

THIRD STAKEHOLDER FORUM ON FEDERAL WETLANDS MITIGATION

Forum Report





Cover Photos (top to bottom):

Stakeholder Forum participants at a Port of Portland mitigation site. Photo courtesy of the Port of Portland.
Restored Wetland in Northern California. Photo by Gary Kramer, USDA Natural Resources Conservation Service.

ELI Senior Attorney, Turner Odell facilitates discussion among stakeholders. Photo courtesy of the Port of Portland.

THIRD STAKEHOLDER FORUM ON FEDERAL WETLANDS MITIGATION

Forum Report

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Portland Conference Center
300 NE Multnomah Street
Portland, Oregon

Prepared by the Environmental Law Institute

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Sponsored by:

City of Eugene
Federal Highway Administration
NOAA Fisheries
Oregon Department of Transportation
Oregon Division of State Lands
Port of Portland
U.S. Army Corps of Engineers
USDA Natural Resources Conservation Service
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
Washington Department of Ecology

Third Stakeholder Forum on Federal Wetlands Mitigation: Forum Report

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FINAL PARTICIPANT LIST

Susan Asmus
National Association of Home Builders

Margaret Barrette
Washington State Department of Natural Resources
Aquatic Resources Division

Howard Bleichfeld
Van Ness Feldman

Roger Borine
USDA Natural Resources Conservation Service

Jim Brawner
Utility Water Act Group

Leander Brown
USDA Natural Resource Conservation Service
Wetland Science Institute

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

Jennifer Budhaphatti
METRO Regional Park and Greenspaces

Joan Cabreza
U.S. Environmental Protection Agency, Region 10

Albert Cerna
USDA Natural Resources Conservation Service
Watersheds and Wetlands Division

Jeanne Christie
Association of State Wetlands Managers

Sarah Cooke
Cooke Scientific Services
Washington Wetland Network

Rebecca Cooper
NOAA Fisheries

Kathy Dadey
U.S. Environmental Protection Agency
Wetlands Division

Craig Denisoff
Wildlands, Inc.

Larry Devroy
Oregon Division of State Lands

Lauren Driscoll
Washington Department of Ecology
Shorelands and Environmental Assistance Program

Mark Engler
Capital Press

Ron Ferrell
North Carolina Department of Environmental
and Natural Resources
Wetlands Restoration Program

Ken Franklin
Oregon Department of Transportation

Jeanette Gallihugh
U.S. Fish and Wildlife Service
Branch of Federal Activities

Mary Gray
Federal Highway Administration

Brent Haddaway
Washington Department of Transportation

Kathryn Harris
U.S. Army Corps of Engineers, Portland District

Totten Hefflefinger
Sierra Club

VIII | MITIGATION FORUM

Scott Hoefer
NOAA Fisheries, Oregon Habitat Branch

Thomas Hooper
NOAA Fisheries

Palmer Hough
U.S. Environmental Protection Agency
Wetlands Division

Patricia Johnson
Washington Department of Ecology
Shorelands and Environmental Assistance Program

John Lilly
Oregon Division of State Lands
Policy and Planning Section

Robin Mann
Sierra Club (Wetlands Working Group Member)

Rosemarie Mannik
U.S. Environmental Protection Agency
Wetlands Division

Charles Markham
U.S. Army Corps of Engineers

John Marshall
U.S. Fish and Wildlife Service

David Martin
U.S. Army Corps of Engineers
Southwest Washington Field Office

Michael McCabe
Oregon Division of State Lands

Andy McMillan
Washington Department of Ecology

John Meagher
U.S. Environmental Protection Agency
Wetlands Division

Tom Melville
Oregon Department of Environmental Quality

Richard Mogensen
EarthMark, Mid-Atlantic Division

Janet Morlan
Oregon Division of State Lands

Dick Novitzki
R.P. Novitzki and Associates, Inc.

Dal Ollek
City of Eugene, Department of Public Works

Brenda Pace
Center for Natural Lands Management

Mike Rabbe
U.S. Army Corps of Engineers

Andy Rassmussen
Federal Highway Administration
Western Federal Lands

Ann Redmond
WilsonMiller, Inc.

Denise Rennis
Port of Portland

Bill Richardson
Arkansas Highway and Transportation Department

James Robb
Indiana Department of Environmental Management

Ken Rosenbaum
Sylvan Environmental Consultants

John Ryan
Land and Water Resources, Inc.

Melissa Samet
American Rivers

Julie Sibbing
National Wildlife Federation (Wetlands Working Group
Member)

Dave Siebert
Wisconsin Department of Natural Resources

Brian Smith
Federal Highway Administration
Resource Center at Olympia Fields

Bob Sokolove
Environmental Restoration, LLC

Susan-Marie Stedman
NOAA Fisheries, Office of Habitat Conservation

Mark Sudol
U.S. Army Corps of Engineers

Gail Terzi
U.S. Army Corps of Engineers, Seattle District

Jay Udelhoven
Washington Department of Natural Resources

Yvonne Vallette
U.S. Environmental Protection Agency, Region 10
Oregon Ops Office

Tom Vanderplaat
Clean Water Services

Eric Wold
City of Eugene

Joy Zedler
University of Wisconsin

Bob Zeigler
Washington Department of Fish and Wildlife

ELI Staff/Support:

Zach Lamb
Environmental Law Institute

Turner Odell
Environmental Law Institute

Ken Rosenbaum
Sylvan Environmental Consultants

EXECUTIVE SUMMARY

On July 29-31, the Third Stakeholder Forum on Federal Mitigation was held in Portland, Oregon. The forum was sponsored by the City of Eugene, Federal Highway Administration, NOAA Fisheries, Oregon Department of Transportation, Oregon Division of State Lands, Port of Portland, U.S. Army Corps of Engineers, USDA Natural Resources Conservation Service, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and Washington Department of Ecology. The event brought together a diverse group of individuals from federal and state government, non-profit organizations, academia, and representatives of private sector interests, including homebuilders, agriculture, and third-party mitigation providers.

The 2 ½-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 2003; and
- Solicit input on future Mitigation Action Plan actions and goals for 2004-2005.

The meeting was designed to provide a forum for a broad range of stakeholders to comment on and discuss the National Mitigation Action Plan (MAP) process, products in development, and anticipated work in order to inform efforts to improve federal compensatory mitigation. The forum was not meant to poll stakeholders or to yield consensus-based directives for the agencies. However, several recurrent themes emerged that warrant mention.

Overarching themes:

- Many of the issues discussed during the forum relate to adopting a watershed-based approach to wetland mitigation. Participants generally supported making compensatory mitigation decisions in the context of a watershed plan.
- Participants emphasized the importance of keeping the larger context of federal mitigation in mind during discussions of individual components and issues.

While all of the components of the MAP are focused on compensatory mitigation, stakeholders stressed the importance of adhering to the sequencing provisions whereby impacts are avoided and minimized before compensatory mitigation is considered.

- Participants pointed out that the §404 program is meant to protect aquatic resources generally, not just wetlands.

Technical themes:

- Participants were supportive of relaxing requirements for on-site and in-kind mitigation, but only if it is performed in the context of a watershed plan. They also expressed concern that the guidance does not provide enough direction for making decisions about when off-site and out-of-kind mitigation is preferable. Participants generally supported the use of preservation in wetland mitigation in specific circumstances in which it would be in accord with a watershed approach and would not undermine the national goal of “no net loss” of wetland acreage and function. Situations in which participants supported the use of preservation included: when preservation is part of a mitigation project that achieves at least a 1:1 compensation ratio through other mitigation methods; when preservation is used to protect particularly rare, valuable, or difficult to replicate aquatic resources; and when preservation would augment the functions of other mitigation actions.
- Many participants stressed the need for greater flexibility in allowing for mitigation functions to be split between multiple mitigation areas as an essential component of moving towards a watershed approach, particularly in mitigating impacts to aquatic resources in urban and suburban areas.
- Stakeholders encouraged the federal agencies to improve monitoring, maintenance, and long-term protection of mitigation sites.
- Many participants encouraged the agencies to use ecological data collected from monitoring of successful sites to help develop mitigation ratio requirements for specific types of mitigation.

Policy and implementation themes:

- Various stakeholders called for greater public participation, transparency, and consistency in the Corps' regulatory process, particularly in compensatory mitigation projects.
- Many emphasized the importance of establishing consistently high standards for mitigation projects while allowing flexibility so that mitigation may be designed to suit the particular conditions of a region and the specific circumstances of each project.
- Stakeholders repeatedly discussed the need to balance detailed upfront planning with flexibility and adaptive management in order to ensure successful mitigation while encouraging innovation.
- Participants suggested that the new guidance documents be coordinated or combined in a manner that allows for a national mitigation policy that is coherent, consistent, and manageable for the field staff that is responsible for implementation.

This report is intended as a representative record of the issues discussed at the mitigation forum. It can serve as a resource for those interested in improving compensatory 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.

An audio recording of the forum, 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 web site at: <http://www.eli.org/research/wetlandsmitigationforum2003.htm>. Other policy documents related to federal wetlands mitigation can be accessed through the web sites of the 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>.

INTRODUCTION

On July 29-31, 2003, the Third Stakeholder Forum on Federal Wetlands Mitigation was held at the Portland Conference Center in Portland, Oregon. The forum was sponsored by the City of Eugene, Federal Highway Administration, NOAA Fisheries, 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 brought together a diverse group of individuals from federal and state government, non-profit organizations, academia, and representatives of private sector interests (e.g., homebuilders, agriculture, and third-party mitigation providers).

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BACKGROUND

In 1999, the federal agencies hosted the First Stakeholder Forum on Federal Wetlands Mitigation in Washington, D.C. This forum was designed to solicit input on the development of joint interagency guidance on the use of in-lieu-fee (ILF) arrangements for compen-

satory mitigation for aquatic resource impacts authorized under §404 of the Clean Water Act. Final interagency guidance on the use of ILF mitigation was released by the agencies 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' (NAS) National Research Council 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 RGL 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 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 guide 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. For a copy of the plan see <http://www.epa.gov/owow/wetlands/pdf/map1226withsign.pdf>.

Following the release of the MAP, a federal interagency team, the Mitigation Action Plan Workgroup (MAP Workgroup), was formed to coordinate work on the action items outlined in the plan. Since January 2003, the MAP Workgroup, in coordination with federal agency field offices and states agencies, has begun work on the seven action plan tasks that are scheduled for completion in 2003:

- Guidance regarding appropriate use of off-site/out-of-kind mitigation (in draft).
- Guidance on implementation of the Transportation Equity Act for the 21st Century (TEA-21) banking preference (released 7/11/03).
- Stream mitigation guidance (data collection phase).
- Adaptation of NAS Guidelines to Section 404 Program (in draft).
- Model compensatory mitigation plan checklist (in draft).

- Research on ecological performance standards for mitigation sites (data collection phase).
- Evaluation of existing mitigation site tracking systems (data collection phase).

The MAP Workgroup has also begun advanced planning on a number of the action items scheduled for completion in 2004 and 2005, including the development of guidance on the watershed approach to mitigation and development of a national shared database designed to track critical permit and mitigation site information.

The Third Stakeholder Forum was designed to solicit feedback from a diverse group of interested parties on the progress of the MAP. Presentations on different elements of the MAP were followed by a facilitated discussion sessions. The forum was designed to capture a variety of opinions on the progress of the MAP. It was not designed to generate consensus opinions or develop consensus-based recommendations.

In the following summary of the presentations and facilitated discussions, points made by participants are summarized and attributed where appropriate by a parenthetical citation of the person's surname. The meeting facilitators have summarized the comments of participants based on notes and audio recordings of the discussion. We apologize for any misrepresentation of the speakers' meaning or intent.

SUMMARY OF PRESENTATIONS AND FACILITATED DISCUSSIONS

The first day of the forum was devoted to an optional field trip, discussions of regional mitigation issues, and Session I, an overview and discussion of completed action items from the Mitigation Action Plan (MAP). None of the presentations on Day I were recorded. The summary provided is based strictly on notes that were taken during the presentations. Day II and III were recorded and summaries and description from these days are based on notes that were taken, as well as the audio recordings.

During the field trip, participants visited three sites constructed and managed by the Port of Portland: Vanport Mitigation Site, T-5 Powerline Mitigation Site, and Rivergate Consent Decree Mitigation Site. Brief descriptions of the sites, as well as photos, are available through ELI's web site devoted to the forum (<http://www.eli.org/research/wetlandsmitigationforum2003.htm>).

The remainder of the day was devoted to presentations. Participants convened at the offices of the Port of Portland. Opening remarks were given by Turner Odell, Senior Attorney at the Environmental Law Institute, and LTC Charles Markham, Deputy District Engineer, U.S. Army Corps of Engineers, Portland District. Patricia Johnson and Lauren Driscoll from the Washington State Department of Ecology gave a presentation on that state's recent mitigation studies. This was followed by a presentation by Eric Wold from the City of Eugene on Eugene's wetland mitigation program.

During Session I, which focused on completed action items, Mary Gray of the Federal Highway Administration (FHWA) discussed recently released guidance on the implementation of the Transportation Equity Act for the 21st Century preference for mitigation banking to fulfill mitigation requirements for transportation projects under Section 404 of the Clean Water Act. Michael Rabbe from the Corps discussed the revised regulatory guidance letter (RGL) and Palmer Hough of EPA gave an overview of grants to improve compensatory mitigation. Each presentation was followed by a facilitated discussion.

On day two, John Meagher, from EPA, and John Lilly, from Oregon Division of State Lands, gave welcoming remarks. The remainder of the day was devoted to Sessions II and III. Session II was reserved for a review and discussion of action items currently in draft form.

Susan-Marie Stedman from the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries) discussed the draft guidance on the use of off-site and out-of-kind compensatory mitigation under Section 404 of the Clean Water Act. Mark Sudol of the Corps reviewed the draft adaptation of NAS guidelines to the Clean Water Act Section 404 program. Each presentation was followed by a facilitated discussion.

Session III focused on reviewing and discussing items in progress in 2003. The Corps' Bob Brumbaugh gave a presentation of the model mitigation plan checklist, and Kathryn Harris from the Corps' Portland District presented a local example of a mitigation plan checklist. The Corps' Mike Rabbe discussed technical guidance on stream mitigation protocols. Palmer Hough of EPA discussed an on-going project to review scientific literature regarding the effectiveness of measuring wetland parameters for site performance standards. Finally, Mark Sudol of the Corps presented efforts to improve informational tracking of mitigation sites through the roll-out of a new national tracking database that will eventually be used by all Corps district offices. Each presentation was followed by a facilitated discussion.

The third and final day was devoted to Session IV and a wrap-up. Session IV featured a review and discussion of items to be completed in 2004-2005. Jeanette Gallihugh of the U.S. Fish and Wildlife Service (FWS) discussed guidance that will be developed on the appropriate use of preservation for compensatory mitigation. Susan Marie-Stedman from NOAA Fisheries discussed the development of guidance for protecting wetlands for which mitigation, restoration or creation is not feasible or scientifically viable. Leander Brown from Natural Resources Conservation Service (NRCS) reviewed the development of guidance on the appropriate use of buffers as a potential component of compensatory mitigation. Finally, Joy Zedler from the University of Wisconsin gave a presentation on developing criteria for making compensatory mitigation decisions within a watershed context. Each presentation was followed by a facilitated discussion session.

The forum concluded with a wrap-up and closing statements presented by Mark Sudol of the Corps and Palmer Hough of EPA.

Below are summaries of each of the presentations and the facilitated discussions that followed.

REGIONAL PERSPECTIVE

WASHINGTON STATE WETLANDS AND RESULTS
OF MITIGATION SUCCESS STUDIES

Patricia Johnson
Washington State Department of Ecology

The Washington State Department of Ecology is in the midst of a multi-year project to evaluate and improve wetland compensatory mitigation in the state. Phase One of the project involved evaluating the level of compliance for 45 wetland mitigation projects. Phase Two involved an evaluation of the ecological success of 24 mitigation projects. Phase Three of the project will be devoted to implementing a compliance tracking system for the state.

During Phase One, the agency's research showed that of the 45 mitigation projects in the study group, 93 percent had been implemented, but only 55 percent had been implemented according to the plans submitted to the state. Only 35 percent of the projects attained the assessed performance standards, and 29 percent were in full compliance with all three of the above criteria.

Phase Two included an evaluation of ecological success at 24 mitigation sites around the state. The total impacted acreage associated with the 24 projects was 58.79 acres. The vast majority of the projects resulted in impacts that were less than two acres. Created and restored wetlands attained 38.21 of the 42.96 acres required for compensation of impacts, while 71.65 of the 87.94 acres of wetlands required to be enhanced were successful. In addition, the state required preservation of 77.5 acres of wetlands for compensatory mitigation for the 24 projects included in the study. With a total loss of 58.79 acres and only 38.21 successfully created or restored acres, the 24 projects included in the study resulted in 20.58 acres of net loss of wetland acreage.

In determining the level of success of the mitigation study sites, the research team looked at whether the mitigation sites achieved ecologically relevant measures and whether they adequately compensated for wetland impacts. Of the 24 sites, only three were found to be fully successful, eight were moderately successful, eight were minimally successful, and five were unsuccessful. Contrary to the prevailing opinion, at the sites evaluated as part of the study, creation was a more successful means of mitigating for wetland impacts than was enhancement.

Lauren Driscoll
Washington State Department of Ecology

The Washington Department of Ecology has been working to implement a watershed approach to wetland mitigation. Through an ongoing study of wetland mitigation sites, the department is gathering data for the purposes of moving towards a true watershed-based approach. In the recent study of wetland mitigation projects in Washington State, creation was more successful than anticipated and enhancement was more problematic, although ecological lift varied widely depending on the type of enhancement action taken. The study found that enhancement is generally overvalued and that manipulation of vegetation does not provide sufficient ecological lift. Enhancement projects have been relatively successful in replacing water quality and storage functions but less successful in enhancing habitat functions. The way that the Washington Department of Ecology assigns mitigation ratios is becoming more nuanced as an effort to tailor mitigation ratios specifically for different types of enhancement projects. Greater credit should be given for mitigation actions that restore wetland processes.

In implementing a watershed-based approach to wetlands mitigation, there are regulatory or legal challenges and technical barriers. Regulatory challenges include a lack of clear guidance on what constitutes "environmentally preferable" mitigation, how to determine the role that preservation should play in mitigation, when it may be appropriate to split mitigation requirements between multiple mitigation sites, and how to ensure that functions gained through mitigation actions compensate for impacted functions. When non-wetland restoration is allowed as compensatory mitigation, there must be a clearly articulated nexus between the functions lost and functions provided by the buffer, riparian or upland habitat. Technical challenges to implementing a watershed approach include the need for guidance on selecting mitigation alternatives and the lack of generally accepted tools for evaluating wetlands in a landscape context. The Washington Department of Ecology's online landscape tool (see <http://www.ecy.wa.gov/programs/sea/wet-tool/INTRO/TITLE.htm>), and the Washington State DOT's Watershed Characterization system are two useful tools for such evaluation.

CITY OF EUGENE'S WETLAND MITIGATION PROGRAM

Eric Wold
City of Eugene, Oregon

The West Eugene Wetland Partnership is a coalition of entities including the City of Eugene, The Nature Conservancy, the U.S. Bureau of Land Management, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Oregon Youth Conservation Corps, and McKenzie River Trust. The partnership's activities are focused primarily on land acquisition, land maintenance, and environmental education.

The partnership's acquisitions team meets each month to discuss acquisitions. In making acquisition decisions, the team focuses on willing sellers and on acquisitions that increase habitat and hydrological connectivity. The condition of habitat and cost of land also contribute to the decision-making process. Between 1992, when the West Eugene Wetland Plan was adopted, and 2004, the total amount of land owned by the partnership will have increased from under 300 acres to over 3,000 acres. The Wetland Plan was undertaken following the passage of state legislation that made such local plans possible. Eugene is the only municipality in the state that has produced a wetland plan to date. The approximately \$20 million spent on land acquisition since 1992 has come from local sources such as the City of Eugene's park bonds and stormwater funds; state sources such as the Oregon Watershed Enhancement Board; federal sources, such as the Land and Water Conservation Funds, the Wetland Reserve Program, and the North American Wetland Conservation Act (NAWCA) grants; and private sources such as The Nature Conservancy (TNC) and private donations.

The management goals of the partnership are to sustain a hydrologically and ecologically connected system of wetlands over a broad landscape, to maintain, enhance, or restore native ecosystems, and to protect and expand existing populations of rare plants and animals. The partnership's lands are managed in both a wetland mitigation bank and in non-bank properties. The non-bank properties are made up of lands owned by The Nature Conservancy, lands restored by federal grant monies such as Section 1135 of the Water Resources and Development Act, research projects, future bank lands, and uplands. The city is fortunate to have good data on historic vegetation in the area on which mitigation decisions can be based. Much of the area's wetlands are wet prairie and riparian forest, but there are substantial areas of oak savanna in the upper portions of the watershed. Two hundred native Willamette Valley plants have been identified. There are 45 species of butterflies, including the endan-

gered Fender's blue butterfly and 203 species of birds in the West Eugene Wetlands and surrounding uplands. The physical characteristics of the wetlands in the region vary greatly with the seasons and many are dependent on summer fires.

The goals of the West Eugene Wetland Mitigation Bank are to satisfy mitigation requirements in West Eugene, to increase predictability in the development process, and to enhance and restore historic wetland systems in West Eugene.

The restoration process starts with the development of a Mitigation Improvement Plan (MIP). In designing mitigation actions, the team evaluates land use, soils, surface hydrology, connectivity, plant communities, rare species, and other aspects of the site's history, in its existing condition and as goals for project actions. After the mitigation plan has been completed, the site is prepared through alterations to hydrology, removal of non-native species, and planting from seed and/or propagated plants. Post-planting maintenance, monitoring, and remedial actions are performed as required.

Hydrological alterations can include movement of levees, excavation, and other landscape alterations. In a recent project, levees were moved back from the banks of Amazon Creek to allow for restoration of the site's natural floodplain hydrology. Once hydrology is restored, existing non-native vegetation is removed or destroyed. There are approximately 130 non-native plant species in the wetland system. Because of the proximity of the wetlands to an urban area, extra care must be taken in the use of fire to remove non-native vegetation. The use of herbicides is also very limited. The techniques that are used for removing and killing non-native vegetation include solarization using large sheets of clear plastic to cover the soil and kill existing seed stock, mechanical removal of sod and topsoil, mowing, discing, tilling, and thermal treatment. In all activities intended to kill or remove non-native species, managers must consider when to perform the treatment, how often to repeat it, and what combination of treatments to use. In treating a site for non-native species, managers must also consider how to minimize the amount of rhizomes, or other vegetative parts left on the site, and limit the release of non-native seed bank. In some circumstances, prescribed fire is used to remove non-native species.

The West Eugene Wetland Partnership collects seeds from over 90 native Willamette Valley wetland plants within a 20-mile radius of West Eugene every summer. Some of the seeds are distributed directly onto the site while other seeds are propagated by commercial nurseries for later planting. Seeds are cleaned, mixed, and broadcast onto sites using backpack blowers or drilled into the soil using a no-till drill.

During the first and second years after planting, sites undergo intensive weeding by hand to ensure that native species can establish themselves. Some hand maintenance is continued for five to seven years. Vegetative cover and hydrology are monitored throughout the year and management plans are adjusted according to the site's performance. The partnership's standards for success dictate that sites must meet the criteria for a jurisdictional wetland, have 70 percent native plant cover after five years, and satisfy diversity requirements that are dependent on habitat type.

In addition to the land acquisition and management programs, the West Eugene Wetland Partnership operates year-round, field-based, environmental education programs for adults and children. During 2002 alone, 1,100 people took part in the partnership's education programs. As part of the partnership's education mission, interpretive signs, artwork, and recreational facilities have been installed at the sites. In addition, a collaboration with the Eugene school district has been established and the partnership is currently in the midst of a campaign to raise \$12 million for an environmental education campus.

The partnership counts among its accomplishments the development and adoption of the West Eugene Wetlands Plan, the adoption of memorandum of understanding's (MOU's) among the partners, the acquisition of more than 2,500 acres of wetland and associated upland, increased landscape connectivity, and the protection of rare species and habitat. The partnership's mitigation bank has succeeded in meeting the needs of area developers, issuing over 64 credits between 1994 and 2002, and remaining financially stable.

In developing successful wetland programs, the City of Eugene's experience has shown that the following considerations are essential:

- Start with a big vision and believe it can happen;
- Adopt policies to ensure the long-term success of a program;
- Nurture partnerships;
- Secure community support;
- Secure the support of elected officials; and
- Ensure that the program and its staff are able to adapt to changing circumstances.

SESSION I: REVIEW AND DISCUSSION OF COMPLETED MITIGATION ACTION PLAN ITEMS

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

Mary Gray
Federal Highway Administration

The Transportation Equity Act for the 21st Century (TEA-21) was authorized in 1998. In the Act, Congress mandated that mitigation banks must be the preferred avenue for mitigating wetland impacts from surface transportation projects. The development of guidance was necessary because the new congressional mandate established through TEA-21 contradicts the preference for on-site in-kind mitigation established in the 1990 Memorandum of Agreement concerning the Determination of Mitigation under the Clean Water Act §404(b)(1). On July 11, 2003, the TEA-21 guidance, entitled "Federal Guidance on the Use of the TEA-21 Preference for Mitigation Banking to fulfill Mitigation Requirements under Section 404 of the Clean Water Act," was issued by the Federal Highway Administration, EPA, and the Corps. The guidance articulates the new preference for mitigation banking as the means by which wetland impacts from transportation projects funded with federal highway funds are mitigated. The guidance is meant to help field personnel by clarifying the factors to be considered in implementing the new preference.

The guidance also expresses the need for early consideration of mitigation options to allow for the integration of the NEPA review process with the §404 permitting process, the incorporation of regional and watershed issues into the planning process, and more public comment and participation.

Questions and Facilitated Discussion

Contradiction and inconsistency among Corps districts, offices, and staff make it very difficult for mitigation bankers to know what is expected of them. It is important that this guidance be followed at all levels (Sokolove). The Corps is working to improve consistency throughout the agency (Rabbe).

It is important that mitigation banks include plans for long-term maintenance. Maintenance endowments should be required beginning at the start of a project (Marshall). Formal banks always include long-term

maintenance. FHWA and EPA should study the success of mitigation banking projects (Mogenson). Such studies are underway (Gray).

The role of wetland impact avoidance has been underemphasized in the discussions on mitigation (Hefflefinger). FHWA looks first at avoidance as a matter of policy (Gray).

MITIGATION REGULATORY GUIDANCE LETTER (RGL 02-2)

Michael Rabbe
U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers' Regulatory Section is responsible for regulating discharges of dredged or fill material into "waters of the U.S." under §404 of the Clean Water Act. Jurisdictional "waters" include streams, lakes, and wetlands. After permittees have made attempts to avoid and minimize impacts to aquatic resources, and the Corps determines that it is eligible for a permit, the Corps may require them to perform mitigation to compensate for unavoidable impacts. The Corps' policy is to require that authorized impacts to the aquatic functions of a site be offset at a minimum ratio of one-to-one. Mitigation ratios may vary depending on the level of functionality of the impacted wetland. Permits requiring wetland compensatory mitigation must include success criteria and normally have monitoring requirements of five years or more.

The National Academy of Science issued a report in 2001 that criticized the Corps' compensatory mitigation process. The report said that mitigation is often either not built or fails to offset the permitted impacts. The report urged the Corps to develop an approach to mitigation that was watershed-based. In response, the National Wetlands Mitigation Action Plan was developed to further the achievement of the goal of "no net loss" by outlining a series of actions to be undertaken by the agencies to improve ecological performance of mitigation sites. The publication of the RGL was the first of the 17 action items included in the MAP.

On October 31, 2001 the Corps issued Regulatory Guidance Letter 01-1. The RGL stated that the Corps would improve the watershed approach to mitigation, expressed the need for success criteria and mitigation plans, and provided the basis for improved mitigation compliance and success. In 2002, the Corps issued RGL 02-2, which revised RGL 01-1. RGL 02-2 focuses on issues related to the watershed approach, functional assessment, stream mitigation, definitions of mitigation, preservation, buffers as mitigation, and mitigation plans.

RGL 02-2 states that the Corps will adopt a watershed-based approach to impact assessment and mitigation. USGS Hydrologic Unit Codes (HUC) are to be used to identify watersheds for accounting purposes. Mitigation is to be determined through assessment of impacts at the watershed level. Mitigation plans must take into account a wide variety of impacts, including impacts to habitat corridors and hydrology. GIS technology will be an essential component of the new watershed approach.

The RGL encourages the increased use of functional assessment methods for impacts and mitigation. It states that the same method of assessment should be used for assessing impacts and for establishing mitigation requirements. Only when functional assessments are not available should acreage ratios alone be used. The objective of functional replacement is to provide at least one-to-one functional replacement (including an adequate margin of error) for impacts to aquatic resources.

As per the directive of the NAS report, impacts to streams will require mitigation according to the RGL. When functional assessments are available for stream impacts and mitigation activities, they should be used; when they are not, a minimum ratio of one-to-one linear feet must be used to determine mitigation requirements. The RGL urges careful evaluation of stream mitigation projects to encourage the Corps to fill the current knowledge gap in this area.

The RGL gives clear definitions of various types of mitigation, including establishment (creation), restoration, enhancement, and protection/maintenance (preservation). It discusses when it is appropriate for preservation to be used in compensatory mitigation. Generally, preservation should be used in conjunction with establishment or restoration to augment the functions of the new or restored wetlands. Preservation may be used as the sole basis for mitigation only in "exceptional circumstances." Some instances of exceptional circumstances may include very high quality wetlands, wetlands that are particularly important in the watershed, and wetlands that are under severe threat from development.

The use of upland buffers in compensatory mitigation is another item discussed in the RGL. Buffers are defined as upland or riparian areas that separate aquatic resources from incompatible land uses. The RGL directs that mitigation credit can be given for buffers when they protect or enhance functions of the adjacent wetlands or aquatic resources. Buffers may be the sole form of mitigation only in very limited circumstances.

Included in the RGL is a general list of issues that should be covered in mitigation plans, including temporal loss, goals and objectives, site selection, contingency plans, and financial assurances. Mitigation plans should

also focus on success criteria for mitigation projects. Success criteria should be based on functional assessment, such as the hydrogeomorphic method (HGM). Eventually, the Corps would like to have ecologically defined and driven success criteria in all permit decisions. The NAS criteria are included as Appendix B to the RGL 02-02.

Questions and Facilitated Discussion

A participant inquired about why the Corps' permitting process was less flexible in the past and how the agency will get buy-in from the regulated community (Stedman). The Corps was flexible in the past, but now flexibility is more apparent. The guidance lends validity to use of flexibility in mitigation (Rabbe). The participant asked whether or not this represents a Corps-wide view (Stedman). The agency is not monolithic (Rabbe).

There are concerns among the conservation community that the RGL does not provide for sufficient flexibility to act for the benefit of wetland resources (Sibbing).

In EPA Region 10, the Corps is not doing a good job of avoiding wetland acreage loss. It is unclear whether the mitigation program is achieving the no net loss goal (Cabreza). Avoidance is underreported because statistics do not reflect those applications that are withdrawn or modified. The new database that is being developed will track outcomes more effectively. If the Corps rejects too many applications or forces too many projects to withdraw permit applications, many people will simply find ways of destroying wetlands without a permit (e.g. draining without fill). In terms of "no net loss," we are better off if actions go through the permit process (Rabbe).

A participant inquired whether the Corps has funds or plans to develop the models needed for HGM (Driscoll). This is uncertain, but the Corps will promote HGM. The costs of creating the necessary regional HGM models may necessitate a decentralized process (Rabbe).

The mitigation banking community supports RGL 02-2. A participant asked about the timeframe for implementation of the RGL (Mogenson). Although the RGL is in effect now, how its provisions are met will be affected by the implementation of other aspects of the MAP (Hough).

A participant asked whether failure rates can be measured and incorporated into mitigation ratios (Robb). They cannot. Risk factors will be based on estimates of success and the value of mitigation projects and monitoring will be conducted to ensure success (Rabbe). In some states, such as Indiana, the degree of mitigation success has been evaluated and incorporated in regional policy for mitigation ratios. Feedback mechanisms can be established to improve future decision on ratios (Brumbaugh).

GRANTS TO IMPROVE COMPENSATORY MITIGATION

Palmer Hough

U.S. Environmental Protection Agency

The Wetland Program Development Grant program was established in 1990 in accordance with §104(b)(3) of the Clean Water Act. The program was established to provide federal money to state, local, and tribal governments and national non-governmental organizations (NGOs) to help improve wetlands programs throughout the country. Since its inception, the program has grown from awarding \$1 million in its first year to \$15 million in grants for the 2003 cycle. The grants are meant to fund activities aimed at developing and refining wetland management programs through research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution. Government and tribal agencies, consortia, and interstate agencies submit proposals to their EPA Regional office while national NGO's submit proposals to EPA headquarters in Washington, DC.

The grants are awarded on a competitive basis and a 25 percent match is required. Current funding priorities include improving compensatory mitigation, developing monitoring and assessment programs, and protecting vulnerable wetlands. In particular, EPA is focused on programs to develop and test 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.

Some examples of past projects that have received funds through the grant program are a North Carolina program to produce coastal plain stream restoration design aids; a Florida project to develop assessment methods, success criteria, and mitigation guidelines for restored streams; and a project in Mississippi to create a mitigation compliance program and an HGM guidebook. Other examples include a project to evaluate the ecological quality of Ohio's mitigation banks; a Michigan project to develop procedures for mitigation site evaluation and approval, create a staff manual, and hold staff training; and a training program for Wisconsin's state regulators on the state's new compensatory mitigation rules. New Jersey, Maryland, Louisiana, and Indiana have all conducted assessments of their mitigation programs or mitigation sites using funds from the grant program. Many projects have been undertaken by NGOs with the support of the grants. For example, the Center for Natural Lands Management is currently conducting a series of trainings

on the use of its mitigation project planning and budgeting software, Property Analysis Record.

The guidelines for the 2004 Wetland Program Development grants are now under review. It is likely that the three priorities—improving compensatory mitigation, developing monitoring and assessment programs, and protecting vulnerable wetlands—will remain the same for the current round. Developing, improving, and refining performance standards will be emphasized in making grant decisions for 2004.

Questions and Facilitated Discussion

Participants asked whether grants can be used to provide funding to other agencies for monitoring and assessment, since the Corps is overburdened with the permitting process, or whether the funds can be used to develop interagency coordination processes (Marshall, Steadman). The program development grants cannot be used for operation and maintenance of existing programs but can be used to support program development and aspects of the interagency coordination process (Hough).

A participant asked whether the National Mitigation Banking Association would be eligible for a grant to study and report on the success of mitigation banks (Ryan). If the association is a non-profit organization with the necessary IRS designation, then it may be eligible to receive grant funds. The proposed study sounds like it would be an eligible activity (Hough).

The Center for Natural Lands Management does their own assessment and recording; the agencies should consider including yearly reporting requirements in permits (Pace). Mitigation bankers have always advocated better reporting; in order to ensure successful mitigation, more data are needed. Data gathering should be a higher priority for the grant program (Sokolove).

These grants should be used to develop and test new creative solutions, but in the long run, new programs must be maintained by other funding sources (Sibbing).

SESSION II: REVIEW AND DISCUSSION OF ACTION ITEMS CURRENTLY IN DRAFT FORM

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

Susan-Marie Stedman
NOAA Fisheries

The National Mitigation Action Plan directed the agencies to develop guidance on off-site and out-of-kind compensatory mitigation. The guidance will not alter the fact that compensatory mitigation is considered only after opportunities to avoid and minimize impacts have been thoroughly explored. Nor does development of the guidance indicate a lack of focus on on-site and in-kind mitigation. In some situations on-site and in-kind mitigation may be environmentally preferable. This guidance is designed to address those situations where on-site and in-kind mitigation are not viable options or are not environmentally preferable.

The audience for the new guidance is the Corps regulatory staff and other involved parties. The guidance applies only to decisions regarding whether off-site or out-of-kind mitigation is environmentally preferable to on-site or in-kind mitigation.

Since the existing preference for on-site in-kind mitigation was established through the 1990 Corps-EPA Mitigation Memorandum of Agreement, the agencies have been taking incremental steps away from the policy in recognition that it may not always be environmentally preferable. The 1995 banking guidance stated that off-site and/or out-of-kind mitigation could be allowed when it was “environmentally preferable.” The 1999 In-Lieu-Fee Guidance also recognized that such mitigation should be allowed where it is environmentally preferable, particularly in compensating for small impacts. This position was reinforced when the 2002 Nationwide Permits were issued, since these permits are, by definition, for small impacts. The 2001 NAS report found that the automatic preference for in-kind and on-site mitigation is inconsistent with the watershed approach.

The development of off-site and out-of-kind guidance is an action item in the MAP. An interagency MAP Workgroup composed of representatives from several federal agencies developed draft guidance in an effort to solicit feedback. Brainstorming sessions with field staff were conducted to gather input from people that work in the field offices of the various agencies. Input from the states was solicited through a conference call with the Association of State Wetlands Managers. The draft will be

reviewed by the higher levels of the agencies and will then be published and released by the end of 2003. Ultimately, the guidance will be incorporated into broader watershed guidance, which is due to be completed in 2005 and will include guidance on the use of preservation and buffers in compensatory mitigation as well.

The guidance defines “environmentally preferable” mitigation as mitigation that compensates for aquatic resource functions lost at a permitted project site in an ecologically successful and sustainable manner in the appropriate hydrogeomorphic setting.

The guidance provides criteria for defining “environmentally preferable.” Guidance developed by the Washington Department of Ecology served as a model. The state’s approach defines when specific categories of mitigation (on-site, off-site, in-kind, and out-of-kind) are environmentally preferable. However, the MAP Workgroup determined that most of the qualities that make for good mitigation in each category, make for good mitigation generally. As a result, this draft of the guidance lists criteria for all environmentally preferable mitigation rather than for each category of mitigation. Stedman requested feedback from the forum participants on this aspect of the guidance.

One of the criteria for environmentally preferable mitigation is that mitigation projects must be sustainable in the context of adjacent land uses. Though it is important to look critically at surrounding land uses, permitting agencies should not automatically decide against mitigation in urban and suburban environments. Projects should consider what actions can be taken to protect sites from potential threats from adjacent land uses. Mitigation projects must also be sustainable in the context of the natural processes inherent in their particular settings. For example, mitigation sites must have proper hydrology.

Environmentally preferable mitigation must also replace critical aquatic functions (e.g., endangered species habitat) and provide benefits in addition to aquatic functions (e.g., social benefits). To be considered environmentally preferable, mitigation projects must meet several criteria. For example, they must have little or no adverse environmental impacts on uplands and they must provide short-term and long-term benefits. By siting a created wetland near a source of degradation, a mitigation project can have significant long-term benefits that a project sited elsewhere would not have. Environmentally preferable mitigation should be compatible with existing holistic watershed plans. Environmentally preferable mitigation should include good stewardship and long-term protection provisions, provide habitat corridors or other habitat links, and provide unique or regionally important habitat.

Stedman asked the audience for examples of watershed plans they may have seen in the field that would serve as useful models for making decisions about mitigation.

The MAP Workgroup created two sets of characteristics identifying projects that are not environmentally preferable: those that would preclude a site from sustaining a successful mitigation project, and those that may negatively impact a site’s suitability but do not automatically disqualify a site. Characteristics that substantially limit or preclude a site for compensatory mitigation include: features that will not allow the site to support the establishment of natural wetland hydrology or mimic other natural processes; locations in the landscapes that are not suitable for the wetland type proposed; substantial adverse direct, indirect, or cumulative impacts to other resources; and safety concerns, such as establishing bird habitat in the vicinity of an airport.

Although some project sites may not be preferable due to threats from external factors, it may be possible to implement mitigation designs that will protect against threats. Site contamination is an example of a characteristic that reduces the suitability of a project site, but which may be addressed through appropriate removal and/or remediation actions. This issue is important in areas where few non-contaminated sites are available. Vulnerability to invasion by non-native species, adverse effects on ecologically important non-wetland species, extensive maintenance requirements (hydrological or otherwise), incomplete compensation for functions lost at impact site, lack of long-term protection assurance, and severe degradation of a site’s watershed are all factors that may reduce the suitability of a site. Low likelihood of success of a mitigation project is included in the “maybe” category rather than the “definitely not” category because there are some types of wetlands that are more difficult to create. It is important that we do not create only those types of wetlands that have high success rates.

Some of these criteria may need more explanation in the context of out-of-kind mitigation. For instance, when considering whether a mitigation project compensates for lost functions, compensation should be addressed in a broader watershed context. The guidance may devote an entire section to a discussion of how out-of-kind mitigation should compensate for lost functions, but not the exact functions that are lost and not in the exact same way.

Questions and Facilitated Discussion

The working group should not have begun with the premise outlined in the 1990 guidance that prefers on-site and in-kind mitigation. They should start with the aim stated in the preamble to the Clean Water Act. The aim of the Act is to restore the biological, chemical, and phys-

ical properties of the nation's waters. This can be done in several ways that do not involve restoring natural systems. In fact, in order to restore functions, we must undertake some non-natural activities, especially in urban and suburban environments. The guidance does not seem to look at streams and riparian areas. The MAP Workgroup should not focus only on wetlands, but on aquatic areas generally (Ferrell).

The guidance seems to take the NAS recommendations out of context. The NAS report recommended a move away from the automatic preference for on-site and in-kind mitigation because that preference is incompatible with the watershed approach. This guidance suggests moving away from the automatic preference, but does not move us towards a watershed approach (Sibbing).

The Corps should not be limited by the mitigation options that applicants present to them. In support of the watershed approach, the Corps should look at whatever options are best for the watershed (Mann). The applicant should have the burden of proving that on-site and in-kind mitigation is not preferable and practicable (Samet).

The guidance's statement that when mitigation does not replace the functions lost at the impact site, it may not be suitable, is incompatible with the watershed approach. The watershed approach cannot be implemented if each mitigation site must address the exact functions lost at the impact site (Redmond).

The approach used in the Washington State program should be considered. The guidance, as written, suggests that if a project could work off-site, then it satisfies the requirements for being "environmentally preferable." It does not support a comparison between on-site and off-site options (Samet, Sibbing). The guidance appears to be site selection criteria. It should provide more information to guide regulators in making decisions about when to allow off-site and/or out-of-kind mitigation (Driscoll).

The guidance does not recognize that there are different levels of off-site mitigation. It does not discuss how far away from an impact site off-site mitigation should be allowed (Sibbing). There may be a geographically-based way of defining on-site that places the burden of proof on the applicant as mitigation moves further away from impact sites (Marshall).

The FWS's Mitigation Policy gives preferences based on the types of resources that are being impacted. Avoidance is more important for some resources, such as rare and hard to replicate wetland types. This guidance is a good framework for helping regulators consider when avoidance is most essential and when on-site or off-site mitigation might be more appropriate. One deficiency with this policy is that it does not capture the full range of resource values (Marshall).

Washington State has considered making a distinction between short-term and long-term disruptions to wetland processes and the short-term versus long-term benefits of removing those disruptions. The draft guidance does not adequately address how to consider the degree of impacts and the value of a particular wetland. In Washington, this is considered when the state decides how flexible to be with applicants (Driscoll).

The guidance does not recognize that not all applicants are equal. Applicants have varying capacities to carry out mitigation projects and to consider alternatives. Low-capacity applicants should be given more options (Franklin). This guidance is not a checklist. Low-capacity applicants will not be forced by the Corps to look at other sites (Stedman). Concern was expressed that the guidance not be treated as a checklist in the field (Bleichfeld, Cooke, Franklin, Mogenson). The section on characteristics that reduce suitability should be removed (Cooke).

The new guidance documents should be integrated with one another, as well as incorporated into ESA §7 consultation. This guidance seems like it does not support urban banks and mitigation (Terzi).

The combination of on and off-site mitigation for separate functions should be addressed. For example, applicants should be able to compensate for habitat functions off-site and water quality and retention on-site (Cooke, Ryan, Terzi).

The requirement that projects be compatible with an "existing holistic watershed plan" may be a barrier, since getting the approval of watershed plans by multiple agencies is often difficult (Driscoll, Redmond). One of the reasons that federally and state-approved watershed plans are required is that the working group was concerned that local plans might not address issues relevant to other areas of the watershed (Stedman). Perhaps the focus should be on science-based plans rather than politically-based plans (Driscoll).

The document speaks more to off-site than to out-of-kind mitigation (Redmond).

Habitat can lose out to other interests under the watershed approach especially when out-of-kind mitigation is an option (Christie). The goal of no net loss of acreage should not be forgotten by concentrating only on functions (Hefflefinger).

When out-of-kind mitigation is approved, information about historical wetland types in the mitigation area should be factored into decisions about the wetland types that should be created (Marshall).

Each project is unique. Rigid rules about what is preferable do not make scientific sense. There should not be an automatic preference for on-site mitigation (Sokolove). Similarly, there should not be an automatic

assumption that small impacts should be mitigated in banks. Small wetlands can be very environmentally important (Denisoff).

It is important that contaminated sites are not ruled out (Cooke, Mogenson, Sokolove). In the long term, all sites are vulnerable to outside impacts and invasive species. Each project should have an endowment to pay for long-term monitoring and maintenance needs (Pace).

The level of public involvement in the wetland permitting process is unacceptably low. The Corps should improve the notice process and the ease of participation. Public knowledge of local watersheds should be used in the decision-making processes (Hefflefinger).

Good definitions of restoration and creation are needed (Mogenson).

Water rights issues need to be included as a factor in determining whether a mitigation project is environmentally preferable. If the applicant has no water rights or junior rights, the project may not be viable (Ryan).

It is unclear whether or not the 1990 MOA applies to nationwide permits (Ryan). Although the 1990 MOA did not apply to nationwide permits, this guidance will (Stedman).

“Minor impacts” should be well defined (Ryan).

There should be a strong recommendation that applicants meet with the Corps for a pre-application review of proposals in order to improve review by sister agencies. This process would give the agency a chance to review proposals before they get too far along (Cooke).

DRAFT ADAPTATION OF NAS GUIDELINES TO THE CLEAN WATER ACT SECTION 404 PROGRAM

Mark Sudol
U.S. Army Corps of Engineers

In 2001, the National Research Council issued a report of a study on wetland mitigation for §404 permitted activities. This report included 10 guidelines (NAS Guidelines) for creating and restoring self-sustaining wetlands. The NAS's principle finding was that the stated national policy of no net loss of wetlands is not being met. NAS issued a series of recommendations on how to improve the §404 process to better meet the no net loss goal.

The NAS Guidelines for successful mitigation are included as Appendix B to RGL 02-2. The guidelines include: considering the hydrogeomorphic and ecological landscape and climate of the mitigation site; adopting a dynamic landscape perspective; restoring or developing naturally variable hydrological conditions; choosing restoration over creation wherever possible; and avoiding over-engineered structures in the mitigation design. They

also included paying particular attention to appropriate elevation, depth, soil type, and season; providing appropriate heterogeneous topography; considering subsurface conditions including soil and sediment geochemistry and physics, groundwater quantity and quality, and faunal communities; considering complications associated with creation or restoration in seriously degraded or disturbed sites; and conducting early monitoring as part of adaptive management.

In order to address the concerns put forth by the NAS report and to integrate the NAS guidelines into the §404 program, the Corps participated in the development of the MAP, which outlines the necessary steps to be taken by the various federal agencies and establishes a timeline for completion. The Corps has been the lead agency working to expand on the NAS guidelines through the MAP process. With regards to the NAS guidelines expansion effort, the overall plan is to provide these expanded guidelines to each of the Corps districts for inclusion in their mitigation and monitoring guidelines. The goal is that every district will have new mitigation and monitoring guidelines in place by the end of 2003.

Questions and Facilitated Discussion

The 1995 banking guidance and NAS guidelines suggest that mitigation projects should include funding for long-term stewardship. Long-term stewardship is not, however, mentioned in the Corps' more recent policy documents (Marshall, Pace). These issues are usually addressed in the districts' mitigation and monitoring guidelines. The Corps headquarters will recommend that the districts include funding for long-term monitoring and maintenance in their guidelines (Sudol).

There is concern that economic factors will bias choices of mitigation sites (Mann). The Corps' headquarters should clarify that considerations of the cost of mitigation should not enter into the alternatives analysis (Terzi). The regulations require “practicable” mitigation; therefore, cost is a factor in determining mitigation choices (Bleichfeld).

Adaptive management should not become an excuse for failing projects that are badly designed (Mann, Samet). The Corps needs to allow some room for failure if experimental mitigation projects may potentially yield valuable results (Driscoll). The Corps should encourage experimentation and innovation through mitigation banking (Mogenson). Corps districts should have the flexibility to allow projects to proceed in phases in order to allow for alterations that ultimately will make projects most successful (Denisoff, Johnson). The Corps should require contingency plans in order to respond when mitigation projects do not succeed (Samet).

Guidelines on monitoring are needed (Cooke). In most cases, monitoring must be conducted for more than five to 10 years to assess if wetland functions have been fully compensated (Samet). It is not possible to issue national guidelines on monitoring since monitoring requirements should be different for each wetland type. The Corps will, however, issue guidelines on what should be included in mitigation and monitoring reports. The agency would like monitoring reports to be shorter and more consistent (Sudol). While standardizing monitoring reports may be desirable, it is important that permittees not leave details out of the reports. The Corps should require a separate summary if necessary, but should not limit the length of reports (Samet). Having consistent formats for monitoring reports is more important than the length of the reports (Johnson).

Regarding Section A(3), it would be helpful if the Corps included regional references on hydrology so that mitigation can take into account the natural hydrological regime of the site (Cooke). Individual Corps districts have a lot of information that should be used to develop this type of support (Sudol).

Regarding Section A(1), based on the experience of Washington State, more stringent criteria for enhancement should be added. Creation can be a more effective mitigation option for some functions (Driscoll). The Corps should increase requirements for wetland enhancement to achieve greater benefits (Morlan).

Improved definitions are needed to clarify restoration and creation. The Corps should not discriminate against sites that are surrounded by development or planned development. Limiting sites using artificial water sources is a positive step. The guidelines on stream mitigation need to be improved (Mogenson).

The Corps should give mitigation credit for buffers. FWS often says they will never give credit for upland buffers (Mogenson). The Corps should not give extra credit for buffers if the buffers are essential for the mitigation project to function (Samet).

The Corps is doing a better job of reaching out to fish and wildlife agencies, but the relationship could be even better. All of the resource agencies should be provided with monitoring information electronically to facilitate review (Marshall).

The Corps should educate sister agencies regarding the timeline for implementation of the new guidelines. The other agencies may need their own guidelines (Ryan). It is good to see more uniformity among Corps district offices (Sokolove). As the headquarters guidance filters into districts, it should be applied consistently (Bleichfeld). The Corps should bring all districts up to the highest standard rather than bringing some districts down for the sake of achieving uniformity (Samet).

Section B(1) encourages the use of natural systems for mitigation. The Corps should clarify its position on catastrophic events and their effects on natural system-based mitigation projects (Sokolove). There is no national policy on this. Some districts require applicants to repair sites if a catastrophic event does harm; others do not require the site to be repaired (Sudol). The Corps should clarify its position on what to do with monitoring requirements and performance standards when natural events such as droughts alter a site (Christie). Natural events may be more problematic in created wetland settings. A restored wetland should be able to recover from natural disturbance (Redmond). The mitigation banking guidance addresses natural disasters (Stedman).

The Corps should consider the human environment and social landscapes. If social functions are lost due to a wetland impact, those losses should be mitigated as well (Udelhoven).

Mitigation plans should be publicly accessible and the public should have the opportunity to review them and submit comments (Samet).

The Corps' civil works program should follow this guidance as well (Samet). The Corps' regulatory personnel are working with civil works to improve mitigation and monitoring practices, including increasing the amount of monitoring done for civil works mitigation projects (Sudol).

More emphasis should be placed on the value of upland habitats. Uplands habitats are often as important as wetlands in a given region (Rennis).

Each districts' mitigation and monitoring plan guidance documents will be made available for public comment prior to the issuance of final versions (Sudol).

SESSION III: REVIEW AND DISCUSSION OF ITEMS IN PROGRESS IN 2003

MODEL MITIGATION PLAN CHECKLIST

Bob Brumbaugh
U.S. Army Corps of Engineers,
Institute for Water Resources

The "Clarifying Performance Standards" section of the National Wetland Mitigation Action Plan states that the Corps, EPA, U.S. Department of Agriculture, Department of Interior, and NOAA Fisheries will work with the states and tribes to develop a model mitigation plan checklist for permit applicants in 2003. During the Second Stakeholder Forum in Baltimore in 2001, stakeholders felt that applicants often do not know what kind of information is needed for evaluating compensatory

mitigation. The checklist is intended to remedy this confusion. At the Baltimore forum, the New Jersey Mitigation Checklist was suggested as a model. In order to develop a model checklist, the MAP Workgroup examined mitigation checklists and guidance from several states and districts.

The MAP Workgroup had some difficulty merging two initial draft checklists developed for §404 and the NRCS Swampbuster program. Therefore, the Swampbuster checklist was appended to the end of the §404 checklist as an addendum. Two versions of this checklist document were provided to forum participants. The checklist with the later draft date expanded on the first by including additional details. It is intended that the model checklist can be adapted by regional offices and agencies to respond to local conditions. The participants' feedback on the checklist versions was solicited.

The Corps' Portland District also gave a presentation explaining how their office incorporated regional concerns into a mitigation checklist that their office developed.

*Presentation: Kathryn Harris
U.S. Army Corps of Engineers, Portland District*

The Portland District of the Corps assembled an inter-agency group to adapt RGL 02-2 for use locally. Yvonne Vallette from EPA, John Marshall from FWS, and Mark Liverman from NOAA Fisheries represented the other primary federal agencies involved in mitigation. The RGL was analyzed and key elements for project managers to consider when reviewing mitigation plans were identified. The result was a mitigation handbook. Other state and federal examples were considered, including a checklist created by the Oregon Division of State Lands to identify relevant state and federal requirements. The handbook includes a list of accepted functional assessments.

Performance standards were a central component of the handbook. A table is included that lists performance standards created by other agencies for four different types of ecosystems: riparian, forested, scrub-shrub, and emergent zones. The second phase, which will begin soon, will include the creation of an in-lieu-fee program for the Portland District that can be coordinated with the state program. Oregon's state program does not currently meet federal standards. Long-term protection of mitigation sites will also be considered in the second phase.

While this handbook is intended for permit application reviewers at the Corps, it will be made available on the web so that applicants and consultants can be aware of what the Corps is looking for in permit applications.

Questions and Facilitated Discussion

It is unclear whether or not mitigation plans are part of the application process (Lilly). While encouraged, they are not required as part of the applications process (Rabbe).

The Corps should clarify at which point in the permitting process the checklist should be used (Lilly). The Corps will encourage its use up front in the application process, for example, in a conceptual plan. The Corps will only request a mitigation plan once impacts have been avoided and minimized (Sudol).

The Corps should clarify whether or not state requirements could be included on the checklist. For example, it would be helpful if the checklist(s) for use in Oregon noted that the state requires mitigation plans (Devroy).

Number 6e on the checklist, should require a long-term management budget. Number 9, should include bullets requiring the inclusion of endowment and monitoring accounts in plans (Denisoff). Applicants should be required to submit average annual budgets for management rather than a 10-year spreadsheet (Pace).

The North Carolina in-lieu-fee program rarely generates information on impacts. It would be very difficult to indicate more than the wetland type impacted. The quality of the information available for mitigation and impacts greatly depends on the capacity of the applicant (Ferrell). The Corps hopes that as functional assessment tools, such as HGM, become more widely available, the agency will encourage applicants to use functional assessment at both impact sites and mitigation sites to improve grounds for comparison (Rabbe). The checklists should require functional assessments of mitigation sites prior to mitigation to provide baseline data, especially for enhancement and restoration projects (Johnson). Despite drawbacks, reference sites are useful in providing targets to work toward in mitigation projects (Marshall).

Monitoring for functional standards should be required (Samet).

The Corps should provide FWS and other agencies with the opportunity to comment on projects that have compensatory mitigation plans that are submitted late in the application process, or those that have conceptual mitigation plans that are refined during the application process (Marshall). The resource agencies and the public should be allowed to review modifications to mitigation plans and projects (Mann).

Rapid implementation is desirable, but permittees need time to develop a full understanding of the sites. For example, long-term planning of planting is important to ensure successful mitigation (Rennis).

Deed restrictions are often not good tools for long-term protection because they are more easily terminated in the courts than are easements (Pace). Mechanisms are needed to allow public access to mitigation sites to ensure the quality of mitigation. Deed restrictions should be required in all cases. For most sites, deed restrictions should not affect access, but in some circumstances, public access to sites should be limited (e.g., a contaminated site) (Sokolove).

The bulleted lists in this checklist may become hard and fast rules. For example, the mention of using of reference sites could become a prescriptive requirement (Haddaway).

The introductory language in the shorter version includes a statement that the agency staff will determine the appropriate level of review for each permit. All mitigation should have consistent and high levels of review (Samet).

Number 3f on the longer checklist states that if the applicant wants to use off-site or out-of-kind mitigation, they must explain why it is practicable and environmentally preferable. The applicant should bear the burden of proving that on-site and in-kind mitigation is not practicable (Samet).

The applicant should not be permitted to determine the timing of mitigation as is suggested in Number 4c. Requiring mitigation before impacts should always be the preference (Samet).

The checklist needs to have descriptions of soil preparation for planting (Samet).

The plan or permit should clarify the acceptable uses for mitigation lands (Samet).

In the portion of the checklist on surrounding land use, there should be a consideration of urban growth boundaries and likely future development (Driscoll).

The term “as built” should be clarified (Driscoll).

The checklist should require permittees to provide information on water rights at mitigation sites (Driscoll).

These checklists send the message that “compensatory mitigation” and “mitigation” are one and the same. Compensatory mitigation is only part of mitigation. The document should be called a compensatory mitigation checklist or the checklist should include a discussion of avoidance and minimization (Udelhoven).

A participant inquired whether the Corps will need additional information beyond regular application materials when evaluating banks for mitigation in order to be in accordance with the checklist (Ryan). Not every project has to provide everything that is on the checklist. The checklist is a tool. It is intended to bring consistency to implementation in the field (Rabbe). When an item on the checklist is not applicable to a specific project, the applicant should be required to explain why it is not appli-

cable (Samet). The annotated checklist specifically notes that all items may not be pertinent to all projects but that applicants must explain when an item is not applicable (Dadey).

It is unclear how the Corps will ensure that the checklist will be used in decision-making, rather than being an applicant requirement for more documentation (Robb). The checklist (checklist #2) is designed to provide the needed information for decisions, but agencies will still have to use their best professional judgment (Harris, Sudol).

There may be opportunities to recruit native plant material from impact sites and mitigation sites, including soil material (Ollek). This is a good approach in some circumstances, specifically when it is done quickly so that soil organisms are still healthy and present (Marshall, Redmond). There should be no general rules for salvaging plants and soils since each site varies in its suitability to this approach (Haddaway).

TECHNICAL GUIDANCE ON STREAM MITIGATION PROTOCOLS

Mike Rabbe

U.S. Army Corps of Engineers

The purpose of the MAP is to draw closer to the goal of no net loss by setting out a series of actions intended to improve the ecological performance of mitigation sites. One of the 17 action items listed in the MAP was the publication of the RGL. Each action item is to be addressed on the headquarters level with assistance and input from the field.

Another MAP action item was “clarifying considerations for mitigating impacts to streams.” Clarification is needed because some impacts to stream ecosystems have been compensated with wetland mitigation and because currently there are only a limited number of stream assessment and mitigation protocols in place to support §404 regulatory decision-making. These protocols vary widely based on how they were developed and how they are implemented.

The Mitigation Action Plan Workgroup’s objectives with regard to stream mitigation in 2003 are to provide field staff with more information regarding available stream assessment and mitigation protocols and assistance in selecting and adapting a protocol for use in a particular region. To that end, the workgroup is currently reviewing and compiling the existing stream assessment and mitigation protocols which could support regulatory decision-making into a single technical resource document. Components of this review will include the following: identification of the target scale and objective of each

assessment protocol; identification of specific stream types and/or geographic areas (i.e., ecoregions) for which the assessment protocol is applicable; identification of the level of effort required and the necessary components to “calibrate” the protocol to local conditions; identification of the complexity or level of effort necessary to execute a site assessment in the field using each protocol; and an assessment of the degree to which each protocol can be utilized to evaluate a proposed project’s impact, identify/quantify the necessary compensatory mitigation for those impacts, and assess the efficacy of a proposed mitigation plan/site to satisfy the mitigation requirements.

The technical report will include a comprehensive annotated bibliography of stream assessment methods, a compilation and comparison of federal, state, and local stream assessment Standard Operating Procedures, a dichotomous key for selection of appropriate stream assessment methods based on technical factors; a tabulation of the level of effort, complexity, and the necessary components to use and “calibrate” the protocol to local conditions; a tabulation of the degree to which each protocol can be utilized to evaluate a proposed project’s impact, identify/quantify the necessary compensatory mitigation for those impacts, and assess a proposed mitigation plan/site; and a tabulation of data gaps and recommendations on future research and development.

Questions and Facilitated Discussion

A participant inquired why the workgroup did not chose to require that each linear foot lost be replaced by a linear foot of restoration or enhancement (Denisoff). In many situations such a requirement would be appropriate, but in some situations it may not be an option (Rabbe).

A participant requested clarification on whether or not there will be opportunities for further public review of the stream mitigation guidance (Hefflefinger). There will be an additional opportunity for public review (Rabbe). Wider peer review of the stream protocol was urged since this is a new area for the Corps (Samet). The Corps should consider establishing a formal external science advisory panel to work with the Corps throughout the process and to review the stream mitigation protocols (Sibbing).

This is only a first, modest step in dealing with stream mitigation. Close to half of the §404 permits granted are for stream impacts, so much more work will need to be done after this initial fact-finding project is completed (Christie).

The Corps should require stream mitigation to occur in the same sub-watershed as steam impacts (Hefflefinger).

A participant inquired whether the guidance will require an analysis of stream hydrology, including watershed processes and stream processes off-site, and whether the protocol will be regionalized (Zeigler). Although the guidance will require an analysis of the larger context around stream impact and mitigation sites, that is not the focus. The guidance will be similar to HGM in that it will consider all of the factors that affect the stream. It will also be regionalized (Rabbe). Methods of stream restoration are regional. It is necessary sometimes to look at streams as going through a succession of stages (Christie).

A standard method for characterizing streams is needed. HGM does not go far enough in looking at impacts to species and habitat (Marshall).

The Corps should clarify the definition of “bank full width” to clear up jurisdictional issues (Hooper). It is unclear whether or not the Corps has the authority to regulate uplands as part of wetlands mitigation (Hooper). Although this is a gray area, the Corps does have the authority to look at secondary impacts (Rabbe).

The protocols should include looking for options to combine stream projects with large-scale projects, such as floodplain enhancement (Denisoff). The Federal Emergency Management Agency is in the process of remapping flood plains throughout the country (Sokolove).

Many stream impacts are small. Consolidated mitigation is often the best way to mitigate for small stream impacts (Mogenson). Small mitigation projects make sense in some instances, while in others, consolidation may be more appropriate (Marshall).

Half or more of mitigation banks in Oregon are associated with streams. There is a need to improve assessment methodologies by integrating stream methodologies with wetland assessment methodologies (Marshall). For habitat purposes, the Corps should analyze streams, wetlands, and uplands together (Budhaphatti). This is why the Corps is focusing on the watershed approach (Sudol).

It is important that the need to avoid and minimize impacts to pool and riffle complexes in streams is emphasized (Sibbing).

MITIGATION SITE PERFORMANCE STANDARDS REVIEW AND ANALYSIS

Palmer Hough

U.S. Environmental Protection Agency

Performance standards have been a difficult issue to resolve, but the MAP lays out steps for improving this aspect of mitigation. Performance standards are “observable or measurable attributes used to determine whether a compensatory mitigation project meets its objectives” (Streever 1999). The 2001 NAS report defined performance standards as “measurable outcome[s] ... of a mitigation project (e.g., measure[s] of wetlands structure or type or a functional assessment score).” Other terms are often used to apply to this concept, such as success criteria, performance indicators, and in the banking context, credit release criteria. Performance standards are important for gauging success and for taking enforcement action when sites are not in compliance. Appropriate performance standards vary from place to place and from one wetland type to another. The lack of a central directive on what performance standards to use for wetlands mitigation projects has been a problem in many cases.

Commonly-used performance standards include herbaceous/woody plant cover and density, planted species survival, cover by invasive species, plant species diversity, specific aquatic invertebrate taxa, specific hydrological conditions, specific soil conditions, slope, aquatic invertebrate diversity, and site use by specific wildlife taxa. One way that mitigation sites have been judged in the past is by comparing a suite of parameters at a mitigation site to those same parameters at a reference site.

The NAS report presented a simple and elegant six-step outline of the mitigation process. The outline suggests establishing design plans to achieve desired functions and later inspecting sites after mitigation site construction to determine compliance with those design standards. The site would then be monitored over time to determine whether it has met or is approaching performance standards. Authorities must certify when performance criteria have been achieved at a site. However, the process rarely proceeds as smoothly as is suggested by the NAS outline.

Concerns relating to performance standards include that they are often:

- narrowly focused on vegetation, particularly on percent cover;
- vaguely worded and thus unenforceable;
- inconsistent with the stated definitions of “performance standards;” and,
- excluded from permits and banking instruments.

The 2001 NAS mitigation report recommended that the agencies develop mitigation goals and that performance standards be tied to those goals. The GAO’s 2001 in-lieu-fee report suggested that agencies should establish criteria to determine the ecological success of mitigation.

As outlined in the MAP, this year the MAP Workgroup is analyzing existing scientific research on performance standards to determine the effectiveness of using biological indicators, functional assessments, and other reference site parameters for evaluating mitigation performance. The workgroup has compiled a draft bibliography of peer-reviewed scientific literature on the subject as a step in developing a technical report that summarizes the effectiveness of potential parameters for assessing compensatory mitigation. The workgroup is interested in hearing feedback on whether there are any notable absences in the bibliography.

The team is exploring bio-assessment methods, in which the community of plants and animals living in a wetland are evaluated as a reflection of wetland health as well as other types of functional assessment methods for evaluating impacts and mitigation activities. RGL 02-2 itself is an important step in that it gives the directive to the field to incorporate better, clearer performance standards in permits and banking instruments.

In 2003, the MAP Workgroup will release guidance on performance standards and monitoring. To create the guidance, the group will work with regional field staff and stakeholders to identify regional wetland types, review existing information, draft guidelines or templates, and finalize and distribute the guidelines or template.

The GAO report to Congress stated, “we continue to believe that establishment of ecological success criteria is not only possible, but essential to determine if the objectives of compensatory mitigation are being fulfilled and to measure whether progress is being made toward achieving the national goal of no net loss of wetlands.”

Questions and Facilitated Discussion

A participant inquired as to how the workgroup plans to raise the bar on the success of mitigation through performance standards and still require on-site mitigation (Sokolove). Mitigation is going to be harder and more expensive, but it will also be more predictable and more successful. Mitigation ratios will likely be lower as more and more strenuous mitigation is required (Sudol).

Performance standards must be sensitive to the timing of each individual project. For instance, soil criteria must be evaluated much earlier, because soils cannot be changed several years into a mitigation project. The Washington Department of Transportation is developing different terminology for the standards used to guide adaptive man-

agement and the standards used to gauge the ultimate success of mitigation (Haddaway). Timing could be clarified in performance standards guidance to differentiate those criteria that are checked at different times in the process (Hough).

Development of performance standards must occur along with the creation of goals and objectives and the development of monitoring protocols for mitigation projects. All of these activities must be done early in each project. Some performance standards can be used virtually anywhere, such as requiring that sites reach a specified percentage of plant cover, requiring that functional values be at least at the level of impacted wetland or the wetland prior to enhancement, and in the case of wetland mitigation sites, requiring that sites meet the definition of a jurisdictional wetland (Cooke).

Mitigation bankers would like to have standardized functional assessment methods. HGM has been discussed for a long time, but it needs to be implemented (Mogenson).

Performance standards that are used for compensatory mitigation and those that are used to measure the success of a mitigation project should be clearly differentiated. Mitigation success will be measured over a much longer time. Some standards are more appropriate for long-term than for short-term assessment (Rennis).

Mitigation sites are often designed to the minimum hydrological standards as established in the 1987 delinication manual. There needs to be more focus on hydrology in setting standards and wildlife use standards are often not a good measure of success (Terzi). It is important to collect biological data at the correct times of year (Hefflefinger). Percent cover does not make sense as a performance measure in many situations (Marshall).

A participant inquired whether or not the MAP Workgroup will test performance standards (Robb). The Workgroup is currently only looking at existing research and peer-reviewed science (Hough).

A participant asked how the success of in lieu fee projects is measured (Denisoff). The in-lieu-fee guidance states that permittees must identify mitigation sites and set goals and standards (Hough). Performance standards will apply to on-site mitigation, mitigation banks, and in-lieu-fees (Sudol).

A participant asked for clarification on how reference sites may be used to set performance standards. Using reference sites in developing and using performance standards can be effective (Devroy, Marshall).

Performance standards should address the specific objectives of each proposal. They should be written as ranges rather than single targets, as suggested in the Performance Standards section 5.b. in the draft model mitigation checklist dated July 17, 2003 (Driscoll).

MITIGATION SITE TRACKING DATABASE EVALUATION

Mark Sudol

U.S. Army Corps of Engineers

The Corps is in the final stages of developing a national database to track wetland mitigation sites. The database will allow the Corps to collect data on mitigation across federal and state agencies, thereby providing a report card on the performance of the §404 program, particularly in pursuit of the no net loss goal. The development of this database has been difficult because of the many different databases that must be combined, the varied reporting requirements and formats used by various agencies, and the different definitions of wetlands used by different agencies. Ensuring that wetlands are not double counted by the various regulatory agencies has been another concern in combining data from many different sources.

The first task in creating the database has been to collect information on existing databases. The Corps has at least two major and several minor databases in use in the regulatory program, including RAMS, RAMS II, one in Microsoft Access, and at least two proprietary systems. The Corps is in the process of moving to a common system, which will be known as the OMBIL Regulatory Module or ORM. After five years of development, the ORM system will be installed in the Jacksonville District in October 2003. All districts will be using ORM by early in 2005. The Corps has had to balance concerns over the database's ease of use with the quantity of data in the database, but ORM will include significantly more information than many of the databases currently in use.

In moving to ORM, the Corps' process will include compiling data from existing databases, completing an initial review, providing a draft report card on the web, requesting comments, incorporating comments as appropriate, and publishing a final report card by December 2003. The new database will include an impacted area descriptor, a mitigation area descriptor, an as-built area descriptor, and an as-built mitigation area descriptor. These descriptors will include either HGM classifications or Cowardin classifications depending on the area. In the long-term, this database will be merged with a geographical information system (GIS).

In the months ahead, the MAP Workgroup will compile and disseminate information regarding existing mitigation-tracking database systems. The team has developed a list of information to be collected in the new database. They will take input and revise the list, develop a web-based questionnaire to collect information on existing databases, develop a website, get OMB clearance for the new system, and coordinate with federal agencies,

states, local governments, and tribes to ensure that as many databases as practicable are represented.

Questions and Facilitated Discussion

A participant inquired whether data are being coordinated between agencies in the development of the new database (Marshall). The Corps is currently trying to figure out what data the agencies are collecting and who the Corps' points of contact are in each agency (Sudol).

A participant asked if the Corps plans to use the database to look at how mitigation policy and its implementation are affecting the distribution of wetlands across the landscape (Driscoll). The Corps' goal is to use the database in coordination with GIS, making such analysis possible. The database will also allow the agency to provide more information to the public (Sudol).

There are often gaps between GIS and databases. It is important that the Corps include a HUC or some other watershed indicator in the database (Cabreza). The database will include HUC codes (Sudol).

A participant asked if ORM will track ecological success of mitigation projects (Samet). The database will include fields for information on compliance and success (Sudol).

The Corps' civil works projects should be included in the database (Samet). It is likely that Civil Works will be included (Sudol).

Data that is provided by applicants must be verified (Moreland).

A participant asked if the database will include a document manager (Pace). The database includes a document development system that will generate documents from the data that is entered (Sudol).

A participant inquired whether the database will record non-jurisdictional wetland losses (Ryan). These will not be recorded in the Corps' database. It is unclear how wetlands will be defined for the purposes of the report card since the report card is supposed to include other federal and state agencies' jurisdictions (Sudol).

A participant inquired how states will be able to work with the Corps so that they can develop databases that can be integrated with the Corps' database (Robb). The Corps has started to discuss this with some states (Sudol).

SESSION IV REVIEW AND DISCUSSION OF ITEMS TO BE COMPLETED IN 2004-2005

GUIDANCE ON THE APPROPRIATE USE OF PRESERVATION FOR COMPENSATORY MITIGATION

Jeanette Gallibugh
U.S. Fish and Wildlife Service

The MAP states that guidance will be developed on the use of preservation in the context of compensatory wetlands mitigation by the end of 2004. Work on this guidance has not begun. This session is intended to allow for stakeholder input into what the guidance should look like and how to approach the issue of preservation.

Many regions and districts of federal agencies, as well as state and local governments, have developed rules on the use of preservation in mitigation, but there has been no national level policy articulated. The NAS report mentioned the use of preservation as a topic that needed to be studied further to determine where and when it is an appropriate means for compensatory mitigation. This discussion and the guidance that will be developed will start from the understanding that preservation, like other compensatory mitigation mechanisms, is to be used only after adequate consideration of avoidance and minimization.

Federal guidance on preservation has thus far been limited to the 1990 Memorandum of Agreement between the U.S. Army and EPA concerning the determination of mitigation under the Clean Water Act's 404(b)(1) Guidelines, the 1995 mitigation banking guidance, RGL 02-2, and the MAP. The 1990 Army-EPA MOA stated that purchase or preservation of existing wetlands was acceptable as mitigation only in "exceptional circumstances." Although the term "exceptional circumstances" was not defined in the MOA, the Army and EPA were to develop specific guidance for preservation that would define where and when it was an appropriate form of mitigation.

The 1995 mitigation banking guidance set out standards for the establishment, use, and operation of mitigation banks. According to the guidance, mitigation banking credits can be assigned for preservation when preservation is done in conjunction with restoration, creation or enhancement activities and when it is demonstrated that the preservation will augment the functions of restored, created or enhanced wetlands. The guidance states that preservation can be the sole basis for generating credits in banks only in exceptional circumstances. Again, the term "exceptional circumstances" was not defined. Consideration must also be given to whether the preserved wetlands have physical or biological functions that

are important to the region and whether the preserved site is under demonstrable threat of loss or degradation.

The Corps' Regulatory Guidance Letter 02-2, which applies to all compensatory mitigation activities, draws upon the treatment of preservation in the mitigation banking guidance. The RGL defined preservation (which is referred to as protection/maintenance) as the removal of a threat to, or preventing the decline of, aquatic resources by an action in or near it. Like the banking guidance, the RGL states that preservation is acceptable when done in conjunction with other mitigation and when it will augment those other mitigation activities. The RGL also uses the same functional and threat requirements that are referred to in the banking guidance.

The MAP requires the agencies to develop specific guidance that defines exceptional circumstances and preservation and provides a mechanism for the consistent use of preservation in the context of compensatory mitigation. Important considerations that must be addressed in the upcoming guidance include: how preservation will fit with the requirements for no net loss of acreage and functions; how to assess the significance of resources to be preserved and those to be impacted; how threats to potential preservation sites will be assessed; how to determine why they are threatened; and how to assess whether resources may be protected through other mechanisms (e.g., the Endangered Species Act (ESA)).

In drafting the guidance, the agencies must also take into account how preservation will fit into the watershed-based approach, what sort of mitigation ratios should apply to preservation, and how to credit "functional lift." The agencies must also decide if they will allow preservation to be used for any project that meets the defined criteria or if they will continue to rely on their current position that preservation alone may only be considered after enhancement, restoration, and creation have been considered and found to be impractical.

Questions and Facilitated Discussion

It is important that the guidance address how to ensure that sites being considered for preservation as part of a compensatory mitigation package are not already protected through other mechanisms (Cabreza). Protection under other mechanisms may not protect wetlands as completely as preservation under §404 can (Driscoll).

Preservation can easily be abused. It should be used in combination with restoration to avoid net loss of wetland area (Hefflefinger). If preservation is to be allowed as part of a project, there must also be other mitigation conducted of at least a one-to-one ratio (Sibbing). Large-scale preservation projects can abuse this provision. Preservation as the sole mitigation method should be a

rare occurrence. It is acceptable to give some credit for preservation as part of a larger project when the preservation is an important part of the functioning of the rest of the project. The agencies should give more favorable ratios for preservation when it is done in conjunction with restoration (Mogenson). It is important that agencies not give mitigation credit for projects that use preservation to avoid an impact (Driscoll).

The North Carolina Department of Transportation has a one-to-one restoration requirement for projects that use preservation (Ferrell). Indiana requires one-to-one restoration with preservation. If a net loss of acreage were allowed on one project, mitigation ratios would have to be increased for other applicants to compensate (Robb).

Some would like to see limits on the percentage of any one mitigation project that can be met with preservation. For example, preservation could be limited to 10-20 percent of any one project (Cooke). The Chicago banking guidance does not allow more than 15 percent of the credits generated from a bank to be met through preservation or enhancement (Ryan). Preservation should be allowed as part of larger mitigation projects, but fixed ratios and percentages will hinder local mitigation officials' ability to ensure appropriate mitigation for each unique situation (Olek, Udelhoven).

Preservation is the preferred method for protecting threatened and endangered species. The guidance should include limits for the percentage of a mitigation project that can be preservation, but also allow for variation. Within the FWS there is a debate about whether the agency should allow preservation credits to be generated on public lands (Marshall). In the Northwest, preservation is not the only key to endangered species recovery. Restoration and enhancement are also necessary for salmon recovery (Hooper).

Preservation should play a role in instances where it will be used to protect rare, high functioning, difficult to replicate wetland types, wetlands that are vulnerable to piecemeal losses, or wetlands that are beyond the reach of §404 (Hefflefinger, Johnson, Rennis, Richardson). No net loss may not make sense when an area of mature forested wetland or other difficult to replace systems can be protected through preservation (Haddaway). Preservation must be used sparingly to protect unique areas and as a means to achieve the greatest benefit for the watershed (Christie). On the coast of Washington, the state allows cranberry growers to preserve interdunal wetland systems to compensate for other wetland impacts because these systems cannot be replicated in other locations (Driscoll). Preservation has a role in achieving connectivity or critical size for habitat functions (Johnson).

The agencies must develop criteria for determining if a proposed preservation site really is an important area

(Richardson). When a property is under a development threat, preservation guidelines should help agencies resist political pressures to preserve property when more beneficial mitigation alternatives exist (Denisoff). It will be difficult to determine what other mechanisms and funds may be available to protect proposed preservation sites (Christie). The use of preservation has become a way for states to supplement or replace their existing land acquisition programs. Funds provided for preservation should not replace existing acquisition funds (Sibbing). In New Jersey, the state has used preservation to fund state parkland acquisition, instead of general funds. This is a bad practice (Sokolove).

There are far too many exceptional circumstances in the Corps' permitting process. The Corps should deny more permits to protect wetlands (Mann). Preservation must be used carefully. If the permit program were more zealous, there would be fewer wetlands under threat. Preservation should be allowed only when wetlands are under true threat, not because the statute is not being properly implemented (Samet). Preservation allows for a net loss of wetlands. Preservation sites often include uplands, which increases the acreage lost (Cooke).

Preservation leads to an inevitable loss of acreage, but it may be useful to achieve no net loss of function (Terzi). The agencies should better define the no net loss policy and whether it should be met on a project-by-project basis or on some larger scale (Siebert). Preservation is appropriate where it furthers the goals of the CWA. The Corps should look at the total effects of all permits' and not require each permit to result in no net loss (Redmond).

The agencies should issue separate guidance on preservation for on-site mitigation and mitigation banks (Siebert). Preservation projects should consider a site's importance for the protection of water quality; however, preserved areas should not be used for water quality treatment to the detriment of other wetland functions (Mann). The guidance should require significant buffers around preserved areas to ensure that ecological values are preserved (Driscoll). The guidance should specify the appropriate legal mechanisms for ensuring the permanent protection of preservation sites and what activities are allowable on preservation sites. In some areas logging is still allowed on preserved sites, which is unacceptable (Sibbing).

The current guidance is working well. It is important that the new guidance does not curtail economic incentives for private preservation (Bleichfeld).

GUIDANCE FOR PROTECTING WETLANDS FOR WHICH MITIGATION, RESTORATION, OR CREATION IS NOT FEASIBLE OR SCIENTIFICALLY VIABLE

Susan Marie-Stedman
NOAA Fisheries

The NAS study stated that avoidance is strongly recommended for wetlands that are difficult or impossible to restore, such as fens or bogs. Based on that recommendation, the National Wetlands Mitigation Action Plan called for the MAP Workgroup to develop guidance for protecting those wetlands for which mitigation, restoration or creation is not feasible or scientifically viable.

The Workgroup is in the early stages of discussing ideas for this guidance. Some of the issues that the group must consider include determining how substantial an issue this is in the field, determining whether the Clean Water Act provides a mechanism to give extra protection to difficult-to-restore wetlands, and identifying what other avenues may exist to protect these sites. Comments were solicited on the participants' experiences with these wetland types and whether it is preferable to undertake risky restoration on difficult-to-restore wetlands or to allow out-of-kind mitigation. The MAP Workgroup would also like to hear what other types of wetlands, besides fens and bogs, are especially difficult to restore, enhance or create.

One approach that the group is considering is issuing a Memorandum to the Field, which would direct field staff to give special emphasis to protecting certain wetland types. The memorandum would be similar to the coral reef memorandum, which discusses how coral reefs are protected, but does not include any new rules or guidance. The memorandum would summarize the definition of "high value" wetland and the lack of restoration/creation success for certain wetland types and would direct field staff to give "special emphasis" to the protection of such wetlands.

Questions and Facilitated Discussion

Many of the sites that are in need of special protection are those that can serve as reference sites, templates, and genetic reserves. Many of these areas may no longer be considered under the jurisdiction of the Corps since the SWANCC decision. Some states have regulations that cover those wetlands excluded by SWANCC. FWS is working on a state programmatic general permit that would be administered by the state of Oregon. The agency has developed criteria for defining Special Areas of Concern that could not be permitted through an expe-

dited permit process even if the impacts are small (Marshall).

Indiana has adopted preliminary rules addressing this issue. Wetlands that are difficult to restore or create have been classified as Tier 2 wetlands. Tier 2 wetlands include dune swales, bogs, fens, marl beaches, and sinkhole swamps (Robb). There will be increased avoidance scrutiny for projects impacting such sites, and restoration must be performed up front for impacts to these wetlands. Washington State is developing a categorization system that includes function, rarity of the wetland type in the landscape, and ability to replicate. Some of the difficult to replicate wetland types found in Washington include alkali wetlands, native emergent marshes, and peat bogs, where there has been non-regulated mining activity (Johnson). Other systems that should be considered include spring-fed streams, seeps, and other aquatic resources that are positional in nature (Sibbing). Two different types of wetlands fit this category: wetlands that are dependent on landscape position (including estuaries) and mature forested wetlands (Haddaway). Sweet bay magnolia seeps of south Arkansas and sand ponds in northeast Arkansas are rare and hard to replicate wetlands (Richardson).

Wisconsin's wetland water quality standards include a provision stating that after avoidance and minimization, the project must have "no significant adverse impacts to wetland functions and values." This is the mechanism that is used to avoid impacts to certain wetland types. Very few impacts are permitted in sites that are defined as "Areas of Special Natural Resource Interests," which includes calcareous fens. Another category is slightly less rigorously guarded. The agencies should consider developing incentives for mitigation projects that would add to the knowledge base about how to replicate certain wetland types (Siebert).

There is evidence of success in restoring vernal pools (Dennisoff). It is virtually impossible to create vernal pools, but they may be restored (Stedman).

Wetland impacts are impossible to avoid in some projects, such as those that are linear. Transportation agencies often must choose between which wetlands they would prefer to impact. In an effort to avoid NRCS Wetland Reserve Program (WRP) properties, the agency may be forced to impact more mature, valuable wetlands (Richardson).

Impacts should not be permitted if they are not mitigable. If permits are granted for such impacts, they must include mitigation in advance (Hefflefinger, Samet, Sibbing). When impacts to these areas are unavoidable, the Corps should require mitigation in advance to demonstrate that the mitigation is at least on a trajectory to replicate lost functions. This will create a disincentive

for impacting these wetlands (Hooper, Mogenson). Developers may claim that they cannot pay for mitigation until they have the funds from the development of the impact site (Rennis).

The MAP Workgroup should publish a list of these special areas for planning purposes (Smith). This effort should not lead to the development of two categories of wetlands: those types that are expendable and those that are not. Avoidance should be the first consideration for all wetland impacts (Hefflefinger, Mann, Samet). These critical areas should be identified in advance (Hooper, Marshall). The North Carolina Department of Transportation has identified "high quality resources" for planning purposes. The agency has worked to identify low impact alternative construction methods. These sites should be mapped for both private and public development planning (Ferrell).

Good documentation of mitigation success is essential to determine what types of wetlands are particularly difficult to mitigate. Mitigation ratios should be based on science and adjusted according to actual mitigation success records for given wetland types (Christie).

The Corps could require developers to contract with land management organizations to complete the design, construction, and management of the mitigation sites for difficult to mitigate wetland projects (Rennis). Having these organizations conduct mitigation does not guarantee success (Stedman). The National Association of Home Builders' members regularly partner with expert organizations to do mitigation projects. Sometimes, however, it is not worthwhile for The Nature Conservancy and other organizations to get involved with small mitigation projects (Asmus). Highway projects and other projects that have large impacts may face these issues more regularly than do homebuilders (Stedman).

Many local land trusts do not have the capacity to conduct long-term management of mitigation sites, or manage sites in perpetuity, and some groups are opposed to working on mitigation in principle (Pace, Redmond). The Center for Natural Lands Management tries to use mitigation methods with which it is familiar. When new methods emerge for mitigating difficult wetland types, the group is willing to try them. The center is working to develop a methodology to determine long-term costs and present them in a transparent manner, such that costs are clearly stated and itemized. This may encourage more land trusts to become involved in mitigation land management (Pace). Land trusts in Oregon will not manage mitigation land because there is no mechanism for endowments or conservation easements (Marshall).

The focus on natural processes in mitigation sites should keep maintenance costs low, but some organizations charge excessive rates to do monitoring and mainte-

nance. Government agencies can often do maintenance and management for less (Sokolove). Mitigation projects must have good endowment accounts for long-term management. In some circumstances, it may be irresponsible to donate sites to government entities because they may not have resources to undertake management (Denisoff).

When a resource is irreplaceable, replacement ratios should not even be a consideration. These areas must be avoided. The FWS has developed a categorization system that classifies these rare, high quality or difficult to recreate wetlands as resource category one. Impacts to such resources must be avoided; there is no discussion of compensatory mitigation (Marshall). Difficult to replicate and impossible to replicate wetlands are very different. The former can be dealt with using increased mitigation ratios, but the latter cannot (Marshall, Robb). It is important to acknowledge that difficult to replace, restore or replicate wetlands may not necessarily be the most valuable wetlands (Stedman).

GUIDANCE ON THE APPROPRIATE USE OF BUFFERS AS A POTENTIAL COMPONENT OF COMPENSATORY MITIGATION

Leander Brown

Natural Resources Conservation Service

In 1993, the National Academy of Sciences issued a report finding that buffers were underused as a conservation practice and urging their widespread use by farmers, ranchers, and other landowners. Buffers can solve a range of soil, water, air, and wildlife conservation problems. As part of the 1995 Farm Bill, the U.S. Department of Agriculture (USDA) launched the National Conservation Buffer Initiative to encourage the use of buffers by agricultural producers and others. The goal of the initiative was to help farmers, ranchers, and other landowners install 2 million miles of conservation buffers nationwide by 2000. As of June 30, 2003, more than 1.4 million miles (5.1 million acres) of buffers have been completed. Nearly 100 federal agencies, agricultural and conservation organizations, and agriculture companies have signed on in support of the USDA's buffer initiative.

Buffers are strips of land planted with permanent vegetation to protect natural or manmade elements of the landscape from adverse consequences of human activity, such as agriculture and timber harvest, and from natural disasters, such as floods. Buffers can be planted within farm fields, at the edges of fields, outside of field margins, on grazing or forestland, or in urban landscapes. In order to ensure that planning for buffers is included beginning in the early stages of the development process, government agencies need to do a better job of educating people about the importance of buffers. Buffers are living filters

that trap sediment and pollutants, slow stormwater runoff, reduce wind and water erosion, and clean the air. Buffers can serve to conserve healthy soil, improve water quality, improve both terrestrial and aquatic habitat, provide cleaner air, reduce flooding, make landscapes more attractive, improve safety at farming and ranching operations, and decrease noise and odor.

Different landscapes and desired functions require different types of buffers. A few of the types of buffers that are commonly used are filter strips, riparian buffers, grassed waterways, contour buffer strips, vegetative barriers and grass hedges, cross-wind trap strips, herbaceous wind barriers, shelter belts and field windbreaks, living snow fences, field borders, and alley cropping. Buffers are both environmentally and economically advantageous for agricultural producers. Several USDA programs help farmers to cover the costs of installing and maintaining buffers. For information about the USDA's programs to promote the use of buffers, see <http://www.nrcs.usda.gov>.

Questions and Facilitated Discussion

A participant inquired whether buffers need protection to ensure that they are able to function fully (Rennis). More buffer space generally gives better protection for the buffered resource. It takes less effort and cost to manage lands that have less edge per acre of internal area (Pace).

NRCS has lots of standards and technical information available on the use of buffers. Much of the information is available on the web (Christie). Field offices can also offer technical assistance (Brown). NRCS field offices have standards for buffer types and widths for various functions. Some species need both wetland and upland habitat; both types of habitat may need buffers to assure quality. Buffers may be necessary for any number of purposes, such as noise, smell, and spray drift (Cerna).

Washington State Department of Ecology is currently compiling research on an array of wetland issues, including studies on what buffer widths are needed to manage for specific functions. The states can only recommend buffer widths, but cannot regulate them. The new guidance should include recommended buffer widths, even if the federal agencies do not have the regulatory authority to mandate certain widths (Cooke).

Permit requirements and buffer design guidelines must clarify the desired function of the buffer under consideration (McCabe).

A participant inquired about what the agencies might include in the buffer guidance that is due in 2004 (Cooke). The agencies have not yet drafted the buffer guidance. A draft will likely be completed next year and the agencies will seek feedback at that point (Sudol). The new guidance will build on the minimal guidance in RGL

02-2, which says that it is permissible to give mitigation credit for buffers as long as those buffers augment the functions provided by the wetlands that are being restored, enhanced, created, and/or preserved as part of the mitigation plan (Hough).

There seems to be concern that if credit is assigned for upland buffers, then buffer acreage is being traded for wetland mitigation acreage. The participants' thoughts were solicited on how the existing guidance, which states that credit should be given for buffers to the extent that it augments wetland functions, is working in the field (Stedman).

Buffers are a very good idea, but they should not be included in mitigation acreage ratios. The focus must remain on achieving no net loss of wetland acres (Rennis). Buffers are part of the ecological landscape. If buffers add functions, then they should be assigned credit. How much credit is given may be negotiable, possibly according to regional considerations (Marshall).

There are two issues surrounding buffers in compensatory mitigation. One is requiring buffers that are necessary to protect functions at compensatory mitigation sites and how wide those buffers should be. The other issue is whether credits should be assigned for buffers beyond those required for a mitigation site to function properly. There should be stronger requirements for buffers and enforcement of their maintenance. Washington State's mitigation banking rules require a certain size of buffer depending on the functions that are being sought and no credit is awarded for the minimum buffer. Some credit may be granted for providing additional buffer areas beyond those minimal requirements (Driscoll).

The Chicago district of the Corps gives half credit for buffers up to a certain size. No additional credit is assigned for larger buffers. Some offices are giving credit for buffering avoided impact areas (Ryan).

Buffers may provide more functional benefit for the money than wetland projects depending on the circumstances of the project. In North Carolina, when buffers provide the same functions as wetlands, the state does give mitigation credit for those functions. By being flexible and using watershed planning, the best possible outcome can often be achieved at lower a cost (Ferrell). Wisconsin's buffer guidance defines buffers as "adjacent vegetated uplands." They include the minimum area necessary to protect water quality functions. Buffers are afforded 1:10 credit, but extra credit (1:4) is assigned for ecologically valuable work such as native planting or bigger areas. A cap has been instituted on the total number of credits that can be generated for a bank from uplands (Sierbert).

Buffers can provide the same functions that wetlands do (Ferrell, Mogenson). Separate credit should not be assigned to buffers when they are part of a project and are

necessary for assuring wetland function. Limited credit should be considered for new buffers around exceptional existing wetlands (Sibbing). Giving credit for upland buffers provides another sanctioned process that results in net loss of wetlands. Simply requiring buffers as part of permitting requirements is sufficient incentive for people to restore or protect uplands. The costs of upland buffer protection or creation must be understood and incorporated in the cost of projects (Cooke). The policy of no net loss applies to both acreage and function. If upland buffers are necessary to keep wetland function, they should be required without giving extra credit (Samet).

The accounting mechanisms should document the added value from buffers in order to justify spending public project funds to protect or create them (Richardson). Financial incentives are needed to protect buffer areas. In some regions, flood plain mitigation should get credit, especially where opportunities for wetland mitigation is limited (Mogenson). Monitoring requirements for buffers are needed (Driscoll). Buffers tend to be intruded and shrunk over time. It is important that the edges of the buffer be marked in some way (Cabreza). When credit is assigned to buffers, performance standards must be included and enforced. Buffers are as vulnerable to failure as are mitigation sites (Marshall).

If credit for a buffer is measured by and limited to indirect effects on wetlands, the incentive is too small for some landowners. Incentive to restore whole systems rather than just wetlands should be established (Redmond).

Urban areas will be difficult for the guidance to address because of high costs of land for buffers (Driscoll). In urban areas or other situations where opportunities for buffers are limited, buffers must be creatively designed as part of mitigation (e.g., averaging buffer width rather than setting a strict standard) (Marshall).

There are some considerations for the agencies drafting the guidance drawn from issues encountered in the field. Permittees may seek fill permits to create upland buffers around wetland mitigation areas. Streamside buffers may later be seen to constitute an impact that must be mitigated (Morlan). In some circumstances, buffers should not be required, for example when a project blends well with surrounding habitat (Rennis). Applicants have inquired whether "pretty wetlands" that have been created for mitigation or aesthetic reasons serve as buffers to natural wetland systems (Redmond).

Buffers can have value other than buffering mitigation areas, such as providing habitat functions (Cabreza, Hooper). Mitigation plans should require mitigation for lost upland functions that are tied to wetland functions (e.g., amphibian habitat) (Hooper). Making the distinction between wetlands and uplands fails to recognize that

these areas are integrally connected ecologically (Marshall). The agencies should be mindful about wetland regulations that apply to uplands. This may lead to jurisdictional problems (Christie).

Standards requiring native plants in buffers are insufficient. Standards must require planting that makes sense in the ecological region or subwatershed. Reference sites can be useful in determining what is ecologically appropriate (Marshall).

Secondary impacts from fill are not always recognized in establishing mitigation requirements (Mann).

COMPENSATORY MITIGATION AND THE WATERSHED APPROACH

Joy Zedler
University of Wisconsin

The MAP calls for the federal agencies to conduct an analysis on the use of compensatory mitigation within a watershed context and to identify criteria for making compensatory mitigation decisions in this context by 2005. Dr. Zedler stated that she would like to see this effort lead to the development of regional watershed plans that include the following: an historical assessment of what has been lost in the region (wetland types and acreage); an assessment of what remains (wetland types and acreage); and expert opinion of what wetland resources need to be restored; and where, when, and how much acreage needs to be restored. Although, in the short-term, it may not be feasible to complete such plans for all watersheds; perhaps demonstration watershed plans should be developed to answer some of the pressing questions, such as determining appropriate buffer size requirements.

A watershed strategy for wetland mitigation is needed to improve water quality, reduce invasive species impacts, and restore species richness. The primary focus of Zedler's research is invasive species and wetland ecology. Two invasive species, *Typha glauca* (invasive cattail) and *Phalaris arundinacea* (reed canary grass), are particularly serious problems for wetland mitigation projects across the country. These species have developed reproductive strategies that enable them to invade entire wetland ecosystems, converting once diverse landscapes to monotypes. Around Madison, Wisconsin, those areas that have become infested with reed canary grass tend to be areas where stormwater drains into wetlands. Areas that have more reed canary grass have fewer species present and lower quality species (based on coefficients of conservatism, which reflect species sensitivity to disturbance). Wetlands are increasingly dominated by invasive species, and lower quality species. Restoring the dominance of native species, increasing native species, and allowing for

the success of higher quality species are the primary challenges faced in wetland mitigation.

Dr. Zedler's research described in the presentation has focused on the factors that allow reed canary grass invasion to occur. Increased light levels in many wetlands encourage the species' establishment and spread. Clonal subsidy allows rhizomes in densely shaded areas to be supported by other rhizomes in areas with more light. Increases in nitrate and other nutrient levels enhance its ability to spread and suppress diversity. High sedimentation rates can reduce topographic variability, thereby supporting invasion. Reed canary grass can tolerate many different hydroperiods. Species-rich vegetative canopies reduce invasibility of *Phalaris* by limiting light availability.

An ongoing wet-prairie mesocosm experiment at the University of Wisconsin is testing the hypothesis that *Phalaris* is able to completely dominate when disturbances (e.g., stormwater runoff) make native communities more vulnerable while making the invasive species more aggressive. Thus far, the hypotheses have been supported by the observations that in the experimental mesocosms, stormwater simultaneously makes native communities vulnerable (via flooding) and makes *Phalaris* more aggressive (via increased light and nutrient loads).

Invasive species problems cannot be solved solely by working on-site; they must be addressed at the point where pollutants enter the watershed. Wetland mitigation projects must therefore go beyond the immediate site to address watershed scale problems. The Pheasant Branch Conservancy is a community group that has restored sedge meadows to a drainage ditch area near Madison. Realizing that they needed to go beyond the restoration area to successfully restore a site, they followed the source of nutrients in the watershed upstream to a large feedlot. In order to address the nutrient loading from the feedlot, the group put in small, shallow wetlands to act as impoundments and trap and denitrify the runoff where it entered the watershed.

Proactive rather than reactive planning must be implemented. Some experts estimate that 10 percent, or 11.4 million acres, of the historical wetland acreage lost in the United States must be restored. This effort should start with demonstration watersheds that we can illustrate how much and what kinds of restoration must be done to improve water quality to the desired levels. Under the watershed approach, knowing the amount of wetland acreage and the location of restoration projects will be necessary to achieve desired functions.

By strategically locating wetlands, better nitrate removal can be achieved. Under the Iowa Conservation Reserve Enhancement Program, in order for wetlands to be eligible for restoration, they must be downstream of a tile-drainage system, must drain at least 500 acres of crop-

land, must be 0.5 to 2 percent of the area drained, and must be shallow (at least 75 percent of the area must be less than 0.9 meters in depth). Over three years, the Iowa program will restore 8,000 wetland acres at a cost of \$33 million. In addition to this program, Wetland Reserve Program, Partners for Wildlife, and mitigation banks may provide funds to help develop watershed-level strategies for wetland mitigation.

A two-phase restoration program may be needed that includes projects that focus on denitrification and water quality improvements, and projects that can benefit from clean water to provide habitat. Restoring wetland areas that are adjacent to or near habitat remnants and existing wetlands can maximize the functional gain of a restoration project. Some tools are being developed to help determine where to locate wetland restoration projects to provide the biggest functional lift on a landscape scale.

Determining what types of wetlands to restore is another difficult issue that must be explored in developing watershed strategies. While ponds are very rarely lost, they are among the most commonly restored and created wetland types. Often ponds are not native to the landscapes where they are created. Placing ponds or other wetland types in areas where they are not naturally found can cause ecological problems, such as attracting and supporting non-native species.

Sedge meadows are among the most common wetland type. Topographical heterogeneity (e.g., pit and mound, tussocks, hummocks, etc.) can support greater species diversity in sedge meadows. Research is being done to test the effectiveness of creating artificial hummocks and restoring topographical heterogeneity in a variety of wetland types.

Questions and Facilitated Discussion

Most wetland impacts in Oregon are small. Moving to a watershed approach in the state will require integrating the watershed guidance with existing in-lieu-fee and mitigation banking guidance (Morlan).

Achieving a 10 percent wetland restoration rate would lead to dramatic changes in stream flow characteristics (Novitzki). Compensatory mitigation is only one component of the watershed approach. Voluntary wetland restoration activities may be a larger part of the process. Nonetheless, it is important to be strategic in using compensatory mitigation to help reach the 10 percent goal (Christie). A participant asked if the 10 percent restoration goal relates to meeting specific functional goals (Christie).

FWS is developing a prairie quality index that is based on the weighted frequency of native and non-native species (Marshall).

A watershed approach works best where there is good data on landscape history and a solid plan developed in advance. In some circumstances, allowing out-of-kind mitigation may be the most beneficial strategy in a given watershed (Denisoff).

A participant inquired whether any research is being conducted on the overlap between water quality and flood control functions (Sibbing). A study looking at classification of about 1,000 wetlands in Vermont or New Hampshire according to their type and the quality of their functions was conducted by Cedfeldt and published in *Environmental Management* (Zedler).

The Wisconsin Department of Natural Resources is not very supportive of mitigation banking. If banking is going to be a part of Wisconsin's watershed approach, the agency's policy will need to change (Ryan). Compensatory mitigation is a small component of the agency's watershed approach. It does not make much sense to change the agency's policies to promote more wetland loss in order to be able to do more mitigation as part of a watershed approach (Siebert).

Reed canary grass control in the Northwest is normally most successful in flooded areas. As soon as flooding recedes, the reed canary grass moves in (Marshall). Some herbicides may be necessary to deal with non-native species (Zedler).

A participant discussed current research on a 30-acre bog with reed canary grass and inquired whether denitrifying bacteria could be used in the site to help reduce nitrate levels (Budhaphatti). It may not be necessary to introduce bacteria if wetland conditions are designed correctly. Some flooding might be helpful in removing the reed canary grass (Zedler). A participant inquired into the types of *Typha* treatment that have been used in Wisconsin (McCabe). Water level manipulation and burning techniques can be successful in eliminating *Typha* rhizomes (Zedler).

WRAP-UP AND CLOSING STATEMENTS

Mark Sudol
U.S. Army Corps of Engineers

Palmer Hough
U.S. Environmental Protection Agency

Sudol stressed that the Corps and EPA are working together with the other federal agencies to improve wetland mitigation policy. He thanked Hough of the EPA for his work as the primary source of continuity between the many agencies participating in the MAP process.

Hough extended his thanks to the stakeholder participants in the forum for their input on all of the documents and issues discussed during the forum. He thanked the Port of Portland, the Oregon Department of Transportation, and the other local partners for making the field trip on day one possible. He remarked that it was great to see permittees like the Port of Portland that are committed to doing good mitigation and addressing the challenges of mitigation. He thanked the representatives from the Washington Department of Ecology for presenting their innovative work and said that it is likely that some of their work will be incorporated into upcoming national guidance and policy. He also thanked the National Mitigation Bankers Association for sponsoring the evening reception that allowed for informal discussion and interaction. He thanked the facilitation team from the Environmental Law Institute including Jessica Wilkinson, Turner Odell, Ken Rosenbaum, and Zach Lamb. He also thanked Yvonne Vallette and the Portland team from EPA for all of their efforts in organizing the forum.

Hough then recognized the other members of the MAP Workgroup in attendance. He stressed again the rewards of the interagency process that has been developed for the MAP process.

Sudol and Hough then highlighted some of the issues that were discussed repeatedly during the forum. Many stakeholders called for greater public participation in the Corps' process in terms of decision-making, mitigation plans, mitigation monitoring reports, and public notice. Sudol stated that as the Corps converts to using its new database, there will be more information available on the internet.

The importance of adhering to the sequencing requirements in mitigation decision-making was discussed repeatedly during the forum. Although all of the components of the MAP focus on compensatory mitigation, this should not be viewed as an indication that the agencies are de-emphasizing their commitment to avoidance and minimization.

Many stakeholders raised issues related to the importance of balancing the need for standardization and consistency in the Corps' permit process with the need for

flexibility to account for regional and project-by-project variability. Another important point that came up repeatedly is the need to recognize that the mitigation process is intended to protect aquatic resources generally, not just wetlands.

Several participants raised issues related to when and how the Corps will use HGM. Though the Corps has been working on HGM for a long time, the agency is stressing the importance of developing and implementing this tool with the help of EPA.

Many stakeholders emphasized the importance of integrating all of the various guidance documents that are being produced as part of the MAP process. The MAP team recognizes that this is a major challenge and would welcome any input on how to better integrate all of these various documents and issues. Compliance and enforcement issues were raised repeatedly during the forum. The Corps is beginning to look at a goal of no net loss of aquatic resources generally, not just wetlands. In order to reach these goals, the Corps is working with the Office of Management and Budget to secure funding to do more permit compliance and enforcement work. The RGL 02-2 and the MAP have started the sweeping reforms that were called for by the NAS. The Corps and EPA are committed to ensuring that the overall standards for mitigation are raised rather than lowered by these changes.

Among the specific issues that were raised were the need to consider the water rights available to a permit applicant for a given mitigation site to ensure sustainable hydrology, the need to allow functional replacement to be split between mitigation projects, the need to look more critically at enhancement as a means of wetland mitigation, and the need to balance detailed upfront planning with flexibility and adaptive management.

In order to accomplish a true watershed approach, the MAP is not enough. The Corps is going to need GIS tools in district offices and more complete state and local data. From the RGL, the Corps will develop district mitigation guidelines. Regarding functional assessment, the Corp is developing ecologically driven success criteria specific to different aquatic resource types and areas of the country. Integrating the new ORM database with GIS will be the final step in helping the Corps reach a true watershed approach.

The agencies are seeking feedback from stakeholders in the form of written comments on the draft guidance documents and suggestions for the 2004 and 2005 MAP tasks. Participants can reach Hough or any of the other MAP team members to submit feedback. The MAP team is also interested in hearing from stakeholders that want to become or remain involved in the process of reviewing and commenting on the guidance and policy that comes out of this process.

LOOKING FORWARD

This mitigation forum was the third 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 Fisheries, 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.

An audio recording of the forum, 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 web site at <http://www.eli.org/research/wetlandsmitigationforum2003.htm>. Other policy documents related to federal wetlands mitigation can be accessed through the web sites 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>.

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 Goodin
U.S. Environmental Protection Agency
Wetlands Division (4502T)
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Phone: (202) 566-1373
Fax: (202) 566-1375
E-Mail: goodin.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 Fisheries:

Susan-Marie Stedman
NOAA Fisheries
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:

Albert Cerna
USDA Natural Resources Conservation Service
Watersheds and Wetlands Division
P.O. Box 2890
Room 6028 - South Building
Washington, DC 20013
Phone: (202) 690-3501
Fax: (202) 720-2143
Email: albert.cerna@usda.gov

Billy Teels
Natural Resources Conservation Service
Patuxent Wildlife Research Center Building #109
12311 Beech Forest Road
Laurel, MD 20708
Phone: (301) 497-5938
Fax: (301) 497-5911
Email: billy_teels@nbs.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

Hannah Visser
Federal Highway Administration
Office of Natural and Human Environment
400 7th Street, SW
Washington, DC 20590
Phone: (202) 366-2066
Fax: (202) 366-3409
Email: Hannah.Visser@fhwa.dot.gov

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

Bob Brumbaugh
Army Corps of Engineers - Institute for Water Resources
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

Meg Smith
Environmental Planner/Policy Analyst
Institute for Water Resources
Corps of Engineers
7701 Telegraph Road
Phone: (703) 428-6370
E-Mail: Meg.E.Smith@wrc01.usace.army.mil

APPENDIX A:

Final Agenda

THIRD STAKEHOLDER FORUM ON FEDERAL WETLANDS MITIGATION

July 29-31, 2003
Portland Conference Center
300 NE Multnomah Street
Broadway Conference Room, 2nd Floor
Portland, Oregon

Sponsored by:

City of Eugene
Federal Highway Administration
NOAA National Marine Fisheries Service
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
Washington Department of Ecology

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 2003.
- Solicit input on future Mitigation Action Plan actions and goals for 2004-2005.

Day One: July 29, 2003

Day One Optional Field Trip to area mitigation sites

Transportation courtesy of Oregon Department of Transportation

Tour guides courtesy of Port of Portland

A REGIONAL PERSPECTIVE

Welcome

Turner Odell, Environmental Law Institute

LTC Charles Markham, Deputy District Engineer, U.S. Army Corps of Engineers, Portland District

Washington State wetlands and results of mitigation success studies

Patricia Johnson, Washington State Department of Ecology

Lauren Driscoll, Washington State Department of Ecology

City of Eugene's wetland mitigation program

Eric Wold, City of Eugene

SESSION I REVIEW AND DISCUSSION OF COMPLETED ACTION ITEMS

Presentation: Guidance on the Use of the TEA-21 Preference for Mitigation Banking to Fulfill Mitigation Requirements Under Section 404 of the Clean Water Act

Mary Gray, Federal Highway Administration

Questions and Facilitated Discussion

Presentation: Mitigation Regulatory Guidance Letter (RGL 02-2)

Michael Rabbe, U.S. Army Corps of Engineers

Questions and Facilitated Discussion

Presentation: Grants to Improve Compensatory Mitigation

Palmer Hough, U.S. Environmental Protection Agency

Questions and Facilitated Discussion

Day Two: July 30, 2003

Welcome

John Meagher, U.S. Environmental Protection Agency
John Lilly, Oregon Division of State Lands

SESSION II REVIEW AND DISCUSSION OF ACTION ITEMS CURRENTLY IN DRAFT FORM

Presentation: Draft Guidance on the Use of Off-Site and Out-of-Kind Compensatory Mitigation Under Section 404 of the Clean Water Act
Susan-Marie Stedman, NOAA Fisheries

Questions and Facilitated Discussion

Presentation: Draft Adaptation of NAS Guidelines to the Clean Water Act Section 404 Program
Mark Sudol, U.S. Army Corps of Engineers

Questions and Facilitated Discussion

SESSION III REVIEW AND DISCUSSION OF ITEMS IN PROGRESS IN 2003

Presentation: Model Mitigation Plan Checklist
Bob Brumbaugh, U.S. Army Corps of Engineers, Institute for Water Resources
Kathryn Harris, U.S. Army Corps of Engineers, Portland District

Questions and Facilitated Discussion

Presentation: Technical Guidance on Stream Mitigation Protocols
Mike Rabbe, U.S. Army Corps of Engineers

Questions and Facilitated Discussion

Presentation: Mitigation Site Performance Standards Review and Analysis
Palmer Hough, U.S. Environmental Protection Agency

Questions and Facilitated Discussion

Presentation: Mitigation Site Tracking Database Evaluation
Mark Sudol, U.S. Army Corps of Engineers

Questions and Facilitated Discussion

Concluding Remarks

Day Three: July 31, 2003

SESSION IV REVIEW AND DISCUSSION OF ITEMS TO BE COMPLETED IN 2004-2005

Presentation: Guidance on the Appropriate Use of Preservation for Compensatory Mitigation
Jeanette Gallihugh, U.S. Fish and Wildlife Service

Questions and Facilitated Discussion

Presentation: Guidance for Protecting Wetlands for which Mitigation, Restoration, or Creation is not Feasible or
Scientifically Viable
Susan Marie-Stedman, NOAA Fisheries

Questions and Facilitated Discussion

Presentation: Guidance on the Appropriate Use of Buffers as a Potential Component of Compensatory Mitigation
Leander Brown, Natural Resources Conservation Service

Questions and Facilitated Discussion

Presentation: Compensatory Mitigation and the Watershed Approach
Joy Zedler, University of Wisconsin

Questions and Facilitated Discussion

Wrap-up and Closing Statements
Palmer Hough, U.S. Environmental Protection Agency
Mark Sudol, U.S. Army Corps of Engineers

APPENDIX B: 2002 NATIONAL WETLANDS MITIGATION ACTION PLAN

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 agencies 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—Scott B.Gudes/ 12/24/02
/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—George E. Schoener/12/24/02

/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.

APPENDIX C: PARTICIPANT CONTACT INFORMATION

Susan Asmus
National Association of Home Builders
1201 15th Street, NW
Washington, DC 20005
Phone: (202) 772-1092
Fax: (202) 772-3321
Email: sasmus@nahb.com

Margaret Barrette
Environmental Planner
Washington State Department of Natural Resources
Aquatic Resources Division
P.O. Box 47027
Olympia, WA 98504-7027
Phone: (360) 902-1116
Fax: (360) 902-1786
Email: margaret.barrette@wadnr.gov

Howard Bleichfeld
Van Ness Feldman
1050 Thomas Jefferson Street, NW, 7th Floor
Washington, DC 20007
Phone: (202) 298-1945
Fax: (202) 338-2416
Email: hsb@vnf.com

Roger Borine
USDA, NRCS
625 SE Salmon Road, Suite 4
Redmond, OR 97756
Phone: (541) 923-4358
Fax: (541) 923-4713
Email: roger.borine@or.usda.gov

Jim Brawner
Utility Water Act Group
700 Universe Boulevard
Juno Beach, FL 33408
Phone: (561) 691-7051
Fax: (561) 691-7049
Email: jim_brawner@fpl.com

Leander Brown
USDA, NRCS
Wetland Science Institute
Building 109, 12311 Beech Forest Road
Laurel, MD 20708
Phone: (301) 497-5939
Fax: (301) 497-5911
Email: leander_brown@usgs.gov

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

Jennifer Budhaphatti
METRO Regional Park and Greenspaces
600 NE Grand Avenue
Portland, OR 97232
Phone: (503) 797-1876
Email: budhabhattij@metro.dst.or.us

Joan Cabreza
Wetland Scientist
U.S. EPA
Region 10
1200 Sixth Avenue
Seattle, WA 98101
Phone: (206) 553-7369
Fax: (206) 553-1775
Email: cabreza.joan@epa.gov

Albert Cerna
Natural Resource Manager
USDA, NRCS
Watershed and Wetlands Division
P.O. Box 2890
Room 6028 - South Building
Washington, DC 20013
Phone: (202) 690-3501
Fax: (202) 720-2143
Email: albert.cerna@usda.gov

Jeanne Christie
Executive Director
Association of State Wetlands Managers
12311 Piscataway Road
Clinton, MD 20735
Phone: (301) 292-4875
Fax: (301) 292-4813
Email: jeanne.christie@aswm.org

Sarah Cooke
Cooke Scientific Services
Washington Wetland Network
919 NE 71st Street
Seattle, WA 98115
Phone: (206) 525-5105
Fax: (206) 525-5351
Email: cookess@aol.com

Rebecca Cooper
Wetland Team Contractor
NOAA Fisheries
4126 A Bridge Court
Winterville, NC 28590
Phone: (252) 328-6310
Fax: (252) 328-4178
Email: ruc0826@mail.ecu.edu

Kathy Dadey
U.S. EPA
Wetlands Division
1200 Pennsylvania Avenue
Washington, DC
Phone: (202) 566-1446
Email: dadey.kathleen@epa.gov

Craig Denisoff
Vice President
Wildlands, Inc.
5910 Auburn Boulevard, Suite 17
Citrus Heights, CA 95621
Phone: (916) 331-8810
Fax: (916) 331-8755
Email: cdenisoff@wildlandsinc.com

Tammy Dennee
Executive Director
Oregon Wheat Growers League
115 SE 8th Street
Pendleton, OR 97801
Phone: (541) 276-7330
Fax: (541) 276-1723
Email: tdennee@owgl.org

Larry Devroy
Wetlands Mitigation Specialist
Oregon Division of State Lands
775 Summer Street NE
Salem, OR 97301-1279
Phone: (503) 378-3805
Fax: (503) 378-4844
Email: Larry.Devroy@dsl.state.or.us

John Dodson
American Soybean Association
3098 Unionville
Halls, TN 38040
Phone: 731-286-2268
Fax: 731-286-2268
Email: johndodson1@cs.com

Lauren Driscoll
Wetland Banking Specialist
Washington Department of Ecology
Shorelands and Environmental Assistance Program
P.O. Box 47600
Olympia, WA 98504-7600
Phone: (360) 407-6467
Fax: (360) 407-6426
Email: ldri461@ecy.wa.gov

Mark Engler
Capital Press
Salem, OR
Email: markengler@msn.com

Kay Etzel
 Oregon Cattlemen's Association
 3415 Commercial Street SE
 Suite 217
 Salem, OR 97302
 Phone: (503) 361-8941 x10
 Fax: (503) 361-8947
 Email: kay@orcattle.com

Ron Ferrell
 Program Manager
 Wetlands Restoration Program
 North Carolina Department of Environmental
 and Natural Resources
 1619 Mail Service Center
 Raleigh, NC 27699-1619
 Phone: (919) 733-5219
 Fax: (919) 733-5321
 Email: ron.ferrell@ncmail.net

Ken Franklin
 Aquatic Resources Unit Manager
 Oregon Department of Transportation
 1158 Chemeketa Street NE
 Salem, OR 97301-2528
 Phone: (503) 986-3511
 Fax: (503) 986-3524
 Email: ken.franklin@odot.state.or.us

Bob Frenkel
 Oregon State University
 Department of Geosciences
 Corvallis, OR 97331-5506
 Email: frenkelr@geo.orst.edu

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

Mary Gray
 Environmental Programs Specialist
 Federal Highway Administration
 Evergreen Plaza, Suite 501
 711 S. Capital Way
 Olympia, WA 98501
 Phone: (360) 753-9487
 Fax: (360) 753-9889
 Email: Mary.Gray@fhwa.dot.gov

Brent Haddaway
 Wetland Biologist
 Washington Department of Transportation
 P.O. Box 47221
 Olympia, WA 98504
 Phone: (360) 705-7407
 Fax: (360) 705-6833
 Email: haddawb@wsdot.wa.gov

Kathryn Harris
 U.S. Army Corps of Engineers
 Portland District
 333 SW First Avenue
 Portland, OR 97204
 Phone: (503) 808-4387
 Fax: (503) 808-4375
 Email: kathryn.l.harris@usace.army.mil

Totten Hefflefinger
 Sierra Club
 37 Fifth Avenue
 San Francisco, CA 94118
 Phone: (415) 332-6981
 Email: tph2@pacbell.net

Scott Hoefler
 NOAA Fisheries
 Oregon Habitat Branch
 525 NE Oregon Street
 Portland, OR 97232
 Phone: (503) 231-6938

Thomas Hooper
 NOAA Fisheries
 Email: Thomas.Hooper@noaa.gov

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

Patricia Johnson
 Wetlands Specialist
 Washington Department of Ecology
 Shorelands and Environmental Assistance Program
 P.O. Box 47600
 Olympia, WA 98504-7600
 Phone: (360) 407-6140
 Fax: (360) 407-6902
 Email: PJOH461@ECY.WA.GOV

John Lilly
Assistant Director
Oregon Division of State Lands
Policy and Planning Section
775 Sumner Street NE
Salem, OR 97301
Phone: (503) 378-3885 x281
Email: john.lilly@dsl.state.or.us

Hertha Lund
Assistant Director of Government Relations
Washington Farm Bureau
P.O. Box 2009
Olympia, WA 98507
Phone: (360) 357-9975
Fax: (360) 357-9939
Email: hlund@wsfb.com

Robin Mann
Sierra Club
266 Beechwood Drive
Rosemont, PA 19010
Phone: (610) 527-4598
Fax: (610) 527-7775
Email: robinmann@earthlink.net

Rosemarie Mannik
ECO Associate
U.S. EPA
Wetlands Division
EPA West - Room 610555
1301 Constitution Avenue NW
Washington, DC 20460
Phone: (202) 566-2371
Fax: (202) 566-1375
Email: mannik.rosemarie@epa.gov

Charles Markham
Deputy Commander, Portland District
U.S. Army Corps of Engineers
CENWP-DD
333 SW First Avenue
Portland, OR 97204-3495
Phone: (503) 808-4501
Fax: (503) 808-4505
Email: charles.markham@us.army.mil

John Marshall
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Oregon Fish and Wildlife Office
2600 SE 98th Avenue, Suite 100
Portland, OR 97266
Phone: (503) 231-6179
Fax: (503) 231-6195
Email: John_L_Marshall@fws.gov

David Martin
U.S. Army Corps of Engineers
Southwest Washington Field Office
2108 Grand Boulevard
Vancouver, WA 98661-4624
Email: david.j.martin@usace.army.mil

Michael McCabe
Natural Resource Coordinator
Oregon Division of State Lands
775 Summer Street NE
Salem, OR 97310
Phone: (503) 378-3805 x 255
Fax: (503) 378-4844
Email: mike.mccabe@dsl.state.or.us

Andy McMillan
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504
Phone: (360) 407-7272
Email: anmc461@ecy.wa.gov

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

Tom Melville
\$401 Coordinator
Oregon Department of Environmental Quality
811 SW 6th Avenue
Portland, OR 97204
Phone: (503) 229-5845
Fax: (503) 229-5408
Email: melville.tom@deq.state.or.us

Richard Mogensen
 NMBA President
 Director, Mitigation Banking
 EarthMark, Mid-Atlantic Division
 9301 Aviation Boulevard, Suite CE-I
 Concord, NC 28027
 Phone: (704) 782-4133
 Fax: (704) 782-4148
 Email: richmogensen@earthmark.us

Janet Morlan
 Wetland Program Manager
 Oregon Division of State Lands
 775 Summer Street, NE, Suite 100
 Salem, OR 97301
 Phone: (503) 378-3805 x236
 Fax: (503) 378-4844
 Email: janet.morlan@dsl.state.or.us

Dick Novitzki
 R.P. Novitzki and Associates, Inc.
 4853 NW Bruno Place
 Corvallis, OR 97330
 Phone: (541) 758-0057
 Fax: (541) 758-0275
 Email: novitzki@teleport.com

Dal Ollek
 City of Eugene, Department of Public Works
 252 Pearl Street
 Eugene, OR 97401
 Phone: (541) 682-2868
 Email: Dal.S.OLLEK@ci.eugene.or.us

Brenda Pace
 Center for Natural Lands Management
 60738 Golf Village Loop
 Bend, OR 97702
 Phone: (541) 330-5533
 Fax: (541) 330-5563
 Email: bpace@cnlm.org

Olney Patt
 Executive Director
 Columbia River Inter-Tribal Fish Commission (CRITFC)
 729 Oregon Street
 Portland, OR 97232
 Phone: (503) 238-0667
 Fax: (503) 235-4228
 Email: jpatt@wstribes.org

Mike Rabbe
 State Program Manager
 U.S. Army Corps of Engineers
 441 G Street, NW
 Washington, DC 20314-1000
 Phone: (202) 761-4614
 Fax: (202) 761-4150
 Email: randolph.m.rabbe@usace.army.mil

Andy Rassmussen
 Federal Highway Administration, Western Federal Lands
 610 East Fifth Street
 Vancouver, WA 98661
 Email: ronnyporter@yahoo.com

Ann Redmond
 WilsonMiller, Inc.
 1311 Executive Center Drive, Suite 100
 Tallahassee, FL 32301
 Phone: (850) 878-5001
 Fax: (850) 878-5941
 Email: annredmond@wilsonmiller.com

Denise Rennis
 Mitigation Program Manager
 Port of Portland
 121 NW Everett
 Portland, OR 97209
 Phone: (503) 944-7525
 Fax: (503) 944-7466
 Email: rennid@portptld.com

Bill Richardson
 Asst. Division Head, Environmental Division
 Arkansas Highway and Transportation Department
 P.O. Box 2261
 Little Rock, AR 72203
 Phone: (501) 569-2379
 Fax: (501) 569-2009
 Email: bill.richardson@ahtd.state.ar.us

James Robb
 Environmental Manager
 Indiana Department of Environmental Management
 P.O. Box 6015
 Indianapolis, IN 46206
 Phone: (317) 233-8802
 Fax: (317) 232-8406
 Email: jrobb@dem.state.in.us

Ken Rosenbaum
Attorney
Sylvan Environmental Consultants
1616 P Street, NW
Washington, DC 20036

John Ryan
President
Land and Water Resources, Inc.
9575 West Higgins Road, Suite 470
Rosemont, IL 60018
Phone: (847) 692-7170
Fax: (847) 318-9793
Email: jryan@lawrinc.com

Melissa Samet
Senior Director, Water Resources
American Rivers
6 School Street, Suite 200
Fairfax, CA 94930-1650
Phone: (415) 482-8150
Fax: (415) 482-8151
Email: msamet@amrivers.org

Julie Sibbing
Wetlands Policy Specialist
National Wildlife Federation
1400 16th Street, NW #501
Washington, DC 20036
Phone: (202) 797-6832
Fax: (202) 797-6646
Email: Sibbing@nwf.org

Dave Siebert
Wetland Ecologist
Wisconsin Department of Natural Resources
P.O. Box 7921, 101 S. Webster
Madison, WI 53707-7921
Phone: (608) 264-6048
Fax: (608) 267-5231
Email: david.siebert@dnr.state.wi.us

Brian Smith
Federal Highway Administration
Resource Center at Olympia Fields
19900 Governors Drive, Suite 301
Olympia Fields, IL 60461
Phone: (708) 283-3553
Email: Brian.Smith@fhwa.dot.gov

Bob Sokolove
President
Environmental Restoration, LLC
4340 East West Highway, Suite 200
Bethesda, MD 20814
Phone: (301) 986-9800
Fax: (301) 986-9801
Email: rsokolove@envrestore.com

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

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

Sherry Teresa
Center for Natural Lands Management
425 E. Alvarado Street, Suite H
Fallbrook, CA 92028-2960
Phone: (760) 731-7790
Fax: (760) 731-7791
Email: steresa@cnlm.org

Gail Terzi
Environmental Analyst
U.S. Army Corps of Engineers
Seattle District, Regulatory Branch
P.O. Box 3755
Seattle, WA 98124-3755
Phone: (206) 764-6903
Fax: (206) 764-6602
Email: gail.m.terzi@usace.army.mil

Jay Udelhoven
Washington Department of Natural Resources
1111 Washington Street SE
Olympia, WA
Phone: (360) 902-1060
Email: jay.udelhoven@wadnr.gov

Yvonne Vallette
Oregon Wetlands Coordinator
U.S. EPA
Region 10, Oregon Ops Office
811 SW 6th Avenue, 3rd Floor
Portland, OR 97204
Phone: (503) 326-2716
Fax: (503) 326-3399
Email: vallette.yvonne@epa.gov

Tom Vanderplaat
Water Resource Program Manager
Clean Water Services (OR)
155 North First Avenue, Suite 270
Hillsboro, OR 97124
Phone: (503) 846-8758
Fax: (503) 846-3525
Email: vanderplaatt@cleanwaterservices.org

Eric Wold
Wetlands Program Supervisor
City of Eugene
1820 Roosevelt Blvd.
Eugene, OR 97402
Phone: (541) 682-4888
Fax: (541) 682-4882
Email: eric.n.wold@ci.eugene.or.us

Joy Zedler
Professor of Botany
Aldo Leopold Chair in Restoration Ecology
University of Wisconsin
302 Birge Hall
430 Lincoln Dr.
Madison, WI 53706
Phone: (608) 262-8629
Fax: (608) 262-7509
Email: jbzedler@wisc.edu

Bob Zeigler
Habitat Biologist
Washington Department of Fish and Wildlife
600 North Capital Way
Olympia, WA 98501-1091
Phone: (360) 902-2578
Fax: (360) 902-2946
Email: zeiglbcz@dfw.wa.gov

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