005.** Current guidance does not provide sufficient consistency regarding how to evaluate achievement of wetlands ecological performance and results, nor does current guidance establish appropriate monitoring and adaptive management activities. The GAO recommended that the agencies establish criteria for

---

evaluating performance of mitigation projects and develop and implement procedures for assessing achievement of wetlands ecological performance and results. The NAS concluded that more effective monitoring, as part of adaptive management, as well as compliance evaluations, would increase the performance of compensatory mitigation sites and allow for adaptive management. EPA will lead the effort to build upon the guidelines for maintaining self-sustaining wetlands, draw upon published approaches to performance standards, and use the results of the biological/functional assessments analysis.

**EPA and the Corps, in conjunction with USDA, DOI, and NOAA, will clarify key concepts related to performance standards.**

### **Improving Data Collection and Availability**

**The Corps, EPA, USDA, DOI, and NOAA, in conjunction with States and Tribes, will compile and disseminate information regarding existing mitigation-tracking data base systems in 2003.** The independent evaluations of mitigation highlighted a need for improved data to track mitigation. While a system currently exists to track acreages of permitted impacts and compensatory mitigation required, the lack of wetlands function information and other parameters hampers efforts to accurately measure achievement of wetlands performance goals and results. The Corps and the other Federal agencies will compile and evaluate the merits of the various mitigation-tracking data base systems in use, including the Corps' RAMS/RAMS2 data base as well as regional data bases established by agency field offices.

**Building upon the analysis of existing mitigation data base systems, the Corps, EPA, USDA, DOI, and NOAA will establish a shared mitigation database by 2005.** Based on the results of the analysis, the agencies will establish a database that can be shared with federal and state regulatory and resource agencies and the public. An interagency team is currently working on a pilot internet-based tool to assist in tracking large scale mitigation projects such as mitigation banks. This tool is being designed to manage and monitor information regarding mitigation bank credit/debit transactions, attainment of performance standards, credit release, and bank documents. The system is being designed to reside on a District's server and allow different levels of access/input for the public, bank sponsors, Corps staff, and other Mitigation Bank Review Team members.

**Utilizing the shared database, the Corps, in conjunction with EPA, USDA, DOI, and NOAA, will provide an annual public report card on compensatory mitigation to complement reporting of other wetlands programs by 2005.** The NAS reported that "the goal of no net loss of wetlands is not being met for wetland functions by the mitigation program." To ensure that the public is informed about the status of the Administration's commitment to the no net loss of wetlands goal, the Corps would lead the development of an annual public report card on the contributions of the Section 404 program to the no net loss of wetlands goal, to complement reporting of other wetlands programs. Shared databases would allow relatively easy queries regarding credit/debit transactions and the status of restoration/enhancement for mitigation projects and sites.

## National Mitigation Action Plan (MAP) Production Schedule

UPDATED by MAP Team – November, 2004

The MAP, released by EPA, the Corps, FWS, NOAA, NRCS and DOT in December 2002, commits these agencies to completing 17 tasks by the end of 2005 designed to improve the ecological performance and results of compensatory mitigation carried out under Section 404 of the Clean Water Act. The following tables summarize the

status of work on each of the action items and various stakeholder coordination efforts. To date, eight of the tasks have been completed (or are completed/ongoing), one is currently being finalized, three are undergoing external review, and work has been initiated on the five remaining tasks.

### Status of 17 MAP Action Items

ACTION ITEM	Proposed Completion Date	Status	Description
1 Regulatory Guidance Letter (RGL 02-2) revision	2002	Completed – 2002	Interagency revision of RGL 01-1, the first compensatory mitigation RGL.
2 Grants to improve mitigation	2002 +	Completed/Ongoing – 2002+	Annual grants from EPA to States, Tribes and Local governments for projects that will improve the effectiveness of compensatory mitigation.
3 Clarify terms (as needed)	N/A	Completed/Ongoing – 2003+	Terms related to mitigation site performance standards are being clarified as needed in MAP guidance and technical documents.
4 TEA-21 banking guidance	2003	Completed – 2003	This document provides guidance to the field on implementing the TEA-21 preference for mitigation banking consistent with the CWA 404 Program.
5 Model mitigation checklist	2003	Completed – 2003	This document serves as a technical guide for permit applicants preparing mitigation plans. It identifies the types and extent of information that agency personnel need to assess the likelihood of success of a mitigation proposal.
6 Adapt NAS-guidelines to 404 program	2003	Completed – 2003	This document adapts the NAS 2001 Guidelines for Creating and Restoring Self-Sustaining Wetlands into the 404 program.
7 Analysis of existing performance standard research and literature	2003	Completed – 2004	This technical report summarizes the status of peer-reviewed literature related to biotic and abiotic mitigation site performance standards (200+ pages).
8 Stream Mitigation Protocol Compendium	2003	Completed – 2004	A Bibliography/Compendium of Stream Mitigation Protocols intended as a reference for regulatory agencies and resource managers to consult in order to select, adapt, or devise stream assessment methods appropriate for impact assessment and mitigation of fluvial resources. (200+ pages).
9 Off-Site and Out-of-Kind guidance (Site/Kind Guidance)	2003	Finalizing for release	This document provides clarifying guidance on the circumstances when it is environmentally preferable to use off-site and/or out-of-kind compensatory mitigation.
10 Evaluate existing data bases	2003	Compiling information	This effort will compile information on existing mitigation tracking databases in Districts, States, etc.
11 Vegetated buffer guidance	2004	Preliminary draft under external review	This document will clarify the appropriate use of vegetated buffers as compensatory mitigation.
12 Preservation guidance	2004	Preliminary draft under external review	This document will clarify the use of preservation as compensatory mitigation.
13 Guidance for aquatic resources that are difficult to replace (DTR)	2004	Preliminary draft under external review	This document will provide guidance on protection and mitigation of aquatic resource types that are difficult to replace (DTR).

Status of 17 MAP Action Items (*Continued*)

ACTION ITEM	Proposed Completion Date	Status	Description
14 Watershed-context guidance	2005	Compiling information (Completed 5/04 National Symposium)	This document will provide guidance to encourage placement of mitigation where it would have the greatest benefit and probability for long-term sustainability. National Symposium website: <a href="http://www.mitigationactionplan.gov/watershed_context.html">http://www.mitigationactionplan.gov/watershed_context.html</a>
15 Performance standards guidance	2005	Compiling information	This document will provide guidance on mitigation site performance standards, monitoring and adaptive management (will build on Analysis in item #7 above).
16 Develop common, shared mitigation data base	2005	Compiling information	Corps and EPA are exploring potential modifications to ORM database to make it the national mitigation tracking system.
17 Annual mitigation report card	2005 +	Compiling information	Annual reporting functions will be built into national tracking system.

## MAP Stakeholder Coordination

ACTION ITEM	Proposed Completion Date	Status	Description
1 2003 Stakeholder Forum	7/2003	Completed – 7/2003	The Forum held in Portland, Oregon, brought together a diverse group of 60 individuals representing the regulated community, environmental organizations, academia, non-governmental organizations, and mitigation providers. The participants provided valuable feedback on completed action items and important input on future action items. Forum summary report available at: <a href="http://www.mitigationactionplan.gov/stake.html">www.mitigationactionplan.gov/stake.html</a>
2 Interagency Website	1/2004	Completed – 2/2004	( <a href="http://www.mitigationactionplan.gov">www.mitigationactionplan.gov</a> ) This interagency site is an important tool for the MAP team agencies to share information regarding MAP implementation with stakeholders and the public. The site provides information about the MAP, status of the various action items called for in the MAP, and links to completed MAP action items.
3 2004 Stakeholder Forum	9/2004	Completed – 9/2004	The Forum held in Tampa, Florida, at the Stetson University College of Law brought together a diverse group of over 80 individuals representing the regulated community, environmental organizations, academia, non-governmental organizations, and mitigation providers. The participants provided valuable feedback on completed action items and important input on future action items. A report summarizing the Forum is under development.
4 2005 Stakeholder Forum	9/2005	Planning	Planning to hold the event on September 19-21, 2005 in Madison, Wisconsin in conjunction with WDNR.

## Participant Contact Information

### Noel Ardoin

Assistant Environmental Engineer  
Louisiana Department of Transportation  
and Development  
P. O. Box 94245  
Baton Rouge, LA 70804  
Phone: (225) 242-4504  
Fax: (225) 242-4500  
Email: nardoin@dotd.louisiana.gov

### Brian S. Barnett

Director  
Office of Policy and Stakeholder  
Coordination  
Florida Fish and Wildlife Conservation  
Commission  
620 South Meridian Street  
Tallahassee, FL 32399-1600  
Phone: (850) 488-6661  
Fax: (850) 922-5679  
Email: brian.barnett@fwc.state.fl.us

### Joanne Barry

Project Manager  
U.S. Army Corps of Engineers  
441 G Street, NW  
Washington, DC 20314  
Phone: (202) 761-7763  
Fax: (202) 761 5096  
Email:  
joanne.m.barry@hq02.usace.army.mil

### Constance Bersok

Environmental Administrator  
Florida Department of Environmental  
Protection  
2600 Blair Stone Rd. MS #2500  
Tallahassee, FL 32399  
Phone: (850) 245-8479  
Fax: (850) 245-8499  
Email: Connie.Bersok@dep.state.fl.us

### Joshua Boan

State Wetland Programs Administrator  
Florida Department of Transportation  
605 Suwannee Street, MS-37  
Tallahassee, FL 32399  
Phone: (850) 410-5893  
Fax: (850) 410-5808  
Email: joshua.boan@dot.state.fl.us

### Peg Bostwick

404 Program Coordinator  
Geological and Land Management Division  
Michigan Department of Environmental  
Quality  
P.O. Box 30458  
Lansing, MI 48909  
Phone: (517) 335-3470  
Fax: (517) 241-8098  
Email: bostwicp@michigan.gov

### Doug Bransfield

Stetson University, College of Law  
2141 Ibis Dr.  
Clearwater, FL 33764  
Phone: (727) 504-4713  
Email: bransfieldd@law.stetson.edu

### Jim Brawner

Senior Environmental Specialist  
Utility Water Act Group  
700 Universe Blvd.  
Juno Beach, FL 33408  
Phone: (561) 691-7051  
Email: Jim\_Brawner@fpl.com

### Mark Brown

Environmental Scientist  
Southwest Florida Water Management  
District  
2379 Broad Street  
Brooksville, FL 34604-6899  
Phone: (352) 796-7211  
Fax: (352) 544-2328  
Email: mark.brown@swfwmd.state.fl.us

### Robert Brumbaugh

Senior Policy Analyst  
Institute for Water Resources  
U.S. Army Corps of Engineers  
7701 Telegraph Road  
Alexandria, VA 22314  
Phone: (703) 428-7069  
Fax: (703) 428-6686  
Email: robert.w.brumbaugh@usace.army.mil

### Derb Carter

Senior Attorney  
Southern Environmental Law Center  
200 W. Franklin St, Ste 330  
Chapel Hill, NC 27516  
Phone: (919) 967-1450  
Fax: (919) 929-9421  
Email: derbc@selcnc.org

### Diane Caves

Senior Analyst  
Natural Resources & Environment  
U.S. Government Accountability Office  
2635 Century Parkway, Suite 700  
Atlanta, GA 30345  
Phone: (404) 679-1925  
Fax: (404) 679-2255  
Email: cavesd@gao.gov

### Jeanne Christie

Executive Director  
Association of State Wetlands Managers  
2 Basin Rd.  
Windham, ME 04062  
Phone: (207) 892-3399  
Fax: (207) 892-3089  
Email: jeanne.christie@aswm.org

### Andre Clewell

Science and Policy Working Group  
Society for Ecological Restoration  
5351 Gulf Drive #5  
Homes Beach, FL 34217  
Phone: (941) 778-4727  
Fax: (941) 778-4721  
Email: clewell@verizon.net

### Stephen Collins

Asset Manager  
Florida Power and Light Company  
P.O. Box 14000  
Juno Beach, FL 33408  
Phone: (561) 691-2244  
Fax: (561) 691-2190  
Email: stephen\_collins@fpl.com

### Kim D. Connolly

Associate Professor and Director  
Environmental Law Clinic  
University of South Carolina, School of  
Law  
Main and Greene Streets  
Columbia, SC 29208  
Phone: (803) 777-6880  
Fax: (803) 777-3401  
Email: connolly@law.law.sc.edu

### Hildreth Cooper

U.S. Fish and Wildlife Service  
1601 Balboa Avenue  
Panama City, FL 32405  
Phone: (850) 769-0552 x221  
Fax: (850) 763-2177  
Email: hildreth\_cooper@fws.gov

**Craig Denisoff**

President

*National Mitigation Banking Association*

3855 Atherton Road

Rocklin, CA 95765

Phone: (916) 435-3555

Fax: (916) 435-3556

Email: cdenisoff@wildlandsinc.com

**Desmond Duke**

Vice President of Business Development

*Panther Island Mitigation Bank*

3215 NW 10th Terrace, Suite 209

Fort Lauderdale, FL 33309

Phone: (954) 462-1707, ext. 106

Fax: (954) 462-4131

Email: dduke@wetlandsbank.com

**Mark Easley**

Manager

Environmental Services

*URS Corporation, Southern*

7650 W. Courtney Campbell Cswy

Tampa, FL 33607-1462

Phone: (813) 636-2113

Fax: (813) 286-6587

Email: mark\_easley@urscorp.com

**Richard Eckenrod**

Executive Director

*Tampa Bay Estuary Program*

100 8th Avenue S.E.

MS I-1 / NEP

St. Petersburg, FL 33701

Phone: (727) 893 2765

Fax: (727) 893-2767

Email: reckenrod@tbep.org

**Jason Ester***Stetson University, College of Law*

1222 Fruitland Ave.

Clearwater, FL 33764

Phone: (727) 692-1250

Email: esterj@law.stetson.edu

**Rhonda Evans***U.S. Environmental Protection Agency,  
Region 4*

61 Forsyth St. SW

Atlanta, GA 30303

Phone: (404) 562-9369

Email: evans.rhonda@epa.gov

**Don Ewoldt**

President

*Wetland Banking Division*

Lake Erie Land Company &amp; NMBA

1010 Sand Creek Drive South

Chesterton, IN 46304

Phone: (219) 395-5361

Fax: (219) 395-5333

Email: don.ewoldt@lelcompany.com

**Tina Fischer***Stetson University, College of Law*

1501 Hull St. South

Gulfport, FL 33707

Phone: (727) 341-1728

Email: fischert@law.stetson.edu

**Jeanette Gallihugh**

Biologist

Branch of Federal Activities

*U.S. Fish and Wildlife Service*

4401 N. Fairfax Dr., Rm 400

Arlington, VA 22203

Phone: (703) 358-2183

Fax: (703) 358-1869

Email: jeanette\_gallihugh@fws.gov

**Royal Gardner**

Vice Dean

*Stetson University, College of Law*

1401 61st St. S.

Gulfport, FL 33707

Phone: (727) 562-7864

Fax: (727) 347-3030

Email: gardner@law.stetson.edu

**George Getsinger**

Ecologist

Habitat Conservation Division

*NOAA Fisheries*

6620 Southpoint Drive, S., Suite 310

Jacksonville, FL 32216-0958

Phone: (904) 232-2580 x138

Fax: (904) 232-1640

Email: george.getsinger@noaa.gov

**Jennifer Gonzalez***Stetson University, College of Law*

4707 N. Eddy Dr.

Tampa, FL 33603

Phone: (813) 872-7991

Email: gonzalezj@law.stetson.edu

**Shannon Gonzalez**

Senior Ecologist

*Biological Research Associates*

3910 U.S. Highway 301 S.

Tampa, FL 33603

Phone: (813) 664-4500

Fax: (813) 664-0440

Email: gonzalez@biologicalresearch.com

**Charles Harman**

Principal Ecologist

*Interstate Technology and Regulatory  
Council*

285 Davidson Ave, Suite 100

Somerset, NJ 08873

Phone: (732) 302-9500

Fax: (732) 302-9504

Email: charles.harman@amec.com

**Melanie Harris**

Marine Habitat Resource Specialist

Office of Habitat Conservation

*NOAA Fisheries*

1315 East-West Hwy, F/H2

Silver Spring, MD 20910

Phone: (301) 713-4300 x 154

Fax: (301) 713-4305

Email: melanie.harris@noaa.gov

**Thaddieus Hart**Project Manager/Environmental Protection  
Specialist*U.S. Army Corps of Engineers,**Jacksonville District*

602 N. Palm Ave

Palatka, FL 32178

Phone: (386) 325-2028

Fax: (386) 325-2029

Email:

thaddieus.l.hart@saj02.usace.army.mil

**Scott Hausmann**

Wetland Policy and Science Advisor

*Wisconsin Department of Natural**Resources*

P.O. Box 7921 (101 S. Webster St.)

Madison, WI 53707

Phone: (608) 226-7360

Fax: (608) 266-2244

Email: scott.hausmann@dnr.state.wi.us

**Robert Holbrook**

Manager  
*Wetland Technologies*  
 4080 McGinnis Ferry Rd, #1203  
 Alpharetta, GA 30005  
 Phone: (770) 541-4200  
 Fax: (770) 664-6020  
 Email: wetbob@rcionline.net

**Palmer Hough**

Environmental Scientist  
*U.S. Environmental Protection Agency  
 Wetlands Division, Mail Code 4502T*  
 1200 Pennsylvania Ave, NW  
 Washington, DC 20460  
 Phone: (202) 566-1374  
 Fax: (202) 566-1375  
 Email: hough.palmer@epa.gov

**Clark Hull**

Director  
 Environmental Resource Permitting  
 Program  
*Southwest Florida Water Management  
 District*  
 2379 Broad Street  
 Brooksville, FL 34604-6899  
 Phone: (352) 796-7211  
 Fax: (352) 544-2328  
 Email: clark.hull@swfwmd.state.fl.us

**John Iliff**

Team Leader, SE Region  
*NOAA Restoration Center*  
 9721 Executive Center Drive, N.  
 St. Petersburg, FL 33702  
 Phone: (727) 570-5713  
 Fax: (727) 570-5390  
 Email: john.iliff@noaa.gov

**Chet Janik**

Assistant Director  
 Natural Resources & Environment  
*U.S. Government Accountability Office*  
 441 G. St., NW  
 Washington, DC 20548  
 Phone: (202) 512-6508  
 Fax: (202) 512-6880  
 Email: janike@gao.gov

**Haynes Johnson**

Life Scientist  
*U.S. Environmental Protection Agency,  
 Region 4*  
 61 Forsyth St. SW  
 Atlanta, GA 30303  
 Phone: (404) 562-9407  
 Fax: (404) 562-9343  
 Email: johnson.haynes@epa.gov

**Robert Kessler**

Director of Mitigation Bank  
*CH2M Hill, Inc.*  
 3011 SW Williston Road  
 Gainesville, FL 32608  
 Phone: (352) 352-5877, ext. 2238  
 Fax: (352) 352-2959  
 Email: rkessler@ch2m.com

**Suzanne Klimek**

Director of Operations  
*North Carolina Ecosystem Enhancement  
 Program*  
 1652 Mail Service Center  
 Raleigh, NC 27699-1652  
 Phone: (919) 715-1835  
 Fax: (919) 715-2219  
 Email: suzanne.klimek@ncmail.net

**JoDale Legg**

Senior Environmental Specialist  
 Land Use Regulation Program  
*New Jersey Department of Environmental  
 Protection*  
 P.O. Box 439  
 Trenton, NJ 08625-0439  
 Phone: (609) 633-6563  
 Fax: (609) 777-3656  
 Email: JoDale.Legg@dep.state.nj.us

**Alex Levy**

Ecologist  
 Headquarters Water and Ecosystems Team  
*Federal Highway Administration*  
 400 7th Street, SW  
 Washington, DC 20590  
 Phone: (202) 366-1862  
 Fax: (202) 366-3409  
 Email: alex.levy@fhwa.dot.gov

**Sheri Lewin**

Vice President  
*Mitigation Marketing LLC*  
 P.O. Box 540285  
 Orlando, FL 32854  
 Phone: (407) 481-0677  
 Fax: (407) 648-3866  
 Email: Sheri@MitigationMarketing.com

**Tom Linkous**

Environmental Liaison  
*Ohio Department of Transportation*  
 1980 West Broad Street  
 Columbus, OH 43223  
 Phone: (614) 466-5075  
 Fax: (614) 728-7368  
 Email: thomas.linkous@dot.state.oh.us

**Dennis Longknife**

Wetland Specialist  
 Tribal EPA 104 (B)(3) Wetland Program  
*Fort Belknap Indian Community*  
 R.R.1 Box-66  
 Harlem, MT 59526  
 Phone: (406) 353-8431  
 Fax: (406) 353-4358  
 Email: dlongknife@hotmail.com

**Robin Mann**

Chair  
 National Wetlands Working Group  
*Sierra Club Pennsylvania*  
 266 Beechwood Drive  
 Rosemont, PA 19010  
 Phone: (610) 527-4598  
 Fax: (610) 527-7775  
 Email: robinmann@earthlink.net

**Cherise Maples**

Assistant Director  
 Water Resource Management  
*Seminole Tribe of Florida*  
 6300 Stirling Rd.  
 Hollywood, FL 33024  
 Phone: (954) 966-6300 x1121  
 Fax: (954) 967-3501  
 Email: cmaples@semtribe.com

**Steven Martin**

Environmental Scientist  
Institute of Water Resources  
*U.S. Army Corps of Engineers*  
Casey Building  
7701 Telegraph Road  
Alexandria, VA 22315  
Phone: (703) 428-7760  
Fax: (703) 428-6124  
Email:  
steven.m.martin@wrc01.usace.army.mil

**Katie McGlynn**

Marine Habitat Resource Specialist  
*NOAA Fisheries*  
1315 East-West Highway, Room 14200  
Silver Spring, MD 20910  
Phone: (301) 713-4300, ext. 148  
Fax: (301) 713-4305  
Email: Katie.Mcglynn@noaa.gov

**David McKay**

Branch Chief  
Watershed and Wetlands Division  
*USDA-NRCS*  
1400 Independence Ave SW, Rm 6023S  
Washington, DC 20013  
Phone: (202) 720-1835  
Fax: (202) 720-4265  
Email: david.mckay@usda.gov

**John Meagher**

Director  
*U.S. Environmental Protection Agency*  
*Wetlands Division, Mail Code 4502T*  
1200 Pennsylvania Ave, NW  
Phone: (202) 566-1374  
Fax: (202) 566-1353  
Email: meagher.john@epa.gov

**Richard Mogensen**

Director  
EarthMark's Mid-Atlantic Mitigation, LCC  
*EarthMark Companies*  
9301 Aviation Blvd., Suite CE-1  
Concord, NC 28027  
Phone: (704) 782-4133  
Fax: (704) 782-4148  
Email: richmogensen@earthmark.us

**Chandler Morse**

Environmental Policy Analyst  
*National Association of Home Builders*  
1201 15th Street, NW  
Washington, DC 20005  
Phone: (202) 266-8327  
Fax: (202) 266-8056  
Email: cmorse@nahb.com

**Vicki Murillo**

Program Director for Water Resources  
*Gulf Restoration Network*  
P.O. Box 2245  
New Orleans, LA 70176  
Phone: (504) 525-1528 x 204  
Fax: (504) 525-0833  
Email: vicki@gulfrestorationnetwork.org

**Tracie-Lynn Nadeau**

Environmental Scientist  
*U.S. Environmental Protection Agency*  
*Wetlands Division, Mail Code 4502T*  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460  
Phone: (202) 566-1369  
Fax: (202) 566-1375  
Email: nadeau.tracie@epa.gov

**Doug Norris**

Wetlands Program Coordinator  
Board of Water and Soil Resources  
*Minnesota Department of Natural Resources*  
500 Lafayette Rd., Box 25  
St. Paul, MN 55155-4025  
Phone: (651) 296-0779  
Fax: (651) 296-1811  
Email: doug.norris@dnr.state.mn.us

**Eric Olsen**

Shareholder  
*Hopping Green & Sams, P.A.*  
123 S. Calhoun St.  
Tallahassee, FL 32301  
Phone: (850) 222-7500  
Fax: (850) 224-8551  
Email: eolsen@hgslaw.com

**Jeffrey Pardue**

Senior Vice President  
*Breedlove, Dennis & Associates, Inc.*  
330 West Canton Avenue  
Winter Park, FL 32789  
Phone: (407) 677-1882  
Fax: (407) 657-7008  
Email: jpardue@bda-inc.com

**Keith Parsons**

Section 401 WQ Cert Coordinator  
Environmental Protection Division  
*Georgia Department of Natural Resources*  
4220 International Prkwy, Ste 101  
Atlanta, GA 30354  
Phone: (404) 675-1631  
Fax: (404) 675-6245  
Email: Keith\_Parsons@dnr.state.ga.us

**Craig Pittman**

Reporter  
*St. Petersburg Times*  
490 First Avenue S  
St. Petersburg, FL 33701  
Phone: 727-893-8530  
Fax: 727-893-8675  
Email: craig@sptimes.com

**Ann Redmond**

Regional Manager  
Ecological and Water Resources  
*WilsonMiller, Inc.*  
1441 Maclay Commerce Dr., Sutie 101  
Tallahassee, FL 32301  
Phone: (850) 878-5001  
Fax: (850) 878-5941  
Email: annredmond@wilsonmiller.com

**Ken Reisinger**

Division Chief  
Waterways, Wetlands and Erosion Control  
*Pennsylvania Department of Environmental Protection*  
P.O. Box 8775  
Harrisburg, PA 17105-8775  
Phone: (717) 787-6827  
Fax: (717) 772-5986  
Email: kereisinge@state.pa.us

**Elizabeth Rockhill**

*Stetson University, College of Law*  
130 Seventh Ave  
Indialantic, FL 32903  
Phone: (321) 536-3038  
Email: rockhille@law.stetson.edu

**Don Ross**

President  
*EarthBalance Corporation*  
2579 Toledo Blade Blvd.  
North Port, FL 34289  
Phone: (941) 426-7878  
Fax: (941) 426-8778  
Email: dross@earthbalance.com

**John Ryan**

*Land and Water Resources, Inc.*  
 9575 W. Higgins Rd, Suite 470  
 Rosemont, IL 60018  
 Phone: (847) 692-7170  
 Fax: (847) 318-9793  
 Email: jryan@lawrinc.com

**Ray Scott**

Conservation and Water Policy Federal  
 Programs Coordinator  
*Florida Department of Agriculture and  
 Consumer Services*  
 The Capital PL-10  
 Tallahassee, FL 32399-0810  
 Phone: (850) 410-6714  
 Fax: (850) 922-4936  
 Email: scottra@doacs.state.fl.us

**Susan-Marie Stedman**

Wetland Team Leader  
 Office of Habitat Conservation  
*NOAA Fisheries*  
 1315 East-West Highway  
 Silver Spring, MD 20910  
 Phone: (301) 713-4300 ex. 132  
 Fax: (301) 713-4305  
 Email: susan.stedman@noaa.gov

**Tim Steele**

*Stetson University, College of Law*  
 1401 61st South B-101  
 Gulfport, FL 33707  
 Phone: (480) 227-2518  
 Email: steelet@law.stetson.edu

**Brian Topping**

*U.S. Environmental Protection Agency  
 Wetlands Division, Mail Code 4502T*  
 1200 Pennsylvania Ave, NW  
 Washington, DC 20460  
 Phone: (202) 566-1388  
 Fax: (202) 566-1375  
 Email: topping.brian@epa.gov

**Katherine Trott**

Senior Project Manager  
 Regulatory Branch  
*U.S. Army Corps of Engineers*  
 441 G Street, NW  
 Washington, DC 20314-1000  
 Phone: (202) 761-5542  
 Fax: (202) 761-1685  
 Email:  
 katherine.l.trott@hq02.usace.army.mil

**Ron Van Fleet**

Permitting, Mitigation, and Restoration  
 Manager  
*Sarasota County Government*  
 1001 Sarasota Center Blvd.  
 Sarasota, FL 34240  
 Phone: (941) 861-0757  
 Fax: (941) 861-0593  
 Email: rvanfle@scgov.net

**Daniel Wade Zeno**

Analyst  
 Natural Resources & Environment  
*U.S. Government Accountability Office*  
 2635 Century Parkway, Suite 700  
 Atlanta, GA 30345  
 Phone: (404) 679-1820  
 Fax: (404) 679-1819  
 Email: zenod@gao.gov

**Tori White**

Team Leader  
*U.S. Army Corps of Engineers*  
 879 SE Polynesian Ave.  
 Port St. Lucie, FL 34983  
 Phone: (561) 472-3517  
 Fax: (561) 626-6971  
 Email: tori.white@saj02.usace.army.mil

**Cynthia Wood**

Team Leader  
 Tampa Regulatory Field Office  
*U.S. Army Corps of Engineers*  
 1066 Blackbird Street, MacDill AFB  
 Tampa, FL 33621  
 Phone: (813) 840-2908 x247  
 Fax: (813) 840-2123  
 Email:  
 Cynthia.J.Wood@saj02.usace.army.mil

**Robert Wood**

Deputy Director  
*U.S. Environmental Protection Agency,  
 Wetlands Division, Mail Code 4502T*  
 1200 Pennsylvania Ave, NW  
 Washington, DC 20460  
 Phone: (202) 566-1822  
 Fax: (202) 566-1349  
 Email: wood.robert@epa.gov

**F**or more than three decades, the Environmental Law Institute has played a pivotal role in shaping the fields of environmental law, management, and policy domestically and abroad. Today, ELI is an internationally recognized, independent research and education center.

Through its information services, training courses and seminars, research

programs, and policy recommendations, the Institute activates a broad constituency of environmental professionals in government, industry, the private bar, public interest groups, and academia. Central to ELI's mission is convening this diverse constituency to work cooperatively in developing effective solutions to pressing environmental problems.

The Institute is governed by a board of directors who represent a balanced mix of leaders within the environmental profession. Support for the Institute comes from individuals, foundations, government, corporations, law firms, and other sources.

## **Environmental Law Institute**

**2000 L Street, N.W., Suite 620**

**Washington, D.C. 20036**

**Telephone: (202) 939-3800**

**Fax: (202) 939-3868**

**[www.eli.org](http://www.eli.org)**

