U.S. Environmental Protection Agency (EPA)
Farm, Ranch, and Rural Communities Federal Advisory Committee (FRRCC) Meeting

March 29–30, 2011
Sheraton National Hotel
Arlington, VA

FINAL MEETING SUMMARY

TUESDAY, MARCH 29, 2011

Call to Order/Discussion of Meeting Agenda and Committee Process
Alicia Kaiser, FRRCC Designated Federal Officer (EPA); Dr. Steven Balling, FRRCC Chair; Lawrence Elworth, Agricultural Counselor to the Administrator (EPA); Abby Dilley, Facilitator (Resolve)

Ms. Alicia Kaiser (Office of the Agricultural Counselor to the Administrator, EPA), Designated Federal Officer (DFO) for the Farm, Ranch, and Rural Communities Federal Advisory Committee (FRRCC), called the meeting to order at 8:36 a.m. She noted that because the meeting is subject to the requirements of the Federal Advisory Committee Act (FACA), it is open to the public and there will be time designated for public comment. In addition, there is a notetaker present, Beverly Campbell from SCG, to capture the meeting presentations and discussions for public record. The summary of the meeting will be posted on the FRRCC Web Site (http://www.epa.gov/ocempage/frrcc/), along with the presentations and handouts, following the meeting. She asked that members use their microphones and state their names when speaking for the record. She explained that there would be a working lunch and participants can purchase a box lunch from the hotel in the hall by the registration desk. Ms. Kaiser then reviewed the contents of the meeting folder, which included the agenda, the list of FRRCC members, the draft work plan with a timeline for moving forward from the fall meeting, the discussion group assignments, a proposed draft discussion group agenda and framework for the discussion groups, George Boggs' (Whatcom Conservation District, FRRCC member) comments on the draft discussion framework, a draft issues matrix for the discussion groups, some ideas for discussion group deliberations, and a meeting evaluation form. She also reminded participants who had not signed in at the registration desk to do so during the break.

Dr. Steven Balling (Del Monte Foods), FRRCC Chair, welcomed the members to the meeting. He reminded the FRRCC members of their ultimate goal by reading the charge to the Committee: to make recommendations to EPA on the most effective approaches to addressing water quality issues associated with agricultural production. The efforts on water quality issues related to agricultural producers are diverse, and this will be apparent in today's presentations. The goal of today's meeting is to move forward in the discussion groups and build on the work of the previous meeting. The discussion groups—science, partnerships, and resources—are the three areas selected by the Committee members to consolidate their thinking. Each member signed up for one of these groups and the assignments were provided in the folder. There will be five presentations at today's meeting, including an evening presentation on the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) conservation programs. During tomorrow's meeting, the discussion groups will determine the next steps that should be taken to move toward achieving the Committee's overall goal. He noted that the FRRCC members' workload would increase to prepare for the June 22-23, 2011 meeting.

Mr. Lawrence Elworth (Agricultural Counselor to the Administrator, EPA) thanked the members for attending the meeting. At the fall meeting, the Committee identified the three discussion groups as a way to structure the discussion. He hopes that the FRRCC ultimately will provide effective, straightforward

recommendations on what EPA can do to improve interactions with agriculture and make water quality protection and improvement a reality. He asked the members to be frank, forthcoming, and as creative as possible in their discussions. He challenged them to look for new solutions and different approaches. Noting that the Committee is comprised of a diverse, intelligent group of people, he asked that each member speak from his or her own experiences, and not as a representative of an organization.
Mr. Elworth added that the FRRCC members did not have to reach consensus on the recommendations and he encouraged the Committee to include alternatives, options, and different points of view in the report to EPA. He noted that it will be helpful for the Agency to understand where there is agreement and where the approaches diverge.

The presentations at today's meeting will follow-up on the presentations at the last meeting. They are intended to provide the members with a broad view of water quality issues in different regions across the country, specifically the Great Lakes (Michigan), Bay Delta (California), and Puget Sound (Washington). EPA wanted to expose the Committee to the many diverse water quality issues across the Nation so that the FRRCC could identify common issues and themes that surface regardless of the location. This exposure adds credibility to the Committee's recommendations because it makes it clear to the public that the FRRCC looked at many different issues in formulating its advice to EPA. The evening presentation on USDA's conservation efforts was included on the agenda because there are some nuances in the programs that might be of interest to the Committee.

Ms. Abby Dilley (Resolve), FRRCC Facilitator, asked the members to introduce themselves. Following the introductions, she stated that goal of this meeting is to build on the discussions that took place at the October meeting. Some ideas for the discussion groups, included in the meeting folder, were gleaned from the October meeting summary. The discussion groups should extract lessons learned from the various examples that were discussed in October, as well as the ones presented and discussed at this meeting. They should identify what currently is working and what is not working, and the discussion should be focused around how best to provide advice to EPA on enhancing water quality in the nexus with agricultural production.

She suggested that the groups also spend some time formulating questions for the afternoon and evening presenters that relate to the specific discussion group themes. This morning there will be presentations by Patty Birkholz, Director of the Office of the Great Lakes, Michigan Department of Environmental Quality, and Tom Christensen, Regional Conservationist, Central Region, USDA, on water quality issues in the Great Lakes. Following the break, the discussion groups will receive their charge and instructions for the breakout session, which will continue through lunch. After each discussion group reports the highlights of its deliberations back to the Committee, there will be an opportunity for the members to provide feedback. The afternoon also will include presentations on West Coast water quality issues (Bay Delta and Puget Sound) by Mike Machado and Ron Shultz. There will be an opportunity for public comments at 4:45 p.m., followed by a short dinner break before the evening presentation on USDA's conservation programs by Rob McAfee.

Wednesday's agenda includes a morning breakout session of the discussion groups and time to report back to the Committee. The meeting will conclude with a plenary discussion that will cover the themes starting to emerge from the discussion groups, any information needs of the groups, and the steps to be taken before the June meeting to build up the momentum and identify potential recommendations. She reiterated Mr. Elworth's earlier comment that the Committee does not need to reach consensus; it is charged with identifying and analyzing options and insights that will be most beneficial to EPA in achieving the goal of protecting and improving water quality as it relates to agriculture.

Ms. Dilley stated that the dialogue is primarily among the members seated around the table. There will be time for public comments at 1:30 p.m., before the meeting adjourns at 2:00 p.m. She asked individuals who wish to make a public comment to sign up at the registration desk. Each public comment will be limited to 3 minutes; comments also may be submitted in writing.

Ms. Dilley encouraged full participation during the plenary and discussion group sessions to take advantage of the diverse expertise of the members. She asked the members to address the issues in a productive, collaborative manner. Noting that there may be some strong opinions on certain issues, she reminded the members to respect each others' opinions and to follow the facilitator's rule: disagree without being disagreeable. Explaining that the breakouts are intended to be working sessions for the FRRCC members, she asked other attendees to refrain from taking part in those discussions. In closing, she reminded the members to use their microphones, to raise their tent cards when they would like to speak, and to silence their phones and other devices.

Updates from the EPA Agricultural Counselor
Lawrence Elworth, Agricultural Counselor to the Administrator, EPA

Mr. Elworth provided the FRRCC an overview of some of the ongoing activities at EPA that relate to agriculture. Although not all of these efforts relate to water quality, they are significant issues. He explained that this will be a quick presentation so if a Committee member would like additional information on any of these efforts, they should let him know.

There are two basic facts in Washington right now. One is the continuing resolution, and the other is the fact that there has been an increase in the number of hearings on Capitol Hill. Mr. Elworth commented that those who went through the Federal Government shut down during the Clinton Administration probably are less distracted by the current discussions than those who are dealing with it for the first time.

The EPA Administrator has been in more hearings than any other member of the cabinet. Many of those were appropriations hearings but there have been oversight hearings as well. The EPA Administrator recently spent 3 hours at a hearing before the entire House Agriculture Committee. One of the issues raised at that hearing was whether EPA would grant the E15 waiver for ethanol on 2001 and newer vehicles. EPA actually granted that waiver and began working on rulemaking for labeling to go on pumps and various other activities that happen at the state level. As soon as EPA granted that waiver, however, the Agency was sued by a coalition that included the livestock industry, the petroleum industry, gasoline retailers, environmental groups, and the American Snack Food Association. Last week in Fresno, the Agency heard serious concerns from the livestock industry about the effect that the increased ethanol blend will have on the cost of livestock feed. E15 is not yet available in the marketplace for a number of regulatory reasons.

The topic of dust also was raised at that hearing. The issue of concern is EPA's regulation of both fine particulate matter ($PM_{2.5}$) and coarse particulate matter (PM_{10}); in particular, people are worried about what compliance with the National Ambient Air Quality Standards (NAAQS) will mean for dust in farming areas. EPA has held meetings across the country in various locations—Riverside, Spokane, Des Moines, St. Louis, and Denver—to hear the concerns of the agricultural community. The Administrator has stated repeatedly that EPA will not act until the Agency hears their concerns; EPA is in the middle of a 5-year review of this issue. The current science would justify retaining or altering the standard, but there will be plenty of opportunity for comments before the Agency moves forward.

There has been a lot of press about what EPA is doing to regulate milk spills. The Agency has been working with the milk producers, making sure that there has been no enforcement of existing rules. EPA is in the process of submitting to the Office of Management and Budget (OMB) a rule that would exempt milk producers from any regulations under the Spill Prevention, Containment, and Countermeasure (SPCC) Rule. EPA has been working on this for a couple of years, and it should be completed within a month.

There has been enormous discussion recently about the Pesticide General Permit. The Administrator was questioned on it extensively by both the Senate and House Agriculture Committees. In short, the current Pesticide General Permit does not cover terrestrial applications of pesticides or spray drift, and it does not alter the existing exemptions for irrigation return flow or for agricultural stormwater. In response to

questions from Representative Crawford at the hearing, the Administrator clarified that the permit does not cover what is happening in rice fields. There is a great deal of discussion about what should and should not happen with this legislation. Mr. Elworth stated that there is legislation on the suspension calendar tomorrow in the House that would obviate the need for a permit under the Clean Water Act for aquatic application of pesticides. The vote will probably take place on Thursday. There has not been a hearing or legislation introduced on the Senate side since last year. Some are concerned that this legislation will affect agriculture and impact aquatic pesticide applicators. EPA is in the process of providing a preview of the draft final permit to assist states in developing their own permits and to allow the regulated community to become familiar with the permit's requirements before it becomes effective. The Agency hopes to clear the permit with OMB on Wednesday or Thursday. In the meantime, EPA has asked the Sixth Circuit for an extension of time beyond the 2 years originally requested. Mr. Elworth explained that the court issued a mandate that anyone applying aquatic pesticides had to have a permit. The Agency asked the court for a stay for 2 years to implement the permit so that EPA would have adequate time to work with the states. In the process, the Agency also found out that it had to consult with the National Fisheries Service and the U.S. Fish and Wildlife Service under the Endangered Species Act. Because those consultations have not been completed, EPA asked the court for additional time. Mr. Elworth found out late last night that the court granted the request for an extension, so the Agency now has until October 31, 2011 before that mandate will go into effect.

Those FRRCC members involved with pesticide issues, especially those in California, are aware that EPA has been working with the National Marine Fisheries Service (NMFS), under a court order, to develop biological opinions under the Endangered Species Act (ESA) for a range of pesticides. There has been much consternation on EPA's part about the science underpinning the decisions by the NMFS. On behalf of USDA, the U.S. Department of Interior, and the U.S. Department of Commerce, Administrator Jackson has asked the National Academy of Sciences (NAS) to review the underlying science for these biological opinions and provide their expert feedback to EPA. The Agency also has had a number of meetings with NMFS, mostly in California and the Pacific Northwest, on ESA issues and the process. There is considerable concern that there is not adequate opportunity for the states to present their ideas on what would be useful for determining a legitimate, intelligent, and viable way to protect endangered species. Grower groups are concerned that there has not been adequate opportunity to review these biological opinions and the reasonable and prudent alternatives that growers and pesticide users are expected to follow. Therefore, EPA has established a working group with the NAS to develop a clear description of the process so that the opportunities for input, what data are useful and available, and how they can be presented are known. The Agency wants to develop a process that allows the public an opportunity to comment. There are a number of court decisions that have taken place, including the decision by the Fourth Circuit that says that the biological opinions are judicially reviewable; this will have a huge impact on the original decisions. In addition, there are a number of lawsuits filed by environmental litigants to cover virtually all pesticide uses, and EPA is being sued for not taking action to cancel the initial pesticide uses under the first biological opinion.

There has been some concern that EPA was going to take what has been happening in the Chesapeake Bay and apply it to the rest of the Nation; others have been concerned that the Agency would take the nutrient criteria being applied in Florida and expand it to the entire United States. The EPA Administrator was very clear several weeks ago in testimony before the House and Senate Agriculture Committees that the Agency has no intention of doing this. In fact, EPA believes that the best way to deal with nutrient issues is at the state level. The states have the resources and the ability to set priorities; they also have the best knowledge of what is available at the state level, watershed level, and farm level. Any work to be done on nutrients probably will be done by the states in concert with the NRCS and the Conservation Districts. EPA's role is to support the states as much as possible, both through the Regions and the work in EPA Headquarters with USDA.

With regard to the Chesapeake Bay, the total maximum daily load (TMDL) was published for the entire Chesapeake Bay at the end of December 2010. There were two other associated events that happened around that time.

One event was the release of a report by the Agricultural Nutrient Policy Council, prepared by LimnoTech, entitled "Comparison of Draft Load Estimates for Cultivated Cropland in the Chesapeake Bay Watershed." The report compared the Chesapeake Bay Program watershed model (used by EPA to create the new TMDL) to the first draft of a model used by USDA's Conservation Effects Assessment Project (CEAP). Mr. Elworth explained that CEAP is a multi-agency effort to quantify the environmental effects of conservation practices and programs and develop the science base for managing the agricultural landscape for environmental quality. The CEAP findings will be used to guide USDA conservation policy and program development and help conservationists and the agricultural community make more informed conservation decisions. The LimnoTech report concluded that some of the modeling for establishing the TMDL could be improved; it also suggested that different models should be used. Mr. Elworth indicated that EPA has asked its technical advisory committee for the Chesapeake Bay to figure out a way to do an independent review of the study.

The second event was a lawsuit filed by the American Farm Bureau Federation and the Pennsylvania Farm Bureau that challenges EPA for implementation of the TMDL in the Chesapeake Bay Watershed.

A third event, which happened around the time the TMDL was published, was the distribution of a letter from USDA Deputy Secretary Merrigan and EPA Deputy Administrator Perciasepe to the state agricultural and environmental secretaries of all six Chesapeake Bay Watershed states. The letter asked the states to confirm their interest in pursuing a certainty program that will provide certainty to farmers who implement practices that protect water quality in the Chesapeake Bay Watershed (referred to as "assurance" in the legislation introduced). EPA hopes that this will be a constructive framework that states can use in providing producers incentives and recognition that accelerate the adoption of conservation practices and advance the objectives of the state Watershed Implementation Plans. In simple terms, if a farmer in the Chesapeake Bay Watershed has a conservation plan that addressed the water quality concerns on his farm and was on a schedule with implementing it, then regulators will accept that this farmer has done what he could do to protect the Chesapeake Bay. If there were ever a need to require additional nutrient reductions, this farmer would not be asked to implement additional measures. EPA hopes that this addresses the farmers' concerns that the "bar" will be raised again sometime in the future, and that it will serve as an incentive for farmers to move forward in implementing conservation measures. A similar approach has been taken in Florida with the Florida Watershed Restoration Act. EPA believes that this type of approach is best accomplished at the state level. Mr. Elworth encouraged the FRRCC members to take a closer look at this novel approach.

In January, EPA published the proposed water quality standards (numeric nutrient criteria) for Florida's lakes and flowing waters. The Agency was sued shortly after the standards were published. Mr. Elworth asked FRRCC member Daniel Botts (Florida Fruit and Vegetable Association) if he would like to make a comment on what is happening in Florida. Mr. Botts confirmed that immediately after the numeric nutrient criteria were published, five different lawsuits were filed, one of which includes the Florida Fruit and Vegetable Association. He noted that there was one piece of the proposed rule that he thought was positive; specifically, the alternative criteria process, which defines a way to allow some of the watershed work that has been done in Florida to continue. This would not be possible under Florida law. He mentioned that the five lawsuits were consolidated into a single suit, and the index to the record alone is 324 pages long in small type and spreadsheet formation. Given the size of the record that must be reviewed by the judge, it will take considerable time for a decision to be reached. There also is language in the proposed appropriations bill to defund any activity associated with implementing the numeric nutrient standard in Florida. There is legislation pending in Florida to prevent the Department of Environmental Protection from implementing anything associated with the numeric nutrient standard; this legislation is likely to pass and be signed by the Governor. It is clear that there is little to no cooperation in Florida on this issue.

Mr. Elworth said that he would be happy to answer any specific questions about any of the issues mentioned in his update. In response to a question concerning the extension for the mandate to implement

the aquatic pesticides permit, Mr. Elworth explained that he heard late last night that the court has granted the request for an extension, so the Agency now has until October 31, 2011, rather than April 9, 2011, before that mandate will go into effect.

Mr. Elworth asked if there were any issues on which the Committee would like additional information. He agreed to provide a copy of the letter from Bob Perciasepe and Kathleen Merrigan to the FRRCC members.

Tom McDonald (JBS Five Rivers Cattle Feeding, FRRCC member) asked about the Fifth Circuit Court decision on the CAFO Rule. What happens next? After the decision is rendered will EPA have to republish? How will the permit move forward? Mr. Elworth said that this is something the attorneys are looking at right now so he would have to consult them and then get back to the Committee with an answer.

Mr. Elworth asked Dr. Ann Sorensen (American Farmland Trust, FRRCC member) to introduce the first two presenters, who will be speaking about Great Lakes water quality issues. Dr. Sorensen stated that the first speaker is Tom Christensen, who is the Regional Conservationist in the Central Region for USDA's NRCS. He supervises the 15 State Conservationists in the central region, and he is based in Washington, DC. He has worked with NRCS for more than 30 years in eight different locations, including North Carolina, New York, Idaho, and Illinois. His last 13 years have been spent in the headquarters office in Washington, DC.

The second speaker is Patricia Birkholz who was recently appointed by Michigan Governor Rick Snyder as the Director of the Office of the Great Lakes. She has completed two terms in the Michigan Senate, three terms in the Michigan House of Representatives, and she chaired the Senate Natural Resources and Environmental Affairs Committee, where she provided leadership on a variety of key Great Lakes issues.

Private Lands Voluntary Conservation in the Great Lakes Basin
Tom Christensen, Regional Conservationist, Central Region, NRCS, USDA

Mr. Christensen provided a brief history of the NRCS. Hugh Hammond Bennett was the founding father of the NRCS. He was the first Director of the Soil Erosion Service, which later became the Soil Conservation Service and is now the NRCS. Mr. Christensen showed a photograph of Mr. Bennett at his home in McLean, Virginia. The photograph was taken in 1960, the year he passed away. He explained that many of Mr. Bennett's philosophies and approaches greatly inform NRCS' work today, including:

- ✧ Can't do conservation work from behind a desk or truck windshield. There is a major initiative underway to streamline NRCS processes, and there is a goal of getting staff out in the field at least 75% of the time.
- ✧ Good science must be the foundation for conservation. Conservation practices and technical tools have to be founded on good science.
- ✧ Can't treat natural resource concerns in isolation—soil, water, air, plants, and animals—plus humans must be considered in conservation solutions. There must be an interdisciplinary process to developing conservation solutions.
- ✧ Focus coordinated action on a watershed or landscape scale ("random acts of conservation" are not as effective as ones focused on a geographic basis). Conservation activities must be a system of practices in the context of the overall watershed or landscape.
- ✧ Local leadership is critical to success—local leaders know the issues best and how to fix them (Soil and Water Conservation Districts [SWCDs], Resource Conservation & Development [RC&D]).

The elements of NRCS' private lands conservation approach include: local leadership, voluntary approach, sound science and technical standards, high quality resource information, site specific and personalized, watershed or landscape perspective, progressive implementation, and adaptive management.

The decision-making process used when working with individual and groups of landowners is the Conservation Planning Process. This process entails looking at all the resource conditions and needs in the context of the operation in the watershed. The Conservation Planning Process results in the landowner's selection of systems of conservation practices that are used to address resource concerns. NRCS has a field office technical guide and a menu of about 170 conservation practices from which landowners can make selections. Many of these practices are adapted to local conditions, and they are predicated on sound science founded on trials, demonstrations, and practical application. In recent years, the conservation practices have been subjected to a public review before they were adopted by NRCS.

The country has reaped many benefits from conservation programs and practices. Through partnerships and the efforts of landowners there have been tremendous benefits across soil, water, air, plants, and animal resources. More recently NRCS is recognizing the energy benefits of conservation efforts. There has been phenomenal growth in conservation tillage. Chief White mentioned recently, in the context of the Chesapeake Bay Watershed, that conservation tillage now is considered the norm by many producers. As a result, producers do not recognize it as conservation in surveys and it gets underestimated. Considerable progress has been made in reducing erosion and sedimentation. Wetland gains now outnumber losses on agricultural lands, and more recently, there have been significant gains in enhancing wildlife habitat on private lands.

The NRCS has learned that conservation works and it can improve the economic bottom line, which is important for the sustainability of agriculture. Watershed and site-specific conservation planning are needed to aid decision-making and achieve success. NRCS now is doing a better job of targeting critical areas with available resources, which improves effectiveness and efficiency. Technical assistance is critical to planning, implementation, and follow up. Effective adaptive management, after implementation, is vital. NRCS' new nutrient management standard recognizes the importance of adaptive management. NRCS also has learned that leadership and partnerships must be effective and sustainable to achieve success.

NRCS has a number of major landscape initiatives operational in Fiscal Year (FY) 2011, including: Bay Delta, Chesapeake Bay Watershed Initiative, Great Lakes Restoration Initiative, Illinois River Sub-basin and Eucha-Spavinaw Lake Watershed, Lesser Prairie Chicken Initiative, Longleaf Pine Initiative, Mississippi River Basin Healthy Watersheds Initiative, New England/New York Forestry Initiative, North Central Wetlands Conservation Initiative, and Sage-Grouse Initiative. These initiatives reflect NRCS' efforts to target some of its resources toward a particular landscape and a suite of resource issues. For example, the Great Lakes Restoration Initiative is focused on nonpoint source issues as well as wildlife habitat. Additional funding from EPA has allowed NRCS to do this additional targeting for the Great Lakes Initiative. There is a wide variety of initiatives; some are species-oriented and focused on habitat and some are focused on water quality issues. Mr. Christensen presented a map that showed the geographic location of the various NRCS priority landscape initiatives. He noted that there about eight or nine additional initiatives that are in various stages of development; they have not been rolled out yet due to lack of sufficient funding. One of the new initiatives under development focuses on migratory birds in the northern plains.

With regard to the Great Lakes, about 75 million acres in eight states flow to the Great Lakes. Nearly one-third of the drainage area is agricultural land. There are more than 126,000 farms comprising nearly 24 million acres, including 16.7 million acres of cropland and 6.7 million acres of hay/pasture. The average farm size is less than 200 acres, with less than 10% of the farms greater than 500 acres. Major crops in the basin include corn (5.5 million acres) and soybeans (4.5 million acres); there also is some specialty crop production. The major livestock types in the area include dairy cattle and hogs.

Under the Great Lakes Restoration Initiative (GLRI), EPA provided $34 million to NRCS in FY 2010, and the NRCS is hoping for some additional funding in FY 2011. This additional funding has been targeted primarily on near-shore and nonpoint source pollution issues, but also on wildlife protection and restoration as well as invasive terrestrial species control issues. The money is being allocated through five NRCS funding mechanisms: Conservation Technical Assistance Program, Environmental Quality Incentives Program, Wildlife Habitat Incentives Program (WHIP), Emergency Watershed Protection Program–Flood Plain Easements, and Farm and Ranchland Protection Program.

There are a number of challenges associated with working in the Great Lakes Basin. There is a wide range of land covers/uses (forest, agriculture ranging from cash crops to orchard and specialty crops, developing and undeveloped lands). In addition, agricultural land is being lost to other uses. Another challenge is that the climatic conditions limit the window for establishing cover crops after harvest. The colder, wet soils also hinder adaptation of no-till planting. Fine particles in sediments transport phosphorus and remain in suspension. Because of the cold, wet weather, the timing and method/placement of nutrients are critical. Management of agricultural drainage water is another challenge.

An additional challenge faced by the NRCS in working in the Great Lakes Basin is conducting outreach to people who have not participated in USDA conservation programs in the past. The 2008 Farm Bill has given the NRCS some tools to enhance these efforts, such as the cost-share rate, but this still has been a challenge for the NRCS. The intensity of technical assistance needed has been another challenge; nutrient management, for example, requires ongoing technical assistance.

About $5 million of the funding provided by EPA through GLRI went into Conservation Technical Assistance to aide with outreach to new or reticent landowners. Both the technical and financial assistance have been focused geographically, as well as on the suite of practices. The applications from landowners applying for assistance are ranked according to state and local priorities, and the NRCS is trying to be focused with its assessment of the results.

For the nonpoint source issues, NRCS, in concert with EPA, decided to focus on five major watersheds (St. Louis River, Fox River/Green Bay, Saginaw River, Maumee River, and Genesee River). GLRI financial assistance is limited to core practices (e.g., nutrient management, cover cropping) effective for addressing the resource concern. Core practices for livestock include management of animal manure and limiting or eliminating animal access to surface water. There also is a suite of core practices for nonpoint source pollution that relate to reducing sediment and associated contaminants from running off the edge of the field (e.g., grass filter strip).

The core practices selected can target specific resource issues, such as wildlife habitat. For one project, NRCS worked with one of the tribes in upper Michigan to focus on barriers to fish movement. The fish passages contracted with the Keweenaw Bay Indian Community will replace 12 culverts and open up 70 miles of streams to fish, including native brook trout. Because WHIP is a relatively small component of the overall effort, NRCS is convinced of the need to focus this funding so that it achieves tangible results. Another habitat project targets bird species (i.e., Goldenwinged Warbler and Bluewinged Warbler) habitat issues. This effort is focused in the State of New York.

With respect to invasive species, the most effective approach is to control invasives at the "fringe," where the population is still at a controllable level. NRCS has used some of the Conservation Technical Assistance funding to do demonstration projects just outside of Chicago, along the shore of Lake Michigan. These are highly visible projects that can be transferred to other areas.

One approach that NRCS could have taken to allocate the $34 million from EPA would have been to look at the land mass of a particular state in comparison to the total land mass that drains into the Great Lakes. With this approach, Michigan would have received an overwhelmingly disproportionate amount of the funding. NRCS decided that a better approach for allocating the money was to look at targeted

watersheds. This is why Ohio and Michigan received similar allocations; there was a focus on two watersheds in those states—the Saginaw Bay Watershed in Michigan and the Maumee Watershed in Ohio. Among the five NRCS programs, the Environmental Quality Incentives Program (EQIP) has the most funding. A map showing the areas where the $34 million of EPA funding had been obligated in the past year was presented. This map showed how NRCS is using this funding in a focused way. A second map, which depicted the allocation of NRCS' normal programmatic funding, showed much broader activity in the states surrounding the Great Lakes.

Looking to the future in the Great Lakes Basin and beyond, NRCS needs to be strategic about conservation assistance. There is a limited supply of technical and financial assistance so NRCS wants to use the right amount, in the right place, at the right time. NRCS is becoming much more cognizant about the importance of adaptive management and the need to work with producers to optimize the benefits of applied conservation systems.

One of the watersheds of particular interest to NRCS is the Western Lake Erie Basin (WLEB), which includes the Maumee. This watershed has some problems associated with harmful algal blooms (HAB) related to nutrient issues (dissolved reactive phosphorus). The HAB problems could be related to: no-till planted Roundup Ready-soybeans, fall/winter (surface) applied fertilizer, soil compaction leading to more runoff, manure application, or more land being farmed due to high crop prices. Conservation systems can effectively address all of these causes.

NRCS is working with a broad partnership to enhance the level of nutrient management in this particular watershed. NRCS is increasing the level of conservation in the WLEB through nutrient management, with an emphasis on the "4 Rs"—right source (less prone to loss), right time (close to crop needs), right place (beneath the soil surface), and right rate (based on soil tests and crop need). Many producers do one or two of these things but only a limited number do all four of them in combination. This could be attributed to cultural or institutional issues, or perhaps a lack of technical assistance. The NRCS is convinced that enhanced nutrient management is a large part of the answer to improving water quality in the WLEB. NRCS is interested in a system of practices—nutrient management AND residue management, filter strips, subsoiling, and cover crops). NRCS also is interested in looking at new technologies (e.g., crop reflectance, corn stalk nitrate testing).

One of the efforts instituted to enhance technical assistance is the establishment of Strategic Watershed Action Teams (SWATs). These teams accelerate conservation activities through outreach, conservation planning, practice implementation, and follow-up. NRCS has about $20 million in the Farm Bill for this technical assistance, and the funding is being concentrated on approximately nine of the landscape initiatives, one of which is GLRI. There are six SWATs in the GLRI-funded watersheds. In the next week or two, NRCS will be rolling out to the State Conservationists an additional $1.1 million in the Great Lakes; $366,681 will be added to this funding through the 25% match by partners through Contribution Agreements. This will add more than 30 staff years of technical assistance in the Great Lakes area over the next 2 years.

Mr. Christensen offered several conclusions: (1) agricultural conservation practices deliver environmental benefits for the Great Lakes Basin; (2) inherent soil vulnerabilities in the Basin create a complex environment for agriculture conservation; (3) water quality, particularly related to sediment and/or nutrient loading, is the most critical conservation concern in the Great Lakes Basin; (4) systems of conservation practices are needed to manage complex nutrient loss pathways; and (5) targeting the most critical areas delivers the largest benefits.

Development has had a major impact on the loss of agricultural land in the United States. By 2050, there will be 2.4 billion more people to feed, and at the same time the 2007 National Resources Inventory (NRI) indicates that U.S. cropland acreage dropped by 63 million acres between 1982 and 2007—from 420 million acres to 357 million acres. Thirty-six percent of the land developed in this country was developed during that time period. To close the gap between current food production and future food

demand, food output will need to increase by 70% over the next 4 decades. This calls for new collaborative responses and a continuing and even stronger commitment to private lands voluntary conservation. Chief White refers to the 70/30 rule—70% of the contiguous United States is private lands, and the success of conservation will depend on what happens in that 70%. The historic local, state, and federal partnership, complemented by the private sector (both nonprofit and for profit) will remain at the core of facilitating voluntary actions by U.S. farmers and ranchers. Private lands conservation is needed to continue producing high-quality food and providing essential ecosystem services in the Great Lakes Basin.

Discussion

Mr. Lee McDaniel (Harford Soil Conservation District, FRRCC member) noted that the GLRI is a multi-state initiative; however, there is another country involved as well. What is happening north of the border? Mr. Christensen replied that he had a meeting with NRCS' Canadian counterparts a few months ago, but that discussion was not focused on the Great Lakes so he did not know any specifics about the efforts in Canada. He offered to follow up to get more information on Canada's conservation efforts in the Great Lakes.

Dr. Janis McFarland (Syngenta Crop Protection, FRRCC member) asked Mr. Christensen to elaborate on how the initiatives are prioritized and selected. How are the watersheds prioritized? Mr. Christensen responded that NRCS worked with the State Conservationists and State Technical Committees to develop a list of priority watersheds. This list was discussed at the state level and with EPA so that the selections would correlate with EPA's priorities. The ultimate selection was made by Chief White in consultation with NRCS staff. The number of initiatives selected also depended on the amount of funding available.

Dr. Richard Bonanno (University of Massachusetts, FRRCC member) asked Mr. Christensen to describe adaptive management. Dr. Bonanno said he views it as working with producers to develop and apply a system of practices. As more is learned, this knowledge is used to make changes that improve performance, while remaining consistent with the economics of the producer's operation. Dr. Bonanno then asked for input on how NRCS measures success. Mr. Christensen stated that the conservation practices are developed and implemented on a cost-sharing basis. These practices should yield results that can be incorporated into decisions. Observation and technical assistance are necessary to determine success (i.e., the practices lead to nutrient reduction).

Dr. Larry Sanders (Oklahoma State University, FRRCC member) asked about NRCS' consistency in considering comparative advantages of other partners. He noted that NRCS has a spotty history of working with the Cooperative Extension Service. Mr. Christensen responded that there may be some effort at the state level to do this, but it would be left to the discretion of the states. He pointed out that the partner must provide the 25% cost share required.

Mr. Boggs stated that Mr. Christensen identified how EPA contributed significant funding that complimented the NRCS program. He asked if NRCS sees other roles or activities for EPA that would support NRCS' efforts. Mr. Christensen replied that EPA can play an important role in monitoring and evaluation. For a Mississippi River Basin study, for example, EPA and the U.S. Geological Survey (USGS) are sharing the cost of monitoring to obtain the data to feed the models; EPA also will be involved in assessing the outcomes. Another role for EPA could be to provide funding to nongovernmental organizations (NGOs) for development of conservation plans. NRCS cannot provide funding to NGOs, so EPA could fill this important role.

Mr. Lawrence Clark (Farm Pilot Project Coordination, FRRCC member) asked about the status of the National 590 Nutrient Management Technical Standard, which is being revised. What are the issues driving the changes? Mr. Christensen replied that the public comment period closed about a month ago. He did not know the timeline for the release of the final standard but he expected that it would be finalized soon. The standard has been updated to promote enhanced nutrient management planning

activities at the state level, and it delivers the minimum requirements for nutrient planning associated with USDA programs. Focus has been added regarding erosion control, efficient nutrient use, adaptive nitrogen management tactics, tile drainage, and better management of nutrient application.

Dr. Sorensen stated that two CEAP reports—one on the Mississippi River Basin and one on the Chesapeake Bay Watershed—indicate that critically undertreated (conservation treatment) areas contribute disproportionately to the water quality problems in these areas. What can be done to identify and address these areas? Mr. Christensen responded that NRCS has identified the watersheds and the next step is to identify the most vulnerable areas within each watershed. NRCS is starting to work on that.

Mr. Elworth asked what EPA can do to make the $34 million of funding more useful to NRCS. Mr. Christensen responded that the GLRI has been a positive experience for NRCS. The effort did not detract from other NRCS programs and activities, but rather it complemented and enhanced those efforts. In his opinion, NRCS has been very satisfied with the relationship with EPA.

Agriculture Producing Solutions—Great Lakes
Patty Birkholz, Director, Office of the Great Lakes, Michigan Department of Environmental Quality

Ms. Birkholz explained that she was filling in for Cameron Davis, who could not be here. She noted that Michigan received more GLRI funding than any other state in the Great Lakes region. Given that Michigan is almost completely surrounded by Great Lakes waters, it is the state that probably is most impacted by what is happening in the Great Lakes. Therefore, Michigan is very grateful for the GLRI funding and is trying to use it well.

One of the major topics of her presentation was a partnership relationship that was very successful. It made good use of science and the resources available in Michigan, and will serve as a great model for going forward.

Michigan was one of the states that was hardest hit in the economic downturn, but the state is doing better now and the economy is slowly improving. Michigan has a new governor, Rick Snyder. He is one of the former owners of Gateway, and consequently, is making efforts to enhance Michigan's information technology capabilities. Governor Snyder wants to be a true partner in this effort because he recognizes that the state's natural resources are essential to its economy.

Ms. Birkholz showed a view of the Earth from space and noted that that Great Lakes can be identified easily, even from that distance. They account for more than 20% of the world's fresh water. The Great Lakes are important to the future of the United States as well as the future of the world. Therefore, our country and the states surrounding the lakes need to be good stewards of this significant water resource.

Michigan has faced a number of challenges with respect to the Great Lakes, including a divided legislature, a skeptical public, and the lack of alignment among user groups. These water user groups are quite diverse and include farmers, manufacturers, small businesses, aggregates, fishing folk, the food processing industry, cement manufacturing, and others. Many of these and others have used Great Lakes water without regulation, acknowledgement of usage, or reporting of usage.

When the Michigan Senate began looking at the Great Lakes Compact adoption about 8 years ago, the Senate viewed this as a real challenge. Michigan is a strong property rights state, and many people thought that Michigan would never adopt the Great Lakes Compact. Because the Compact required adopting Water Withdrawal Laws, this made its adoption even more of a challenge. The Compact required that the Water Withdrawal Laws be adopted within 5 years of the Compact adoption. Ms. Birkholz believed that the best approach was to adopt the Great Lakes Compact and the Water Withdrawal Laws together at the same time, so that the state could deal with the Withdrawal Laws in concert with the Compact. Ms. Birkholz introduced Mr. Scott Piggott (Michigan Farm Bureau), who was

involved with the Compact adoption, explaining that Mr. Piggott would be present for the remainder of the meeting to answer any questions because she was unable to attend Wednesday's session.

Agriculture's role in the Compact and the 2008 water legislation was very important. The law stated that water content of products (e.g., processed food, such as Gerber baby food) is not a diversion of water. The law also included provisions to protect the role of the Michigan Legislature. It was important to the Farm Bureau and others that the Compact uphold the riparian doctrine, and seasonal use provisions also were important. Another issue was the utilization of a water use assessment tool and how it would be implemented. The farmers wanted there to be no fees and no new rules associated with the Compact, and they wanted existing uses grandfathered. The law actually exempted the farmers from any fees for the first few years. In addition, the agricultural groups (Michigan Department of Agriculture, Michigan Commission of Agriculture and Rural Development) needed to play a role. The farmers also wanted additional reporting time and an allowance for transferring grandfathered uses. The Michigan Legislature was able to accommodate all of these requests.

Another requirement of the law was the establishment of a water resources advisory council; therefore, the Groundwater Advisory Council was established in law. Its members had to be appointed by the Governor, the Majority Leader, and the Speaker of the House. The Council also had to include representation from all the user groups. It was required to meet regularly, report to the Senate Standing Committee, and coordinate with the House Standing Committee. The Council was charged with offering the Michigan Legislature a solution for dealing with water withdrawal in the future.

Passing the Compact required a great deal of groundwork by many user groups, including the Farm Bureau, businesses, large utilities, USGS, and others. Most of the people on the Council had never worked together before and there was even some animosity among different user groups. Because of the strict timeline before them and the regular reporting requirement, they began working together to accomplish their assigned task.

The Council's work resulted in a tool called the water withdrawal tool, and the tool was specifically incorporated into law. The tool is based on the health of Michigan's streams, with the determinant being the health of the fish. Ms. Birkholz said that she explained this to the media and the public by stating that "if the fish die, then we are taking out too much water to maintain a healthy ecosystem." The tool is designed to avoid adverse resource impact—to prevent the fish from dying and to avoid law suits.

Before this law was passed in Michigan, water users were not required to report, so there were no official records. The well drillers were the only ones who knew the location and the depth of the wells, as well as the withdrawal rate. All of this information was stored in handwritten notebooks retained by the different drillers; there was no consolidation of the data among drillers and none of the data was entered into a database, which made it very difficult to access and search the data. Even the Public Health Department did not know the locations of the wells in the state because there was no reporting requirement. A water withdrawal recording law was passed, which was the first step taken before tackling the water withdrawal issue.

A great deal of information was needed for implementing the Water Withdrawal Law tool. Information on all the streams in Michigan had to be collected and entered, and Michigan State University provided considerable technical assistance in gathering and entering the information.

On October 1, 2008, the tool was available for evaluation and the water accounting began. On February 1, 2009, the water accounting was reset based on scientific data and a new, more refined definition of adverse resource impact. In July 2009, the online registration and the assessment tool were implemented. Now, anyone in the state can go on the site, plug in his or her coordinates and property information, and provide data on how deep he/she wants to drill and the expected withdrawal rate. Within minutes of entering the information into the system, the applicant will receive a "yes," "provisional yes," or "no." A

"provisional yes" response means the applicant would have to provide additional hydrogeological data for consideration.

Ms. Birkholz stated that science-based decision making is critical to moving the economy forward, and policy makers play a role in helping the public understand its importance. She noted that Michigan's water withdrawal assessment tool won three national awards. The first one was from the Council of State Governments, which makes four regional peer-reviewed awards each year recognizing innovations in government. The second award was bestowed by the Environmental Council of the States (ECOS) in 2010, and the third award was from the Renewable Resource Foundation for innovation in using science and science-based decision making.

One of the continuing challenges is the cost of updating the tool. It takes money and support to keep the tool up to date. In addition, there are saboteurs who would like to see the tool die a natural death. The seed corn planters in Southwestern Michigan, who use a lot of water, have hired a lobbying firm to try to repeal this law. With the downturn in the economy, the size of the staff working on the Water Withdrawal Law has declined from 10 full-time staff members to 4. This has made it difficult to keep the tool updated, which gives the saboteurs an opportunity to act. As the Director of the Office of the Great Lakes, Ms. Birkholz is working with some foundations to raise enough money to ensure that the law remains in effect and its implementation continues to move forward. The tool offers a good solution for Michigan, but the state cannot rely on a scientific-based tool if it is not updated regularly. Because this now has become a national model for partners working together collaboratively to address environmental challenges, it is critical that the state continue to support the tool and its implementation.

Ms. Birkholz pointed out that water withdrawal is only one of the issues facing the Great Lakes. The states are dealing with 184 invasive species, including the Asian carp. They also must continue to look at diversion requests and wetlands management issues. Michigan's Wetlands Law was revised almost a year ago, but the new legislature is unhappy with it and is considering a revision. Other issues include: Part 201 legislation implementation, areas of concern, combined sewer overflows (CSOs), nutrients in the Great Lakes, and CAFOs. She closed her presentation by stating that this approach has worked but it takes a great deal of effort by many different people to bring the partnership together, to keep it moving forward, and to ensure that science is integrated into the decision making and problem solving. She thanked the FRRCC for the work it is doing and expressed her regret for not being able to attend Wednesday's session.

Discussion

Dr. Bonanno asked if, like Massachusetts, Michigan claims to own all the water in the state. Ms. Birkholz replied that some of her constituents might believe that, but she did not. There are some maps that show the state boundaries for the Great Lakes; for example, with respect to Lake Michigan, Michigan owns a little more than half-way across the lake to Wisconsin. Dr. Bonanno noted that Ms. Birkholz focused her presentation on the withdrawal of water and the quantification of it. He asked her to relate that to the discharge side—what is going back into the lakes. Is there a correlation there? Ms. Birkholz replied that she thinks there is a correlation, although she is not a scientist. Everyone needs water to live and in Michigan, the water also is an important part of the state's economic engine. To meet both of these needs, Michigan needs a clean water supply. With respect to pollution and nutrient runoff, the Great Lakes states need to do a better job. Many of Michigan's major cities have taken steps to improve their CSOs, but many smaller communities that were planning to float bonds to upgrade their sewer systems have not been able to do so because of the sluggish economy.

Mr. James Ford (Square "O" Consulting, FRRCC member) asked about the recourse for an applicant who receives a "no" response on his/her permit application. Ms. Birkholz responded that if the individual receives a "no" response, he/she can still apply to the department for a permit but the applicant would have to make a strong case for why he/she needs the permit and the department then would have to do a hydrogeological study before a permit could be issued. Since the Water Withdrawal Law has been in

place, only two applicants have received a "no" response. Approximately two-thirds of the applicants receive a "yes" response immediately after they enter the data and submit the request on the website.

Dr. Jennie Popp (University of Arkansas, FRRCC member) stated that aquifers do not follow state lines. How does Michigan's Water Withdrawal Law impact its interactions and water agreements with its contiguous states? Secondly, has there been some consideration of the negative economic consequences that could result if an applicant is unable to drill a well? Ms. Birkholz replied that the test for withdrawing water does not include economic consequences. The test is based on whether the aquifer from which the water would be withdrawn would remain stable. The primary goal is to ensure that the aquifers remain healthy. With respect to the question about contiguous state interactions, Indiana would be the primary state; there have been some discussions between the two states but there currently is no formal agreement or memorandum of understanding. Ms. Birkholz stressed the fact that both states have to respect each other's laws. Now that the states within the Great Lakes Basin have to either adopt or update their withdrawal laws to come into compliance with the Compact, many are adopting Michigan's Water Withdrawal Law or something similar.

Dr. Sanders stated that Oklahoma is nearing the end of developing a 10-year comprehensive state water plan, and one of the challenges has been the public misunderstanding of consumptive versus nonconsumptive water use, especially with respect to agriculture. Has Michigan conducted some special scientific studies or education programs to give agriculture due consideration that water withdrawals are not necessarily equated to consumptive use? He explained that much of the water used by agriculture is returned to the watershed. Ms. Birkholz confirmed that Michigan has recognized the need for scientific studies to better inform the state and the public on this issue. It became particularly clear that more scientific data are needed with regard to the corn seed growers in Southwestern Michigan. USGS plans to partner with the state on this study, just as USGS was involved in establishing the Water Withdrawal Law. There definitely is some misunderstanding about farmers and water return. It is not clear how much water is returned to the watershed and the rate at which it is returned. Evaporation and other issues come into play. Ms. Birkholz noted that the state needs to do a better job of educating farmers about the amount of water needed to prevent overwatering and to verify that the aquifer gets recharged. Overuse on one farm could lead to a neighboring farm's inability to withdraw from the aquifer.

Ms. Martha Noble (National Sustainable Agriculture Coalition, FRRCC member) asked about water quality standards for multijurisdictional situations such as the Chesapeake Bay. Similarly, the Great Lakes region involves a number of states and two countries. How do the water quality standards work in the Great Lakes? Are there common water quality standards for the lakes that must be met by all the states and Canada? Ms. Birkholz replied that there have been attempts to establish a common water quality standard, but she did not feel qualified to comment on the issue. The Michigan Legislature did not really address water quality standards when she was in the state senate, but she expects that this will receive more attention in the future. Both Quebec and Ontario worked closely with Michigan on the Water Withdrawal Law, and have kept up to date on its implementation. They are considering similar laws in those two provinces. Because there was no forum for binational legislators to work together, she founded the Great Lakes Legislative Caucus. As a result, there are more binational discussions taking place and she expects they will continue with the goal of developing an action plan for the Great Lakes.

Mr. Omar Garza (Texas Mexico Border Coalition, FRRCC member) asked about the partnerships that were developed in the process of establishing the Water Withdrawal Law. Michigan's population has become very diverse; for example, Michigan now has a large population of Hispanic farmers. What was done to include these diverse groups into the planning and rulemaking process? Also, in the presentation, Ms. Birkholz mentioned that the Farm Bureau was involved, but were there other groups, such as the Soil and Water Conservation Districts and less traditional organizations, included in the planning and rulemaking process? Ms. Birkholz responded that there is a large Hispanic population in Southwest Michigan; many of the Hispanic farmers are involved in raising blueberries and similar crops as well as traditional agriculture. She worked very closely with them in the process of establishing the law. They were involved with the Conservation Districts and Agricultural Extension Service, which were active in

the whole process. The Farm Bureau did represent the farming community in the process, but the Farm Bureau interacted with these other groups to represent them as well. The goal was to bring broad representation to the table, but to keep the Council at less than 20 members; therefore, some members represented multiple groups. She noted that the working group she established to start the process and to move it forward, beyond the Groundwater Council, was quite large and very diverse, and most of the members worked well together.

Dr. Lori Berger (California Specialty Crops Council, FRRCC member) stated that Ms. Birkholz mentioned that in order for this to be sustainable, the state must partner with foundations. Can you elaborate on that? Is this the way of the future? How does one prevent bias and ensure balance with that type of approach? Ms. Birkholz replied that there were a number of groups that helped with the process; USGS was part of the original Groundwater Advisory Council, and Michigan State University UFM helped with the database, so there were some initial partnerships. Now, Ms. Birkholz is looking to partner with 501(c)(3) organizations to help keep the database up to date. Because the Groundwater Advisory Council's work led to the tool and withdrawal law, and because this was the first in the Nation and a number of other states are trying to replicate what Michigan did, Michigan is proud of its accomplishment and those who were involved. As a result, not one of the 501(c)(3) organizations she has approached has turned her down. She is asking each of them to make a small contribution, about $5,000 to $10,000. Most of them want to see the Water Withdrawal Law succeed because it is required for the Compact; however, they do not want to continue to fund what they view as government activities. Ms. Birkholz has assured them that once the economy improves, the state should be able to support the database without such partnerships.

Dr. Janis McFarland (Syngenta Crop Protection, FRRCC member) asked about the redefining of the adverse resource impact with the fish endpoint when the model was refined in 2009. Does this assume a constant regulated water quality from discharge or is it solely related to the water withdrawal tool? Ms. Birkholz responded that it was solely related to the water withdrawal tool. Dr. McFarland then asked if there would be separate discharge regulations or goals with the adverse impact to fish endpoint to ensure a specific water quality. Ms. Birkholz replied that the adverse resource impact was based on the health of the streams and the health of the fish. For the most part, it was based on levels, but there was some aspect of quality. She suggested that Dr. McFarland pose her question to Mr. Piggott, who can probably provide a more detailed answer. Ms. Birkholz commented that such a law probably will be needed in the future, but Michigan is not there yet.

Mr. Elworth asked about the parties to the Compact. Ms. Birkholz responded that the parties include all eight states and the two Canadian provinces—Quebec and Ontario—that border the Great Lakes. The Compact is a large document and its bottom line is that each state/province has to return to the Basin what water is taken out. The Compact also requires the parties to employ strong conservation measures. She mentioned that the Waukesha request from Wisconsin is the first request that will be presented to the Great Lakes Governors when they reconvene. Waukesha is on the Great Divide so some of the water it withdraws will not be returned to the Basin because it will return to the other side of the Great Divide. Based on criticism of its initial request, Waukesha withdrew it so that the request could be refined to include conservation measures, which is one of the central themes of the Compact.

Charge to Discussion Groups
Lawrence Elworth, Agricultural Counselor to the Administrator, EPA
Abby Dilley, Facilitator

Mr. Elworth said that he hopes the discussion group process will help the FRRCC focus on some very specific areas. The substance of the recommendations in the Committee's report will be based on the discussions of these workgroups. He asked the members to think of these discussions as informing the overall recommendations of the FRRCC to the EPA Administrator. That is why this meeting includes substantial time for these breakout sessions. There will be plenty of time for the groups to discuss various issues and then report back to the entire Committee. The FRRCC members will be able to ask questions

and serve as a sounding board for the workgroups' ideas. These first few discussion group meetings should be viewed as an opportunity to focus deliberations and begin to define what will be addressed in the Committee's report.

Ms. Dilley mentioned the proposed draft discussion group agenda that was included in the meeting folder. She noted that there will be two discussion group sessions during the meeting—one today and one tomorrow. Today's session will be an opportunity for the groups to get organized. Each group should identify a facilitator who will keep the discussion on track and someone to take notes to create a record of discussions and capture the important ideas. In addition, each group should designate someone to report the key points of the workgroup's discussion to the entire Committee when everyone comes back together. The notes will remind workgroup members of the discussions as they move forward and help provide background information for those who were unable to attend the workgroup meeting.

She charged each group to use this 2-hour session to develop a scope for the workgroup's discussions and identify the main themes on which the group will concentrate its efforts. She suggested looking at the themes that were identified in the previous meeting summary. Groups also could draw examples from the presentations at this meeting and from their own experiences. What is working well? Why is it working well? What is missing? What else needs to be done? When the groups come back together for the report out, there will be time for interchange among the groups to help refine the focus of the report, which will integrate the three themes (partnerships, science, and resources). She reiterated that each group should report on the scope of what it will address and identify some examples that can be used to support the recommendations. Ms. Dilley noted that there will be two more presentations before the second workgroup discussion session tomorrow. She suggested that it might be helpful for the workgroups to formulate some questions related to their themes for those presenters. For example, the Partnerships Workgroup may want to develop some questions for this evening's speaker, who will give a presentation on NRCS programs, because USDA is an important partner in working with producers.

Tomorrow's discussion group session will focus on developing a work plan. The groups also should identify any additional information they need to facilitate their discussions, what topics they want to address, and tasks to be completed before the June meeting. Ms. Dilley then asked if there were any questions about the process and expectations for the discussions. She noted that there will be several EPA staff members in each of the discussion group sessions to serve as resources.

Mr. Elworth mentioned the handout on ideas for discussion group deliberations that was included in the meeting folder. He stressed that these are just some ideas for the discussion; they are not meant to limit or direct the groups' deliberations in any way. Most of these ideas were drawn from the discussions at the previous meeting. He noted that there is a great deal of overlap between the three themes. It is difficult to talk about resources without looking at the value of partnerships in supplementing resources. Similarly, it is difficult to discuss science without addressing the resources necessary to do the science. In addition, transparency in science requires active working partnerships among the science organizations and the stakeholders. There is considerable intersection, which is why it is useful to report the deliberations of the groups to the overall Committee. He then went through the ideas in the handout.

The Resources Workgroup could look at what types of resources are necessary—human, technical, financial. At what level are the resources needed (on-farm, local, state, federal)? How important is the term in which resources are available? What are the most effective and efficient ways to build capacity? How are the resources best coordinated and leveraged? Which entities are most effective at coordinating resources? How is accountability incorporated and assured in the use of resources? How are public and private benefits assessed and accounted for in the use of resources? What is the role of novel approaches such as trading, environmental financing, and markets?

The Science Workgroup could examine the science issues in the assessment of environmental problems. How are environmental conditions best monitored? What data are most useful? How is progress documented and verified? What is the value of modeling and how can it be done most effectively? How

are the data collected and verified? What are the appropriate roles and methods for independent review? How can transparency and credibility best be assured? What are the science issues associated with the development, testing, and validation of new technology?

The Partnerships Workgroup could address the appropriate roles for partnerships. Where are they most valuable? What results can be expected of partnerships? What are the most critical needs for effective partnerships? What conditions are most conducive for public-private, private, and inter-agency partnerships? How do resources and science issues intersect with partnership development, support, effectiveness, and value? What results can be expected of partnerships? How is knowledge synthesized and effectively communicated for use from one partnership to another? How are organizational and management needs anticipated and met? How is capacity built and sustained?

Just before separating into the discussion groups, Ms. Kaiser noted one change to the group assignments listed in the meeting folder. Ms. Noble will be in the Science Workgroup rather than the Partnerships Workgroup because that is more in line with her new position.

Working Lunch/Discussion Group Breakout Session

The discussion groups met from 11:30 to 1:30 p.m. The Partnerships Workgroup met in the Galaxy Ballroom, the Science Workgroup met in the Stars II Room, and the Resources Workgroup met in the Stars I Room. Each workgroup reported the highlights of its discussion following the breakout session.

Discussion Groups Report Back to Committee
Abby Dilley, Facilitator

Ms. Dilley asked the members to listen to the report outs from the discussion groups and examine the scopes that they have defined for their groups. She encouraged the members to reflect on whether the workgroups are moving in a direction that is productive for the Committee. She also asked members to identify topics that may be missing from the workgroup scopes. In addition, the groups should identify any additional information they might need from EPA and others. They also should formulate questions for EPA that will help inform the development of their work plans during tomorrow's session.

Resources Workgroup
Dr. Robert Burns, University of Tennessee, Resources Workgroup

The types of resources needed fall into three categories: (1) financial incentive resources, (2) technical assistance resources, and (3) educational resources. Financial incentive resources are directed specifically to giving incentives on the ground for making practice changes. Technical assistance resources are needed to provide technical guidance and assistance on making those practice changes on the ground. Educational resources are needed for educating the agricultural producers.

There was considerable discussion about the limiting factors. The group talked about whether there are enough people trained in the right areas but the group agreed that this will not be an issue if there is an incentivized system to make the practice changes. The group also identified an additional category of a special type of resources, which may be the primary one that is missing now. This additional category is resources for coordination and management of diverse funds that are being delivered. The group recognized that there are existing resources available in the three major categories; for example, there are educational resources through the land grant university system, and financial incentives and technical assistance resources through NRCS. The allocation of these resources needs to be done at the local level, on the ground, with the producers that will make a difference. There needs to be coordination to ensure that resources from federal, state, and local sources are focused on water quality issues. The workgroup had some discussions about how to manage this at the local level and there was general consensus that, if the goal is to improve the water quality in a watershed, it makes sense to focus resources on bringing about changes at the watershed level.

The group also discussed timescale. Dr. Burns referred to the adoption of no till as an example that he had shared with the discussion group. The no till technology worked and in most places there was an economic incentive to apply the technology; there also were clear environmental benefits. Nevertheless, it took 2 decades to get the technology to be widely applied across the country. Therefore, timescale is an important issue. How fast must the changes be implemented? Given that most of these technologies involve changes to cropping and production systems or modifications to parts of those systems on the ground, it will involve a commitment of approximately 5 to 10 years at a minimum. The group recognized that this timeframe does not always fit with political time constraints and the flow of funding, but the workgroup believes that it will require some long-term commitment to make a difference. In the very long-term, the group thinks that the markets must support the changed behavior for the system to be sustainable.

The group examined why practices that currently are damaging to water quality continue to happen. There are two primary reasons: (1) there is a complete lack of understanding of why the practices should be changed, or (2) there is no economic incentive to change the practice. The group had some discussion about which reason is the primary driving factor and there was consensus that it is the lack of economic incentive. Most farmers understand, for example, that it probably is not good environmental practice to farm right up to the edge of the creek, but many do so because of the economic incentive of larger crop yields. If it is more profitable for a farmer to operate in a way that may not be best from a water quality standpoint, then the economic incentive is likely the primary driver.

The group also talked about how to train and educate farmers. Most group members agreed that the land grant university system, which already is in place, is capable of educating farmers. It seems logical that additional funding for this system would yield more progress with respect to educating farmers on environmentally beneficial practices. Specifically, the group thought it might be helpful to make long-term commitments to fund education focused on water quality improvements. Dr. Burns noted that because of limited resources, most land grant universities are forced to focus on getting resources through whatever grants are available; few have the luxury of focusing on the long-term changes that need to be made.

Dr. Burns then asked if any of the other members wanted to add anything to the report out. There were no additional comments.

Dr. McFarland asked if the group had a broader discussion of the different categories of resources needed for technical assistance. Dr. Burns replied that the group did discuss technical assistance resources; he asked if Mr. David Petty (Iowa River Ranch, FRRCC member) would like to respond to the question. Mr. Petty stated that there is some money available for technical assistance, but there is never enough. Technical assistance also is funded from a different NRCS source. Only the best projects usually get technical assistance funding, and most of these projects probably could get the funding from another source. There definitely is a shortage of funding.

The group also discussed the human resource aspect—the fact that there may not be enough people qualified to provide the technical assistance. Dr. McFarland asked if the group differentiated between the technical assistance for helping to implement practices versus resources for research areas. Dr. Burns confirmed that the group talked about both—specifically, the difference between the land grant university technical assistance and the NRCS technical assistance. With respect to technical assistance, the group discussed the limiting factor. The group agreed that if there is a market advantage/economic incentive to install systems that protect water quality, then technical assistance would not be the limiting factor. If there is a market-based incentive, then farmers would hire consultants to provide that technical assistance. The group believes that technical assistance is the least limiting of the three types of resources being addressed.

Mr. Ford said the group also talked about increasing the number of sustained technical assistance providers on the land where they can follow farmers' practices from year to year.

Mr. McDaniel asked if there was any discussion in the group about the efficiency of the grant process—grant writing, review, and acceptance. He noted that much time is spent on this process rather than getting conservation practices on the ground. Dr. Burns replied that the group did not discuss the grant process specifically; they did, however, talk about the fact that there are fewer boots on the ground as a result of changes at NRCS and the land grant Extension Service. The time of the faculty members at land grant universities is focused on writing grants rather than on providing technical assistance because there is insufficient funding to run the organization without infusions of funding from grants. In addition, there are fewer Extension specialists at the land grant universities now than compared to 15 years ago. This issue also came up when the group discussed the term of these projects. The grants have short terms, which makes it difficult, for example, to keep a watershed coordinator funded for multiple years with a 2-year 319 grant. With the budget discussions taking place on Capitol Hill, the land grant universities are expecting to get less funding. These universities compete for grants that may or may not support water quality issues, and they typically do not provide long-term support of the types of individuals needed for the technical assistance required to improve water quality. Mr. McDaniel asked Dr. Burns if he found this to be an efficient way to function. Dr. Burns responded that he was probably too biased to answer the question. He noted that, at his university, they just eliminated 60 personnel in the last round of budget cuts, and they are finding it increasingly difficult to do the work that they have been able to do in the past.

Dr. Balling asked if the workgroup discussed market-based incentives and private infrastructure types of incentives. Dr. Burns confirmed that those were discussed. Dr. Balling noted that as the support from public infrastructure declines, more support is coming from private infrastructure. Dr. Burns thought this was an interesting comment and he agreed with it, but he cautioned that the Extensions, when they had a larger staff, used to work directly with producers at a greater level. Now, the Certified Crop Advisers (CCAs) and Technical Service Providers (TSPs) are working with the producers, but the Extensions are responsible for training this private technical group that works with the producers. Dr. Balling said that he did not mean to dismiss the Extension Service—the Extension Service and the Agricultural Research Service (ARS) are critically important to achieving the goal of improved water quality, but their reach can be expanded through these private groups. Dr. Burns agreed and noted that this has been the model of operation for the TSP for the past 12 years.

Mr. Elworth thought this was an important point. Many believe that there is a standing army of people in the agricultural community that is ready and able to provide these services with ever-decreasing resources to do the technical assistance and work needed to get information to the farmers. This is an issue that EPA has raised with OMB on a number of occasions. There have been policy promises with respect to the Chesapeake Bay Watershed, and EPA has made it clear that without the technical assistance for the farmers, it will be very difficult to make the necessary changes to meet the TMDL. He equated it to buying a bus without buying gas or providing a driver for the bus and then asking why it does not go anywhere.

Another critical point is that in using a systems approach, adoption of systems takes longer and requires more skills. Mr. Elworth asked about the ability of SWAT teams to deliver the same kind of technical assistance as that offered by people who are onsite for years. EPA has seen projects that took 2 or 3 years to get started because it took that long for people to understand what was to be accomplished by the practices. It also takes considerable time to develop trust between the farmers and those providing the technical assistance. A sustainable approach to conservation requires more than a one-shot approach to technical assistance.

Dr. Sanders asked if the group discussed the need for establishing methods to prioritize resources for use in times when there are limited or restricted resources. He also commented that one of the reasons that we have reached the point where we are is because markets failed. The primary means of resolving market failure is government intervention. Therefore, when one talks about market-based incentives and trying to

find market solutions, the Committee members need to keep in mind that those did not work many times. Dr. Burns replied that he did not think the group discussed prioritization. Mr. Ray Vester (E & M Farms Partnership, FRRCC member) said he thought the group did discuss prioritization in that it was decided that the work should start in those watersheds that were in most need of improvement. The group did not get into much detail because that would be difficult at this point. Nearing the end of the session, the group discussed markets and Mr. Vester reminded everyone that in 1972, farmers were told to plant fence row to fence row because there would never be enough food. In 1980, his neighbor was forced to sell when rice was less than $3.50 a bushel. Corn will not always be $7.00 a bushel, even though there are some that believe it will be and that it may go higher. There will come a point when the price will drop because of economic conditions, demand, or other reasons. Just because people need food, it does not mean that they can afford to buy it; if they do not buy it, the price goes down. He agreed with Dr. Sanders' comment that market solutions do not always work because commodity markets change. Right now, many investors are placing their money in commodity markets, but if those funds are pulled out of the market, the prices will drop quickly. Mr. Vester added that it is important to continue efforts to educate farmers and the American public about the importance of conservation and clean water. The public will have to realize that it will have to help pay for the clean water, through higher prices for food. He noted that this is an important part of the funding needed.

Dr. Burns said that it would have been helpful to have Dr. Sanders in the Resources Workgroup because they talked a lot about market solutions but had the least consensus on that topic.

Science Workgroup
Dr. Richard Bonanno, University of Massachusetts, Science Workgroup

Dr. Bonanno thanked Dr. McFarland for serving as the group facilitator and Dr. Popp for serving as the notetaker. He explained that the group had seven points to convey to the FRRCC and the points were framed in the form of questions.

1. What is good science? Who is credible? Who does EPA listen to?

2. What is the desired state of the science? All agreed that everyone wants quality science, research that is fact-based, and research of the highest quality. It is not always clear who determines what gets included in the data pool.

3. What defines impairment of a water body? The group agreed that this is a policy question, but it is one that is key to the ability to do the science. Should we be entirely protective of a pristine state of a body of water? What do we want our water bodies to be? There is a cost-benefit policy analysis that must take place. Do we choose to give up certain qualities of water for the greater good? For example, how important is it for us to preserve the quality of a body of water versus producing enough food for the population to eat? He noted that many people live in or near Washington, DC so that they are close to their work but this has an impact on the Chesapeake Bay Watershed that many are working to protect. What is the cost-benefit analysis of that? Impairments need to be defined so that science can start being applied to address those impairments.

4. What causes the impairments? How do we project impairments? How does an agricultural practice translate to an impaired state or an improved state? How certain are we of the cause and effect of that relationship?

5. How does the knowledge of what helps or hurts translate into best management practices (BMPs) that we ask farmers to employ? How confident are we in our science that farmers will get the predictable effect, either positive or negative, when they apply the practice?

6. What is the feedback mechanism? What data, as time goes on, go into adjusting the models we created and the predictions? Perhaps this is part of what was defined as adaptive management in the first presentation today.

The seventh point made by the group is actually a quote, which Dr. Bonanno paraphrased: our job as scientists is to do the kind of work that moves cocksure ignorance into thoughtful uncertainty.

Mr. Elworth thought, with respect to the issue of determining impairment, that the Committee should look beyond a simple "yes" the water body is impaired, or "no" it is not. Is the group thinking about indicators and designated uses of a water body? He noted that the Clean Water Act standards are set at the state level to meet the water body uses. There has been considerable discussion about indicators, particularly in Florida (nutrient level, chlorophyll indicator, etc.). Did the group talk about these issues?

Dr. Bonanno replied that the workgroup did discuss indicators and what is happening in Florida. The group recognizes that there have to be standards. If a policy is based on impairment, it is important to have the right standard and the right information. What number shows that the water is impaired? Dr. Berger added that the group talked about the technical aspects and the regulatory drivers; also discussed were the political boundaries—county, state, regional, or even international.

Mr. Elworth said that farmers often are expected to rely on new technologies, but without good science it is difficult for them to know if they work, how they work, and at what scale they work. Did the group talk about the role of science in these issues? Dr. Bonanno replied that they discussed cause and effect and how to figure out what works and what does not work. There are many practices that agriculture is expected to adopt for the greater good but it seems that agriculture always has to foot the bill. The workgroup did not discuss the economics of this specifically. He noted that sometimes practices do not get adopted because there is some scientific uncertainty. It takes time to implement practices and in the traditional model, the Extension Service works with a few of the innovative farmers in the area. When the practices they implement work, other farmers in the area begin adopting them. Dr. Bonanno commented that he has asked farmers who they really trust when they are making decisions about their farms. First, they trust their own experience; second, they trust their fellow farmers; and third, they trust the Extension Service. Farmers consider information from their fellow farmers to be credible. Although the workgroup did not talk about this, it is a very important point.

Mr. McDaniel asked if the group discussed how to work with the various agencies involved to develop a single set of numbers. For the Chesapeake Bay, for example, each state has a different set of numbers, as does EPA and NRCS. Also, would the single set of numbers developed for the Chesapeake Bay be the same set of numbers needed for the Mississippi Basin or California?

Dr. Berger responded that the workgroup discussed this issue. The numbers would not be the same for the different watersheds across the country. There is a great need to pool information and make it readily accessible. The data gathered by the various agencies need to be in a more standardized format to improve comparison and searchability. This is essential given the diminishing resources for data collection and management.

Ms. Noble commented that there are different models that can be used for assessing impairment and these models can yield different numbers that appear to disagree. When the information that went into the model and the purpose of the model are examined, however, the differences usually can be explained. This is key; if the differences cannot be explained, then there may be a problem.

Mr. Bill Northey (Iowa Department of Agriculture and Land Stewardship, FRRCC member) stated that the Partnerships Workgroup talked some about the evolution of science. Did the Science Workgroup discuss the fact that in the near future there will be many more tools to do monitoring? How do we access those tools? How do we implement them? How do they become part of the learning process for figuring out what is happening in a watershed?

Dr. McFarland replied that the group did discuss the benefits of the new tools that make it easier to identify the vulnerable areas in a watershed and to pinpoint the major areas of surface water runoff. The group talked about the need to have that information and research available to help the local communities institute best practices. The group also discussed data management and access to information and how best to make it available to EPA for setting science-based standards as well as to communities for implementing BMPs. Dr. Popp added that there is a need to have common databases. There are water quality databases out there that are supposed to be used nationwide but many are populated only with Florida data. A mechanism is needed to ensure that data sharing becomes more common. Noting the amount of good research being done by EPA, NRCS, and USGS, Dr. McFarland asked how EPA takes into consideration all the priorities of the diverse groups, which are using different levels of science, in identifying research needs to improve water quality. There are many databases that are useful for watershed quality planning. What are the processes that enable EPA to access this information and use it to prioritize some of the work conducted by other agencies to help achieve EPA's goal of protecting our water?

Mr. Elworth replied that a mechanism is needed to connect the people doing research with the people who will be verifying and using the data. Often there are 10 different people doing 10 different research studies and then everyone expects various public and private institutions to have a database that incorporates all of those studies and accounts for the differences in the datasets and pulls them all together. There needs to be a mechanism for researchers who know they are collecting data that would be useful in making regulatory decisions. This has been done for pesticides—the researcher and the person making regulatory decisions actually talk to each other to ensure that the research answers the necessary questions in a way that the information can be used by the decision maker. If people are doing research on new tools that will reduce nutrient pollution and, in the process of developing them, do not collect the data necessary to verify the tools and include them in the modeling or calculations, then an opportunity to keep up with the latest developments in agricultural science is missed.

Ms. Noble said the group also discussed the need and importance of having long-term water quality monitoring and assessment as part of the package. This is necessary to demonstrate the impact that will be brought about over time by the changes implemented. This also helps detect the impact of a problem that has been developing incrementally over time.

Dr. Sanders stated that there is a broader issue that needs to be included in discussions as the Committee moves forward. If we wait for the best science, we will never be there. We must recognize the need to look at the best science available, and at some point in time, draw a line and make a decision. This is the reality of the political world in which EPA operates. The best science available will give us imperfect answers that will evolve over time into better answers. Waiting for better science to be available will just delay action.

Partnerships Workgroup
Douglas Young, Spruce Haven Farm and Research Center, Partnerships Workgroup

Mr. Young stated that the group had a very good discussion and he attempted to consolidate the notes from the flipcharts. To start with, there has to be a clear understanding of the goal for the partnership if it is to be successful. The goal in this case would be clean water, but this must be accomplished in a way that is economically viable to the farmers and municipalities.

The key elements of a successful partnership are: (1) trust between the partners and an understanding that the intentions of those at the table are for the mutual benefit of communities; (2) good data that are openly shared and in common reporting units (e.g., lbs of CO_2 equivalents/unit of food production is a useful standard that has emerged), and results are made available to everyone; (3) identification of the gaps in the data, the technology, and the implementation process—if it is not implemented at the farm there is no progress; (4) partners need to have ownership and there has to be accountability; (5) a local focus—most

successful partnerships are initiated and followed through at the local level; (6) partners need to commit resources to the mission (i.e., they have to have "skin in the game"); (7) clear definitions of assignments for each party to accomplish; and (8) the partners must have a common understanding of the challenge to be addressed.

The group then discussed who would be in the partnership. Farmers would be a key partner; farming impacts a large share of the land so if there is to be significant progress on any environmental issue, there has to be substantial buy-in and implementation by farmers. Scientists would be another partner. This partner group would be represented by land grant universities, ARS, and other private entities as well as government agencies—USDA, NRCS, EPA, state agricultural and environmental regulatory agencies, and local government. There was considerable discussion about how EPA would participate in these partnerships. Some were concerned that, given EPA's regulatory role, other partners (e.g., farmers) may not be comfortable with the Agency's participation. NGOs also have an important role as a partner. In many of the examples discussed by the group, NGOs were successful in initiating the discussion, getting input from the partners, and bringing them to the table.

The next topic discussed by the group was the structure of partnerships. Partnerships need to be local but the group was not certain about who should coordinate the partnership. It is important to look for local leaders. The coordinator's role is to schedule meetings and ensure that the partnership continues to move forward to accomplish its goal. The success of the partnership often depends on the coordinator and the individuals in the partnership. The participants representing the various partner organizations need to have proven ability to contribute toward progress as well as the desire and drive to make a difference. In addition, they need to have a vested interest (i.e., skin in the game). Three or four members of the group mentioned successful examples of Section 319 priority watershed partnerships. The limiting factor of these partnerships is that the timeframe tends to be rather short, making it difficult to sustain a long-term project. Another example mentioned was the partnership of EPA, USDA, and the dairy industry. EPA is responsible for regulating air quality and when the air quality standard for any of six air pollutants is exceeded, states must inform EPA how they plan to respond. Any farm in a nonattainment region (regions where air quality standards are exceeded) found to be a "major source" of regulated emissions could be required to apply for and comply with an operating permit. Failure to comply could lead to substantial fines (e.g., $35,000/day). Because dairy farmers could not possibly pay these fines, they agreed to work with USDA to formulate an approach, collect the data, develop a process-based model, and build a framework that moves the entire industry forward.

The group also discussed the tools that may come out of partnerships. There will be a proliferation of data available—in just a few years there probably will be sensors in the creeks and other locations that feed back into a central data collection system. Perhaps in the future, the farmer could get an e-mail that informs him that on a certain date, the nitrogen levels in the stream next to his field exceeded allowable levels. This level of information could really empower agriculture to make well-informed decisions.

In livestock agriculture, ration balancing programs have really dominated decision-making in terms of how to get the most production for the least inputs, which minimizes losses. The process-based model actually does the same thing but it is applied to the entire agricultural system, whether livestock or crops. How can farmers implement technologies and systems to maximize output (carbon) and reduce inputs (nitrogen, phosphorus, and potassium) to minimize losses?

Discussion

Mr. Dennis Treacy (Smithfield Foods, FRRCC member) asked the group to expand on the role of EPA in partnerships. During his career, he has seen EPA struggle over and over with the issue of being a partner and a regulator at the same time. Currently, EPA is in the process of disengaging from many partnerships because the Agency does not think that should be its role in many instances. Could you share with us what the group had to say on this?

Mr. Young responded that this was discussed at length by the group. One role may be for EPA to define an issue and call for help from outside the Agency in developing solutions to address the problem. EPA would agree to learn from those developing and testing the solutions without regulating them for a period of time until there is agreement on the most appropriate solution that is cost-effective for the farmer. This is the role EPA played in the example with the dairy industry and although it was uncomfortable initially, it has proven to be very effective. He then asked other members of the workgroup to respond. Mr. Treacy pointed out that the air agreement on animal agriculture was in the context of an enforcement order from EPA. Mr. McDonald said that the group spent some time talking about defining the problem. As you try to bring partners together around a topic, it helps if everyone agrees on the problem. Too often the agricultural community believes that EPA has defined the problem to be more serious than it is. It would be helpful in solidifying the partners' commitments to the process of working together if there could be consensus on the problem among the partners.

Mr. Elworth encouraged the group to think about some other types of partnerships. One example is where the EPA regions work with the states and NRCS through 319 and other funding mechanisms, where EPA can help make additional resources available for items such as technical assistance or monitoring. Another role for EPA is the development of scientific information, probably working with USDA or USGS. It would be good to know how these partnerships could be useful to the agricultural community. What can EPA do to recognize how partnerships, even ones in which the Agency is not involved, solve water quality problems at the ground level?

Dr. Burns pointed out that this water quality issue is so large that no individual organization or group can solve it alone. It will require partnerships to solve the problems and these partnerships need to be at the local level. Everyone probably struggles with the question of who should coordinate those partnerships. How do we identify a centralized group that brings all the parties together, with or without EPA as a partner? At the end of the day, this may be the most important question that the Committee can answer. We all know many of the things that need to be done, we know where they need to be done—at the local level and on the ground, the efforts need to last for a term that is long enough to make a difference, and it will take many people working together. What seems to be lacking are the resources and management to pull these partnerships together in a long-term and meaningful way.

Dr. Sanders stated that there are many specific examples from the last 20 years where regulators at the table who had sufficient latitude to figure out how to achieve the end goal, found it to be very doable provided the people at the table were willing to talk to each other and frame the issue in a constructive manner. The Aplomado Falcon case in Galveston Bay in the 1990s is a good example of how this approach worked. He suggested that the Partnerships Workgroup review some of these examples, which may reveal some additional alternatives.

Referring to earlier comments to consider different types of partnerships, Dr. McFarland stated that it is beneficial when one of the groups involved at the watershed level has experience bringing in volunteers. She mentioned the example of the Iowa Trees Forever group, which planted about 1.5 million trees along stream banks to prevent soil bank erosion and improve water quality by reducing runoff from surrounding farm fields. Thousands of volunteers were used to plant those trees and the local communities were energized by seeing firsthand the benefits of this water quality project. There are many different community organizations (e.g., Future Farmers of America, 4H, AmeriCorps, local schools) that could serve as volunteers for various projects if the members have the necessary skill set. Therefore, the ability of a partner to mobilize volunteers can greatly amplify and synergize resources to accomplish the goal.

Mr. Boggs agreed that lack of coordination is a problem. Poor coordination can send mixed signals to landowners or lead to inefficient use of resources. He asked Mr. Christensen following his presentation this morning if EPA interacts with his advisory committee and he responded that the interaction is intermittent. This is an opportunity for EPA to work with USDA to ensure that the resources are being used efficiently to address the priority issues.

Mr. Elworth thought that was a good point because he and many others probably were thinking of formalized partnerships. For example, EPA has formal partnerships with the states to delegate the operation of the Agency's water program. Looking beyond these more formal partnerships, EPA should take seriously the responsibility of coordinating with other agencies and organizations that are working on the same issues. He then asked if the group talked about EPA's implied responsibility to engage with the people on the ground to understand what is being done to develop a solution when the Agency believes that actions need to be taken to achieve some environmental goal. This is not a formal partnership; rather it is recognition on EPA's part that the Agency has a responsibility to work with these people. Engaging earlier in the process could be very beneficial.

Mr. Boggs agreed that there is a responsibility to work with the people on the ground, but he emphasized that resources also are important. The Agency needs to be in a position to offer resources to those whose behavior it is trying to change.

Mr. Archie Hart (North Carolina Department of Agriculture, FRRCC member) noted that one of the traditional roles of the land grant universities was to train local people on the ground. Because there are fewer resources available for this training, there are fewer qualified people at the local level to address the problem. Therefore, it is important to consider how NGOs, co-ops, and other local gatekeepers can work with government agencies to train the local leadership.

Following up on the issue of local leadership, Mr. McDaniel stated that, for those who are unfamiliar with the Conservation Districts, there are 7,000 Conservation Districts in the United States, and there are 16,000 public officials (either elected or appointed) governing those districts. He suggested that this is a great starting point for identifying local leaders.

Mr. Northey said that the workgroup talked primarily about partnerships for implementing a water quality strategy. Also discussed were partnerships for collecting and sharing data. The group did not spend much time discussing coordination of other activities. Sometimes there are multiple ongoing functions that could be coordinated. For example, there could be a 319 project as well as an effort to create Wetlands Reserve Program (WRP) wetlands; these two efforts could be coordinated so that they build wetlands for wildlife habitat but also are effective for nitrogen reduction. The workgroup did not talk about coordination specifically, but definitely touched on the issue indirectly.

Mr. Young stated that he has been working with the Sustainable Agriculture Initiative—which was formed originally by Nestlé, Danone, and Unilever, but since has been joined by many large international food companies, including PepsiCo, Coca-Cola, Kraft, McDonalds, General Mills, and Kellogg's. This group is working together on a pre-competitive basis to raise the sustainability of agriculture to a new level so that farmers can produce more food in a way that is more environmentally friendly. During the last 2 years, the group has worked to establish principles and practices; now, they are working on practical metrics; for example, the units of phosphorus per unit of protein/fat/food production. Given the success of this model, Mr. Young suggested that it might be much easier for the private sector to set the standard rather than different governments around the world. This has the potential to raise the standards above EPA's minimum requirements. If the market can require such practices and standards, and pay the producers for accomplishing them, this would be a great model to follow.

Dr. Balling mentioned that there are numerous private partnerships currently driving sustainable agriculture—the Stewardship Index, Specialty Crops, Field To Market, SAI, Food Lab, and others. These are all private organizations that are promoting agricultural sustainability and they are driven primarily by consumers and retailers. Many in the private sector are thinking that their regulators in the future will be other private-sector companies and less EPA. This is just starting to slowly filter down to the growers. This may be a future driver for partnerships that do not involve EPA; however, these partnerships probably would look to EPA, USDA, NRCS, and USGS for advice and consultation, but the actual efforts would be driven by the private sector.

Mr. Vester said that the USA Rice Federation already is involved in sustainability, partly because Arkansas produces nearly one-half of our Nation's rice and Walmart, which is a major driver of sustainability, is headquartered in Arkansas. He stressed that to meet the sustainability standards being established by the Federation and others, the producers will need to receive more money for their products.

West Coast Water Quality Issues (Bay Delta and Puget Sound)

Before introducing Michael Machado, Dr. Berger provided a few facts about the Bay Delta. About two-thirds of the State of California gets a portion of its water from the Bay Delta, and 50% of agriculture gets water from the Bay Delta. Eighty percent of the fisheries in California are sustained by the Bay Delta, and it is the largest estuary on the West Coast. The Bay Delta is very important to California and the West Coast. She stated that Mr. Machado is intimately involved with water issues in the Bay Delta. Since September 2010, he has served as the Executive Director of the Delta Protection Commission. He is a former state senator and is a graduate of Stanford and the University of California-Davis.

The Delta: the Hub of Water and Conflict
Michael Machado, Delta Protection Commission

Mr. Machado stated that California gets more than 200 million acre-ft of water annually in the form of rainfall and snow. About one-quarter of it is lost to evapotranspiration. The remaining 75% is unimpaired runoff, and it can be used for various purposes and management. Californians use about 83 million acre-ft of unimpaired water annually. This water is from a combination of groundwater mining, reclamation/reuse, and the Colorado River. The interconnected water system (from the Bay Delta to the projects in Southern California) uses about 61 million acre-ft of water annually, of which 62% is devoted to agriculture, 60% to urban use, and 22% for the environment. In California, water equals dollars. Irrigated pasture is worth about $47/acre-ft; if farming cotton, it is worth about $551/acre-ft; if growing fruits and nuts, it is worth about $1,500/acre-ft, and if truck farming, it is worth more than $5,000/acre-ft.

California is a large state—more than eight East Coast states could fit into the state. California has been fighting over water since Mexico first settled it and established ranchos that fought over access to water. California has one of the more diverse water schemes in the United States. It ranges from a temperate rainforest in the Klamath Mountains in the north to the desert/arid region of Southwestern California. The state's geography puts 60% of California's water supply in Northern California. The water comes through the Sacramento River, which flows south into the Delta from the Klamath Mountains, and from the San Joaquin River, which comes into the Central Valley west of the Sierra Mountains at Fresno and flows north into the Delta. Each year, California experiences a drought for 6 to 7 months, followed by a rainy season that is highly variable. During the rainy season, the precipitation can vary from 25% less than normal to more than 200% of normal. California has had a drought for the past 4 years; precipitation was less than 70% of normal for the past 3 years. This variability is important given the state's population distribution. The San Francisco Bay area, Sacramento, Los Angeles, and San Diego account for about two-thirds of California's population.

The Bay Delta is an expansive inland river delta. It is the hub of California's water supply. All water exported goes through the Delta; all discharges from agriculture, the cities, and the Central Valley go into the Delta. It is the largest estuary on the West Coast of North America and it is one of the world's few inverted deltas. The fan area moves downstream as the rivers are forced to exit the Central Valley through the Carquinez Straits to the San Francisco Bay and out the Golden Gate to the Pacific Ocean.

It provides drinking water for nearly 23 million people and irrigates 2.5 million acres of some of the country's most productive farmland. The Delta is home to 55 species of fish and 750 species of plant and wildlife. It is a tidal marsh that floods annually in the spring from melting snow.

As California developed with the migration of people seeking their fortune in gold, levees were constructed to provide flood protection and to produce California's second "gold rush," which is agriculture. It transformed the Delta with more than 1,100 miles of man-made channels creating a system of lowlands and wetlands. Today, the Delta is home to diverse agriculture, recreation activities, legacy towns, two inland seaports, and infrastructure that impacts commerce going into the Central Valley, which includes aqueducts, electrical transmission lines, petroleum transmission lines, railroads, and three state highways.

Development in California dramatically altered the Delta and changed its water infrastructure. Multi-purpose dams were constructed to provide flood control and capture the snow melt to make that water available for later use in times of drought. This has had an impact on the water quality of the Delta.

During the twentieth century, the Delta system was altered by two large water storage projects. In 1937, Congress authorized the Central Valley Project, which was constructed with storage of 7 million acre-ft/year to supply 3 million acres of farmland and 2 million Californians—it diverted Sacramento water to users in the Central Valley. The State Water Project was constructed with storage of 3.5 million acre-ft that paralleled the Central Valley Project. The Central Valley Project was primarily for agriculture and the State Water Project primarily supplied water to urban Southern California water users and the San Francisco Bay area. The water has to be pumped up 1,400 feet to get it over the Tehachapi Mountains; the total distance from the Delta to the Edmonston pumps is 345 miles.

In California, water fuels the economy. Water is captured behind dams, stored in reservoirs, and routed by concrete rivers over hundreds of miles. California has 1,200 major dams, the two largest irrigation projects in the world, and some of the largest reservoirs in the country. This has made California a leading agricultural and dairy producer in the United States. California leads the Nation in milk and cheese supply, and it raises more than 50% of the domestic fruits, nuts, and vegetables, many of which are grown only in California.

Referring to a map that depicted California's water conveyance system, Mr. Machado explained that water is taken from the Delta and sent all the way down into Sacramento; water from the Colorado River is conveyed to supply the San Diego and Los Angeles areas as well as Imperial Valley and Coachella Valley. Twenty-five percent of the state's electricity is consumed to meet California water needs, and the Water Project consumes 3% of the total energy in California.

It has been said that California's water system might have been invented by a Soviet bureaucrat on an LSD trip. While the system has fueled substantial economic growth in many regions, it has significantly changed the character of the Delta. Today, the Delta is a series of static, levee-lined channels that fall under a myriad of jurisdictions, including the Army Corps of Engineers, U.S. Fish and Wildlife Service, National Marine Fisheries Service, Bureau of Reclamation, California Department of Water Resources, California Fish and Game, and local reclamation districts (26 different agencies). These channels flow between reclaimed islands that are home to farms and communities.

In the past century, California's water policy has evolved into one that has chosen to sacrifice some facets of the environment for the greater economic good. The policy has created a secure, abundant water supply for the people and farms in the Central Valley and in Southern California. The consequence of this policy has been reduced river flows, degradation of the water supply, wetlands have been drained, and dams and levees have altered natural flows. Mr. Machado presented a map that showed the natural wetlands that appeared at the time of statehood compared to what remains today.

Pumping has increased as the population has increased, and this has had a precipitous effect on fish populations. With the substantial population growth in the 1970s, more pressure was placed on politicians to permit regulatory agencies to allow more pumping. At the same time, there was less water coming into the system. This pumping has removed 15,000 cfs of water, which is the equivalent of filling 1,100 Olympic-sized swimming pools every minute. It reverses the natural flows in the Delta, and causes a null

zone where contaminants are concentrated in the Delta. This threatens the fish and water quality for agriculture and urban uses. The lack of flows because of upstream diversion from the San Joaquin River reduces fresh water flows in the central and south Delta, causing a dissolved oxygen problem, which is lethal to the fish. The "canary" in the channel here is the Delta smelt.

The lack of fresh water flows to flush agricultural salts out of the system has increased salinization of farmland and in some cases the land has been rendered useless for crop production. The channelization also has reduced the habitat for spawning and protecting fry fish from predators, and dams have blocked the return of salmon to spawning grounds, which has reduced their numbers and resulted in the halting of salmon fishing.

The lack of the flushing action has caused an environment in which invasive plants and species have flourished, which is altering the native habitat. Asian clams are disrupting the food chain; they tend to filter all the nutrients out of the water, which threatens the indigenous fish. Because of this, species of many native plants and wildlife are declining and some have become extinct.

The Delta islands are primarily peat dirt, which oxidizes when exposed to air, and as a result of more than 150 years of farming, many of the islands are 10 to 20 feet below sea level. For the islands above sea level, this requires increased levee maintenance and often leads to levee failure. The islands below sea level require continuous pumping to keep the ground level deep enough for crops to grow and to prevent flooding. Agricultural drainage from the Delta and from Delta discharges inside (pesticides and fertilizers in the waterways) increase the salinity of the water, and DDT can still be found in some areas even though it was banned in 1972.

Other contaminants of concern are nutrients from sewage plants, and selenium and heavy metals (Cd, Cu, Hg, Zn), which come from hydraulic mining during the gold rush era that washed millions of acre-ft of mercury-laden sediment into the waterways of the Delta. There is continued runoff from abandoned mining site tailing deposits. Urban wastewater runoff also contains contaminants. Mr. Machado presented a map showing various water quality hot spots in the state as well as a map depicting the locations of the major wastewater dischargers in and around the Delta.

Subsidence of the Delta islands has raised concern about the integrity of the levees and the possibility of levee failure. This concern has become particularly acute since Hurricane Katrina. There is additional concern because parts of the Delta lie along earthquake faults. Levee failure would result in the inability to continue to export water and salinity would increase because of the incoming ocean water. In addition, there would be substantial cost in closing the levee breach and reclaiming the island. Mr. Machado showed a photograph of a breach in the levee at Lower Jones Tract; it cost in excess of $60 million to reclaim the 20,000 acres flooded by this breach.

Scientists also are looking at the impacts of global warming and sea level rise. This raises the concern of an influx of seawater and the inability to maintain freshwater supplies for export if there is a massive failure of the levees. Mr. Machado presented a series of maps that showed the decline in the snowpack projected between now and 2090. This is due, in part, to the variability of water from nature. With the exception of this year, the snowpack has been rising and migrating south to higher elevation, raising fears that there will be less runoff. There has been an annual decline in runoff from the San Joaquin and Sacramento Rivers. The infrastructure for the water distribution system is in Northern California; as the snowpack migrates south to higher elevations in the Sierra Nevada Mountains, the runoff would come down in areas where there are no dams and no distribution systems. The state could be facing a situation where there would be no infrastructure to capture and distribute the water for agricultural or urban use. In addition, California's infrastructure was designed to last about 50 years, and much of that lifespan has been exceeded.

Because of the lack of storage and lack of access to land for the replenishment of groundwater aquifers, the operation of the Delta has been to provide water in dry years and less water in wet years. Although

this operational mode has complicated the problems in the Delta, it was implemented because there is no facility south of the Delta to store wet year water or use it for groundwater replenishment. The increased pumping in dry years and the lack of instream flows and tidal action to flush contaminants heightened the declining ecology from 1970 to 1990. At that point, Congress and the California Legislature enacted environmental statutes that gave the environment standing. The water system was built to supply agriculture, urban population, and industry. With the lower population of the 1970s, there were instream flows; as the population increased, however, the instream flows were sacrificed to meet water demand. Once the environment had standing, water delivery to contractors was reduced and mitigation costs were assessed in an attempt to repair the damage to the ecosystem. The lack of sufficient water supply to provide sufficient instream flows to meet urban and agricultural demands was unknowingly created at the start of the State Water Project. California issued projects for 5.5 million acre-ft greater than existing supplies. Adequate supplies were supposed to be developed but the project was not initiated because of the lack of funding to construct the full project and because full demand had not yet materialized. The rivers that were to be dammed to meet the expected future demand increase were on the north coast, but these rivers were declared wild and scenic when Ronald Reagan was governor of California.

With the decline of the fish in the Delta, there has been increasing concern about the degradation of the ecosystem. California responded by proposing new water quality standards for the Delta that were subject to EPA approval. EPA vetoed the California Bay Delta water quality standard, and also listed the winter-run salmon and Delta smelt. Because there was concern that federal bureaucracy would overtake this large project, agriculture, environmental groups, and state officials came together in 1992 to adopt the Bay Delta Accord. This established CALFED—a collaboration of state and federal agencies—to achieve the twin goals of restoring ecological health and improving water management of the Bay Delta system. CALFED was well funded and operated under a rule of consensus. It is no surprise that it failed to achieve consensus, could not account for the dollars spent, and was ineffective as evident by the precipitous demand and decline in pelagic species (smelt, salmon, and steelhead). The consequence was a sharp increase in water exports from 2000 to 2007.

In 2009, California passed the Delta Reform Act, which set up an independent agency that would develop regulations that would have the force of law to achieve the two co-equal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. This law was established without the involvement of federal agencies; it calls for collaboration with federal agencies but it is not dependent upon these agencies in moving forward with its own regulations. For this new agency, water reliability means dealing with the threats of levee failure and being able to provide quality water for export. It also means restoring habitat and improving water quality.

The independent agency also has been charged to incorporate the Bay Delta Conservation Plan project, which is a proposal to establish a communities conservation plan—essentially a 50-year take permit—that is to be implemented using adaptive management. It proposes an isolated conveyance system to move water directly to the export pumps, bypassing the Delta. Mr. Machado presented a map that showed the conveyance system routes suggested in three different proposals. A pipeline tunnel option being considered would be able to handle 15,000 cfs. It would be built as two tunnels 100 to 150 feet underground. Each tunnel would be 34 feet in diameter and 17 miles long. The tunnels would cost between $12.5 billion and $25 billion. To put the project in perspective, the two tunnels are larger and longer than the Chunnel between England and France. The proposed conveyance will take the full flow of the Sacramento River; it also proposes to convert one-sixth of the Delta to habitat, regardless of property ownership and willingness to sell. In addition, it proposed to regulate off-farm discharges and discharges from municipal utilities. The Bay Delta Conservation Plan was to involve all stakeholders but there was a provision that required those who participated to agree to the outcome—an isolated facility—before there was scientific support or consensus established with regard to its need. This was viewed by many environmentalists, scientists, engineers, and Delta residents as the death of the Delta.

From the exporter's perspective, the major issues before today were getting full delivery of water guaranteed under all circumstances and environmental mitigation of the Delta at public expense using the

public good doctrine. The opponents to the project are concerned that an isolated facility will cause abandonment of the support for the levee system that protects farmland and urban areas as well as utility, transportation, and petroleum infrastructure. They also are concerned that habitat restoration will cause a loss of water rights and restrict farming. In addition, local governments are concerned about the reduction in the tax base when private lands are converted to habitat. The proposal is to restore habitat in a large area in the Delta that now is primarily privately owned farmland.

The budget environment in California is no different than that of many states in that there are limited resources available for projects of the magnitude proposed; therefore, the proposal requires those who benefit from the project to fund it. Regional conflicts continue among farmers in the Delta, farmers north of the Delta, and farmers south of the Delta; among environmentalists, farmers, and regulators; between urban areas and farmers; and between agencies within the federal and state governments. It is evident that there is basically no consensus on the solution to a problem that has plagued California since before statehood.

Many Californians believe that the state has been neglected with respect to federal funding for this problem given its magnitude and the number of acres and individuals impacted. Mr. Machado compared the Bay Delta to the Chesapeake Bay. With respect to political clout, the Chesapeake Bay involves three states, a population of 9.9 million, six U.S. senators, and 19 congressional representatives. In contrast, the Sacramento-San Joaquin Delta involves an area the size of eight states, a population of 37 million, 2 U.S. senators, and 53 congressional representatives (22 north of the San Joaquin Valley and 31 south of the Valley). In concluding his presentation, Mr. Machado stated that it appears that the Delta will remain the hub of California's water and conflict for the near future.

Discussion

Dr. Sanders asked if the proposed dual-tunnel system would be in the vicinity of any major fault line. If so, could an earthquake damage the tunnels, cutting off the water supply? Mr. Machado said this was an issue that was discussed at length because the isolated facility would be located near a fault line. The reason that the tunnels would be installed 100-150 feet underground is because, at that depth, the shear factor (cut across the tunnel) is minimized and the structural damage from an earthquake would be much less than if it was a surface installation.

Mr. Elworth asked Mr. Machado if anything worked; he answered no. Everyone wants status quo, but California has over committed 5.5 million acre-ft of water that is still being used. Twenty years ago in the Central Valley, the farmers were producing annual rather than permanent crops. The original contract prior to what was called the Monterey Agreement, was that agriculture was to have an interruptible supply; therefore, farmers would plant crops based on water availability. During the drought, the farmers found out that water was guaranteed to those who planted permanent crops (vineyards and trees). As a result, there was a drastic increase in the planting of permanent crops. This increased agricultural demand, along with the increased urban demand, has exacerbated the problem. Local representatives come under a lot of pressure to ensure that water is available. California has rules and regulations for water quality, agriculture discharge, and municipal discharge, but no one is enforcing them because of the politics. In California, water is viewed simultaneously as a public good and a property right.

Mr. Elworth asked if agricultural productivity declined during the drought period. Mr. Machado responded that unemployment in the agricultural regions of the Central Valley during the drought years was higher, but productivity was higher as well.

Mr. Clark asked if Mr. Machado had any ideas on what would make a partnership work. Mr. Machado answered that partnerships are difficult. There are so many different agencies and so many competing interests. In addition, the agencies involved often are not talking to each other so there can be conflicting instruction and guidance; this makes farmers afraid to act for fear that they will have to redo their efforts or pay double fees. Also contributing to the problem is that people generally want to maintain the status

quo rather than climb the hill to see the next horizon. This will be a major problem for California because if no changes are made to the current system, it is estimated that in 50 years most of the agriculture in the Central Valley will no longer be viable for tree crops and vineyards that depend on the chilling due to global warming.

Ms. Noble asked about the situation with groundwater in the Central Valley. Mr. Machado responded that it is a serious problem. There is a statewide overdraft of 5.5 million acre-ft. The problem in Central Valley is extensive and there is concern about aquifer collapse, which will make it difficult to recharge. Therefore, there currently is an effort under way to try to reverse the operation of the Delta for wet year diversion, but this will require funding to buy the flooding rights and easements, and there is reluctance to do this. Mr. Machado noted that there are solutions available, but the cooperation to implement them is not there.

Referring to Mr. Machado's earlier comment that productivity increased during the drought years, Mr. Northey asked if there actually were acres out of production during the drought times. If so, how many acres? Mr. Machado replied that he has heard estimates that 5,000 to 20,000 acres were out of production, but some of that acreage was taken out of production because of marginal soils due to salinization. Farmers have been able to take limited supplies of water and employ other technologies to stretch it so there was no loss of production during the drought periods. In addition, there were a number of people transferring water into the Valley during the drought and they were paying $300-$600/acre-ft for the water, but they were producing high value products.

Puget Sound Water Quality and Agriculture
Ron Shultz, Washington State Conservation Commission

Mr. Boggs introduced Ron Shultz, who is the current Director of Policy and Intergovernment Relations for the Washington State Conservation Commission. Mr. Shultz's accomplishments include working for state and federal lawmakers, representing the Nature Conservancy, serving on departments of ecology, and as an advisor to the governor. Prior to joining the Conservation Commission, Mr. Shultz made the important transition from the Puget Sound Water Quality Action Team to the Puget Sound Partnership, which is a newly created agency.

Mr. Shultz explained that his presentation would include an orientation to Puget Sound, agriculture in the Puget Sound Basin, the challenges and opportunities in Puget Sound, some case studies of ongoing efforts, and his thoughts on moving forward.

Referring to a map of the Puget Sound Estuary, Mr. Shultz pointed out Seattle (the core of the population growth), Tacoma, and Olympia, the state capitol, in the southern part of the estuary. He identified Bremerton, where there is a large naval facility, as well as Mount Vernon and the Skagit River Estuary in the north, which is a large agricultural production area with very fertile soils. He also pointed out Bellingham and the San Juan Islands. He noted that the darker blue areas on the map showed the deeper water.

Puget Sound is a fjord-like estuary formed by glaciers. It has an area of about 900 square miles, including 2,300 miles of coastline. It has an average depth of 205 feet at mean low tide (this is a deep estuary compared to the Chesapeake Bay Estuary). Circulation is driven by freshwater flows as well as tidal flows in and out. The daily difference between the high and low tide varies from about 8 feet at the northern end of the Sound to 15 feet at the southern end.

The deeper depressions in Puget Sound are important because they create a bathtub-like effect. The shallow end creates a sill so that when the cooler water comes in it sinks to the bottom of the deeper areas and there is some circulation but it has difficulty getting out. Thus, when there are inputs from urban and agricultural runoff, the contaminants tend to stay and circulate in the deeper areas. In these areas, hypoxia

results and the fish die. This creates a system where dilution is not always the solution. As a result, more restraints are placed on agriculture and urban activities because the system cannot handle the input.

Another important issue about Puget Sound geography is that it is constrained physically with mountains to the east. Therefore, growth is constrained along the shoreline, which also puts pressure on farmland. As in other areas of the country, farming occurs in areas of the Sound where there are prime agricultural soils.

There are eight major habitats that occur in Puget Sound; kelp beds and eelgrass meadows cover the largest area. Other major habitats further inland include estuaries, inter-tidal wetlands, mudflats, and sandflats. The Sound also has upland habitats that include the forest zone (predominantly Douglas fir) covering 61% of the area. Other key upland habitat types include floodplains and prairies, particularly in the south Sound.

The four river deltas have lost 92% of their intertidal marshes. There is a lot of agricultural activity, particularly in the Skagit Delta, as well as considerable diking and drainage that has continued for about 100 years. This has created pressure for various species. Puget Sound also has lost about 76% of its wetlands.

There are approximately 221 species of fish in Puget Sound and about 66,000 marine birds breed in or near the Sound and migrate though it each year. All of these create habitat pressures on agricultural lands. Migratory waterfowl are a huge issue for farmers in the Skagit area. There also are several species of Pacific salmon, including chinook, coho, chum, pink, and sockeye salmon. Puget Sound is home to nine primary marine mammal species: harbor seal, California sea lion, Steller sea lion, Northern elephant seal, harbor porpoise, Dall's porpoise, killer whale, gray whale, and minke whale. Because killer whale eat salmon, habitat restoration becomes even more important in the recovery of orca.

Mr. Shultz presented a chart that showed the imperiled native species in Puget Sound. Politically, the fish and mammal species are two key drivers in habitat responses in the Sound.

The population in the Sound has doubled from 2 million to 4 million since 1960, and it is projected to reach 5.4 million by 2025. The growth rates from 2005 to 2025 range from 62% in Thurston County, 60% in Skagit County, 55% in Jefferson County, 53% in Snohomish County, 52% in Mason County, 48% in King County and Whatcom County, 34% in Pierce County, and 21% in Clallam County. Some of the fastest growing counties in the United States are located in the Puget Sound region. Approximately 79% of the drainage area is forested, 12% is agriculture, and 7% is urban. Eighty percent of the total amount of waste discharged from point sources in Puget Sound come from the urban central region. About 16% of the waste entering the Sound enters the Basin through the river systems in the form of inorganic nitrogen.

There are 14 Native American tribes in Puget Sound. The tribes are co-managers of the natural resources in the Sound. This means that in implementing U.S. treaty obligations, they co-manage water resources, salmon resources, and water quantity. They also have input on water quality because of their interest in salmon recovery, shellfish resources, and Puget Sound fisheries.

In the 12 counties in the Puget Sound Basin, there are 11,501 farms totaling 580,000 acres. All counties have seen an increase in the number of farms since 2002. This increase is driven largely by the local food interest around the Seattle marketplace. There is one farmer in East King County (which includes Seattle) who farms 400 acres of row crops using community-supported agriculture (i.e., people in the community buy a subscription and get agricultural products). This farmer does roughly $14 million per year of business in the Seattle market.

Puget Sound agriculture has an economic value of more than $1 billion, including processing value. The Seattle area has a number of agricultural processing operations. There are 243,471 cattle and calves, 127,847 dairy cows, 2,370,000 chickens, and 26,232 horses. More and more people in the Sound are

purchasing 5 to 10 acres and raising horses, so horses have become significant contributors to the water quality issues in Puget Sound. There is a debate among the Conservation Districts as to whether this activity qualifies as agriculture because Washington's state statute has about eight different definitions of agriculture and agricultural activity, mostly focused on the phrase "food and fiber."

The predominant agricultural activity in the counties in central Puget Sound is aquaculture (shellfish). Shellfish need clean water; when the water has high fecal contamination the Department of Health closes the beach, which impacts the shellfish industry. Therefore, this is a huge driver on agriculture in Puget Sound.

Mr. Shultz presented a map that shows the farms and farm size in Puget Sound. The farms in the counties around Puget Sound usually are 1 to 50 acres. Eastern Washington has some larger farms, but there has been an increase in the number of small farms on the east slopes of the Cascades. This statistic is important because the NRCS programs are not always suitable for small farm agriculture. The state is hoping to partner more with EPA to target programs toward smaller operations to address the resource issues on smaller farms.

Inputs of nutrients and pathogens affect ecosystem functions, the health and habitat of aquatic species, including economically important species (such as salmon and shellfish), and human health. As a general rule, phosphorus tends to be the limiting nutrient in freshwater systems, and nitrogen tends to be the limiting nutrient in marine systems. This means that increased loadings of these nutrients can have significant effects on the character and condition of these respective systems.

Pathogen pollution is an equally significant water quality problem in the Puget Sound Basin. Pathogens are disease-causing microorganisms that include a variety of protozoa, bacteria, and viruses. Some pathogens occur naturally in the marine environment. Most, however, are carried by host organisms and are associated with human and animal feces.

There are 535 monitoring sites (432 freshwater sites and 103 marine sites) within Puget Sound and its watersheds that are impaired for dissolved oxygen. Nutrient sources include drainage from agricultural, forestry, and residential activities and other sources. There is significant debate in the legislature about the role of DNA and microbial source tracking (MST) testing to identify the specific source of the pollution. Nine hundred-thirteen monitoring sites (769 freshwater sites and 144 marine sites) within Puget Sound and its watersheds exceed the water quality standard for fecal coliform bacteria.

There are a number of challenges for Puget Sound. The state is struggling with the tension between a regulatory approach and a voluntary incentive-based system. Washington's Department of Ecology, which is the state's delegated authority on water quality, is asking for a certain level of assurance that the practices that will be implemented will achieve its water quality objectives. To them, that level of assurance means straight line buffers of fencing at a certain number of feet. From the Conservation Commission's perspective, a voluntary incentive-based approach allows engagement with the landowner to bring them in to help find a solution. This flexibility is important in getting landowners to implement actions to accomplish the resource objective. The Department of Ecology, however, says it cannot know if the objectives will be met without knowing what practices will be implemented.

Another challenge is growth management. The state Growth Management Act and Land Use Plan require every county in the state to protect critical areas (frequently flooded areas, aquifer recharge zones, wetlands, geologic hazards, and critical wildlife habitat) while retaining the ability to have viable, productive agriculture. The challenge is how to achieve those objectives on agricultural land without using a regulatory approach.

Growth pressures and the economy make land near urban areas more valuable for development than agricultural production. Most farmers want farmland to remain farmland, but farmers who are retiring and

want to cease farming are the ones who want to be able to sell their farms for development because that funds their retirement income.

Another challenge is working with multiple governmental entities, including federal, state, local, and tribal. In addition, there are strong stakeholder groups on all sides on the issue and a lack of trust among them.

Reduced budgets limit traditional responses, such as acquisition of easements and incentive programs. Mitigation (salmon habitat mitigation, mitigation banking) on agricultural lands is another challenge. For example, in wetlands mitigation banking a company buys agricultural land for the purpose of re-establishing wetlands and then selling credits. The agricultural community gets upset because that land is being taken out of agricultural production and producing wetland credits.

Mr. Shultz identified a number of opportunities. Reduced budgets make collaboration a more attractive option. Agencies with limited resources have to work together to accomplish their goals. It is not just a melding of resources; the agencies have to coordinate and collaborate on how to use their combined resources to accomplish what needs to be done. For example, several of Washington's Conservation Districts employs foresters who work with landowners on forestry plans. Washington's Department of Natural Resources also has foresters who work with landowners. They have talked about mapping out who's doing what and where and then dividing up the counties based on which group is more active there. This would allow the groups to share their limited resources while accomplishing the same objectives.

Another opportunity is to shift focus to the resource outcome. If water quality is the resource outcome, then that should be the measure and it should drive the response. Are we getting the resource improvement that was the purpose of the effort?

There is an opportunity to implement a process where an entity of multi-jurisdictional and stakeholder groups oversees the response strategy. The entity should look at accountability and measure progress. The key is to have accountability for results and to adaptively manage for those results. The critical question is who does the accountability, which can be a very difficult task.

Mr. Shultz presented a number of case studies. The first case study focused on the Samish River and Bay. This is a small river basin flowing through an area of heavy agriculture; there are no major cities in the area. The poor water quality is due to fecal matter from failing septic systems, stormwater runoff, and agriculture. The agriculture sources include livestock, horses, and crops. The degraded water quality led to shellfish closures in the Samish Bay. The Clean Samish Initiative (CSI) was developed to address the problem. It was established by the Department of Ecology to implement the TMDL. The process got started when a key player in the shellfish industry, who owned shellfish beds in Samish Bay, called Bill Ruckelshaus (who was chairing the Puget Sound Partnership at the time) and told him that if he could not clean up little Samish Bay, then it would not be possible to clean up all of Puget Sound. So Mr. Ruckelshaus called the Director of Ecology, who then called the Regional Director. The TMDL had been developed but it took this political pressure to get CSI underway.

The Initiative includes local stakeholders, agencies, and others. They met to talk about what they were going to do to clean up the Bay. They agreed on the monitoring and all are engaged in the monitoring so they were able to identify "hot spots." This was an important first step because they reached agreement on the places that needed immediate attention. One problem has been that they were not linking their work to the "hot spots." Another issue has been the relationship between an incentive-based approach and a regulatory approach within the same system. Mr. Shultz presented a diagram that depicted the process that was developed for working with landowners in an agricultural context using the two approaches. The left side of the diagram showed a voluntary incentive-based approach for working with a landowner with livestock in a priority area and the right side of the diagram showed a regulatory approach with the same landowner. The first step in the voluntary incentive-based approach is that the Skagit Conservation District (SCD), in coordination with CSI, reaches out to the landowner to educate him/her about the

problem and possible solutions. There is direct contact between the landowner and SCD, and they work together to develop a plan for the landowner, which may include incentive activities that address resource inputs. The SCD monitors implementation of the plan with the landowner. In accordance with the CSI process, the results of the BMP implementation are evaluated to determine if compliance is achieved.

The first step on the regulatory side of the diagram is for the Department of Ecology to conduct a visual compliance inspection in coordination with CSI. If problems are identified through inspection, the Department of Ecology will notify the landowner and specify approved BMPs and, as appropriate, refer the landowner to SCD for farm planning technical and financial assistance. If the landowner agrees to implement the BMPs and develop a plan, SCD assists in plan development and the Department of Ecology confirms that the approved BMPs for water quality have been implemented. If the landowner takes corrective action without developing a plan using Department of Ecology approved BMPs, the Department will check compliance. If the landowner refuses to take corrective action, then enforcement action is taken by the Department of Ecology. Once corrective action is taken by the landowner, the results are evaluated in accordance with CSI to determine if compliance is achieved. The enforcement side is necessary to put pressure on the landowners to voluntarily implement the BMPs.

The second case study involved the Puget Sound Partnership. This Partnership is an independent state agency that was established in 2007. Its purpose was to craft the National Estuary Program Comprehensive Plan for Puget Sound, which is referred to as the 2020 Action Agenda. The intent is to improve the linkage of activities by all entities doing work in Puget Sound to the identified threats. These threats to the Sound are identified using a scientific process by a scientific panel. The other key to getting action is to link funding at all levels to the activities that are being done. This has been incredibly difficult and some of the resistance has come from other state agencies that are worried about the Partnership controlling their funding. It also has been difficult to figure out how to incorporate federal agencies into the efforts. Additional objectives of the Partnership were to improve the tracking of progress and adaptively manage the plan. To accomplish this, they developed a table that identified every action, the responsible agency, the responsible person at the agency, specific targets, and progress/status. Each action is rated red, yellow, or green according to the progress on the action. This accountability process is fed into the Government Management Accountability and Performance Program, which is directly led by the governor. To ensure accountability, actions are compared to results leading to changes in water quality.

Mr. Shultz presented a diagram of the Performance Management Framework for the 2020 Action Agenda. The framework steps included planning, allocating resources to activities, managing the activities, analyzing how the activities are working, responding to the system with any changes, making the improvements, and updating and revising the plan.

The third case study involved Whatcom Dairy Management, an effort to address resource inputs from dairy operations. This project is known throughout the state as the "EPA Black Helicopter." EPA did a number of visible and aggressive enforcement actions on dairies in Whatcom, which caused the dairy industry to be proactive in requesting a state program to help diaries develop and implement management plans to avoid enforcement actions.

The Dairy Nutrient Management Act, which has a goal of zero discharge of pollutants, was enacted in 1998. The Act required every dairy to have a management plan by July 31, 2002, and all dairies had to implement their plans by December 31, 2003. This was a fairly aggressive strategy. To ensure compliance, there was proactive inspection with referral and fining for failure to comply. Technical assistance was provided by Conservation Districts for plan development and implementation. This case study is a good example of the relationship between a voluntary incentive-based approach (working together to develop and implement the plan) and a regulatory approach (failure to comply leads to enforcement action).

The Conservation Districts contributed 4 FTEs for 6 years and $1.1 million to the project. The NRCS contributed 4 FTEs and $2.7 million to the project, and more than 250 farmers contributed $1.3 million to

the project. BMPs were implemented on approximately 54,000 acres, with 400 miles of buffered watercourse and more than 2,100 acres in grass buffer strips.

Mr. Shultz presented a graph showing that as the dairies implemented their plans, the inputs declined over time, and water quality improved. This is a success story that shows how the voluntary and regulatory processes can work together.

The fourth case study was on implementation of the Conservation Reserve Enhancement Program (CREP). This is an NRCS program that focused largely on salmon habitat restoration. It pays landowners to lease riparian areas, and also uses fencing and vegetation planting to restore habitat. The recently completed 2010 annual report of CREP accomplishments indicated the following: 916 total contracts, including 9 for the new hedgerow practice and 2 for the new wetland enhancement practice; 12,976 acres of riparian habitat restored and protected; 740 miles of stream buffered; the plants are growing about 11-29 inches per year with a median survival of 91-93%; and 4-8 year old plants already provide shade over 66% of the stream surface (small streams). The plants shade the streams, reducing the temperature of the water and the amount of sediment flowing into the river.

Mr. Shultz offered a few thoughts for moving forward. Limited resources at all levels will require targeted approaches and coordination. The targeted approaches need to identify source problems with independent science, and all those involved need to accept the process and outcomes. Targeted approaches must utilize an incentive-based system with a regulatory system and use Conservation District-landowner relationships for implementation. The approaches should focus on results—implementing BMPs and getting desired resource improvements. Trust is built when those involved see that the process yields the desired results. It is important to find ways to leverage limited resources, and to utilize economic drivers for agricultural landowners for all farm sizes and types. The ultimate goal is to keep the land in production while protecting water quality.

Discussion

Dr. Bonanno asked whether farmers or homeowners in that area are better stewards of the land. Mr. Shultz replied that it depends on the land uses. Does the homeowner development have a good stormwater management system? Do the farmers allow cattle and other livestock to roam through creeks and streams? Some large farms with several thousand head of cattle manage manure very well, and some housing developments do a very good job with stormwater management. Dr. Bonanno mentioned that Massachusetts has decided to treat horses as agriculture because they are kept in pasture that probably was agricultural land prior to housing horses.

Dr. McFarland asked if the state maintained economic data on the CREP projects. Does the state have data on how much it costs to implement and manage the buffers over time? Mr. Shultz replied that the data are available but he did not bring them. He noted that part of the challenge is getting the funding to maintain the buffers. Mr. Shultz also pointed out that maintaining the buffers creates local jobs.

Mr. Clark mentioned that one of the challenges he has observed is how to get the monitoring done. How were you able to get agreement on the monitoring? Mr. Shultz responded that for the Samish River and Bay project, local volunteers were doing the monitoring. For the Puget Sound Partnership, there was a history of monitoring (Puget Sound Ambient Monitoring or PSAM) that predated the Partnership. He noted that the state faces the same challenge in terms of funding the monitoring. They have developed a 6-year monitoring strategy that articulates the goal(s) of the monitoring and how this information plugs into a system that will show the results. As a result, the strategy received more support in the legislature.

Mr. Ford asked Mr. Shultz to elaborate on his comment that some of the farms were too small to qualify for USDA programs so they relied on EPA for assistance. Mr. Shultz replied that many of the USDA/NRCS programs are geared toward larger landowners and the small farmers are not eligible. Therefore, the state has been trying to find creative ways to help those small farmers. EPA has a bit more

flexibility than USDA. The proposal for the Puget Sound Initiative that has been submitted to NRCS involves a creative approach that would bundle NRCS programs so that they could be shared with a small acreage landowner as a package.

Referring to the flowchart that depicted the voluntary incentive-based and regulatory approaches, Mr. Treacy asked how this has worked with the Department of Ecology. Has the Department stood down and waited for non-compliance to occur before taking action? Also, has EPA Region 10 been involved in the process and, if so, what has been their reaction to it? Mr. Shultz responded that EPA Region 10 has not been involved, but their reaction to this process has been positive. It has been difficult making this work on the ground, oftentimes because of conflicting personalities. These are the kinds of on-the-ground issues that make the process bumpy. There is a memorandum of understanding (MOU) between the Department of Ecology and the Conservation Districts on how they are to interact. The MOU was written in the late 1980s and many had forgotten about it so there has been a recent effort to remind them and work to improve the relationship.

Mr. McDonald asked Mr. Shultz to elaborate on how to build an agreement that relies on compliance assistance initially, rather than inspection and enforcement action. How did you get the agencies to agree to this approach? What is the incentive for the Soil and Water Conservation Districts to participate? Mr. Shultz replied that there was a strong emphasis, both politically and culturally, on incentive-based approaches to implementation with landowners. This helps create the structure for such approaches. In addition, there are many in the Washington Legislature who are strongly supportive of the Conservation Districts and providing assistance to the landowners. The difficulty is getting the regulatory agency to hand off that function to another agency because the staff members do not want to "wear the black hat" all the time. It also is difficult to be the "nice guy" when you are the regulatory agency. The three directors (Director of the Conservation Commission, Director of the Department of Ecology, and Director of the Department of Agriculture) are meeting to talk about who does what and their different roles. They are trying to address situations such as when the Department of Ecology provides advice that conflicts with NRCS standards or practices and vice versa. With regard to the question about the incentive for the Conservation Districts, they have the historic presence and long-term relationship with landowners; therefore, they have the opportunity to further those relationships as well as access to more resources.

Mr. Boggs said that he wanted to answer a couple of questions that came up during the discussion. The cost of site preparation and planning for CREP is covered by USDA's Farm Service Agency (FSA) and costs about $2,300-$2,800/acre and maintenance costs $2,000-$2,500/acre (the higher amount occurs when there are beaver or noxious weeds present). Rental values for participation in CREP is 200% of the FSA County Oversight Committee rental values. In his county where there is fertile soil and high-value crops, that amounts to $150-$170/acre. With regard to the question on monitoring, EPA funded the monitoring that set up the establishment of the bacterial TMDL for the Nooksack River, and a 319 grant sustained the monitoring for 4 years.

Ms. Noble asked if there have been environmental groups or other third-parties that have been impatient and come in through the citizen suit provision of the Clean Water Act. Mr. Shultz confirmed that this has occurred. He mentioned the Ruckelshaus Process, which was developed at the Ruckelshaus Center at the University of Washington. They brought together the counties, agricultural interests, environmental groups, and tribal representatives to develop an approach to resolve the problems surrounding growth management and the interplay between agriculture and critical areas. They successfully developed this process, but the tribal representatives walked out because they thought there was not enough progress being made fast enough. Legislation was crafted to create a Voluntary Stewardship Program, which used the process. It passed the house and was just about to get through the last senate committee when the chair skipped over it. Mr. Shultz later found out that it was skipped because the tribes had sent letters asking them not to pass the bill. He noted that the threat of a law suit often can be a motivator and help keep people at the table.

Public Comment
Alicia Kaiser, DFO FRRCC

Ms. Kaiser called for public comments and noted that there would be only one comment from Marion Long Bowlan.

Ms. Bowlan's comment concerned her 93-acre farm in Rapho Township, Lancaster County, Pennsylvania. She purchased the property in October 2003, and implemented a conservation plan in 2005. In December 2008, the owner of an adjoining lot was found excavating in field 7 of her farm. No erosion control measures were installed or required by the Conservation District in spite of rules and regulations that required them. Erosion from the excavation site occurred during 3 weeks of heavy rain resulting in significant amounts of her top soil being washed into a nearby creek. She also discovered that the lot owner's unpermitted pond picked up water from a hidden pipe in a neighbor's field, which dumped directly on her farm causing erosion. Both the pond and the neighbor's drain pipe are in direct violation of the Ditch and Drainage Law and the Storm Water Management Act of October 4, 1978. These activities were in direct violation of Rapho Township ordinances, Department of Environmental Protection (DEP) regulations, the Clean Stream Law, and the Federal Pollution Control Act.

Ms. Bowlan was advised by her attorney to ask the Lancaster County Conservation District (LCCD) to draw up a remedy for the problem. LCCD's first design estimate of $2,396.75, proposed a grassed waterway that "…does not extent to Hilltop Road. The signs of erosion occurring above the seepage indicated on the map do not warrant further excavation in my opinion…Furthermore the original conservation plan did not call for a waterway to be built extending up that far." When she questioned the plans and the violations by the two adjoining landowners, the LCCD's Agricultural Compliance Coordinator (ACC) got involved. He unilaterally decided that only a piped waterway entirely at Ms. Bowlan's expense was acceptable and he refused to talk to the two neighboring owners about the problem.

In September 2009, Ms. Bowlan filed a written complaint with the Pennsylvania DEP concerning the lack of enforcement of state regulations and permits and requested an investigation. In the ACC's response, he misrepresented her 2005 conservation plan and stated that she had not implemented a required "piped waterway" from Hilltop Road to the creek. She received a threatening letter stating that a piped waterway must be implemented or she would be fined $10,000 and up. She then requested an appeal hearing in writing, but she has not received a response.

Ms. Bowlan then approached NRCS and the situation only grew worse. The original grassed waterway plan costing $2,396.76 morphed into a $12,346.78 piped underground outlet at her expense, with her paying for and being responsible for the pipe that drains her neighbor's unpermitted pond on his land. Previously, no pipes were needed, and now two pipes were required. One pipe picks up water from the lot owner's pond and one follows the natural swale of the land (NRCS plan). Rapho Township connected pipes from the field tile outlet to the pond in direct violation of its own ordinance, Ditch and Drainage Law, and best management stormwater practices. She noted that tiling is no longer an approved practice and these tiles exceed their 10-year life expectancy by 9 years.

Ms. Bowlan was threatened with fines if she did not comply as directed, and she was coerced into paying for a "solution" that could have been and should have been solved using infiltration methods and at a lower cost. The only enforcement action taken by any of the groups was to require her to install a piped waterway. Because federal money was involved, she appealed to federal authorities and filed a discrimination complaint on September 30, 2010. To date, no investigation has been conducted.

Ms. Bowlan asked the FRRCC members for their involvement and consideration. She asked that a bona fide appeal process be implemented to ensure that no one can be singled out to correct a problem created through lack of enforcement and/or discrimination.

Dr. McFarland asked if there was a deadline by which she would like a response from the FRRCC. Ms. Bowlan replied that she did not have a date. She has written letters to her U.S. senators, EPA, and President Obama; she has received notice that her letters have been received.

Dr. Balling thanked Ms. Bowlan for her comment.

Overview of USDA – NRCS Conservation Programs

Rob McAfee, NRCS Chesapeake Bay Coordinator

Mr. Elworth explained that one of the agencies with which EPA works on agricultural issues is the NRCS. He introduced Rob McAfee who is the NRCS Chesapeake Bay Coordinator. He has an M.S. in Forest and Natural Resources from the State University of New York College of Environmental Science and Forestry and he grew up on a farm in the Finger Lakes region of New York.

Mr. McAfee explained that his presentation would provide an overview of NRCS conservation programs. The NRCS was born in response to the national tragedy of the 1930s Dust Bowl. In 1933, Hugh Hammond Bennett became the first director of the Soil Erosion Service, which led to the passage of the Soil Conservation Act of 1935. This Act created the Soil Conservation Service, which led to formation of the Conservation Districts. As part of the Department of Agriculture Reorganization Act of 1994, the Soil Conservation Service was renamed the NRCS.

Today, NRCS has 11,000 employees, 92% of whom are in county/field offices. Most of the staff is trained in soils, agronomy, range, engineering, and biology. The focus of NRCS is privately owned lands (70% of the United States). Through voluntary programs, NRCS works with landowners on science-based conservation planning and assistance to benefit the soil, water, air, plants, and animals for productive lands and healthy ecosystems.

The 1985 Farm Bill was the first bill with the word conservation in its title. Every 5 to 6 years, another Farm Bill was enacted, each of which included more conservation programs. NRCS currently is operating under the 2008 Farm Bill, which has a broad array of conservation programs.

NCRS conservation operations include: conservation technical assistance (CTA) to producers, soil surveys for every county in the United States, snow survey and water supply forecasting, plant material centers that investigate different plant species to address natural resource problems, and the National Resources Inventory (NRI) and Conservation Effects Assessment Project (CEAP).

CTA is the help NRCS and its partners provide to land users to address opportunities, concerns, and problems related to the use of natural resources and to help land users make sound natural resource management decisions on private, tribal, and other non-federal lands. The first seven of the nine steps of the conservation planning process are all technical assistance. These steps are: (1) identify problems and opportunities, (2) determine objectives, (3) inventory resources, (4) analyze resource data, (5) formulate alternatives, (6) evaluate alternatives, and (7) make decisions. The remaining two steps—implement the plan and evaluate the plan—are Farm Bill programs.

The programs described in Mr. McAfee's presentation involve the last two steps of the process and are Farm Bill programs. These programs include working lands cost-share programs, working lands easement programs, resource protection and restoration programs, stewardship programs, and a grant program (Conservation Innovation Grants).

One working lands cost-share program is the Environmental Quality Incentives Program (EQIP), which provides technical and financial assistance to implement conservation practices that optimize

environmental benefits while promoting agricultural production, forest management, and environmental quality as compatible goals. The FY 2010 authorization for this program was $1.45 billion.

EQIP's national priorities are: (1) reduction of nonpoint source pollution, such as nutrients, sediment, pesticides, or excess salinity in impaired watersheds; (2) conservation of ground and surface water resources; (3) reduction of emissions that contribute to air quality impairment; (4) reduction in soil erosion and sedimentation; and (5) promotion of at-risk species habitat. Mr. McAfee explained that these priorities affect the ranking process for assistance applications; there also are state priorities that impact the ranking.

NRCS has a number of programs that function similar to EQIP; some differ in that they may be geographically limited, whereas EQIP is a national program. These programs include:

- ✧ Agricultural Water Enhancement Program (AWEP)
- ✧ EQIP Conservation Activity Plans (CAP)
- ✧ Colorado River Basin Salinity Project
- ✧ Conservation Innovation Grants (CIG)
- ✧ Cooperative Conservation Partnership Initiative (CCPI)
- ✧ Klamath River Basin Activities
- ✧ Organic Program Initiative

Dr. McFarland asked about the process for allocating the money, and Mr. McAfee replied that there is an allocation process, which uses a set of priorities, to determine how the money is divided among the states. State characteristics and agriculture within the state have factors that influence the allocation among states. Mr. Elworth asked if all of these programs are funded by the EQIP budget or if they have separate budgets. Mr. McAfee responded that they all are funded by EQIP. He explained that this is the reason he included CIG in this list; CIG is funded by EQIP but it does not operation the same way. Dr. McFarland asked how the funding is broken out by program. Mr. McAfee replied that the allocation by program is determined either by statute or by the Chief; he noted that there is a set of formulas for allocation and these are reviewed periodically and changed as needed unless the allocation is defined in statute.

Under AWEP, NRCS enters into partnership agreements with eligible entities and organizations that want to promote ground and surface water conservation or improve water quality on agricultural lands. The funds go to producers but an entity can administer the process. A request for proposals (RFP) is issued annually and entities can submit proposals. If selected, they work in partnership with NRCS to administer the program. The FY 2010 authorization for this program was $73 million. It focuses on water quality and quantity, and leverages partner abilities by freeing up NRCS staff who would have been administering the program. Only specific locations in the country are eligible for AWEP funding. These locations, which are defined in the statute, include: Eastern Snake Plains Aquifer, Everglades, Ogallala Aquifer, Puget Sound, Sacramento River Basin, Red River, and Upper Mississippi River Basin.

Under CIG, EQIP funds are used to award competitive grants to non-federal governmental or NGOs, tribes, or individuals. A request for proposals (RFP) is issued annually and the grant requires a 50% non-federal match (cash or in-kind). These grants accelerate technology transfer and adoption of promising technologies and approaches to address some of the Nation's most pressing natural resource concerns. If successful, these technologies/practices are adopted into NRCS' standard practices. There is a national CIG, and an annual RFP is issued nationally. There is specific funding designated for the Chesapeake Bay and the Mississippi River Basin. In FY 2010, there was $25 million available for CIGs nationally. Up to $5 million of this budget was specific to the Chesapeake Bay Watershed. There also are state-specific CIGs. Each state can manage its own CIG process, using a portion of its EQIP funds.

The CCPI operates similar to AWEP, but it is funded differently. The Farm Bill requires that 6% of the funds for EQIP and WHIP and 6% of the allowed acres for the Conservation Stewardship Program (CSP) be reserved for support of producer contracts approved under CCPI. It is a national voluntary conservation initiative that enables the use of certain conservation programs (EQIP, WHIP, and CSP) along with resources of eligible partners to provide financial and technical assistance to owners and operators of agricultural and nonindustrial private forest lands. An eligible entity may apply for and be granted a CCPI project on behalf of a group of agricultural producers. An eligible entity may be a federally recognized tribe, state, unit of local government, agricultural or silvicultural association, or other such group of agricultural producers. CCPI does not have AWEP's limitation of a focus on water quality and quantity, or its geographic restrictions.

Unlike the programs mentioned thus far, which were funded by EQIP, Agricultural Management Assistance (AMA) is a separate working lands cost-sharing program. AMA provides financial assistance through long-term contracts to agricultural producers on private lands to: (1) construct or improve water management or irrigation structures; (2) plant trees to form windbreaks or to improve water quality; and (3) mitigate financial risks through the implementation of resource conservation practices including soil erosion control, integrated pest management, or the transition to organic farming. AMA is available in 16 states: Connecticut, Delaware, Hawaii, Maine, Maryland, Massachusetts, Nevada, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Utah, Vermont, West Virginia, and Wyoming. The FY 2010 authorization for this program was $7.5 million. One FRRCC member asked why only these states were included, and Mr. McAfee replied that these states are the ones that have historically low crop insurance participation. He noted that AMA has a focus on water quality and quantity.

WHIP is another separate working lands cost-sharing program. The purpose of WHIP is to help participants develop fish and wildlife habitat on private agricultural land, nonindustrial private forest land, and tribal lands. The FY 2010 authorization for WHIP was $85 million. WHIP's national priorities are to: (1) promote the restoration of declining or important fish and wildlife habitats; (2) protect, restore, develop, or enhance fish and wildlife habitat to benefit at-risk species; (3) reduce the impacts of invasive species on fish and wildlife habitats; (4) protect, restore, develop, or enhance declining or important aquatic wildlife species' habitat; and (5) protect, restore, develop, or enhance important migration and other movement corridors for wildlife. These priorities, along with the state priorities, influence the ranking of applications received for WHIP funding.

The Farm and Ranch Land Protection Program (FRPP) is a working lands easement NRCS program. The FRPP was established to help farmers and ranchers keep their land in agricultural production. It provides matching funds to state, tribal, or local governments and NGOs with existing farm and ranch land protection programs to purchase permanent conservation easements. Under the FRPP, participating landowners agree to keep their land in agricultural uses and to develop and implement a conservation plan for any highly erodible land. The 2008 Farm Bill revised the FRPP authority from directly purchasing conservation easements to facilitating the purchase of conservation easements. NRCS has enrolled a total of 809,098 acres on 3,495 farms. For every federal dollar expended, cooperating entities and landowners have contributed an additional $1.88.

Another working lands easement program is the Grassland Reserve Program (GRP). This is a voluntary program that places an emphasis on supporting grazing operations, plant and animal biodiversity, and grassland and land containing shrubs or forbs under the greatest threat of conversion. The GRP provides financial assistance in the form of easement, rental contract, and cost-share payments for restoration. This offers some tier-down options for owners that do not want a permanent easement. Owners can be involved in a 10-, 15-, or 20-year rental contract or a permanent easement through cooperative agreements with eligible entities (i.e., NGOs similar to those for FRPP). The lower the landowner's commitment, the less the compensation. At the end of FY 2010, 627,870 acres were enrolled toward the 1.22 million acre cap. Mr. McAfee explained that a cap was set to prevent too large a percentage of land being taken out of agricultural production. Priority is given to acres coming out of the Conservation Reserve Program (CRP).

The Healthy Forest Reserve Program (HFRP) also is a working lands easement program. Its purpose is to restore and enhance forest ecosystems to promote the recovery of threatened and endangered species, improve biodiversity, and enhance carbon sequestration. HFRP provides financial assistance in the form of easements, contract, and cost-share payments for specific conservation actions completed by the landowner. This program is focused on only five states—Arkansas, Mississippi, Oklahoma, Maine, and Oregon. Similar to the GRP, the HFRP offers the landowner three enrollment options:

- ✧ A permanent easement (i.e., conservation easement in perpetuity)—USDA pays 100% of the easement value and up to 100% of the cost of restoration.

- ✧ 30-year easement rental contract—USDA pays 75% of the easement value and up to 75% of the cost of restoration.

- ✧ Cost-share payments for restoration without an easement—USDA provides cost-share assistance up to 75% of the cost of the restoration.

Mr. Elworth asked if Mr. McAfee could provide a table that identifies the available funds for FY 2010 for these various programs. Mr. McAfee agreed to provide that information. An FRRCC member asked if there was a distinction between allocation and appropriation. Mr. McAfee confirmed there was a distinction. Mr. McDaniel asked what happened to the money that was not allocated. Mr. McAfee replied that if states do not use their allocated funding, the money is swept back and given to states that need additional funds. Therefore, it is in the states' best interest to use the funds before they are swept in the third quarter. Mr. Elworth commented that the states that receive the swept funds already have identified projects to be funded because the money must be allocated quickly.

One of NRCS' natural resource protection and restoration programs is the Wetlands Reserve Program (WRP). It is a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. WRP offers landowners the option of a permanent easement, 30-year easement, or restoration cost-share agreement—the same tiered approach used for GRP and HFRP. Mr. McAfee noted that an additional goal for many WRP projects is to create habitat for wildlife species. The total acreage enrolled through 2010 is 2,347,000 acres.

Mr. Garza asked if NRCS is reimbursed for technical assistance provided under CRP and WRP. Mr. Elworth replied that there is some reimbursement; he explained that there is technical assistance provided over the life of the contract but it is funded only in the year of the award.

Mr. McDaniel asked about the number of acres of wetlands created after the BP oil spill. Mr. McAfee responded that 471,000 acres were targeted for enrollment.

NRCS has one stewardship program, the CSP, which encourages producers to address resource concerns in a comprehensive manner by: (1) improving, maintaining, and managing existing conservation activities; and (2) undertaking additional conservation activities. Mr. McAfee said the CSP slogan is: reward the best and motivate the rest. Lands eligible for CSP include private agricultural lands (cropland, pastureland, rangeland), agricultural tribal lands, and nonindustrial private forest lands. He noted that the forest applications are ranked separately. CSP activities address eight resource concerns: soil quality, soil erosion, water quality, water quantity, air quality, plant resources, animal resources, and energy. There is a process to rank the applications received based on their environmental benefits.

Mr. Elworth stated that CSP was established as an entitlement program and asked if that is still the case. Mr. McAfee said he did not think it currently is an entitlement program. The program was completely revamped recently. One participant commented that if the applicant meets a minimum level then he or she can get into the program. Mr. McAfee added that this program takes into consideration the impacts of the landowner's current practices and proposed improvements.

The NRCS has a number of initiatives that fit under the programs that have been described. They use those programs' authorities and funding. Mr. McAfee presented the following table to show the relationship between the NRCS landscape initiatives and the programs.

NRCS Landscape Initiatives FY 2011	Programs
Bay Delta	Various
Chesapeake Bay Watershed Initiative	EQIP-CCPI, WHIP-CCPI
Great Lakes Restoration Initiative	EQIP, CTA, WHIP
Illinois River and Eucha-Spavinaw Lake Initiative	EQIP
Lesser Prairie Chicken	EQIP, WHIP
Longleaf Pine Initiative	WHIP
Migratory Bird Habitat Initiative	EQIP, WRP, WHIP
Mississippi River Basin Healthy Watershed Initiative	EQIP-CCPI, WHIP, CSP, WREP
New England Forestry Initiative	WHIP
Sage Grouse Initiative	EQIP, WHIP, WRP

To explain this relationship, Mr. McAfee elaborated on a few examples. He explained that the Chesapeake Bay Watershed Initiative (CBWI), for example, is a program and it is in the 2008 Farm Bill, but it is administered through existing programs, namely EQIP and WHIP. An executive order directs USDA to "target resources to better protect the Bay and its rivers, particularly in agricultural conservation practices." Approximately $34 million was obligated to CBWI in FY 2010.

The Sage Grouse Initiative was created because the populations and habitat of sage grouse were declining in 11 western states, and if the sage grouse was listed as an endangered species, producers may be restricted in using their land. More than $18 million were obligated to this initiative in FY 2010 through EQIP and WHIP.

The Migratory Bird Habitat Initiative was created in response to the BP oil spill. Its goal is to help 50 million birds that are coming down the Mississippi flyway to actually feed in the habitat that has been created for them on agricultural lands. Basically, this involves flooding of fields before the grain is harvested. In FY 2010, 471,000 acres were enrolled in the initiative and the budget was $40 million, which was funded through EQIP, WHIP, and WRP.

Mr. Elworth asked if these initiatives account for a portion of the EQIP allocation. Mr. McAfee confirmed this but added that there also is the opportunity for leveraging funding of partners. Mr. Elworth asked Mr. McAfee to provide the total funding for all of these initiatives, and he agreed to do so.

Mr. McAfee distributed two handouts. The first one described NRCS' national programs as well as some of the practices associated with each of them. His second handout was the 2010 NRCS Maryland Conservation Report. It provides an example of what a state would do to highlight the programs for which it is eligible. The handout shows dollars invested and acreage of improvements and highlights some success stories. Mr. McAfee noted that all of the NRCS programs and initiatives are described in detail on the NRCS Web Site (http://www.nrcs.usda.gov/programs/).

Discussion

Mr. Treacy asked about the relationship between NRCS and EPA. Mr. McAfee responded that these programs are authorized under the Farm Bill and not the legislation authorizing EPA programs, such as the Clean Water Act, Clean Air Act, etc. NRCS does work with EPA. The Agency has some phenomenal science that is used by NRCS. For example, EPA provided several data sets that were used to target specific agricultural lands in the watersheds that NRCS was instructed to target. These data sets showed the sources of the highest concentrations of nutrients (N, P, and sediments) entering the Chesapeake Bay. Mr. Elworth mentioned that EPA also has been able to co-fund efforts through Section 319 grants; he

noted a challenge that even if EPA identifies a specific problem, the Agency cannot direct the use of NRCS funds to address it.

Noting all of the initiatives that are funded by one or two programs (e.g., EQIP), Mr. Botts asked about the amount of funding remaining that Florida can apply to projects. Mr. McAfee responded that this was largely a policy question. He agreed that there are many programs that use a portion of the EQIP funds and this impacts the amount that Florida receives. Mr. Botts asked if it is top-down direction that specifies that money has to be allocated to the individual programs and special initiatives. For example, a certain percentage of EQIP dollars on a national level is designated for transition to organic farming. Is part of that funding allocated specifically to Florida and then the state puts that funding into its organic farming program? Mr. Elworth said his understanding is that states have a lot of flexibility on how to allocate the funding. For example, if a state elects not to have a state innovation grants program, that money does not come off the top of the state's EQIP allocation. Alternatively, the funding for the Everglades Initiative is money that was appropriated by Congress to be allocated to the Everglades Initiative. Mr. Elworth noted that EQIP is oversubscribed nationwide, not just in Florida. Mr. Vester commented that, in his county, only about 25% of the applications for EQIP funding are filled each year. There is always more demand than funds available.

Mr. McAfee mentioned that the use of AMA funding for high tunnels in Maryland is a good example of state creativity to get funding for its most pressing needs. Maryland used the minimize risk aspect of AMA to obtain the funding for this priority state project.

Dr. Sanders wanted to respond to Mr. Treacy's and Mr. Botts' questions from a different perspective. When the Conservation Reserve Program and Wetland Reserve Program were created in the 1985 Farm Bill, they were created to resolve some national issues as well as some political issues. For example, the Conservation Reserve Program was a happy partnering of people who wanted to: (1) address the budget deficit (because they thought that getting producers into a long-term conservation program and out of commodity programs would over time reduce the exposure of USDA); (2) address supply management (excess capacity), which would be accomplished by getting land out of production in the long term; and (3) help protect and improve the environment. EPA went to USDA and suggested that USDA target CRP funds on highly fragile, vulnerable lands where EPA had initiated water quality programs because of poor management of agricultural lands. As a result, USDA developed the process of paying higher rental rates in fragile, vulnerable areas like the Chesapeake Bay. Over time, there were complaints from the producers because the CRP required that the land be taken out of production. Therefore, USDA developed programs, like EQIP, to allow the producers to keep farming their land and receive incentives for better stewardship. Between the 1996 Farm Bill and 2002 Farm Bill, the philosophy began to shift more toward the working lands program concept. From Dr. Sanders' perspective, CSP was supposed to be the major program for accomplishing this but it became a political football between democrats and republicans and did not get off the ground initially. The states that were struggling with responding to pending mandates from EPA thought it would be helpful to allow producers some flexibility and offer them incentives for implementing practices that would help meet water quality standards. As the Nation moves forward with the Mississippi drainage and the hypoxic zone in the Gulf, USDA may see this as an opportunity to begin to make another shift in how some of these programs are administered—targeting these programs at those that are contributing most to the problems. Perhaps this could be a recommendation from the FRRCC.

Mr. Elworth commented that the initial emphasis for CRP was marginal lands, and most did not believe that this land would be taken out of production. Over time, producers wanted some flexibility with CRP lands to respond to commodity price changes. He also mentioned that EQIP provided a means, without trade violation, to provide support to farmers during the trade wars. He did not think EPA approached USDA about using the funding to address problems of priority to EPA; it probably was just a happy coincidence.

Mr. Boggs pointed out that the Farm Bill clearly states that one of its purposes is to help producers and landowners meet environmental regulations. By targeting priority problems identified by EPA, USDA is

not trying to circumvent the goal of Congress in the legislation. EPA may not direct how USDA spends the funding, but the Agency certainly can influence and provide technical input regarding the priorities.

Mr. McDaniel pointed out that those states that get their allocated funding swept probably have projects to fund but may not have the staff to get them reviewed, funded, and started within the tight timeframe. The states that benefit from the reallocation of swept funds are likely those that invest more money in managing their program.

Dr. McFarland asked if the environmental aspects of interest to EPA are addressed formally in the ranking of projects by NRCS for funding. Mr. Elworth replied that Mr. Boggs was correct in stating that one of the purposes for which EQIP is statutorily designated is to help farmers comply with environmental regulations (federal, state, and local).

Mr. Vester stated that the 1985 Farm Bill was passed during difficult economic conditions for agriculture. In the 1970s, when soy bean prices soared, farmers converted pastureland to soy bean production. They got one good crop and tried for a few more years and failed so the land was left to erode. The CRP provided funding and allowed that ground to be taken out of production, but it never should have been in production to begin with. In Arkansas a couple of years ago, money was made available to reforest with hardwoods bottomland that adjoined a river. This would be a good use of CRP funding to address hypoxia and runoff problems.

Mr. Boggs commented that there is a limit on the CTA funds and there is pressure to have larger and fewer contracts, partly because of the reduced number of boots on the ground. He noted that the individual practices have criteria for meeting environmental objectives and requirements for meeting all applicable federal, state, and local laws.

Mr. Michael Brubaker (State Senate of Pennsylvania, FRRCC member) asked Mr. McAfee if his job was specific to the Chesapeake Bay and Mr. McAfee confirmed that it was. Mr. Brubaker said he wanted to take a look at what can be learned from the Chesapeake Bay experience and what lessons are transferrable to other locations. He stated that the 64,000 square mile Chesapeake Bay Watershed currently is under a federal court order, and there also is a Presidential executive order. In addition, there is Farm Bill and EQIP funding directed specifically to the Chesapeake Bay. The order requires the reduction of nitrogen, phosphorus, and sediment by targeted amounts, because now there is a TMDL established for the Chesapeake Bay Watershed. Each of the states prepared a Watershed Implementation Plan to try to comply with the federal TMDL. He asked Mr. McAfee if his summary of the situation was accurate and Mr. McAfee confirmed that it was. Mr. Brubaker then asked if the Farm Bill funding to which Mr. McAfee referred in his presentation goes through 2012, and Mr. McAfee replied in the affirmative. He asked if NRCS had done any calculations on how much money it may take to get the Chesapeake Bay to where the court has mandated it to be by the end of 2025. Mr. McAfee responded that the individual states have done their own analyses of that estimate. NRCS would just provide assistance to the states through the producers. He stressed that the TMDL process and Watershed Implementation Plans are state responsibilities. NRCS is ready to provide assistance to and work with the states. NRCS has not done a full inventory of the estimated cost, partially because each state prepared its plan and would be in the best position to answer that question. Mr. Brubaker asked if NRCS would be able to offer an opinion as to whether or not the court-mandated nitrogen, phosphorus, and sediment reductions can be met. Mr. McAfee replied that NRCS would not be able to make such a statement. None of the six states in the Chesapeake Bay Watershed have divulged the NRCS portion of the agricultural BMPs in each plan. This would be the first step for NRCS to quantify the cost—for states to identify the NRCS BMPs in their Watershed Implementation Plans.

Mr. Elworth added that the allocation process in the plans would include both agricultural and non-agricultural sources.

Referring to Mr. McAfee's response that NRCS could not offer a technical opinion about the feasibility of achieving the court-mandated reductions, Mr. Brubaker asked who would be qualified to offer that opinion. Would EPA be able to provide that answer? Mr. McAfee replied that the states would have the most knowledge about what could be accomplished. Mr. Brubaker commented that there is concern around the country that what is occurring in the Chesapeake Bay may be coming to other watersheds. This all started with a federal court challenge. The State of Pennsylvania is working hard to comply with the court order, but the American Farm Bureau Federation and Pennsylvania Farm Bureau have filed suit to reposition these outcomes. Mr. Brubaker said he hopes everyone engaged wants to meet the nitrogen, phosphorus, and sediment reduction, adding that he would rather spend money on implementation rather than attorney fees. He thinks it is important to have the best possible technical experts working cooperatively with the states to ensure that the Watershed Implementation Plans are designed to meet the reductions. He understands that the Federal Government is resistant to offer clear input to the states as to whether or not the plans will actually achieve the reductions.

Mr. Elworth recollected that NRCS sat down with the states last fall and looked at the intersection of where states have needs in the watersheds and the allocation of NRCS funds to those watersheds. Mr. Elworth understands that each state has prepared a plan and identified what it thinks can be done to achieve the reductions. NRCS has identified what funding can be provided and EPA has recognized that the states have developed legitimate plans to achieve the mandated reductions. Mr. Elworth thought that Mr. Brubaker may be asking if we have the ability to catalog and inventory the actual needs on the ground. He stated that once there are conservation plans developed at the farm level, it is much easier to assess what can be accomplished on the ground as well as what the practices would cost.

Mr. Elworth said that he did not believe that the Federal Government had made an adequate commitment of federal funds to conservation planning. Assessing the needs on the ground and assisting farmers with developing conservation plans will require more funding than what currently is available in CTA. In addition, the amount of technical assistance provided by the Federal Government continues to be capped by law or OMB. He hopes that within the next couple of years, the National Association of Conservation Districts will develop a better way of understanding and cataloging what conservation practices already have been implemented on the ground through voluntary practices. Mr. Elworth thought Mr. Brubaker's question was legitimate, but he did not think NRCS was in a position to answer it.

Mr. McAfee stated that the NRCS State Conservationists have met with their counterparts in the six states in the Chesapeake Bay Watershed. NRCS has agreed to set the CBWI priority practice list to be the same as the BMPs identified in the state Watershed Implementation Plans. Each State Conservationist would have the best idea of the state's implementation capabilities. Mr. McAfee said that he would not want to speak on their behalf, so he encouraged Mr. Brubaker to follow up with the State Conservationist, who would be best able to determine how NRCS can contribute to the BMPs identified in the plan. Mr. McAfee was under the impression that such conversations have not yet taken place; NRCS has not been asked for specific assistance based on the plans.

Mr. Elworth pointed out that those farmers whose practices are the worst may be less likely to come to NRCS for assistance because it is voluntary. Therefore, it may be that no matter what the other farmers in the Watershed do to achieve the reductions, it may not be enough. The tools available may not be sufficient if the farmers are not willing to make the needed changes. This is why assurances or certainty for those farmers who have made progress is important; enforcement efforts can focus on those farmers who are the worst and made no effort to improve.

Mr. Boggs stated that just because the programs are voluntary incentive programs does not mean they do not complement regulatory oversight. He cited the Nooksack example where they worked well together.

WEDNESDAY, MARCH 30, 2011

Ms. Dilley stated that most of today's agenda would be devoted to time in the discussion groups. She asked the groups to build on their discussions from Tuesday and further define the scope to be addressed. In addition, she instructed each group to develop a work plan for moving forward. To help the groups further define their scopes, she offered some example criteria for developing recommendations: (1) within EPA's authority, activities, etc.; (2) improve water quality; and (3) improve relationships among key stakeholders. Ms. Dilley suggested that each group develop its own criteria. She also encouraged the groups to identify what additional information they may need from EPA. To accomplish this, she suggested that the groups look at the matrix that was included in the meeting folder. It identified five basic steps in addressing an environmental issue:

- ✧ Identifying and characterizing the problem
- ✧ Identifying and generating options/solutions
- ✧ Engaging the regulatory process (as appropriate or necessary)
- ✧ Implementing solutions
- ✧ Documenting and communicating results.

The Resources Workgroup, for example, identified financial incentives, technical assistance, and educational issues as its main themes. The group could examine where those themes are best deployed, such as identifying solutions or implementing solutions.

Once the group has further refined its scope, the members should prepare a work plan for developing preliminary ideas/recommendations for presentation at the June meeting and discussion by the FRRCC. The work plan should identify what, how, who, and when. It also should specify what assistance the group needs—from EPA, from each other or other FRRCC members, and from other sources—to implement its work plan.

After the discussion group session, members will reconvene so that the groups can present their refined focus and work plans to the entire Committee. This will give the other members the opportunity to ask questions and make suggestions to each group. Following the report outs from the discussion groups, there will be an opportunity for public comment at 1:30 p.m., and the meeting will be adjourned by 2:00 p.m. She asked if there were any questions concerning the breakout session.

Referring to the criteria suggested by Ms. Dilley for the recommendations, Dr. Burns asked if the ideas for solutions and other recommendations should all be within EPA's authority. He was concerned because he thinks the problems the groups are dealing with are far beyond EPA's authority. Ms. Dilley responded that if EPA cannot implement the recommendation or if it is far outside the Agency's scope, EPA probably cannot respond to the recommendation. Dr. Burns asked again whether the groups should limit their recommendations to those within EPA's authority or should the groups think beyond that. Mr. Elworth responded that if the FRRCC has comments or recommendations on USDA programs, he will pass those along to USDA. He acknowledged that there is a large intersection between EPA's interest in water quality and USDA programs. He did not think the groups should limit their recommendations to EPA's authority; however, they should be relevant to EPA's responsibilities under the law. Dr. Burns said he was thinking specifically about resources, which will have to come from many places in addition to EPA.

Mr. Elworth said he had talked to several members at this meeting about the format and content of the final report. In today's breakout session, each discussion group should outline what it thinks the report to EPA should contain. The groups should identify the key issues that should be in the report and talk about how to flesh those out. Each group also should specify what additional information it needs from EPA or elsewhere to further its discussions and formulate recommendations. The Partnerships Workgroup, for

example, may think that the most important thing for EPA to do is to facilitate partnerships at the local level; this activity is well beyond EPA's authority, quite frankly, but it may be among the most important things that the Agency could do to improve water quality. He encouraged the groups to think about what advice would be relevant and useful to EPA. Referring to the basic steps matrix (in the folder), which outlines the steps EPA takes in addressing an environmental issue, Mr. Elworth stated that it was intended to help the groups to do this.

If the FRRCC is concerned that Congress has not adequately written CCPI language and recommends that it be revised, EPA will not have much to say about such a recommendation. Similarly, EPA will not have a lot to say about recommendations associated with USDA appropriations. Questions that can be addressed by EPA include: How does EPA determine a water body is impaired? How does the Agency characterize the impairment? How does EPA identify solutions? What types of opportunities should EPA avail itself of to obtain additional information? Which regulatory tools should EPA use? He noted that partnerships and resources both play a role in implementing solutions. Science also is important in knowing what solutions will work. How does EPA document and communicate results? Mr. Elworth often hears that the conservation practices of many farmers are not fully recognized, both by EPA in the regulatory process and by the public. What can EPA do to address this problem? Members' comments on these questions and issues would be relevant and important to EPA.

Ms. Noble asked for clarification on how far the FRRCC should go in addressing pesticides. It is clearly an issue for water quality but there is another advisory committee focusing on pesticides. Should the FRRCC focus only on nutrients and sediment? Mr. Elworth said that because pesticides is the purview of another committee, he advised the FRRCC to not spend a lot of time on pesticide issues. Ms. Noble then asked if the results and recommendations of the Integrated Nitrogen Committee of the Science Advisory Board could be provided to the FRRCC members. Mr. Elworth asked her to include that in the list of additional information/resources that the groups need to complete their tasks. Ms. Noble also asked if air deposition of nitrogen into water should be included in the FRRCC's scope. Mr. Elworth replied that although the Committee has not spent a lot of time on this issue, it would be helpful to EPA if it was included in the scope. He noted that it plays a role in contributing to nitrogen in the Chesapeake Bay, for example, so it should be mentioned as a piece of the puzzle. He would be interested in knowing how much of this is related to agriculture. Ms. Noble noted that water quality and quantity problems often are closely related. Should water quantity issues be included in the scope? Mr. Elworth replied that water quantity clearly is an issue in some places so it could be included.

Ms. Dilley reminded the groups to identify a facilitator, notetaker, and reporter. Mr. Elworth said that he and Ms. Dilley would be circulating among the groups to answer any questions.

Discussion Group Breakout Session

The discussion groups met from 8:30 to 10:30 a.m. The Partnerships Workgroup met in the Galaxy Ballroom, the Science Workgroup met in the Stars II Room, and the Resources Workgroup met in the Stars I Room. Each workgroup reported the results of its discussion following the breakout session.

Discussion Groups Report Back to Committee

Abby Dilley, Facilitator

Ms. Dilley and Mr. Elworth encouraged members to comment on the scopes and work plans of each group because the individual reports drafted by the groups would be part of the overall report submitted to EPA by the FRRCC.

Science Workgroup

Dr. Larry Sanders, Oklahoma State University, Science Workgroup

Dr. Sanders stated that the group identified several science-related issues for EPA involvement in water quality: (1) models and standards, (2) data and monitoring, (3) scientific evaluation and assessment of water quality goals, (4) BMPs, (5) establishment of impairment levels, and (6) scientific research of alternative solutions and their likely consequences.

The workgroup members thought they needed more education before the June meeting. They would like to schedule a Webinar or conference call during which EPA would provide the additional knowledge/information they need. One area to be addressed in that Webinar/conference call is model standards and procedures, particularly the validation process, data input, repeatability, sensitivity analysis, and impact predictability. A discussion of how EPA develops its models and assesses their efficacy would be helpful. Another topic to be covered in the Webinar/conference call would be something like an EPA 101 on TMDLs and water quality standards. How are TMDLs developed and targeted? Are the models science-based?

Dr. Sanders then made a few points about each of the six science issues identified by the group.

Models and standards should be science-based. There should be the potential for real input from outside the Agency, and the process for model and standards development and validation should be transparent. In addition, there should be an independent peer-review process and a process for soliciting comments from the public and other scientists. The model and standards process should be available to the public and there should be a validation process in which feedback is considered over time (as new data/science evolve, there should be a process to incorporate it in the models/standards).

The group emphasized that data and monitoring are complex issues. How does EPA arrive at the variety of contributors to a problem and the solution? He noted that agriculture is not the only contributor; there is an urban component as well as an industrial component. Are the data generated by the monitoring process realistic to the issues of concern? There was some discussion of compiling data by states and then having EPA or USDA serve as a clearinghouse to share those data. It was not clear that this is happening currently. Is the information on resolving a problem from one state readily available to other states? The group thinks it would be helpful to have such data available through a central site if possible. In addition, it would be helpful to understand the relevance of site-specific information—narrow it down to fields, watersheds, states, or regions.

Scientific evaluation and assessment of water quality goals has to be done for different levels (farm, ecosystem). How is the baseline determined? How realistic is it, what is its relevance to the problem, and what are the contributing factors that go into development of the baseline and the water quality goals? What is the process by which the issues and geographic areas are targeted for regulation?

With respect to BMPs, what is the science behind the measurement of success? Is it benefit-cost analysis? If so, does it include market and non-market factors? What kinds of assumptions are made about the social discount rates? When BMPs are considered, how is their level of success determined? Is that done in consideration of farm-level economics or is it done at the watershed level or greater? Are there ways to refine that to examine more specific site-level success? There also was some discussion about interagency sharing and cooperation. It seems like this is done somewhat ad hoc and depends on whether the people involved already have a relationship. One of the challenges identified by the group is that USDA collects data at the county level and those boundaries often are not compatible with a watershed. There is a need to collect data in a way that is compatible with watershed management. How should the private sector be involved in the contribution of data? What kinds of gaps exist between BMPs and the technology, and the success of adoption?

Ms. Dilley pointed out that an EPA 101 was done at the first meeting. She suggested that the group members go back and review the summary of that meeting and then identify specific questions for EPA so that the response from the Agency is more targeted to what the group is seeking. Dr. Sanders said he recalled an explanation of the definition of TMDLs but he did not think the presentation addressed the

process that leads to the selection of a target area or issue and how the TMDL is developed. He did not think there was sufficient detail in that early presentation. Mr. Elworth responded that TMDLs usually are triggered by USGS data on the 303(d) list of impaired waters. He said that EPA can put together a presentation or respond to the group's specific questions on the TMDL process.

Noting that most of Dr. Sanders' comments on models and standards focused on modeling, Mr. Elworth asked if there is some specific connection between models and standards. Dr. Bonanno replied that they are just trying to make the leaps of faith between the pieces. When there is an impaired water body, EPA develops a TMDL and the assumption is that achievement of that TDML will solve the problem. There is a leap of faith there. There is another leap of faith in assuming that certain agricultural practices will achieve the TMDL, bringing the water body back to its state prior to impairment.

Dr. McFarland said that another aspect is how to design a research program to clarify or lessen the uncertainty associated with models used to help develop the TMDL or a standard. Should those uncertainties be taken into account in the TMDL more or less than they currently are? What uncertainty or sensitivity analyses should be done on models? Mr. Elworth thought it might be useful to have someone from EPA as well as someone from a state involved in further discussion of this topic with the group.

Mr. Elworth mentioned that credibility and transparency were not specifically mentioned by the group. Also, when does EPA have enough information to make a decision and what opportunities are there to make adjustments to that decision once new information is available? Dr. Bonanno responded that the group did talk about those issues—the transparency of the development of the model and the testing component that could result in modifications. Dr. Sanders added that he thinks there is a general misunderstanding or a distorted view of the process EPA uses to incorporate science from within and outside the Agency to accomplishing its mission of protecting the environment. What is the level of review and public scrutiny of the process? Dr. Sanders suggested that it might be helpful to have a richer discussion of that process. Mr. Elworth stated that there is underlying science that has been established through a number of studies, including NAS studies, on the basic ways of looking at water quality impacts and impairments. He did not think the members would want to read all of the materials but thought the executive summary and conclusion sections might be helpful in providing a foundation for the group. EPA can provide that information to the FRRCC. He mentioned that, for a certain watershed, EPA makes determinations of water quality. There are several levels to consider. Mr. Elworth agreed to provide the group with a list of information available and then the group can identify the ones they want to see.

Dr. Balling thought it would be helpful to get some background information that would help the group refine its questions for the Webinar/conference call.

Mr. McDaniel suggested that the Science Workgroup ask about the assumptions for the model and the default position for nutrients that cannot be attributed to any source.

Dr. McFarland said the group spent some time discussing the need to have a baseline so that success can be measured. In that discussion, there were several examples where the group thought there was a technology gap in the practices that could be used to mitigate the problem or there was an adoption gap. The group wanted to have a richer, broader discussion about what a watershed planning group should do when it believes that the goals are not achievable. Mr. Elworth thought there were three issues: (1) Is there sufficient information available to make the decision? (2) Is the information credible? and (3) Is there relevant information that is not being applied to the situation? Ms. Noble added that, in her mind, the group is not just talking about BMPs but also farming systems. Therefore, this is not just a matter of validating a practice or two.

In response to Ms. Dilley's request for additional information needed from EPA, Dr. McFarland mentioned that EPA's 2015 Strategic Plan mentioned 100% compliance with meeting aquatic life criteria

goals. The group wanted to know if there are plans to develop a prioritized list of additional aquatic life criteria. How would that be included in a prioritization list for water quality initiatives?

Dr. Popp agreed to distribute the notes from the breakout session to the workgroup members. The group also plans to hold two conference calls before the June meeting.

Partnerships Workgroup
Douglas Young, Spruce Haven Farm and Research Center, Partnerships Workgroup

The group identified the fundamental problem, which is the lack of progress by all participants in achieving water quality goals. The first step in the work plan will be to review some partnership examples, such as the Puget Sound example described yesterday. Another example mentioned was the Alternative Technologies of Effluent Cattle Operations, which has shown some promise of success. A third example to review is the 319 grants from EPA—these seem to have been successful in a number of regions. He noted that these grants may be an important role for EPA in partnerships.

The group identified a number of concerns associated with partnerships that need to be addressed:

1. The fear of farm groups/organizations that the goal is a moving target—no matter how much improvement is achieved, there will be continued pressure to keep getting better.
2. Data variances—which is a topic being addressed by the Science Workgroup.
3. There is a lack of comfort among farmers about whether they want to partner—it may place them under scrutiny that is unacceptable to them.
4. There are concerns about confidentiality—partners share information that farmers want protected.
5. There needs to be a way to reduce tensions among partners (the group discussed how EPA's involvement in the Chesapeake Bay increased tension among partners to the point that good work that was ongoing for years was halted).

The question that then arose within the group was: How do we initiate a process for building partnerships that are centrally coordinated, organized so that EPA and USDA can be involved and provide needed support, and function and take action at the local level? The group's discussion did not adequately address this question. It will be the focus of the group's work between now and the June meeting.

It is clear that some organization must initiate the partnership process. The goals of the partnership must be clearly defined, and farmer participation must be ensured. EPA needs to be at the table, but as a facilitator rather than a regulator with a badge and a stick. EPA should offer help in developing the science and reviewing the practices. Mr. Young pointed out that because EPA has no authority to regulate nonpoint sources, the Agency really does not have a badge and stick role here. EPA has to make its technical assistance role clear to the farmers, which will have a beneficial impact on the partnership discussions.

The group identified a two-track approach: the policy track (national and state) and the science and practice-building knowledge track. For this second track, a variety of farms might participate with USDA and EPA to develop, implement, and measure specific practices that hold considerable promise.

The group's work plan would involve reviewing successful partnerships to determine what can be learned from those efforts. In addition, the group will figure out the process for initiating and coordinating partnerships that will achieve desired goals.

Mr. Young asked if the other workgroup members wanted to add anything.

Ms. Suzy Friedman (Environmental Defense Fund, FRRCC member) commented that the group spent considerable time talking about the need for better information and data gathering not just on practices but also on what is going on in a watershed—an understanding of what has been implemented, what has been accomplished, and where the gaps are. There is a need for a common language and agreement on what data to use. Between now and June, the group will identify the barriers that EPA and USDA have encountered—barriers between the two agencies, barriers between state and federal agencies, barriers with other parties needed to gather the information—in an effort to document lessons that will help to circumvent such barriers in the future.

Mr. Clark stated that the group recognized overarching partnerships that steer processes and make decisions but also recognized the importance of the local, on-the-ground partnerships. These latter partnerships are critical for carrying out the activities of the partnership.

Mr. Petty provided some information on the Cattle Operations Effluent example that Mr. Young mentioned. In 2000, Iowa had a number of CAFOs that were not permitted even though they should have been. The cattle industry decided to be proactive and help as many producers as possible to move forward with implementing better practices. The cattle producers convinced the Iowa Department of Natural Resources (DNR) that the industry could implement this voluntarily working through the Iowa Open Feedlot Plan. Every operation with more than 1,000 head of cattle needed to have a permit, but there are many operations in Iowa with less than 1,000 head that were contributing to the problem. The cattle producers realized that there were many practices being implemented at these smaller operations that were not recognized in EPA rules; in addition, none of them could qualify for cost-sharing under EQIP. The producers identified what they called alternative technologies to reduce the nutrients in the runoff. One example was a shaped waterway below a feedlot that contained grassy vegetative filter strips that would allow the nutrients to settle out before the water exited the waterway. This technology had been working effectively at some smaller lots but there was no scientific data supporting it and the technology was not accepted by NRCS or EPA. NRCS was willing to consider it as a temporary practice but data were needed to verify that the technology worked. The coalition needed EPA to help fund the monitoring as well as identify what should be sampled and measured.

Mr. Petty stated that one of the most important lessons learned was to get all of the partners/participants at the table as early as feasible, before any decisions are made if possible, so that all of the decisions are "owned" by everyone. He mentioned that the National Cattle and Beef Association was very helpful in convincing NRCS and EPA to consider the technology. The Environmental Defense Fund also helped to convince EPA that this was a legitimate technology that showed some promise. The coalition got 6 producers (with more than 1,000 head of cattle) to agree to apply the technology. Iowa State University helped design the system and conduct the monitoring. The first year of the project was so wet that they could not get the systems constructed so EPA granted them an extension. The next year also was a very wet year but after some adjustments, it was clear that the technology was effective. The producers learned a great deal from the project and built some long-lasting relationships. Because EPA was open to testing the technology, now it is used all over the country.

Ms. Dilley thought that was a good case example for many reasons—it hits on science, partnerships, and leveraging resources. She asked if the group plans to look at various examples and how to apply the lessons learned to model other partnerships. Mr. Petty confirmed that this was the group's intention. Ms. Friedman added that the group talked about looking at different kinds of partnerships (e.g., issue specific, geographic-based), identifying the lessons learned, and then developing one or two models for partnerships. The group also wants to examine EPA's role in such models. Ms. Dilley asked if the group plans to develop criteria for the case studies. Ms. Friedman responded that the group will develop a list of questions and criteria for sifting through the case studies. From the case studies, the group will identify the types of issues that partners will have to grapple with in developing a viable partnership. This will be the major task of the group between now and June.

Mr. Elworth commented that many partnerships exist but there is no intersection among them. What can EPA do to help with this intersection? He asked them to consider the EPA regional offices, because they are more likely to work with the people on the ground at the local level.

Ms. Friedman replied that the group wanted to look at EPA involvement at different levels, including direct engagement by EPA, as well as instances where EPA creates the space for the partnership but is not a member. She noted that the tension surrounding the Chesapeake Bay has made partnerships less effective, but because EPA cannot regulate the many nonpoint sources contributing to the problem, compliance with the TMDL will require partnerships and voluntary action. The group may examine what role EPA can play to re-energize the partnerships for the Chesapeake Bay, for example.

Dr. McFarland asked if the group talked about how to select a local coordinator. Is there a good model for that? Mr. Young replied that from his perspective the best local coordinator would be a farmer or a farm organization working closely with NRCS or a local agricultural representative. There also should be some role for the regulators (state and federal) to ensure that the practice is effective and repeatable.
Ms. Friedman stated that the group talked about the need for a coordinator but also the need for a core group of partners that will make the partnership happen. It will be important to examine the goal of the partnership and its scope before selecting a coordinator. Part of the group's work plan will be to develop criteria for selecting a coordinator for specific scenarios. She noted that a different coordinator may be selected in different situations.

Mr. McDonald mentioned that the workgroup talked a lot about science and how to get standards and data, monitoring, and analysis that are credible. The workgroup also talked about the partnerships that must be involved for the science aspects. It appears that the Science Workgroup will be addressing these issues so that is an intersection between the two groups. Ms. Dilley suggested that the Partnerships Workgroup address the role EPA can play to shape the partnerships to meet the science needs.
Mr. McDonald responded that there also is a need to know, from the science standpoint, who needs to be at the table, and who needs to review the models, protocols, and methods. Dr. Popp noted that the scientists need assistance on the ground to help identify what needs to be modeled or researched. They also need to know the best method of communicating the scientific results to the partnership.
Mr. McDonald commented that it is critical that the results are credible.

Ms. Dilley pointed out that this is a common theme that can be knit together in the report once the different sections are put together.

Mr. Clark added that an effective partnership requires a long-term commitment, particularly at the local level. Dr. McFarland said she realizes the timeframe would vary by the goal of the effort, but it usually takes several years to get practices in place. Did the group talk about how to get this long-term commitment from partners? Ms. Friedman replied that the group did not discuss this at length but did recognize that for any partnership it will take time to meet the goals (e.g., improved water quality).
Mr. Clark mentioned the Landcare model—a facilitator is placed in the local community to train leaders to coordinate partnerships. That is a model for investing resources up front and then transitioning the coordination role to the local coordinator. Mr. Elworth commented that every partnership wants a coordinator who is smart and active, but those people tend to be very busy. The best coordinator is someone who wakes up every day thinking about the project and its progress.

Mr. McDaniel said that one of the challenges with partnerships is that one size does not fit all—there is different timing, different governances, and different parts of the country. He noted that what might work for the Chesapeake Bay in Pennsylvania may not work for the Great Lakes area of Pennsylvania. It will be a real challenge for the workgroup to figure out how to deal with these differences. Ms. Dilley said that the group might end up developing guidance for things to consider in forming partnerships and selecting coordinators.

Mr. Young stated that he is a farmer who is willing to participate as a partner to move agriculture to a new paradigm in which there will be substantial reductions in nutrients and recapture of carbon.

Ms. Friedman mentioned that the group's recommendations should include questions and criteria for forming partnerships and selecting coordinators, as well as thoughts on EPA's role. The group also will identify two or three specific partnerships in which EPA needs to play a role to make the partnership happen. Ms. Friedman added that the group will submit a list of information needs to EPA.

Resources Workgroup
Dr. Robert Burns, University of Tennessee, Resources Workgroup

Dr. Burns stated that the group identified some areas for which additional information is needed. Specifically, the group needs information on EPA's goals in terms of agriculture-related water quality. What are EPA's goals and intentions in this area? The group also would like to do a survey of available resources. The presentation last evening was a good beginning with USDA programs but the group needs more detailed information on USDA funding by program and initiative. He noted that Mr. Elworth asked Mr. McAfee to provide that information last night. The group would like similar information from EPA. What are the EPA resources focused on agricultural water quality issues at the national and regional levels?

The group then identified gaps. The workgroup members believe that more resources are needed but being realistic, the group thinks that there is a need to better utilize the existing resources to focus them on addressing priorities. Two gaps were identified by the group: communication and coordination among the entities that have the resources that can be applied to address the agriculture and water quality issue.

The resources available need to be focused on planned programs that have the objective of improving water quality. Some grants could possibly include water quality but many of these grants are short term. There needs to be a more focused program on this issue.

The workgroup thinks there needs to be an alignment of resources at the top (national level—USDA, EPA, land grant universities). What resources do these national level organizations have that can be focused on water quality issues related to agriculture? There also is a need to coordinate the resources at the local level. The group sees these as two different tasks: (1) align resources nationally and (2) coordinate resources locally. Dr. Burns noted that it is at the local level that changes are implemented and water quality is improved.

The group believes there needs to be a focus on watersheds if the goal is to improve the water quality in those watersheds. The entity that coordinates the local resources will be the champion for bringing the resources to bear to improve water quality. That entity must be trusted by the partners, be local, and have a long-term commitment in the area. For various reasons, EPA is not in the best position to be this coordinator; however, EPA does have an important role to play to facilitate and support the coordination.

The group talked about some examples of coordinators that have worked well. One example is watershed associations that are championed at the local level. They have been successful in pulling together the national resources and providing the local coordination necessary to make a difference in the watershed. This is a good model. One unique aspect of this model is that there is no uniform infrastructure for it across the country. Some are successful, while others are not. Another model could be the Soil Conservation Districts, for which there is a formal infrastructure across the country. It might be interesting to consider the creation of watershed quality districts. The group did not think there would be a single model. There are instances where an SCD has served the coordination role. The most appropriate entity in the given situation should be the coordinator and champion for that watershed. What is critical is that the coordinating entity is program-focused and has a long-term commitment to see the project to its conclusion.

Education was the other area that was identified by the workgroup as a critical resource need. It is important that both the farmers and the regulators are educated on the issues and problems as well as the potential solutions to address the problems. There is an important role here for the land grant universities to assist in the education of these groups.

The workgroup also drafted a work plan. The group will make a formal request to EPA for the information needed to complete its work. Dr. Burns noted that this is the information mentioned at the beginning of his report. He asked that this information be provided to the group by April 15, 2011, if feasible. The notes from the discussion sessions and flipcharts will be circulated to the workgroup in the next week or so. The group then will prepare a draft outline and reach consensus on it by May 15, 2011, so that it will be ready to present to the entire Committee at the June meeting.

Ms. Kaiser asked that the requests for additional information from the groups be sent to her.

Referring to the group's request for resource information from EPA, Mr. Elworth asked if the workgroup wants dollars to be used as the common denominator—technical assistance and people can be expressed in terms of dollars. Dr. Burns confirmed that defining resources in terms of dollars would be helpful. He noted that it is important to understand agency goals and resources so that these can be aligned across agencies to support specific projects. The first step is aligning the goals and resources, and the second step is figuring out how to combine those resources into a program that supports local coordination.

Mr. Elworth commented that it is one thing to know of a program's existence and another thing to have meaningful access to it. He has heard that the 319 grant dollars, for example, are not always available in a way that is appropriate to meet the needs on the ground. In addition, he has heard that some of the administrative procedures required for 319 grants select out some things that those on the ground want to do. Mr. Elworth thought it would be helpful to hear about access at the local level. A feedback loop also might be useful to verify that the funding actually accomplished what it was intended to accomplish.

Dr. Burns noted that there are different sources of dollars; someone must pull those dollars together at the local level to work on reaching the goal. The goal of the program would have to align with EPA's goal—there would need to be agreement on the water quality goals. Given that there is not enough money available to address every location, the alignment at the top (national level) would identify the priority watersheds. A program would make dollars available to the entity that is appropriate for championing the efforts at these priority watersheds. Perhaps this would be done through an RFP process. This entity may be different for different watersheds. It is important to put adequate resources on the table to fund the coordination so that the energy of the coordinating entity can be focused on doing the job rather than trying to get more grant money to keep the coordination funded. He stressed that there has to be multiple levels of accountability to ensure that the money is being spent in accordance with the rules, but more importantly that the project is making a difference in the water quality. There must be science and thought put into selecting the priority watersheds, and modeling must be done beforehand to assess whether the implementation of BMPs will improve the water quality in the watershed. He noted that it is critical that there be adequate time allowed to assess the impact of the BMPs.

Mr. Botts noticed that much of the group's discussion seemed to focus on national-level funding, but a lot of the work being done in Florida to deal with agricultural nutrient issues is being funded by water management districts at the state level. Did the group address any of those resources? Will the group's report capture that? Dr. Burns stated that the local coordinator is critical to pulling together the national, state, and local resources that are available to address the issue.

Referring to the information needs of the workgroup, Mr. Ford indicated that the group also needs to know the functions of EPA—what EPA personnel can do to help address the problem. Most of the group members have a better of idea of USDA's functions.

Steven McNinch (Western Plains Energy, FRRCC member) pointed out that USDA and EPA resources are likely to change in the near future. Dr. Burns clarified that the group is asking the agencies to provide information on the FY 2010 resources; the group recognizes that resources can change when Congress approves the budget. Mr. McNinch asked if the group will recommend that changes in resources be communicated to the group. Dr. Burns said he did not think that was necessary; the group was just trying to get a handle on the water quality goals and resources in general. The group had not reached the level of detail that would require such notification.

Mr. Vester agreed that the coordinating entity will vary state to state. He thought that the SCDs would be good coordinators in Arkansas. He noted that one problem in Arkansas is that directives from EPA are sent to the state-level departments, but that information is not communicated to the farmer. The alignment and coordination are important but it also is critical to get the information down to the farmer.

Mr. Young stressed that there is a delay in the response of a watershed to the environmental practices implemented on the farm. There is a number of dairy farms and crop producers in the Finger Lakes region. One of the lakes is deep and long, and another lake is shallow and short. There are active watershed associations for both lakes and there is continual monitoring of both lakes. A great deal of energy and time were invested to reduce the phosphorus in the lakes from 24 lbs/day to 6 lbs/day. The smaller lake responded much quicker to the measures implemented on the ground. He suggested finding microcosms, like this shallow lake, where technologies can be tested and the results evaluated before the technologies are implemented across the country.

Mr. Boggs said that it is important to quantify the resources available because this impacts expectations. Unless we show that there is a disconnect between the magnitude of the changes required and the resources needed to bring about those changes, expectations can be unrealistically high. Because much of the impact comes from changing the behavior of farmers, it is important to consider current as well as future farmers. The future farmers need to have values that will translate into better stewardship of the land. Given that resources are likely to be limited now and in the future, education is an important tool for changing their behavior and for helping EPA understand the needs and limitations of the farmers.

Ms. Noble indicated that she works with the NRCS State Technical Committee Networks. These networks invite all of the different players (land grant universities, EPA, farmers, and farm organizations) to the table. She thought this might be an excellent starting point for identifying and aligning resources. The State Conservationist should be able to identify state resources and provide information about priorities. The State Technical Committee can help identify what resources are being used on water quality issues associated with agriculture. There also are local working groups that might provide useful information. Dr. Burns agreed completely.

Ms. Dilley asked if the discussion groups wanted to meet once more before the end of the meeting. Dr. Burns said that he did not think the Resources Workgroup needed to get back together; however, he asked that EPA provide a group e-mail list for each of the workgroups to make it easier to distribute notes and other materials. Ms. Kaiser replied that she had the contact list for each workgroup with the addresses, phone numbers, and e-mail addresses. Is that what you need? Dr. Burns asked that it be sent to the members electronically so that they could copy and paste the e-mail addresses from the file.

Dr. Popp thought it might be helpful for the three notetakers to share their notes with the entire Committee so each of the workgroups have some information on what the other groups are doing. Ms. Kaiser asked that the notes be sent to her after they are finalized and approved by the workgroup. She then will distribute the notes to the designated point person for each workgroup.

Mr. Elworth noted that there is about 3 months before the next meeting. The groups need to let EPA know what information they need and if they want to schedule a conference call before June. Those requests should be submitted quickly so that EPA can respond and get the workgroups what they need to move

forward. Do the groups need any additional time to clarify what they need, and when they need it, from EPA?

Mr. Treacy asked if the groups are free to have conference calls without a *Federal Register* notice. Ms. Kaiser responded that if it is a workgroup conference call, no *Federal Register* notice is required. Notice is required only if the call includes a quorum of FRRCC members (i.e., 16 of the members). She offered to help schedule and set up conference calls for each of the workgroups. Ms. Kaiser would sit in on those calls and serve as a resource as needed; she also can arrange for other EPA staff members to participate as needed.

Mr. McDonald indicated that the Partnerships Workgroup would like some time to meet before the end of the meeting to help them get organized for moving forward. He also anticipated the need for one or two conference calls before the June meeting.

Ms. Dilley suggested that the workgroups meet for 30 minutes—from 12:30 to 1:00 p.m. Then, the entire Committee will reconvene to complete the plenary discussion items and allow time for public comment.

Following the brief breakout session, Ms. Dilley asked if the workgroups had anything to add to their earlier reports. Are there any additional requests for information?

Mr. Northey said that each of the FRRCC members will receive a communication from the Partnerships Workgroup asking them to identify examples of partnerships that have worked and the lessons that were learned from that effort. Ms. Dilley asked that the Partnerships Workgroup provide some criteria on the types of examples the group is seeking. She also asked the other members to respond quickly to that request, as these examples will drive the group's work.

Ms. Dilley stated that the goal is to have the materials for the June meeting sent out about 7 to 10 days before the meeting. This should give everyone adequate opportunity to review the materials before arriving at the meeting so that they are prepared to discuss them. The June meeting will include time in the plenary sessions to discuss the materials as well as time for the workgroups to meet to formulate recommendations and prepare a work plan for the October meeting, at which the Committee will be working on the full report.

Mr. Elworth acknowledged that this is an intense schedule, but it was intentional so that the FRRCC advice could be used in this administration to shape what EPA is doing on agriculture-related water quality issues. He also noted that it was a challenge for Ms. Kaiser and others at EPA to make sure that there was broad representation of agricultural perspectives on the Committee. There are some groups that are not represented on the FRRCC. Mr. Elworth thought it might be useful to arrange a couple of panel discussions for the next meeting that would allow some of the various groups that work on water quality issues to present their views and perspectives. This adds to the credibility of the final output from this Committee in that the members will have heard from many perspectives before formulating their recommendations to EPA. In addition, it increases the openness and transparency of the Committee. He realizes that the priority for the June meeting is to allow adequate time for the discussion groups to meet and then to discuss the drafts and recommendations as a Committee, but he thought the panels might be informative. He will ask Dr. Balling to work with the Committee to identify some people who would be appropriate for these panels.

Dr. Burns thought it was a good idea and he suggested inviting someone who is coordinating a successful partnership at the local level; perhaps someone from a successful watershed association. Dr. Balling asked the members to provide him their ideas on who should be invited on the panels, as well as ideas for the panel topics. He will send out an e-mail requesting input from the members.

Mr. Boggs noted that the FRRCC members were selected because of their broad perspectives. He

expressed some concern about getting this diverse input so late in the process. If the outlines of the report sections are complete, how will this information be incorporated into the report?

Mr. Elworth explained that he was just trying to provide an opportunity for the Committee to hear more perspectives. He has received many comments from organizations that do not have direct representation on the FRRCC. The panels would be a way to get such input efficiently.

Ms. Dilley suggested that the Committee could ask the panel for its reaction to the ideas and recommendations the members are formulating for the report. The panels could serve as a sounding board for the workgroup ideas. Mr. Elworth proposed asking the panel to provide information that might be useful to the workgroups in pursuing the work plans that they have developed.

Responding to Mr. Boggs' concern about limited time to incorporate input, Dr. Balling stated that if the panels are held early in the June meeting, then the Committee would have about 4 months to incorporate their input into the report. Mr. Boggs agreed that it could work.

Mr. McDaniel asked about the deadline for the final report. Mr. Elworth replied that it would be ideal to have a nearly final draft by October 31st. Any further revisions could be circulated to the members for comment and another conference call could be scheduled if necessary. He also thought it might be possible for the entire FRRCC or a subset of the Committee to present the report to the Administrator. The Committee also may decide to present the report to USDA, if it contains recommendations relevant to that agency.

Mr. Botts asked if the intention is to assemble panels with disparate interests with respect to water quality for the June meeting. Will the panel walk through a program and process that appears to be working on the ground or will the panel discuss different pieces and parts of programs that are working? For example, there is an effort on Lake Okeechobee that involves World Wildlife, NRCS, the Water Management Districts, and the Florida Department of Agriculture. That effort could be the topic of a panel discussion. He commented that the presentations on the individual regional processes at this and the previous meeting have been informative, but they are so significantly different from each other and there is nothing that brings it all together into a single context. What are you looking for on this panel?

Mr. Elworth responded that the Lake Okeechobee effort may make a good panel discussion. The panels are an opportunity for the Committee to get additional input from groups that are not directly represented on the FRRCC. He does not want the panels to become an additional series of regional presentations. Dr. Burns said he thought it would be more useful to ask the panels to provide input into what the three workgroups have been tasked to do. The panels should be selected to provide input on science, resources, and partnerships. All three of these have to come together for any successful operation. Perhaps the panel could cover all three areas with some examples that could contribute to a model. He was not sure that those panelists, however, would be from the same groups that want to be heard in this venue.

Mr. McNinch asked if these groups would include implement dealers or seed dealers and how they interact with the land grant universities, farmers, and others. Mr. Elworth replied that those groups are among those that contacted him.

Ms. Noble thought it might be useful to have a panel that will help the Committee know the other players in the game, such as public water agencies that must deal with nutrients in the water. Why is there a focus on agriculture now after all these years of not focusing on agriculture? Are regulators dumping on agriculture? The different panelists may help the Committee understand what the water agencies are dealing with in protecting public health. She noted that groundwater in rural areas is another concern.

Mr. McDaniel added that the rural communities with their septic systems and water treatment facilities become part of the issue in the Chesapeake Bay situation. The Committee really has not addressed that issue. Mr. Elworth mentioned an article in the March 29th edition of the *Washington Post* that described

the impact of lawns on the Chesapeake Bay region. Apparently, there are as many acres in lawns and turf as in cropland in the Maryland region of the Chesapeake Bay Watershed.

Dr. Balling said he would be reaching out to the FRRCC members for suggestions for a panel or two that might cover some topics not yet addressed that would help to inform the three workgroups.

After confirming that no one had signed up to make a public comment, Ms. Kaiser adjourned the meeting at 1:45 p.m.

Action Items

- ✧ Mr. Elworth will provide the FRRCC members a copy of the letter from Bob Perciasepe and Kathleen Merrigan to the state agricultural and environmental secretaries of all six Chesapeake Bay Watershed states.

- ✧ Mr. Elworth agreed to consult with the EPA attorneys and get back to the FRRCC about the next steps for EPA regarding the Fifth Circuit Court decision on the CAFO Rule.

- ✧ Mr. Christensen agreed to provide some information on Canada's conservation efforts in the Great Lakes region.

- ✧ Ms. Kaiser will post the updated discussion group assignment list to the FRRCC Web Site when she returns to the office.

- ✧ Mr. McAfee will provide a table that identifies the FY 2010 funding for the various NRCS programs. He also will provide the funding for each of the initiatives described in his presentation.

- ✧ Ms. Noble will include the results and recommendations of the Integrated Nitrogen Committee of the Science Advisory Board on the list of additional information/resources needed by the Science Workgroup.

- ✧ The Science Workgroup members will review the summary of the first FRRCC meeting that included the TMDL presentation and then identify specific questions for EPA so that the response from the Agency EPA is more targeted to what the group is seeking.

- ✧ Mr. Elworth will provide to the Science Workgroup a list of information available on the process EPA uses to incorporate science from within and outside the Agency to assess water quality impacts and impairments. The group then will identify the items that it would like EPA to provide.

- ✧ The workgroups will submit their lists of additional information needs to Ms. Kaiser as soon possible. They also will submit to her their requests for conference calls to be scheduled before the June meeting.

- ✧ Ms. Kaiser will send via e-mail the contact list for the workgroups to the FRRCC members.

- ✧ The notetakers for each workgroup will send their finalized, approved notes for the breakout sessions to Ms. Kaiser and she will distribute them to the designated point person for each group. That individual will distribute the notes to the other group members.

- ✧ Ms. Kaiser will assist the workgroups in scheduling conference calls before the June meeting. She will sit in on those calls and serve as a resource. She also can arrange for other EPA staff members to participate as needed.

- ✧ The Partnerships Workgroup will send a communication to the FRRCC members requesting examples of partnerships that have worked and the lessons that were learned from that effort. The communication will include some criteria on the types of examples the group is seeking. FRRCC members should respond quickly to that request, as these examples will drive the group's work.

- ✧ Dr. Balling will send out an e-mail request to the FRRCC members asking them to provide their ideas on who should be invited to speak on the panels for the June meeting, as well as ideas for panel topics.

Farm, Ranch, and Rural Communities Federal Advisory Committee (FRRCC)
March 29–30, 2011, Meeting Participants

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Del Monte Foods

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Spruce Haven Farm and Research Center

Peggy Beltrone
Exergy Integrated Systems

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George J. Boggs
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Michael W. Brubaker
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