

**WATER QUALITY SUBCOMMITTEE****Conference Call Summary****December 21, 2005****10:30 a.m. – 12:30 p.m. EST*****Welcome and Opening Remarks*****Herb Windom, Ph.D., Chair, Water Quality Subcommittee**

Dr. Herb Windom (Skidaway Institute of Oceanography) welcomed the Subcommittee members and thanked them for beginning the draft responses to the charge questions. He requested that they read the Water Quality Research Program Multi-Year Plan (MYP) and the section of the U.S. Environmental Protection Agency (EPA) Strategic Plan that relates to the Water Quality Research Program.

***Administrative Procedures*****Bernice L. Smith, Ph.D., Designated Federal Officer (DFO), Water Quality Subcommittee, EPA**

Dr. Bernice Smith (Office of Research and Development [ORD], EPA) thanked the Subcommittee members for their participation and stated that this call was open to the public. She explained that the Board of Scientific Counselors (BOSC) is a federal advisory committee that provides independent scientific peer review and advice to ORD. The Water Quality Subcommittee was established by the BOSC Executive Committee to review ORD's Water Quality Research Program. There are seven members of the Subcommittee. The Subcommittee has been asked to respond to charge questions and provide a draft report for the deliberation of the BOSC Executive Committee. The BOSC Executive Committee will review the Subcommittee's report and revise it as necessary before submitting it to ORD. Dr. Smith noted that the rights of decisionmaking and program implementation remain with EPA. She stated that an administrative teleconference involving the Subcommittee members had taken place on December 7, 2005. The next conference call is scheduled for January 12, 2006, at 1:30 p.m. EST. A face-to-face meeting is scheduled for January 25-27, 2006, in Cincinnati, Ohio.

Dr. Smith explained that, as DFO, she serves as the liaison between the Subcommittee and EPA and ensures that the Subcommittee complies with the provisions of the Federal Advisory Committee Act (FACA), which include the following:

- ✧ All Subcommittee meetings on substantive issues are open to the public and must be announced via a *Federal Register* notice at least 15 calendar days in advance of the meeting. Notice for this conference call was published in the *Federal Register* on November 29, 2005.

- ✧ All group communications that involve at least one-half of the Subcommittee, whether by telephone, e-mail, or in person, must be open to the public. Issues that are solely administrative or preparatory in nature are exempt from this requirement.
- ✧ The DFO must approve the agenda and attend all meetings.
- ✧ The Chair of the Subcommittee must certify the meeting/conference call minutes within 90 days of the meeting/conference call.
- ✧ All advisory committee documents must be made available to the public.

Additionally, Dr. Smith stated that each Subcommittee member has filed a standard government financial disclosure report. These reports were reviewed by the appropriate EPA officials, and Dr. Smith has contacted those members who need to address issues raised by EPA officials. She requested that all Subcommittee members complete their annual ethics training by Friday, December 23, 2005. Dr. Smith provided the members a link to the online training Web site. When the training has been completed online, a message will be sent to EPA. Dr. Smith also requested that the Subcommittee members document the number of hours spent working on Subcommittee business. She will collect this information at the face-to-face meeting in Cincinnati. Dr. Smith also asked that Subcommittee members send her their travel forms for attendance at the face-to-face meeting.

Dr. Smith stated that no members of the public have requested time to speak during this conference call. There will be an opportunity for members of the public to make comments at the end of the conference call, and public comments will be limited to 3 minutes each.

Dr. Windom then introduced Dr. Teichman, who provided an overview of ORD.

### *Overview of the Office of Research and Development*

#### **Kevin Teichman, Ph.D., ORD, EPA**

Dr. Kevin Teichman, Director of ORD's Office of Science Policy (OSP), presented an overview of ORD. With nearly 2,000 employees, 13 laboratory and research facilities, and a \$600 million budget, including \$70 million for extramural grants, ORD is tasked with providing credible, relevant, and timely research results and technical support to inform EPA's policy decisions. Dr. Gary Saylor (University of Tennessee) asked how much of the extramural budget was allocated to the Science To Achieve Results (STAR) Program. Dr. Teichman explained that the \$70 million figure is for the STAR Program. Cooperative Agreements are included in another part of the budget. The \$600 million covers extramural research through the STAR Program, Cooperative Agreements or contracts through the laboratories and centers, and the salaries for laboratory and center employees.

Dr. Teichman explained that the objective of this program review is to evaluate the research program's plans and past accomplishments to ensure that the Water Quality Research Program is on target from a scientific perspective and a customer point of view. As part of the review process, the program's customers will discuss how the research informs their decisionmaking.

Dr. Teichman explained that ORD's mission is to advance scientific knowledge to solve environmental problems facing EPA. ORD conducts research in both human health and ecological effects, which makes it unique in the federal government; other agencies focus on one area or the other. In addition to conducting research, ORD provides technical advice and assistance to EPA program offices and regions. ORD also provides scientific leadership, conducting cutting-edge research that contributes to the understanding of environmental issues.

ORD's support to the program offices and regions furthers EPA's mission to protect human health and the natural environment. The program offices make national decisions for standards and guidance materials. There are several program offices; the Office of Water (OW) is the most closely associated with the Water Quality Research Program. The regional offices have the primary responsibility for interfacing with the states. EPA achieves its mission by making national level decisions, which are implemented on a local level. ORD supports the program offices in their decisionmaking and the regional offices in their implementation, and it supports EPA's mission directly by conducting environmental research.

Dr. Teichman presented ORD's organizational structure. At the top of the organization chart is the Immediate Office of the Assistant Administrator (AA). Dr. George Gray, the AA, is ORD's lead political appointee. He is supported by two Deputy Assistant Administrators (DAAs); Dr. William Farland is the Acting DAA for Science, and Mr. Lek Kadeli is the DAA for Management. Mr. Michael Brown, Associate AA and ORD's only other political appointee, works primarily on communications and Congressional relations.

The laboratories and centers conduct research, and they represent the risk assessment paradigm of human health, exposure, risk management, and environmental assessment. The National Center for Environmental Research manages the STAR Program. There are two new centers, the National Homeland Security Research Center and the National Center for Computational Toxicology.

National Program Directors (NPDs) were established recently for each of the research programs. Dr. Charles Noss is the NPD for Water Quality. His responsibilities are to plan the research program in the water quality area and to work with the laboratories and centers to implement those plans, conduct the research, and communicate the results of the research to ORD's customers.

The Office of Resources Management and Administration, headed by Mr. John Puzak, is responsible for managing the budget. Dr. Teichman is the Director of OSP, which works with the program and regional offices to ensure that the science used in their rulemaking is characterized properly. Dr. Noss, as the NPD, and OSP have strong relationships with the program and regional offices. Dr. Noss leads efforts related to research planning, with support from Dr. Teichman's group; Dr. Teichman leads efforts related to program support (i.e., reviewing regulations or guidance documents developed by the program offices or regions) with support from Dr. Noss.

Dr. Teichman presented a flow chart to explain how ORD plans, implements, and evaluates its research program. At the top of the chart is the ORD Executive Council, which consists of the

AA, the two DAAs, Mr. Puzak and Dr. Teichman as Office Directors, and the Laboratory and Center Directors. The Executive Council is responsible for making the corporate decisions for ORD, such as identifying the research to conduct, allocating resources, and determining how the research should be conducted. These decisions are informed by many different sources. The left side of the flow chart shows external decision inputs to the Executive Council. The program and regional offices (i.e., the program's customers) provide input through the Research Coordination Teams (RCTs). The EPA Strategic Plan indicates the Agency's overall direction. Each Administration brings particular policies and priorities, and Congress appropriates resources for the kind of research it would like to see performed. Reviews, such as the current BOSC program review, ensure that the program is on the right track and help to focus future activities. The Science Advisory Board, the National Academy of Sciences (NAS), and other external sources also provide advice, and external stakeholders indicate the kind of research that they need. Other sources of input include the NPDs, the Science Council, and the Management Council. During the planning process, the Executive Council listens to as much input as possible.

Currently, the Agency is finalizing the fiscal year (FY) 2007 budget, and deliberations are ongoing to determine funding levels for each research area. EPA considers how those funding levels compare to ORD's budget and other parts of EPA's budget, and how EPA's budget allocations compare to the rest of the federal government, as coordinated by the Office of Management and Budget (OMB). Dr. Teichman explained that this funding information cannot be shared until the budget is made official. Dr. Noss will be able to present the FY 2006 budget, but it is unlikely that the FY 2007 budget for the Water Quality Research Program will be available for this program review.

Planning for the research program is an iterative process between the ORD Executive Council and the NPDs. Each NPD makes a presentation to the Executive Council indicating the research that should be conducted and the timeframe for completion. Discussions ensue, and the Laboratory and Center Directors determine how they will conduct the research. Once the research priorities have been determined and the resources allocated, the next step is implementation. Laboratory and Center Directors are responsible for managing their staff and facilities to achieve the outputs and outcomes. The resulting information is shared with the NPDs, who are responsible for communicating the research products to the clients. For example, Dr. Noss might decide that a piece of research devoted to total maximum daily loads is needed to inform a water regulation in 2009. Dr. Noss decides that the engineering laboratory should conduct this research, and the engineering laboratory completes the project in time for Dr. Noss to provide OW with the information needed to inform the decisionmaking on that particular regulation.

Dr. Teichman explained that it is important to evaluate the effectiveness of this process in practice. BOSC program reviews and feedback from customers indicate how well the program addresses the most important science questions and how responsive it is to program and regional clients. Other panels review ORD overall, including NAS, the National Academy of Public Administration, and other advisory bodies. These evaluations contribute to the Program Assessment Rating Tool (PART) reviews (i.e., the process by which OMB evaluates federal agencies' performance). OMB considers evaluations, such as this BOSC program review, to

determine whether an independent, highly credible group of scientists has reviewed the program and how it assessed the program's performance.

Dr. Windom asked how the program's budget was distributed among the laboratories and centers. Dr. Teichman explained that the Executive Council begins with a budget for ORD and, out of that, determines a certain amount for each research program. Dr. Noss, as NPD, will propose certain research to be conducted in the Water Quality Research Program based on feedback from customers, his awareness of the important science questions to be addressed, and related science being performed elsewhere. The laboratories and centers then are given certain resources to accomplish specific tasks. In general, ORD has been very successful in having the NPDs identify important questions that require the involvement of all of the laboratories and centers, although some reevaluation may occur as necessary. One laboratory or center might have a lean year while another has a fatter year, in which case ORD will promote coordination between them and encourage the development of new skills.

Dr. Teichman presented a logic diagram to illustrate the process for planning and implementing ORD research. Planning begins at the right side of the diagram and proceeds to the left. Long-term outcomes are determined based on goals in the EPA Strategic Plan, the ORD Strategic Plan, and the MYP. To accomplish the long-term outcomes, intermediate and short-term outcomes are established. These typically are achieved by policymaking in the program office, which is informed by research outputs from the ORD program. These outputs are the result of activities, which require resources. Implementing the research program proceeds from left to right in the diagram. Once the resources and the work have been determined, the research outputs support the policymaking, which leads to the outcomes on the right side of the diagram.

Dr. Saylor noted that research publications, conference participation, and other such efforts are considered research outputs. An outcome is achieved when a state or an industry uses policies and rules to which the outputs have contributed. Dr. Teichman added that ORD is trying to emphasize that researchers provide technical information for the program and regional offices to use as they enact their policies. These offices might have political or economic obstacles that are unrelated to science. ORD's performance should be judged not only by whether the policies achieve the desired environmental outcomes, but also by whether ORD provided the correct scientific information in a timely fashion to inform the policymaking. Dr. Windom asked if OMB focuses on outcomes rather than outputs. Dr. Teichman replied that everyone wants the desired outcome to be achieved, but there is much that occurs between delivering the output to a policymaker and the achievement of an environmental outcome, which might be difficult to measure even if all the policies were implemented as designed. ORD is working with OMB to determine specific and appropriate measures for the ORD program.

Dr. Teichman explained that ORD uses MYPs to ensure that its research programs address the Agency's highest priority science. MYPs were implemented 3 to 4 years ago and serve as planning tools. In the MYPs, the NPDs delineate the research to be done, the goals and outcomes the research will support, and the timeframe for accomplishing the work. The NPDs were instructed to use last year's budget as the basis for planning work for the next 5 to 8 years.

MYPs identify long-term goals (LTGs) to achieve a particular outcome. To accomplish LTGs, annual performance goals (APGs) are established. Annual performance measures (APMs), which are specific research products (i.e., outputs), are established to meet the APGs. Currently, ORD has 13 MYPs, several of which have research areas that overlap the Water Quality Research Program. Dr. Noss is responsible for knowing about ongoing research efforts in other research programs so that the water quality work complements those efforts. Dr. Teichman commented that the water quality research and the ecological research programs overlap in several areas, which might be a subject for the Subcommittee members to consider.

Dr. Judith Meyer (University of Georgia) asked about interaction among NPDs. Dr. Teichman explained that the Water Quality Research Program and the Ecological Research Program are the two research programs that are associated most closely, although there are linkages across the other programs. The NPDs meet monthly with Dr. Farland and, every 2 weeks, the NPDs meet as part of the Science Council. These meetings are primarily process-oriented rather than substance-oriented. Science Council face-to-face meetings every 4 months are more substantive and may involve coordination issues. The NPDs coordinate their plans to support each other's needs. Dr. Noss works with Dr. Kevin Summers, NPD for Ecological Research, to ensure that their research plans, particularly as presented to the Executive Council, complement each other. Many MYPs contain diagrams to show how products and activities from other research programs will contribute to their program's efforts. Dr. Teichman added that Dr. Noss, as NPD, is expected to be aware of ongoing research at other federal agencies as well as research conducted in the private sector.

Dr. Windom asked about MYPs for areas that do not have an NPD, such as mercury research. Dr. Teichman replied that there are 13 MYPs and 8 NPDs, so some NPDs manage more than one MYP. There was some debate within ORD about where to include the Mercury MYP. It was decided to include it in the Global Change Research Program, so Dr. Joel Scheraga, NPD for that program, also has responsibility for mercury research. Dr. Windom asked if the MYP topics were driven by high priority issues. Dr. Teichman replied that they were and added that new MYPs can be written to address additional topic areas (e.g., nanotechnology) and others can be folded into an existing MYP if appropriate.

Dr. Meyer asked which NPD had responsibility for research on endocrine disruptors (EDCs). Dr. Teichman replied that EDCs are covered under the Safe Pesticides/Safe Products Research Program. He explained that, although EDC issues involve water, air, and land, they are most closely associated with the Office of Pesticides and Toxic Substances, which is the primary client for that effort. Dr. Elaine Francis is the NPD for both the Endocrine Disruptors and the Safe Pesticides/Safe Products MYPs.

Dr. Teichman explained that the Subcommittee will hear presentations about the Water Quality Research Program—from planning, to performing research, to communicating results, to evaluating performance. The program review will help answer the questions: Is the program doing the right science, and is it doing the science right? The review also will provide guidance to help the program evolve and provide evidence for OMB PART evaluations.

The PART review evaluates the program's effectiveness in four areas: purpose/design, strategic planning, program management, and program results. Programs receive a numerical score and rating (i.e., effective, moderately effective, adequate, results not demonstrated, or ineffective). The results are based on annual and long-term performance, with an emphasis on outcomes. External program evaluations are addressed in both the Strategic Planning and the Results sections of the PART, so this program review is critical to the program's input to the PART review. Within the PART, the research and development questions reflect the OMB/Office of Science and Technology Policy Investment Criteria for research and development: quality, relevance, and performance. Dr. Teichman explained that he included handouts with more detail about the research and development criteria for the Subcommittee members' reference.

To summarize, Dr. Teichman stated that ORD seeks input from many sources to enhance its research program, and the BOSC program reviews are important to program planning, implementation, and evaluation. He added that he appreciated the Subcommittee members' efforts, and he welcomed their questions, which they could send to him via the DFO.

### **Introduction to Water Quality**

Dr. Charles Noss, ORD, EPA

Dr. Noss thanked the Subcommittee members for their participation and Dr. Teichman for his comprehensive overview of ORD. He explained that the written materials he had provided were supplemental to the slides, some of which were provided only for reference. The supplemental materials included LTGs from various MYPs, such as the Ecological Research MYP, the Drinking Water MYP, and others that overlap the Water Quality Research Program. These were provided so that the Subcommittee members could understand how the Water Quality Research Program fits together with other ORD programs.

### **Strategic Plans and MYPs**

EPA's Strategic Plan identifies five environmental goals. The Water Quality Research Program is concerned primarily with Goals 2 and 4. Goal 2, Clean and Safe Water, is considered to be problem-driven, and Goal 4, Healthy Communities and Ecosystems, is considered to be core research. Core research differs from problem-driven research in that it seeks to understand environmental processes (e.g., how to conduct monitoring or characterize the functions of ecosystems). Much of the water quality work tends to be problem- and solution-oriented and driven by the immediate needs of clients in the regulatory community. Dr. Noss explained that the Water Quality Research Program works together with the Drinking Water Research Program to meet Goal 2. Issues, such as source water protection and concerns about bathing beaches and shellfish, are negotiated and coordinated between the two programs. Dr. Noss reiterated that the Ecological Research Program and the Water Quality Research Program are the most closely associated research programs.

Dr. Noss explained that EPA's Strategic Plan defines the Agency's direction. The subobjectives under Goal 2 indicate that watersheds and coastal and ocean waters are two important areas for

research. The program's major clients also are aligned to these major areas. Most of the program's research, therefore, will focus on these areas.

Dr. Noss described the research program's evolution and the NPDs' role in the planning process. NPDs help determine which research to conduct and when to conduct it. MYPs are designed to track and communicate the different research activities. Dr. Noss explained that Slide 11 shows how the RCTs existed at the time the current MYP was developed. He plans to revise the slide to show that future work will involve more input from other NPDs and more interaction with stakeholders, including federal and state agencies and nongovernmental organizations. Currently, the program is reaching out to others in the agricultural community, the U.S. Geological Survey, and the National Oceanic and Atmospheric Administration to discuss research needs and ongoing efforts. In 2006, the Water Quality Research MYP will be revised. This BOSCOM program review will help determine whether sufficient work is being done in certain areas, whether additional work is needed, or whether some efforts should be discontinued.

Dr. Noss presented a brief overview of the four LTGs in the MYP and noted that more detail will be provided during the next conference call. LTG 1 is focused on criteria development and monitoring conditions. The program is involved with all of the areas in which criteria are needed, but it is moving from aquatic life criteria into sediment criteria, biological criteria, ecological criteria, and habitat. He explained that the first LTG is to provide information to support clients who are publishing criteria.

In LTG 2, the program is concerned with developing tools to assess and diagnose pollutant sources and causes of impairment in aquatic systems. There is significant overlap here with the Ecological Research MYP. Much of the informational material that will be provided later highlights work from Causal Analysis and Diagnosis Decision Information System (CADDIS), a Web-based product that helps identify sources of impairment and determine stressors. Much of the work in this area is derived from initial research in the Ecological Research Program, and some of that work has been moved to the Water Quality Research Program.

LTG 3 involves restoration methods and decisionmaking tools for potential alternative approaches to restoring impaired aquatic systems and attaining water quality standards. The research is varied, by necessity, because it involves both urban and rural watersheds and the best management practices for these different types of needs. This work includes point sources and nonpoint sources and different regions of the country, so it is a very large undertaking. The program is considering research that will provide the most and best data, given the current budget for these types of efforts. Dr. Noss explained that the program is trying to move forward on a series of fronts simultaneously.

LTG 4 is focused on biosolids, which come from wastewater treatment. There are many issues with pathogens, contaminants, and personal care products, which are consistent with many of the water quality concerns. The program is trying to develop a series of research products related to concentrated animal feeding operations (CAFOs) and pathogens from biosolids. The research is concerned with whether the pathogens come from animal manure waste, methods that can measure these kinds of contaminants, risks from these types of products, and appropriate

management options. Although the research is very concentrated in one area, it has an impact on the overall program.

***Client Research Needs***

The Water Quality Research Program’s clients include the Office of Groundwater and Drinking Water (OGDW); the Office of Science and Technology (OST); the Office of Wastewater Management (OWM); the Office of Wetlands, Oceans, and Watersheds (OWOW); and the American Indian Environmental Office. Dr. Noss noted that OGDW is not a major client. OST is a significant client for the criteria work in LTG 1. OWOW shares many interests with the Ecological Research Program, and OWM is a significant client. Members from OST, OWM, and OWOW have been invited to give presentations at the face-to-face meeting so that the Subcommittee members can see how the program addresses these clients’ needs.

The top 10 research needs, unranked, for OWOW include:

- ✧ Monitoring condition.
- ✧ Isolated waters.
- ✧ Multi-scale regional probability sampling protocols for establishing baseline wetland conditions.
- ✧ Methods for measuring abundance, condition, and function to assess restoration of coastal and riparian wetland habitats.
- ✧ Restoration potential and natural processes essential to their recovery.
- ✧ Source/stressor and stressor/response relationships.
- ✧ Landscape models for assessing impact of local development.
- ✧ Effectiveness of low-impact development practices.
- ✧ Invasive species impacts in coastal regions.
- ✧ Impacts of land-based sources of pollution on coral reefs.

Of these, the top four research priorities are: (1) monitoring condition of all waters, including wetlands; (2) ecological importance of isolated waters; (3) restoration, including ecological restoration potential, effectiveness of coastal and riparian habitat processes, and effectiveness of low impact development practices; and (4) invasive species.

Important research needs for OWM include: effectiveness of stormwater programs (indicators and best management practices), effective implementation of CAFOs, emerging contaminants, sustainable infrastructure, water reuse, onsite systems, biosolids, and pathogens—fate and cost-effective wastewater management.

Important research needs for OST include:

- ✧ Engineering and analysis.
  - Analytical methods (biosolids).
  - Innovative technology for point source pollution control.
  - Effluent guidelines for food processing and medical discharges.

❖ Health and Criteria.

- Assessing risks (biosolids, blending).
- New/quicker indicators for water quality criteria.
- Economic benefits of use attainment and decisionmaking tools for various management options.

Dr. Laura Ehlers (National Research Council [NRC]) asked if the client presentations will address how well the program has met these needs. Dr. Noss replied that the clients have been asked to speak about how the program works with them and how well it has met their needs.

### Resources

In general, the level of funding for the Water Quality Research Program has remained between \$40 and \$50 million for the past 5 years. During this time, the program has supported 230 to 245 full-time employees. There has been some growth in the program; however, the increase in 2006 was caused by the addition of the CADDIS work. This is a major product to be highlighted at the poster session. The CADDIS Web Site will debut in January 2006.

### Program Materials

Dr. Noss reiterated that today's conference call was intended to provide the Subcommittee members an introduction to the Water Quality Research Program; more detailed information about the LTGs will be presented during the January 12 conference call. This information is intended to help prepare the Subcommittee members for the face-to-face meeting and begin work on their responses to the charge questions. Additional materials, including poster titles, poster abstracts, a bibliometric analysis, and client presentations, will be provided before the face-to-face meeting.

Dr. Noss offered to send the materials in several mailings so as not to overwhelm the Subcommittee members, and added that Drs. Smith and Windom will indicate when to send the materials. Dr. Windom replied that he and Dr. Smith would like to have the titles of all the posters and, if possible, the abstracts. At the face-to-face meeting, the Subcommittee members will review specific posters and report back to the rest of the group. Dr. Windom would like to determine the poster assignments in advance of the meeting. Dr. Smith noted that she sent the poster titles to the Subcommittee on December 13.

Dr. Noss commented that the posters were designed to provide information related to the charge questions (i.e., program design, relevance, collaboration, and usefulness), as well as the scientific content of the research. Dr. Windom asked if a principal investigator (PI) would be assigned to each poster. Dr. Noss replied that he invited PIs to attend and be available to answer questions. He noted that few PIs are first authors on more than one poster, and only about 20-30 percent of the PIs are listed on multiple posters, so there will be many people presenting the posters, and it is unlikely that the PIs will cover more than one poster.

## BOSC Input

Dr. Noss stressed the importance of the Subcommittee's review, particularly its guidance for improving the program, because the MYP revision process will begin in 2006. The program also will undergo a PART review in 2006. He thanked Dr. Windom for recognizing that the OMB process has dictated a narrow timeframe for accomplishing this BOSC program review, so that the results of this review can be used during the PART analysis. Dr. Windom responded that he understood the time pressure and explained that he was urging the Subcommittee members to accomplish as much as possible (i.e., review the background materials and begin draft responses to the charge questions) before the face-to-face meeting. He added that the draft report would not be the final BOSC report. The draft report will be submitted to the BOSC Executive Committee, which will meet in June. The final report may require additional discussion and revision; however, the draft report can serve as a working document. Dr. Noss replied that he appreciated the Subcommittee members' efforts.

Dr. Noss emphasized that this program review will help the program move forward, and he welcomed input about issues, such as the scope of the work, research topics that are not being addressed, efforts that should be discontinued, ways to improve client involvement, and ways to improve communications.

## Continuity and Evolution

Dr. Noss commented that the program is evolving to meet certain challenges. He has tried to anticipate OMB's expectations for quantifiable LTGs and measurable outcomes. He believes these will involve client use and external peer review, so the program is moving in that direction. Because the research is problem-oriented and the program's clients have regulatory needs, the program is trying to balance the push for new science with the need for practical tools. In addition, the program is trying to improve its clarity and transparency in communicating its planning processes, research needs, and decisionmaking processes. These are some of the considerations as the program moves forward.

## Upcoming Activities

Upcoming activities include this program review and the MYP revision. The EPA Strategic Plan revisions currently are underway, and the program is contributing to that process. The PART review will begin at the end of January 2006. These activities will continue simultaneously through summer of 2006.

## *Questions*

Dr. Meyer asked if the program addressed groundwater issues. Dr. Noss explained that the groundwater issues are concerned primarily with CAFOs. There are other groundwater issues associated with ecological research, but Dr. Noss explained that he is not familiar enough with all of the programs to answer her question adequately. The written materials he sent included MYP topics for several of the other research programs. Groundwater is important to the Drinking Water Research Program, and there is some overlap. As the EPA Strategic Plan is

revised, decisions are made as to which MYPs will cover which subject areas. It is not always obvious why certain research falls under one program or another unless all of the MYPs are considered together. Groundwater is covered but not necessarily under the Water Quality Research Program. Dr. Windom suggested that this issue be discussed at the face-to-face meeting. It is important to understand which program is doing what in terms of groundwater research. Dr. Noss explained that one reason the NPDs exist is to coordinate the related activities, and he will provide information about this issue. Dr. Sayler commented that the Drinking Water Research Program Review was completed this year, and groundwater issues were a significant part that program. He agreed that it would not be beneficial for the Water Quality Research Program to cover the same issues that were covered in the Drinking Water Research Program. Dr. Benjamin Blaney (ORD, EPA) commented that there is ongoing work in the Ecological Research Program that addresses groundwater/surface water interactions. He added that the Land Program (i.e., the Superfund Program) addresses those issues as well. He offered to provide more specifics for the face-to-face meeting. Dr. Windom replied that it would be very helpful to have some examples to show what is being covered and where, as well as to understand the connection between the Water Quality Research Program and these other efforts. Communication and connection is essential, and the Subcommittee would like to assess that component and provide comments in the program review.

Dr. Ehlers asked if each of the LTGs had associated APGs and APMs, and if the presentations would link the program's research results to those APGs and APMs. Dr. Noss explained that each LTG has associated APGs and APMs, but he did not expect the presentations to provide that level of detail. Dr. Ehlers replied that she would like to request that information, because part of the program review is to discuss how progress toward LTGs is demonstrated and it would be helpful to know how the APGs and APMs contribute toward that end. Dr. Noss agreed to provide the requested information. Dr. Meyer asked where pharmaceuticals research fits in the program. Dr. Noss explained that pharmaceuticals research has begun to appear in LTG 4, which involves methodologies for extracting these materials from biosolids. Research is being conducted in other programs, and the Water Quality Research Program is trying not to repeat work that is occurring elsewhere. Dr. Noss added that he included descriptions of the other research programs in the background materials. That information was sent this morning and includes the goals for the Endocrine Disruptors Research Program. Dr. Meyer asked about the Drinking Water Research Program Review. Dr. Smith replied that the report was still in the approval process, but she had provided a link to the BOSC Web Site in her December 7, 2005, e-mail so that the Subcommittee members could review other summaries that are available. Dr. Windom asked about the "listing processes" document that was mentioned several times in the MYP, and if that document was long and complex. Dr. Noss replied that he did not know about the document's length, but he would find out or locate another brief document that describes the listing process.

Dr. Stephen Weisberg (Southern California Coastal Water Research Project Authority) noted that the program has decreasing control over the results of its efforts as it moves from left to right along the logic diagram. At the Management Outcomes stage, the program is trying to influence states and local agencies, which have not been discussed extensively during this conference call. He asked about ORD's role in interacting with these clients directly, as opposed to providing research results to OW, which then makes that connection. Dr. Noss replied that he has talked to

the National Regional Science Council, and he is trying to identify the appropriate individuals within the regions and states who can become part of the planning process. The lines of communication should be strengthened so that there is input and an effort to identify ongoing research that can be used in a collaborative process. Dr. Noss explained that certain projects involve close interaction with regions and states. The posters will show that there is much input beyond ORD laboratory staff. In the future, the program will move toward more involvement with people at other levels, including the regions and states.

Dr. Weisberg asked about ORD's cooperative agreements with states. He commented that research conducted by the states (e.g., developing biotic indicators), although funded by EPA, is not as robust as the research being conducted at the ORD laboratories and centers and through the STAR Program. The program's impact, however, is very significant. How does the program attain that balance, and what are the priorities? Dr. Noss replied that he has discussed the issue of balance with the Laboratory Directors. He agreed that the program must maintain the quality of research and produce materials that are usable, but there also is an outreach portion of the organization's mission that is focused on the regions and states. Dr. Noss added that he hopes to reach a balance between conducting research and providing technical assistance.

Dr. Kevin Kleinow (Louisiana State University) asked if there was a document that discussed past projects as they relate to future projects. Dr. Noss replied that he was not aware of any such document but added that he has been in this position for only 4 months and he might need some help with that question. Dr. Windom noted that this question has been raised in other program reviews. Such a document has not been produced formally in ORD, but it has been recommended. It is likely that the MYP will include an appendix that tracks past activities to some extent and indicates where those activities have led. He added that ORD has held periodic conferences to summarize the state of knowledge and discuss which programs can be redirected. Dr. Noss agreed that the historical perspective would be very valuable. He will discuss the matter with Dr. Teichman, whose office likely has this information.

Dr. Noss asked if anything was needed for the next conference call or the face-to-face meeting. Dr. Sayler asked if the PART process, which functions as a type of covert driver, would be discussed in any further detail. Dr. Noss replied that he is scheduled to learn more about the process at a meeting in January, after which he will share any valuable information. Dr. Windom asked if there was a PART Web Site and commented that many of the people involved in the program review were unfamiliar with the process. Dr. Smith replied that she had provided the OMB PART criteria to the Subcommittee members, and she would provide the members with the URL that contains this information. Dr. Sayler noted that an overview of the PART process was presented at the Drinking Water Research Program Subcommittee meeting in Cincinnati. Dr. Smith stated that she would locate and send that information to Dr. Windom.

### *Public Comment*

Dr. Smith asked if any members of the public would like to comment. There were no such requests.

### *Wrap Up*

Dr. Windom requested a presentation about the PART process for the next conference call, which Dr. Smith agreed to arrange. Dr. Windom asked the Subcommittee members to review the list of poster titles, which was sent in an e-mail document titled "Title List Annotated," and indicate which posters they are most competent to review. He asked the Subcommittee members to notify him of any issues that should be clarified at the next conference call. He also recommended that the Subcommittee members review the handouts from Dr. Teichman's presentation. Requests for additional documents should be directed to Dr. Smith with a copy to Dr. Windom.

Dr. Windom advised the Subcommittee members to begin exchanging ideas and start their draft responses to the charge questions. He would like to have a complete set of draft responses approximately 1 week before the face-to-face meeting so that the Subcommittee members can review them before the meeting. Dr. Windom emphasized that the major issues to consider are the program's processes (i.e., how the best science is determined, the work is accomplished, the program evaluates its outcomes, and the research results are communicated to others), as well as the overall quality of the work. The face-to-face meeting will include posters and presentations about the program as well as time for the Subcommittee to fine-tune and reach consensus on the draft responses to the charge questions. He explained that the draft report will not be a large document; it will answer the charge questions, provide several overriding recommendations, and identify issues that should be addressed.

Dr. Weisberg asked if the responses should address each specific question and subquestion. Dr. Windom replied that the charge questions should be answered as specifically as possible. Dr. Sayler noted that the BOSC Executive Committee will not approve the report if it is too general. It should be clear, through examples or detailed explanations, how the conclusions and recommendations were determined. Dr. Weisberg asked where detailed information to answer the questions could be obtained. Dr. Meyer replied that the bibliometric analysis might provide some of that information. Dr. Ehlers referred to her earlier question (i.e., relating program outcomes to APGs and APMs) and noted the importance of this level of detail. Dr. Smith responded that this information will be provided for the January 12, 2006, conference call.

Dr. Windom suggested that the Subcommittee members start to identify documents that the subgroups will need to address the charge questions (e.g., the bibliometric analysis). Dr. Weisberg asked where to find information about the percentage of publications that ORD has developed jointly with other institutions. Dr. Windom recommended the bibliometric analysis as a first step and added that many questions will be answered at the poster session and many posters will list collaborators. Dr. Ehlers mentioned that ORD answered an NRC survey that asked about coordination with other agencies doing similar research and communication of those research results. The survey responses, however, were not published in the NRC report. She

offered to distribute the survey responses with a caveat that the information is not citable. Dr. Windom thought that would be very helpful. Dr. Sayler recommended sending the information to Drs. Smith and Windom first to ensure that it reflects the Agency's perspective.

Dr. Smith thanked the Subcommittee members for their participation and stated that the next conference call will take place January 12, 2006, at 1:30 p.m. EST. She and Dr. Windom will prepare and distribute the agenda. Dr. Windom adjourned the conference call at 12:30 p.m.

***Action Items***

- ✧ Subcommittee members will complete their annual ethics training by December 23, 2005.
- ✧ Subcommittee members will submit their travel forms for the face-to-face meeting to Dr. Smith.
- ✧ Subcommittee members will document the number of hours spent working on Subcommittee business and will submit that information to Dr. Smith at the face-to-face meeting in Cincinnati.
- ✧ Dr. Noss will provide additional materials, including poster abstracts, a bibliometric analysis, and client presentations before the face-to-face meeting.
- ✧ Drs. Smith and Windom will inform Dr. Noss about when and how to send the informational materials.
- ✧ Dr. Blaney will provide information about ongoing surface water/groundwater work in the Ecological Research Program and the Land Research Program.
- ✧ Dr. Noss will provide a document that describes the listing process that was mentioned in the MYP.
- ✧ Dr. Noss will ask Dr. Teichman for information about the Water Quality Research Program's past accomplishments and historical context.
- ✧ Dr. Smith will provide the PART overview that was presented at the Drinking Water Research Program Subcommittee meeting in Cincinnati and a Web site that describes the OMB PART process.
- ✧ Subcommittee members will review the poster titles and provide Dr. Windom a list of the posters they would prefer to review.
- ✧ Dr. Windom will assign posters for Subcommittee members to review.
- ✧ Dr. Smith will arrange a presentation about the PART process for the January 12 conference call.

- ✧ Dr. Smith will provide information for the January 12 conference call about the program's APGs and APMs and how they relate to program outcomes.
- ✧ Dr. Ehlers will send the NRC survey responses to Drs. Smith and Windom. Drs. Smith and Windom will review the survey responses and distribute them to the Subcommittee members if appropriate.
- ✧ Subcommittee members will read the Water Quality Research Program MYP and the section of the EPA Strategic Plan that relates to the Water Quality Research Program. Subcommittee members also will review the handouts from Dr. Teichman's presentation.
- ✧ Subcommittee members will identify documents that the subgroups will need to address the charge questions.
- ✧ Subcommittee members will inform Dr. Windom of any issues to address during the January 12 conference call.
- ✧ Subcommittee members will exchange ideas and begin draft responses to the charge questions before the January 12 conference call.
- ✧ Subcommittee members will complete draft responses to their workgroups' charge questions approximately 1 week before the face-to-face meeting and review the other workgroups' draft responses before the meeting.
- ✧ Drs. Smith and Windom will prepare and distribute the agenda for the January 12 conference call.

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**APPENDIX**

**Conference Call Agenda**

**U.S. EPA BOARD OF SCIENTIFIC COUNSELORS  
Water Quality Subcommittee**

**MEETING AGENDA  
December 21, 2005  
10:30 a.m. – 12:30 p.m. EST**

**CONFERENCE CALL  
Participation by Teleconference Only  
(866) 299-3188  
Conference Code: 2023439766**

**WEDNESDAY, DECEMBER 21, 2005**

10:30 am	Welcome and Opening Remarks	Dr. Herb Windom, Chair
	Designated Federal Officer's Welcome Charge	Dr. Bernice L. Smith Designated Federal Officer
10:45 am	Overview of the Office of Research and Development	Dr. Kevin Teichman Director, Office of Science Policy
11:00 am	Overview of the Water Quality Research Program	Dr. Charles Noss Water Quality National Program Director
11:20 am	Review of BOSC Charge Questions	Dr. Herb Windom, Chair
11:50 am	Identification of Additional Information Needs <ul style="list-style-type: none"><li>- Written documentation needs</li><li>- Request for specific presentations</li></ul>	Chair / Subcommittee
12:20 pm	Public Comments	
12:30 pm	Adjourn	