

Coming Together for Clean Water U.S. Environmental Protection Agency April 15, 2010 Meeting Summary

Overview

On April 15, 2010 EPA Administrator Lisa Jackson hosted the *Coming Together for Clean Water* conference, in Washington, DC. The forum engaged approximately 120 clean-water thought leaders from across all sectors and the country with the goal of injecting additional perspectives and attendant momentum into EPA's clean water agenda. Participants were joined by senior leaders from the EPA Office of Water, and several other EPA Offices and Regions. Specific objectives for the forum included:

- Presenting EPA thinking on critical clean water challenges and needed directions
- Obtaining perspectives on critical unmet clean water needs and challenges
- Obtaining perspectives on EPA directions and identifying how EPA can maximize clean water protections under current authorities

The forum agenda¹ reflected EPA's intent to focus discussions along two thematic lines: Healthy Watersheds and Sustainable Communities – both critical Administration and EPA priorities. In advance of the meeting, participants received a background discussion document prepared by EPA which highlighted the Agency's perspectives on challenges, needed directions, and opportunities for innovative solutions within each of these themes.² The background document also suggested specific discussion questions for each thematic area.

Peter Silva, EPA Assistant Administrator for the Office of Water, opened the meeting by thanking participants for accepting EPA's invitation, and outlining the meeting's objectives. Mr. Silva then introduced Administrator Jackson, who provided participants with an overview of the state of the nation's waters and EPA's current directions in the clean water arena.³ Administrator Jackson emphasized that the time has come to build upon the successes of the preceding four decades and create the next big leap forward on achieving clean water for all communities and all watersheds. She challenged the participants to think boldly and creatively on opportunities to accomplish this timely aspiration.

Following Administrator Jackson's remarks, Mayor Adam Ortiz of Edmonston, Maryland offered his perspectives on keys to the successful design and adoption of green infrastructure, based on the experiences of his municipality. Mayor Ortiz inspired the group with his description of how Edmonston was able to achieve multiple community benefits while cleaning up its waters and made clear that all communities could achieve similar results through values-based leadership, common sense and creative community-based planning.

Participants then divided into groups to discuss the two thematic areas of *Healthy Watersheds* and *Sustainable Communities*. A series of panelists delivered prepared presentations to introduce each thematic area, after which participants engaged in small roundtable conversations to explore the discussion questions, elicit common concepts, and share innovative approaches to the clean water challenges facing

¹ See Appendix A for the final meeting agenda

² The thematic areas, along with the highlighted challenges and suggested discussion topics, are included in Appendix B.

³ Administrator Jackson's remarks are available here:

<http://yosemite.epa.gov/opa/admpress.nsf/8d49f7ad4bbcf4ef852573590040b7f6/7cbb20030377c1af85257706005276f7!OpenDocument>

the country.⁴ These discussions took place at individual tables with approximately ten participants at each table; at the end of the thematic area discussions, table spokespersons reported on the substance of their table's conversations.

Participants then reconvened as a full group to hear a summation of key concepts and common ideas within each of the thematic areas, followed by reflections from EPA on those concepts and ideas. The meeting concluded with remarks by EPA Deputy Administrator Bob Perciasepe, who outlined a how EPA and the participants could carry forward the ideas and energy generated during the meeting.

Online Discussion Forum

As part of preparing for the Coming Together for Clean Water forum, EPA initiated a broad dialogue on the complex challenges facing the Nation's waters through an online discussion forum.⁵ The online discussion forum invited people to review the discussion document and provide their thoughts around the three topic areas for event on April 15. Specifically these topics were protecting watersheds, effective approaches to nutrient pollution, and innovative solutions for storm water pollution.

The discussion forum remained open for approximately two weeks prior to the April 15 meeting. EPA prepared a summary of comments received and distributed it to meeting participants for their consideration.⁶

Summary of Healthy Watersheds Discussion

Participants in the *Healthy Watersheds* discussion group were split into two subgroups: *The Watershed Approach* and *Exploring the Elements of an Effective Nutrient Strategy*. Participants in the *Watershed Approach* subgroup were asked to focus on how to best use watershed approaches to protect healthy and functioning watersheds, and restore, in particular, watersheds impaired by more diverse sources of pollution. Participants in the *Nutrient Strategy* subgroup were asked to consider the critical elements of an effective nutrient strategy to protect healthy and functioning watersheds, and restore, in particular, watersheds impaired by nutrients.

Panelist Presentations

To introduce the topic of Healthy Watersheds and provide initial ideas to which they could react, participants in this discussion group heard remarks from the following three panelists.

A.G. Kawamura, Secretary, California Department of Food and Agriculture

Mr. Kawamura discussed the necessity for agriculture production to expand significantly over the coming years to feed a growing world population. He described the uncertainties that agriculture operated within and laid out several challenges agriculture faced, including reliable access to rainwater or irrigated water especially in light of climate change impacts, the threats from invasive species and the need of agricultural land practices to contribute to other environmental values and functions. A key necessity for agriculture to meet these challenges and still be successful in food production is that regulatory agencies align their missions and mandates, especially so that early 'adopters' of innovative practices that can meet these multiple objectives are encouraged and supported. An incentive driven regulatory system can produce the investments needed to provide both predictability for the agricultural community and environmental benefits for the watershed.

⁴ The list of speakers and panelists, and brief biographies, are included in Appendix C.

⁵ <http://blog.epa.gov/waterforum/>

⁶ The summary of public online comments is included in Appendix D. A complete index of public comments is included in Appendix E.

Doug Scott, Director, Illinois Environmental Protection Agency

Mr. Scott described the many advantages of using a watershed approach when addressing the range of issues associated with achieving water quality. States are appropriately using the tools available to them, such as watershed permitting, Total Maximum Daily Load (TMDL) planning and water quality trading programs to achieve the goals of healthy watersheds. He observed that many of the issues affecting watersheds stem from land use practices and yet three-fourths of the nation's counties have no planning and zoning requirements. In light of that, some non-point source authority may ultimately be needed to ensure healthy watersheds. In the absence of such authority, states often 'hammer' point sources since it is easier to do so and provides more certainty by getting reductions from point sources. Such differences between non-point and point source control show the need for a national strategy and perhaps even national standards for non-point source control. He offered that such a strategy should link the issues together that need to be addressed, similar to how air quality and transportation are linked. He observed that there is greater cooperation now between state and federal agencies with watershed interests and responsibilities and stressed that more of this is needed. He acknowledged that it takes time and commitment to successfully implement a watershed-based approach and encouraged the participants to explore ways to inspire people to do so.

William D. Ruckelshaus, Chair, Puget Sound Partnership Leadership Council

Mr. Ruckelshaus noted that the issues facing Puget Sound such as land use practices, non-point source pollution, and stormwater run-off exist everywhere across the country. He emphasized the importance of focusing on how to address these issues since most observers believe that, as opposed to the 1970's when the Clean Water Act was passed and the pollutant loadings were 85% from point sources and 15% from non-point sources, now 85% of the pollutant loadings are from non-point sources and 15% from point sources. There is no public sympathy for point source polluters, there are a finite number of them and the regulatory framework to control them is in place. The situation for non-point sources is radically different. In theory, people support controlling non-point sources but do not do so in practice since it has a much greater probability of affecting their own choices and life style. The range of issues associated with non-points source is quite diverse and involve many diverse interests: the public investment to control legacy issues such as Storm Sewer Overflow (SSO) and Combined Sewer Overflow (CSO) pollution, the need to ensure that new development doesn't sprawl and manages its run-off potential on or near site, and how rural landowners become part of the solution. These challenges require a different regulatory model and governmental role than point sources. Those involved in watershed solutions need to be seen more as the customers and implementers of water quality, not as criminals preventing it. He offered that the solution must involve community and land owner engagement in understanding root causes and implementing actions that minimize downstream impacts on neighbors and other productive uses in the watershed. To do this, all interests need to 'gather around the table' to understand their watershed from a scientific and economic perspective and to work together to craft solutions that can and will be implemented. This approach can and will achieve healthy, sustainable watersheds.

Key Points and Common Themes

Following the panelist presentations, participants in each 8-10 person small table group engaged in a dialogue around Healthy Watersheds by focusing on one of the two aforementioned sub-themes. At the conclusion of the dialogue, a spokesperson from each table provided a brief overview of the key points discussed by the table. As the key points were described, several common themes emerged.

The Watershed Approach

First, participants cited a multitude of reasons in support of the watershed approach as a powerful, primary organizing force to achieve clean water goals:

- it creates direct connections with the people who live and work in a watershed and encourages people who will benefit from watershed improvements to participate in protecting and restoring the watershed;
- it harnesses the tools and focuses the resources to address the specific conditions found within different watersheds and applies those tools and resources toward real-world problems;
- it significantly enhances alignment by engaging multiple jurisdictions and mandates, and builds momentum by allowing interested parties to seek common goals;
- it enables the identification of shared and joint priorities and connects clean water activities with other multiple benefits;
- it enhances educational opportunities for all participants in the watershed approach;
- it encourages and organizes the people most affected by implementing strategies and benefitting from success to jointly determine what needs to be done by whom when.

Second, participants emphasized that information, monitoring, and research are crucial for watershed approaches to be effective. This includes a solid foundation of data to be used as a baseline against which to measure progress, to identify root causes of watershed problems, and to target key areas for action.

Third, participants discussed the Clean Water Act and its implications for promoting the watershed approach. In general, participants believed the CWA as currently configured does not constrain innovative watershed strategies, and that it was possible to build productive watershed partnerships and strategies around the basic tenets of the Clean Water Act. If the Clean Water Act were to be amended, participants suggested harmonizing various aspects of it with a holistic watershed approach, especially given its current primary emphasis on point sources.

Exploring the Elements of an Effective Nutrient Strategy

Meeting participants highlighted a series of themes related to an effective nutrient strategy:

First, participants commented on the need to tailor strategies to different nutrient sources, while acknowledging the potential for co-benefits to emerge across these strategies.

Healthy Watershed Discussion Questions *Watershed Approach Subgroup*

- Within existing statutory constraints, what actions could EPA take to achieve a watershed based, well coordinated use of current Clean Water Act regulatory and non-regulatory authorities to both identify and protect healthy watersheds and identify and restore impaired watersheds?
- What are examples of best practices and strategies that could be “scaled up” to State and national levels for greater effectiveness and wider implementation?
- Looking more mid- to long-term, what actions are needed to improve the ability to identify and protect healthy watersheds and indentify and restore impaired watersheds?

Nutrient Strategy Subgroup

- What new or underutilized practices, strategies, or programs (both regulatory and non-regulatory) hold the most promise for driving nutrient reduction progress?
- What contributions can other actors (e.g., corporate stewardship, NGO’s, States, etc.) make to achieve nutrient reductions?
- Looking more mid- to long-term, what actions are needed to create and effective basis for driving and sustaining nutrient pollution reduction?

Final

Second, participants emphasized the importance of identifying ‘best practices’ to reduce nutrient loading in watersheds, converting and diffusing them to ‘common practices.’ Participants felt that removing barriers to more rapid and wide-spread adoption of successful approaches, rather than simply converting them to numerical targets, is the most effective means of doing so. Some participants stressed the agricultural community’s reluctance to be seen as purely experimental arena.

Third, measures recording nutrient strategies’ success should be applauded even if incremental, rather than expecting zero sum gains from the beginning of a nutrient strategy.

Fourth, in the near term and long term, collaboration among diverse interests is a reliable and necessary approach. This includes technical assistance and cost sharing as important elements to implementing successful nutrient strategies.

Overarching Themes

Within both *Healthy Watersheds* subgroups, several overarching themes emerged throughout the course of the discussions:

First, a concentrated focus on implementation is required to succeed with the watershed approach and to develop effective nutrient strategies. Standards and targets can be a powerful force in driving implementation actions; however, flexibility in implementation is also critical to success.

Second, a clear set of consequences is needed in order to keep momentum on successful implementation, allocate adequate accountability and ensure sufficient and reasonable predictability with respect to desired outcomes. There is a need for a ‘backstop’, including a role for enforcement, in the watershed approach.

Third, continuous education and engagement will be critical to the success of either the watershed approach or an effective nutrient strategy since so many people will need to be engaged in implementation for water quality improvements to actually occur.

Fourth, metrics are needed, in addition to more robust tools around trading and market-based solutions. For example, participants agreed that green labeling could be an effective strategy but stressed that any green labeling program needs to be linked to real results on the ground.

Fifth, in the mid-term better assessment tools will be required, including increased knowledge of emerging contaminants and ecosystem processes.

Finally, participants in both groups advocated identifying successful projects and scaling them up to the national level. Participants mentioned Philadelphia’s triple bottom-line approach and the Chesapeake Bay cleanup programs as possible models. Participants also suggested looking outside the nation’s borders to find effective solutions to clean water problems to inform US approaches.

Summary of Sustainable Communities Discussion

Participants in the *Sustainable Communities* discussion group were asked to consider how EPA and other organizations could promote practices and approaches to reduce the volume and improve the quality of stormwater flows, ease pressure on municipal storm and waste water systems, reduce or eliminate introduction of legacy contaminants to urban waterbodies, and build resilience to climate change impacts.

Panelist Presentations

To introduce the topic of Sustainable Communities and provide initial ideas to which they could react, participants in this discussion group heard remarks from the following four panelists.

William Reilly, Founding Partner, Aqua International Partners LLP

Mr. Reilly discussed the need to find partners from multiple sectors to address water quality and supply issues. The agriculture and transportation sectors, in particular, are potential partners on projects whose objectives could dovetail with those of the water sector. Mr. Reilly also urged participants to look toward non-regulatory approaches to encourage desired behaviors; the impact of LEED standards on the building industry is an example of this type of highly effective approach.

Barbara Deutsch, Executive Director, Landscape Architecture Foundation

Ms. Deutsch described the role of landscape architecture within the context of green infrastructure, particularly the concept of landscape performance, which she defined as combining various aspects of landscape architecture to create more sustainable infrastructure and communities. Ms. Deutsch emphasized that proven models now exist to show how development can be carried out to achieve multiple benefits including desired sustainability outcomes.

Bob Zimmerman, Executive Director, Charles River Watershed Association

Mr. Zimmerman emphasized the importance of understanding how natural processes functioned prior to human-caused landscape transformation, then developing approaches that mimic those natural processes. Mr. Zimmerman outlined a series of steps to use this approach to create water infrastructure, which has proven sustainable over the long term, regardless of population growth. Such a path requires action within the next 3 - 5 years to avoid building up the type of non-sustainable infrastructure that has been developed traditionally.

Joanie Mahoney, County Executive, Onondaga County, New York

Executive Mahoney spoke about the cleanup of Onondaga Lake, which began with a consent order issued in the 1980's and is continuing today. Rather than continue with the original plan to build a series of regional treatment facilities - with serious sustainability and social justice implications - Onondaga County created five stakeholder committees to collectively develop a solution that allowed for increased use of green infrastructure. Executive Mahoney identified a series of actions that US EPA can take to assist local communities with the development of green programs and infrastructure including funding pilots to demonstrate best practices, recognizing green infrastructure as an appropriate technology, and valuing some of the important secondary benefits to green infrastructure such as air quality and aesthetics.

Key Points and Common Themes

Following the panelist presentations, participants at each table engaged in a dialogue around Sustainable Communities. At the conclusion of the dialogue, a spokesperson from each table provided a brief overview of the key points discussed by the table. Several common themes emerged.

First, the conversation around green infrastructure and its contribution to sustainable communities is well underway. There are numerous examples of successful green infrastructure projects across the country, many of which

Sustainable Communities Discussion Questions

- In light of the principles of smart growth, including green infrastructure, what practices or approaches have you seen in urban settings that have been effective in supporting achievement of the CWA goals?
- What additional practices or approaches do you believe hold potential to support achievement of CWA goals?
- What actions can EPA and others take to promote these practices or approaches in support of achievement of CWA goals?

deliver benefits beyond the water arena in sectors such as air quality and energy efficiency. Green infrastructure is a proven approach; ready for scale up.

Second, a mix of regulatory and standard-setting approaches, tools, and incentives are necessary to scale up green infrastructure adoption and move toward more sustainable communities. While a regulatory approach may eventually be important to ensure implementation of green infrastructure projects, flexibility also is required to allow innovative concepts to germinate and produce successful results. Participant suggestions ranged from streamlining permitting processes for green infrastructure projects, including (or requiring) green infrastructure or related performance standards in permits (such as the Philadelphia approach of requiring permittees to retain the first inch of rainfall on site), to “refreshing” the Clean Water Act.

Incentives and tools will shift market behavior toward more sustainable water infrastructure; by way of example participants suggested either strengthening Leadership in Energy and Environmental Design (LEED) standards for water use in buildings, or creating an entirely separate LEED-inspired standard for water infrastructure projects.

Several participants brought up the State Revolving Fund (SRF) program, commenting on the benefits of revising funding criteria under the SRF to move recipients toward green infrastructure projects. For example, lower interest rates or longer pay-back periods might be offered for green infrastructure projects. Some participants pointed out that making SRF resources available for operations and maintenance costs in smaller communities could help those communities be more willing to undertake green infrastructure projects because they would have confidence in their ability to maintain them.

Third, partnering with government agencies and private organizations in sectors such as transportation, energy, and agriculture could unlock new funding sources for projects and reap benefits across multiple sectors. Participants suggested, for example, adding assessment of water co-benefits to the criteria for energy efficiency grant programs, so projects that create multiple benefits are more likely to be funded. Convening with potential partner organizations to forge a set of common goals is an important first step in developing a multi-sector strategy.

Fourth, more research is needed to build a solid foundation of data upon which decisions can be made. Knowing the full range of social, economic, and environmental costs and benefits of green infrastructure with confidence will allow communities to make informed choices throughout their planning processes and help overcome the perception that green infrastructure might cost too much. Participants noted that pilot projects are an important contribution to this body of knowledge, even as not all pilot projects succeed or are easily replicable across communities. Even pilot projects that don't fully succeed offer valuable lessons. Participants also suggested that international approaches to sustainable water infrastructure projects should be studied for their potential domestic applicability.

Fifth, efforts to build sustainable communities must be accompanied by substantial education and outreach on multiple levels. General public education and outreach, including engagement in public dialogue about community values, is an important first step; one participant cited an example of an elementary school in New Orleans that planted an edible garden to grow fresh food for its cafeteria, and then began to use the garden as an environmental teaching tool.

The communities directly affected by green infrastructure projects, and the broader watershed communities in which they sit should be involved at the ground floor of establishing a shared vision and goals for projects. This local direction will be key to expanding support for green infrastructure and maintaining projects over time. At the same time, technical education and outreach to decision-makers and

project implementers will be necessary to communicate critical details that will ensure project and policy success. This will be particularly critical to accompany any new performance standards or incentives – a specific, practical tool kit to help local governments accomplish green infrastructure projects and associated case studies will make policy objectives real on the ground. A conversation also is needed at the federal agency level, both within EPA and between EPA and other federal agencies, to ensure that cross-sector synergies are identified and acted upon and cross-sector benefits are recognized.

Sixth, it is important to extend the potential and the benefits of green infrastructure projects to all communities and Americans. Special efforts must be made to reach out to and assist low-income and underserved communities, particularly those that may have historically borne more of the adverse impacts of previous infrastructure development.

Finally, leadership at all levels is crucial to successfully developing sustainable communities. Participants mentioned, for example, how the City of Chicago's commitment to installing a green roof on City Hall inspired other actors to follow suit. Due in part to this leadership, Chicago's skyline now has the most installed square footage of green roofs in the nation. Participants emphasized, that effective leadership takes into account the locally driven nature of approaches to sustainability and involves communities in decision-making.

Perspectives on Thematic Discussions

EPA senior leadership offered their perspectives on the Healthy Watersheds and Sustainable Communities discussions and themes.

Nancy Stoner, Deputy Assistant Administrator, EPA Office of Water, participated in the Sustainable Communities discussion group and commented on the relatively high degree of interest amongst group members in identifying and securing innovative uses of funding and incentives. In particular, participants emphasized the need to direct funding at the federal level through vehicles such as the SRF program to meet sustainability goals. The groups also talked about the need to form partnerships with organizations that invest in innovation and product development. The topic of green jobs was also of interest to the groups: how to create green jobs, how to document them, and how to develop partnerships with organizations that will drive green job creation.

Mike Shapiro, Deputy Assistant Administrator, EPA Office of Water, remarked on the high amount of overlap across the various tables in the Sustainable Communities thematic dialogue, noting that in the context of green infrastructure and its use in urban water management, the nation is at a point of remarkable opportunity. Mr. Shapiro elaborated by stating that green infrastructure is not necessarily a mature concept, but it is proven; the next step will involve a push to help accelerate it as a basic building component of every urban development or redevelopment project. Mr. Shapiro also pointed out the need, in some cases, to examine EPA's regulatory and enforcement tools so that green infrastructure can be incorporated into both existing and future permits and agreements. This examination could include more room for forgiveness and error when an organization takes on innovative projects that do not work out perfectly.

Peter Silva, Assistant Administrator, EPA Office of Water, noted several common threads throughout the conversation on Healthy Watersheds. Participants advocated the use of as many non-regulatory methods as possible, while ensuring monitoring and documenting of progress. Mr. Silva observed that participants also stressed that research and development are critical building blocks in support of healthy watersheds. As in the Sustainable Communities group, education was identified as not only an important

communication tool but also as a means of celebrating and disseminating accomplishments. Alignment of policies and programs at the local, state, and federal level is also a critical component to improving watershed health. Finally, Mr. Silva noted that many participants commented on the importance of EPA working with federal partners to break down bureaucratic silos, and to use limited resources more effectively.

Closing Remarks and Next Steps

Bob Perciasepe, EPA Deputy Administrator outlined the next steps for the clean water dialogue. Mr. Perciasepe began by describing the landmark period during the 1970's that saw the establishment of the Clean Air Act, the Clean Water Act, the National Environmental Policy Act, and the White House Council on Environmental Quality in response to the tangible, vexing pollution problems facing the nation. He then reiterated Administrator Jackson's initial challenge to the participants of how to make the next "big leap" in improving water quality rather than pursuing smaller incremental gains. Mr. Perciasepe placed this challenge in context by offering three questions:

- Looking across the nation, are we just settling for holding onto the gains that have been made?
- Are we on the threshold of understanding what we might pull together to make the next big leap?
- How do we bring benefits and improvements to all Americans, so that everyone can benefit from clean water?

Mr. Perciasepe provided additional perspective on several of the common themes that emerged throughout the day. On the subject of breaking down institutional barriers (or 'silos'), an integrated approach is the optimal method to achieve this; for example, integrating the watershed approach across multiple offices, with a strong emphasis on the affected and engaged community. As participants mentioned during the thematic discussions, a key element of success will be accountability with respect to how coordination is achieved and transparency with respect to how that accountability is allocated to achieve real demonstrable results.

Mr. Perciasepe reminded participants that the driving force to ensure progress in the clean water arena still resonates in the lofty goals of the Clean Water Act when it was enacted in 1972: restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Mr. Perciasepe mentioned a few of the tools that are used to achieve these goals - as described by participants throughout the day - such as the National Pollutant Discharge Elimination System (NPDES), TMDL and the SRF. He stated that the CWA has a great deal of flexibility but that, again, transparency and accountability are always needed so the public can understand who is responsible for what actions.

Mr. Perciasepe concluded his remarks by suggesting a series of next steps to continue the dialogue around clean water in the United States:

- First, he committed EPA to summarizing the work of the thematic discussion groups and posting them to the *Coming Together for Clean Water* website to continue the strong public dialogue emerging around this issue.
- Second, he affirmed the need for EPA to reach out to other federal government agencies such as the Department of Transportation, Interior, Energy, and Agriculture and afterward to report back on those issues and approaches that would benefit most from cross-agency partnerships.
- Finally, he stated that EPA would continue to work on new ways to integrate these concepts and ideas as posed by the participants into its clean water directions. Such a strategy or framework could be drafted by summer of 2010 and publicly shared for comments and feedback.

Final

Administrator Jackson rejoined the meeting during the closing remarks. She and Mr. Perciasepe again thanked the participants for coming together for clean water and for engaging in a most productive dialogue with each other and EPA.

The meeting adjourned at 5:00 pm.

Appendix A: Final Agenda

Coming Together for Clean Water
U.S. Environmental Protection Agency
Grand Hyatt Hotel, 1000 H Street, NW
Washington, DC
April 15, 2010

Agenda

- 7:30 Registration
- 8:30 Welcome and Summit Objectives: EPA Assistant Administrator for Office of Water and Master of Ceremonies: **Peter S. Silva**
- 8:40 State of Our Waters and Current EPA Directions: EPA Administrator **Lisa P. Jackson**
- 9:05 A Mayor's Perspective on Achieving Healthy Watersheds and Building Sustainable Communities: **Mayor Adam Ortiz**, City of Edmonston, Maryland
- 9:45 *Break*
- 10:00 Concurrent Thematic Panel Presentations
- Healthy Watersheds
- **A.G. Kawamura**, Secretary, California Department of Food and Agriculture
 - **Doug Scott**, Director, Illinois Environmental Protection Agency
 - **William D. Ruckelshaus**, Chair, Puget Sound Partnership Leadership Council
- Sustainable Communities
- **William K. Reilly**, Founding Partner, Aqua International Partners
 - **Barbara Deutsch**, Executive Director, Landscape Architecture Foundation
 - **Robert L. Zimmerman, Jr.**, Executive Director, Charles River Watershed Association
 - **Joanne Mahoney**, County Executive of Onondaga County, New York
- 11:00 Concurrent Thematic Discussions - Healthy Watersheds and Sustainable Communities
- Noon *Lunch – on your own*
- 1:15 Resume Concurrent Thematic Discussions
- 3:15 *Break*
- 3:30 Plenary Report Out on Thematic Discussions
- 4:00 Plenary Perspectives on Thematic Discussions
- 4:50 Closing Remarks: EPA Deputy Administrator **Robert Perciasepe**
- 5:30 Adjourn

Appendix B: Discussion Document

Coming Together for Clean Water

U.S. Environmental Protection Agency

April 15, 2010, Washington, DC

Background Information on Discussion Topics

Introduction

EPA Administrator Lisa Jackson will host a forum entitled Coming Together for Clean Water on April 15, 2010, in Washington, DC. The forum will engage approximately 100 executive and local level clean-water thought leaders and seeks to inject additional perspectives and attendant momentum into EPA's clean water agenda.

The objectives for the forum include:

- Presenting EPA thinking on critical clean water challenges and needed directions
- Obtaining perspectives on critical unmet clean water needs and challenges
- Obtaining perspectives on EPA directions and identifying how EPA can maximize clean water protections under current authorities

The forum agenda reflects EPA's intent to focus discussions along two thematic lines: Healthy Watersheds and Sustainable Communities – both critical Administration and EPA priorities. Within each of these themes, EPA has highlighted opportunities for innovative solutions and has identified related topics for focused discussion at the forum. Each of the thematic areas, along with the highlighted challenges and suggested discussion topics, is profiled below. EPA has prepared this material to generate thinking and discussion in advance of the forum. In particular, this text will act as the source material for an online dialogue conducted in advance of the forum. The dialogue seeks to engage a wider range of stakeholders and expertise than can attend a one-day, in-person meeting. EPA will use the perspectives and suggestions shared during the online dialogue to inform and refine forum discussions. The online discussion will also be shared in the final forum report.

Thematic Area 1: Healthy Watersheds – Restoring Degraded Waters and Preventing Impairment

Protecting and enhancing the health of watersheds is a primary function under the Clean Water Act. In this context, EPA seeks to increase the number of waterbodies being restored, increase the number of high quality waters being afforded effective protection from degradation, and enhance the overall climate resiliency of watersheds. Success will depend on integrating watershed and source water protection capabilities and ensuring the best available science is utilized to protect these resources.

Historically, many Clean Water Act programs have focused on traditional municipal and industrial sources of pollution. While there is still much to be done in this area, we now face the complex challenge of addressing more diverse sources of pollution. Agricultural and silvicultural (forestry) runoff, stormwater discharges from urban and suburban development, and hydrologic and habitat modification (such as channeling, creating dams or waterway erosion)⁷ are among the leading sources of water quality impairments in the United States. Very few of the 43,000-plus impaired waterbodies in the United States will achieve water quality standards without effective controls on these pollution sources. These pollution sources are also the most significant threat to currently unimpaired waters, as new developments are built throughout the country's less-developed areas.

⁷ In this context, hydrological modification does not include water transfers.

Healthy Watersheds

Discussion Topic 1: Watershed Approach for the 21st Century

The watershed approach provides a coordinated, holistic framework to water resources management that encourages locally led public and private sector efforts to address the highest priority problems within hydrologically defined geographic areas. To be ultimately successful, the watershed approach must fully embrace clear, unambiguous goals, program integration and adaptive management; waterbody protection, restoration, and enhancement; planning and implementation; and regulatory and non-regulatory approaches.

Waterbody protection, restoration, and enhancement

EPA has long focused on identifying impaired waters and restoring their water quality. Recently, EPA has begun efforts (the Healthy Watersheds Initiative) on the protection and conservation of healthy, functioning watersheds, which provide the ecological support system essential for achieving water quality restoration. Identifying the locations of healthy watersheds and using that information to prioritize restoration and protection efforts can provide a strategic, cost-effective approach for State water resource management. The HWI would also build State capacity to undertake assessments that could support better targeting of total maximum daily loads (TMDLs).

Planning and implementation

Planning is critical for knowing where you are, where you are trying to go, and how you will get there. Plans are required as part of State NPS programs. Local and regional geographic-based programs (e.g., the National Estuary Programs) all have management plans. The Clean Water Act calls for a continuing planning process to ensure that the latest science is used and the current environmental goals are met.

For example, following the model recently created under the Chesapeake Bay Executive Order, States would be strongly encouraged and motivated through accountability mechanisms to expand the set of authorities and tools that they rely upon to implement their programs effectively and expeditiously. These mechanisms would be directed by specific State-wide and/or watershed goals to reduce the number and extent of water quality impairments.

Regulatory and non-regulatory approaches

EPA is assessing how to use its regulatory authorities in innovative ways to tackle non-industrial sources of pollution. For example, EPA is considering revisions to its CAFO regulations to bring more point sources into the NPDES program. In developing a post-construction rule, EPA is exploring how best to control stormwater from developed areas. EPA is also evaluating how to strengthen the Municipal Separate Stormwater Sewers (MS4) programs. These efforts will not encompass all the discharges which impact watersheds, but they are important tools.

TMDLs can act as a complement to, and they often provide the essential ingredients and accountability framework for, the watershed approach. A TMDL, or total maximum daily load, developed for CWA Section 303(d) listed impaired waters, is the calculation of the maximum amount of pollutant a waterbody can receive and still meet water quality standards (which are based on the use of the waterbody as designated by the State). Included in the TMDL is the allocation of that pollutant load among the various sources of that pollutant. Hence, a TMDL can be used as the basis for an implementation or watershed plan designed to meet water quality standards and restore impaired waters. Within the TMDL process, we have the ability to use the concept of “reasonable assurance” to motivate states to put enforceable requirements or appropriate financing in place for reductions in nutrient loadings and can create a framework for cost/effective coordination between nonpoint sources or leverage point-source dischargers in the TMDL process to require offsets from nonpoint discharges.

In the mid- to long-term, EPA envisions effective protection and restoration of the nation's water resources through locally driven, watershed-based planning and implementation activities embedded in comprehensive state and tribal watershed approaches across the United States. EPA seeks a well coordinated use of the broad array of CWA regulatory and non-regulatory authorities, with states having increased accountability. For example, following the model recently created under the Chesapeake Bay Executive Order, states would be strongly encouraged and motivated through accountability mechanisms to expand the set of authorities and tools that they rely upon to implement their programs effectively and expeditiously. These mechanisms would be directed by specific statewide and/or watershed goals to reduce the number and extent of water quality impairments.

Healthy Watersheds

Discussion Questions

Topic 1: The Watershed Approach

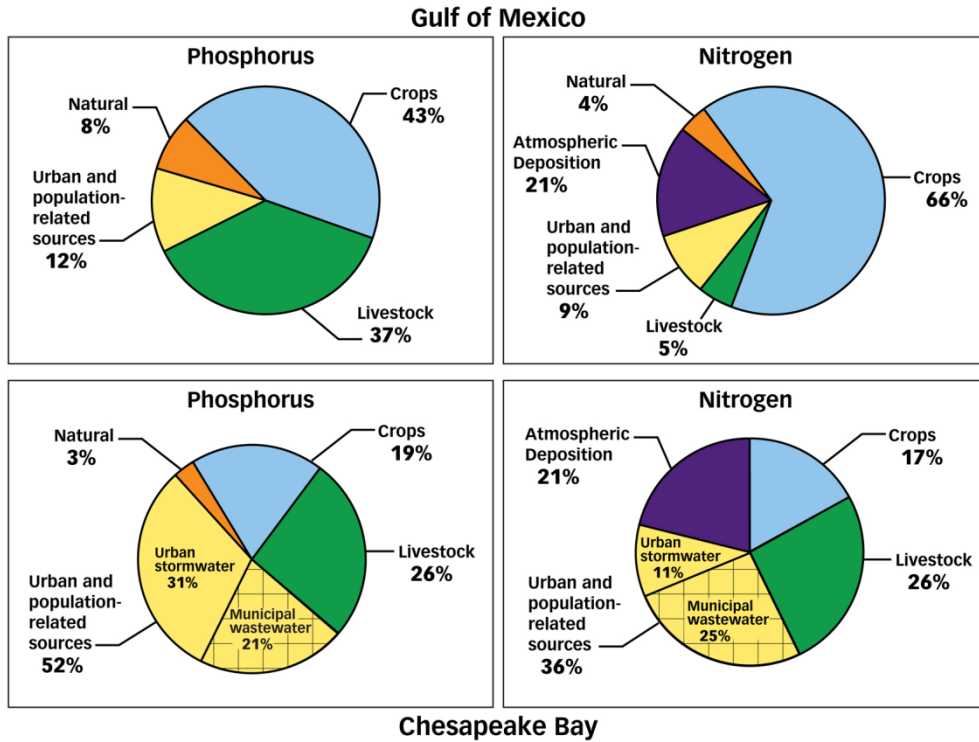
Participants are asked to focus on how to best use watershed approaches to protect healthy and functioning watersheds, and restore, in particular, watersheds impaired by more diverse sources of pollution.

- Within existing statutory constraints, what actions can EPA take to achieve a watershed based, well coordinated use of current CWA regulatory and non-regulatory authorities to both identify and protect healthy watersheds and identify and restore impaired watersheds?
- Looking more mid- to long-term, what actions are needed to improve our ability to identify and protect healthy watersheds and identify and restore impaired watersheds?
- What are examples of effective practices and strategies that could be “scaled up” to State and national levels for greater effectiveness and wider implementation?

Healthy Watersheds

Topic 2: Exploring the elements of an effective nutrient strategy

Excess nutrients have been and are anticipated to remain of major concern and high priority for action as we address the challenges of impaired watersheds. The amount of nutrients entering the nation's waters has dramatically escalated over the past 50 years, and nutrients now pose significant water quality and public health concerns across the United States. In terms of growing drinking water impacts, expanding impairment of inland waters, and compromised coastal estuaries, nitrogen and phosphorus pollution has the potential to become one of the costliest, most difficult environmental problems faced in the 21st century. Nutrient runoff from agriculture and developed areas is associated with the continued existence of the hypoxic zone in the Gulf of Mexico, as well as the increasing number of oxygen-starved areas around the nation's coasts. These zones sustain little or no marine life – with significant loss of marine life and damage to coastal and marine ecosystems. Even in the absence of escalating nutrients, warmer air and water temperatures resulting from climate change will promote algal blooms and increase bacteria and fungi, reduce dissolved oxygen levels, and increase concentrations of pollutants such as phosphorus. The sources of nutrient pollution are varied as shown in the charts below.



Taking stock of the effort to date, EPA believes that there has been a substantial amount of work completed and states have, over time, increasingly invested in the steps necessary to reduce nutrient pollution. More remains to be done, however, to make the progress necessary to reduce current nutrient loadings to waters and prepare for the substantial predicted increases in nutrient loadings associated with both significant population growth over the next 40 years, as well as the multiplying effects that warming waters due to climate change will have on nutrients.

In response to this challenge, EPA, with its state partners, has been engaged on several fronts and is actively pursuing the development of a comprehensive, national nutrient strategy. For example, since 1998, EPA has strongly advocated for the adoption of numeric nutrient water quality criteria into state standards to better manage excess nutrient enrichment in surface waters. EPA has invested substantial resources to strengthen state capacity and identify opportunities to help states make progress in the adoption of numeric nutrient water quality standards. Recently, through the State-Federal Nutrient Innovations Task Group, EPA has coordinated with the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) and the Association of State Drinking Water Administrators (ASDWA) to address nutrient impacts nationally. The Task Group’s August 2009 report to EPA Administrator Jackson stresses that current efforts are undermined by the lack of a common framework of responsibility and accountability for all point and nonpoint sources within and across watersheds, and identifies a range of possible existing and new tools and authorities for EPA consideration.

In light of the need for point and nonpoint source nutrient reductions, to date, 15,000 nutrient-related impairment listings in 49 States have been developed, even as federal authority over state development of effective, enforceable, and transparent nonpoint source accountability is challenging. Through the CWA Sections 303 and 319 grant programs, EPA requires development of watershed plans directed at nonpoint source control and supports a wide variety of other activities including technical assistance, financial assistance, education, training, technology transfer, and demonstration projects. EPA also chairs and manages the

Mississippi River/Gulf of Mexico Watershed Nutrient Task Force, a partnership of 15 state and federal agencies that work together to reduce, mitigate, and control hypoxia in the northern Gulf of Mexico and improve water quality in the Mississippi/Atchafalaya River Basins. The Gulf Hypoxia Task Force relies on voluntary programs from states and landowners to achieve nutrient reductions throughout the Mississippi River Basin. Further, Section 6217 of CZARA, the Coastal

Nonpoint Pollution Control Program, is jointly implemented by EPA and the National Oceanic and Atmospheric Administration (NOAA). Section 6217 requires states to develop coastal nonpoint pollution control programs, approvable by EPA and NOAA, that are "in conformity" with the EPA-published management measures guidelines. CZARA also requires state coastal nonpoint pollution control programs to include "enforceable policies and mechanisms that are adequate to ensure" the implementation of the management measures.

There are also a variety of both regulatory and non-regulatory approaches to addressing nonpoint source pollution from excess nutrients being explored and practiced across the country and internationally. For example, US Department of Agriculture recently announced a new initiative to improve water quality and overall health of the Mississippi River Basin with a \$320 million investment over four years targeted at high-priority watersheds based on nutrient discharges in a number of states along the Mississippi and Ohio River basins (http://www.nrcs.usda.gov/PROGRAMS/pdf_files/mrbi_factsheet.pdf).

There are also many local and regional programs that have provided isolated progress. More widespread deployment of these practices – in a context where substantial and broader challenges remain – holds the potential to enable further water quality progress. In California, the Land Stewardship Institute's Fish Friendly Farming Environmental Certification Program is an incentive-based program for creating and sustaining environmental quality and habitat on private land (<http://www.fishfriendlyfarming.org/>). The Ohio Environmental Protection Agency implements a voluntary nutrient trading program used by point and nonpoint sources to generate and trade nutrient reduction credits (http://www.epa.ohio.gov/dsw/WQ_trading/index.aspx). In Florida, the Impaired Waters Rule (IWR) brings many nonpoint source polluters under a regulatory framework based on the preparation of a watershed Best Management Action Plan. Additionally EPA has proposed water quality standards in the State of Florida that would set a series of numeric limits on the amount of phosphorus and nitrogen pollution that would be allowed in Florida's lakes, rivers, streams, springs and canals. In Pennsylvania, the REAP (Resource Enhancement and Protection Act) program gives qualifying farmers a state tax credit equal to 50 to 75 percent of the cost of eligible conservation practices—up to \$150,000 per farm. This tax credit is a dollar-for-dollar tax reduction that can be applied to business and individual state taxes, and differs from a tax deduction, which only reduces taxable income. Farmers could use the tax credit to reduce their own tax bill (carrying it over for up to 15 years) or sell it to another taxpayer for cash. The Wisconsin Assembly approved a bill (A.B. 3) on February 24, 2010, that would prohibit the application of fertilizer containing phosphorus to lawns, golf courses and other grassy turf areas that are mowed (<http://www.legis.state.wi.us/2009/data/AB3hst.html>). Successful efforts at the regional or local watershed level may be models for future EPA programs.

Healthy Watersheds

Discussion Questions

Topic 2: Exploring the elements of an effective nutrient strategy

Participants are asked to consider the critical elements of an effective nutrient strategy to protect healthy and functioning watersheds, and restore, in particular, watersheds impaired by nutrients.

- What new or underutilized practices, strategies, or programs (both regulatory and non-regulatory) hold the most promise for driving nutrient reduction progress?
- What contributions can other actors (e.g., corporate stewardship, NGOs, States, etc.) make to achieve reductions?

- Looking more mid- to long-term, what actions are needed to create an effective basis for driving and sustaining nutrient pollution?

Thematic Area 2: Sustainable Communities – Tackling Wet Weather Management Challenges

Along with other federal agency partners such as the Departments of Transportation (DOT) and Housing and Urban Development (HUD), EPA has made improving the economic, environmental and social sustainability of communities a major priority. In this context, EPA seeks to enable the emergence of integrated, coordinated, sustainable community investments and actions (e.g., land use practices and patterns) that increase the prospects for and lowers the difficulty of meeting CWA goals. This would enable communities to deliver clean and safe water reliably, affordably and sustainably, and at the same time be climate resilient.

Currently, many of the nation’s urban waters are impaired by pathogens, excess nutrients, and contaminated sediments that result from sanitary sewer and combined sewer overflows and polluted stormwater runoff from impervious urban landscapes. During precipitation events (wet weather), increases in stormwater flows from residential, commercial and transportation development have led to water quality and habitat degradation in virtually all urban streams. With hydrologic changes stemming from climate change, precipitation events are becoming more extreme, creating more risk of stormwater or sewer overflows and overland runoff. Degraded water quality in these waterbodies puts those who recreate or consume fish in these areas (often despite advisories) at risk, and limits quality of downstream water sources.

Communities living nearby often view these urban waters as polluted beyond hope of restoration. However, where neighboring communities view their urban waterways as valuable and worth restoring, and when they have found opportunities to personally contribute to -- and benefit from – environmental improvements, they have become active agents for sustained restoration efforts. Community benefits from urban water restoration can include educational opportunities, skills development, job training, and improvements to neighborhood economies and livability. By reframing restoration efforts, EPA has the opportunity to harness the stewardship efforts of the large populations of residents who are closest to these urban waters.

Sustainable Communities

Discussion Topic: Development for the 21st Century

The nature and pattern of development (and re-development) holds the key to effectively addressing the quality of urban waterways. Undertaken with water quality goals in mind and an appropriate mix of incentives, development and re-development can reduce the volume and improve the quality of stormwater and wet weather sewer flows, take pressure off municipal storm and wastewater systems, reduce or eliminate the introduction of legacy contaminants to urban waterbodies, and bring people together with their waterways and waterfronts.

With this in mind, EPA is actively engaged in promoting local development and land use practices and patterns that support achievement of CWA goals. EPA is working to expand and institutionalize the use of up-front water infrastructure planning that considers a full range of infrastructure alternatives, including “green” and conservation alternatives, to ensure that the right investments are made at the right time – and at the least life-cycle cost. Recognizing that sustainable water infrastructure is part of a sustainable community, EPA is fostering collaboration between the water sector and other infrastructure-heavy sectors, such as transportation and housing, to ensure investments work together. EPA is working with States to identify ways their State Revolving Funds can promote a “fix it first” approach that encourages water infrastructure re-investment in existing transportation and housing corridors, and that discourages inefficient sprawl.

EPA is also working closely with state and local agencies to promote low impact development practices and green infrastructure programs that can reduce water quality degradation by replacing or supplementing conventional stormwater management practices with practices that infiltrate, evapo-transpire, or use rainfall on site. Better managed runoff events will also reduce combined sewer overflows. Cities like Philadelphia, Seattle, Portland, and Chicago are finding that techniques like green roofs, rain gardens, and green street techniques not only manage stormwater and CSOs effectively but also offer opportunities for community action and local benefits such as livability and employment. The Section 319 nonpoint source program (and recently the American Recovery and Reinvestment Act) has provided many millions of dollars for the implementation of such practices, including work in disadvantaged communities. The NPDES permits program has been working with States and cities to upgrade municipal permits to increase the focus on these new techniques, and the Office of Water is developing new rules to significantly reduce stormwater flows from developed and redeveloped sites which will also reduce CSOs. EPA has also recently published guidance for federal agencies under Section 438 of the Energy Independence and Security Act (<http://www.epa.gov/owow/nps/lid/section438/>). The Office of Water as a whole is also working to integrate climate change considerations throughout water programs, as documented in the *National Water Program Strategy: Response to Climate Change*.

Building on the above and other efforts in the Brownfields, Superfund, and Environmental Justice programs, EPA is now developing a new Urban Waters initiative focusing on engaging urban communities, particularly disadvantaged communities, in revitalizing their local water resources and the surrounding land. EPA is leveraging existing programs and forming a federal partnership to restore water quality by engaging individuals who may not necessarily consider themselves environmentalists in the restoration of America's urban waters. EPA will partner with governmental and non-governmental organizations to provide modest resources and technical assistance to model clean-up programs, especially those linking environmental restoration to community priorities.

Sustainable Communities

Discussion Questions

Participants in this group are asked to consider how EPA and others can promote practices and approaches to reduce the volume and improve the quality of stormwater flows, take the pressure off municipal storm and waste water systems, reduce or eliminate introduction of legacy contaminants to urban waterbodies, and build resilience to climate change impacts.

- In light of the principles of smart growth, including green infrastructure, what practices or approaches have you seen in urban settings that have been effective in supporting achievement of the CWA goals?
- What additional practices or approaches do you believe hold potential to support achievement of CWA goals?
- What actions can EPA and others take to promote these practices or approaches in support of achievement of CWA goals?

Appendix C: Panelist & Speaker Biographies

Coming Together for Clean Water
U.S. Environmental Protection Agency
April 15, 2010, Washington, DC
Speaker Biographies

Barbara Deutsch

Barbara Deutsch, ASLA is the Executive Director of the Landscape Architecture Foundation (LAF), a 501c3 charitable organization founded in 1966 in response to the urgent need for landscape architects to be a greater part of the solution to the environmental crisis. Landscape architects design for natural resources, natural processes, and people. LAF's mission is to protect, enhance, and improve the environment through research and scholarship for sustainable landscape solutions and the "landscape architecture approach" or integrated planning and design.

Prior to joining LAF in May 2009, Ms. Deutsch worked on re-greening cities from Hong Kong to Washington, DC. She worked on several large, inter-disciplinary landscape planning and design projects for Hong Kong Government to support projected population increases including: new town planning and development, infrastructure works, and conservation strategies.

She was principal investigator for the award-winning research grant for EPA: *The Green Build-out Model: Quantifying the Stormwater Management Benefits of Trees and Green Roofs in Washington, DC*. The grant used a collaborative and participatory process with key stakeholders. It found that green infrastructure could make significant reductions in stormwater runoff and combined sewer overflow events in DC and has become a seminal tool to find the optimal balance between gray and green infrastructure.

Most recently Ms. Deutsch served as a sustainability consultant for BioRegional, working on a team with Hunt Development Companies to propose the District of Columbia's first Zero-Carbon, Zero-Waste, Net Zero-Water, and 100% Sustainable Lifestyles community at Hill East.

Before discovering the profession of landscape architecture, Ms. Deutsch worked for IBM as a Systems Engineer, Marketing Representative, and Marketing Programs Manager, and earned six 100% Club and two Golden Circle Awards. Ms. Deutsch loved marketing but wanted to apply her systems thinking and skills to promote the environmental issues important to her.

Ms. Deutsch earned a BS in Commerce from the University of Virginia, a Masters in Landscape Architecture from the University of Washington, and was a 2006 Loeb Fellow at the Harvard Graduate School of Design.

A.G. Kawamura

Governor Schwarzenegger appointed A.G. Kawamura as secretary of the California Department of Food and Agriculture in November 2003. Secretary Kawamura is a produce grower and shipper from Orange County, where his family grows strawberries, green beans and other specialty crops. As an

urban agriculturist, he has a lifetime of experience working along and within the expanding urban boundaries of Southern California.

He began his agricultural career as a beekeeper, and was a roadside stand operator before entering into his family business as a produce salesman for Western Marketing Company of California. In 1978, he managed sales and exports for eight years before transitioning to the production side of the company. In 1996, Western Marketing Company became Orange County Produce, LLC, which he founded with his brother, Matthew. He managed the company's growing and harvesting operations.

Secretary Kawamura has a long history of public service to his community and to agriculture. At the time of his appointment, he was a member of the California State Board of Food and Agriculture, where he had served since 1998. He is the immediate past chairman of the Agricultural Technical Advisory Committee, a USDA advisory position for international trade.

In addition, Secretary Kawamura has served as president of the Orange County Farm Bureau, chairman of Western Growers Association, and president of the Orange County Agricultural Association. He has also served as a director on the boards of the California Strawberry Commission and the California Celery Research Advisory Board. He was a founding trustee of Sage Hill High School in Orange County.

Secretary Kawamura is widely known for his passion for education and his commitment to the issues of hunger and nutrition. As president of Orange County Harvest, a nonprofit promoting agricultural partnerships with organizations combating hunger, he arranged for thousands of volunteers to harvest and glean over a million pounds of produce for area food banks. His nationally recognized urban projects, such as the 7-acre Common Ground project in San Juan Capistrano and 4-acre Incredible Edible Park in Irvine, are agricultural paradigms linking nutritional education and interaction with local schools and food banks.

Secretary Kawamura has received numerous awards and recognition for his work in and outside the agricultural community. Highlights include:

- Pacific Pioneer Award: Japanese American Cultural and Community Center, 2004
- Orange County Second Harvest Food Bank: Humanitarians Against Hunger Award, 2000
- California Hunger Action Coalition: Hunger Fighter Award, 2000
- Sustainable Northwest: Founders of a New Northwest, 1999
- California Association of Nurserymen: Education Award, 1995-96
- California Junior Chamber of Commerce: Outstanding Young Californian, 1991
- Secretary Kawamura has a bachelor's degree in comparative literature from U.C. Berkeley.

Joanne Mahoney

As a lifelong resident of Onondaga County, Joanie Mahoney recognizes and values the wealth of resources available to Central New York. Born into a large family, Joanie grew up on the southwest side of Syracuse and graduated from Corcoran High School. Since being elected Onondaga County's first female County Executive in 2007, Joanie has made the cleanup of Onondaga Lake and government modernization two of her top priorities. The County's new green approach to the cleanup of Onondaga Lake is already paying dividends, and in 2008 Clay residents voted to merge their police department with the county saving taxpayers \$1 million.

Since graduating from the Syracuse University School of Management and the Syracuse University College of Law, County Executive Mahoney worked first in private practice before becoming a criminal

prosecutor with the Onondaga County District Attorney's Office. Prior to being elected County Executive, she served on the Syracuse Common Council for four years.

County Executive Mahoney resides in the Town of DeWitt. She has been married to Marc Overdyk since 1994, and they have four sons.

Mayor Adam Ortiz

Adam Ortiz serves as Mayor of Edmonston, a small working class town outside of Washington DC, in Prince George's County, Maryland. Under his administration, he has boosted public safety and cut crime in half, established financial accountability, and ended years of flooding by securing the construction of a state-of-the-art \$6 million flood control system. Mayor Ortiz has hired bilingual staff in all departments to improve community accessibility to services, and launched a Green Agenda – reforming services and programs in an environmentally responsible manner including the construction of the east coast's first Green Street with strong support from President Obama's administration. He also negotiated a landmark agreement with the Wal-Mart Corporation, prohibiting guns, ammunition and other community-oriented measures for a local store.

He is a board member of the Port Towns Community Development Corporation, the Anacostia Watershed Society and President of the Maryland Mayors Association. His position as Mayor is a volunteer position, and serves in a full time capacity as Deputy Chief of Staff for Maryland Lieutenant Governor Anthony Brown. He was born and raised in New York and has a B.A. with Honors in Political Science from Goucher College, Baltimore.

William K. Reilly

William K. Reilly is a Founding Partner of Aqua International Partners, LP, a private equity fund dedicated to investing in companies engaged in water and renewable energy, and a Senior Advisor to TPG Capital, LP, an international investment partnership. Mr. Reilly served as the first Payne Visiting Professor at Stanford University (1993-1994), Administrator of the U.S. Environmental Protection Agency (1989-1993), president of the World Wildlife Fund (1985-1989), president of The Conservation Foundation (1973-1989), and director of the Rockefeller Task Force on Land Use and Urban Growth from (1972-1973). He was head of the U.S. delegation to the United Nations Earth Summit at Rio in 1992.

Mr. Reilly is Chairman Emeritus of the Board of the World Wildlife Fund, Co-Chair of the National Commission on Energy Policy, Chairman of the Board of the ClimateWorks Foundation, Chairman of the Advisory Board for the Nicholas Institute for Environmental Policy Solutions at Duke University, Chairman of the Board for the Global Water Challenge and a Director of the Packard Foundation and the National Geographic Society and a member of Gov. Schwarzenegger's Delta Vision Blue Ribbon Task Force. He also serves on the Board of Directors of DuPont, ConocoPhillips, Royal Caribbean International and Energy Future Holdings, for which he serves as Chairman of the Sustainable Energy Advisory Board. In 2007 Mr. Reilly was elected to the American Academy of Arts and Sciences. He holds a B.A. degree from Yale, J.D. from Harvard and M.S. in Urban Planning from Columbia University.

William D. Ruckelshaus

William D. Ruckelshaus is currently a Strategic Director in the Madrona Venture Group, formed in 1999 and a principal in Madrona Investment Group, L.L.C. (MIG), a Seattle based investment company,

formed in 1996. He was Chairman/CEO of Browning-Ferris Industries from 1988 to 1995 and Chairman from 1995 to 1999.

Born in Indianapolis, Indiana on July 24, 1932, Mr. Ruckelshaus graduated cum laude from Princeton University in 1957 with a Bachelor of Arts degree and obtained his law degree from Harvard University in 1960. He began a career in law with the Indianapolis firm of Ruckelshaus, Bobbitt and O'Connor in 1960 and was associated with the firm for eight years. In addition, he was Deputy Attorney General of Indiana from 1960 through 1965. He was a member of the Indiana House of Representatives and its majority leader from 1967 to 1969. The President appointed him for the years 1969 and 1970 as Assistant Attorney General in charge of the Civil Division for the U.S. Department of Justice.

Mr. Ruckelshaus became the United States Environmental Protection Agency's first Administrator when the agency was formed in December 1970, where he served until April 1973. In April 1973 he was appointed acting Director of the Federal Bureau of Investigation, and in the same year was appointed Deputy Attorney General of the United States Department of Justice.

From 1974 through 1976, Mr. Ruckelshaus was a senior partner in the Washington, DC law firm of Ruckelshaus Beveridge & Fairbanks. He joined Weyerhaeuser Company in Tacoma, Washington as Senior Vice President for Law and Corporate Affairs from 1976 to 1983 and was responsible for policy setting and coordination of the company's key external relationships and its legal service functions. In 1983, Mr. Ruckelshaus was appointed by President Reagan as the fifth EPA Administrator until 1985. He served until joining Perkins Coie in 1985, a Seattle based law firm.

Currently, he is Chairman of the Board of Isilon Systems and on the board of TVW. From July 1997 to July 1998, President Clinton appointed him as the U.S. envoy in the implementing of the Pacific Salmon Treaty and in 1999 he was appointed by Governor Gary Locke as the Chairman of the Salmon Recovery Funding Board for the State of Washington and in May, 2007 appointed by Governor Christine Gregoire as Chairman of the Leadership Council of the Puget Sound Partnership. On June, 2001, he was appointed by President Bush as a member of the Commission on Ocean Policy which was created by Congress in 2000.

He currently serves on the Board of numerous profit and non for profit organizations, i.e., The Energy Foundation, Center for Global Development and founding Director of the Initiative for Global Development.

Mr. Ruckelshaus and his wife, Jill, reside in Seattle, Washington. They have five children and 12 grandchildren.

Doug Scott

Doug Scott was appointed Director of the Illinois Environmental Protection Agency effective July 1, 2005 and continues to serve under the leadership of Governor Pat Quinn.

From 1995-2001 he served as an Illinois State Representative for the 67th District. He served on the Energy and Environment Committee, and was a member of the committee that rewrote the States' electric utility laws.

Doug Scott was elected to the Office of the Mayor of Rockford in April 2001 and served a four-year term. In addition to being elected to leadership positions in the Illinois Municipal League, United States Conference of Mayors and national League of Cities, Scott has served as President of the Illinois Chapter of the National Brownfields Association.

Director Scott took over leadership of the nation's oldest state environmental agency on the 35th anniversary date of the Illinois EPA's start on July 1, 1970. He is committed to maintaining and enhancing the Agency's key role in protecting our air, land and water making government more accountable and accessible to citizens and the regulated community, including local governments and business. Director Scott chaired the Illinois Governor's Climate Change Advisory Committee, which made recommendations on reducing greenhouse gas emissions in Illinois, and serves on the Midwestern Governors' Association panel developing a regional cap-and-trade system. He also served two years as Chair of the Air Committee for Environmental Council of the States (ECOS), currently is chairman of The Climate Registry Board of Directors and also serves on the US EPA Environmental Financial Advisory Board and the Keystone Foundation Energy Board.

Director Scott was born in Rockford in 1960 and with honors from the University of Tulsa in 1982, and then received a law degree with honors from Marquette University in 1985. Doug served as Assistant City Attorney and City Attorney for Rockford from 1985 to 1995.

Robert L. Zimmerman, Jr.

Robert Zimmerman, Jr., is the Executive Director of the Charles River Watershed Association. Founded in 1965, CRWA is a private nonprofit environmental advocacy, research, and education group charged with using science and the law to protect and enhance the Charles River and its watershed. Zimmerman joined CRWA in 1991. Over the past 17 years, CRWA has become a leading authority on the science of how water works in urban watersheds, and has developed projects that address issues such as stormwater pollution, water quality, low instream flow, nutrient loading, habitat protection and restoration, community zoning, suburban sprawl and sustainable development. CRWA has also led initiatives that reformed Massachusetts' park and open space agencies, and protected essential urban parkland while fundamentally changing the process used to dispose of protected open space. Through litigation, CRWA has won revisions to state regulations that protect water resources, requiring a more careful balance between human demand and natural resource need.

A leader in the state's environmental community, Zimmerman seeks non-traditional solutions to old environmental problems. He has been appointed by four governors to the Massachusetts Water Resources Commission, and represents the environmental community on several statewide task forces. He is currently a member of the River Network Board of Directors and the MIT Seagrass Advisory Board.

Prior to working at CRWA, he co-founded, and was the Headmaster of, the National Sports Academy at Lake Placid, a boarding school offering a complete preparatory curriculum and world-class training program for winter sports athletes. He earned an MA in English, and a BA in English and History from Central Michigan University.

Appendix D: Summary of Online Public Comments

Coming Together for Clean Water

U.S. Environmental Protection Agency

April 15, 2010, Washington, DC

Blog Comment Summary

EXECUTIVE SUMMARY

Education. Coordination. Enforcement. These three words reflect what the public would like to see from the Environmental Protection Agency and its partners in taking on watershed protection, nutrient pollution, and stormwater runoff.

Throughout the comments comes a call for outreach, and helping individuals realize the impact of their actions—whether fertilizing the lawn or fertilizing their soybean fields—can have on our water. Helping create a sense of ownership among citizens for their water resources can also foster a motivation to keep them healthy.

To widen participation in EPA's Coming Together for Clean Water event, the Office of Water established an online discussion forum to gather public input on the conference's three main topics. In the two weeks the forum was open, we received hundreds of thoughtful, practical comments from a variety of water professionals and concerned citizens. The Agency has attempted to summarize as accurately as possible comments received in this report. This report does not represent the views of EPA.

Topic 1: The Watershed Approach

Commenters were prompted with the following questions:

- If you have experience with protecting watersheds, what has worked and what hasn't?
- How can we protect and improve watersheds given the challenges of various sources of pollution?
- What examples of effective practices and strategies can be "scaled up" to state and national levels for greater effectiveness and broader use?

The responses reflected a wide array of experiences with water issues, from engineers to state and local environment officials to geographically based activists. Many offered specific tactics for keeping watersheds healthy, such as mandating riparian barriers or corridors, or constructing drainage areas near developments. In addition to these specific suggestions, several themes arose. Many people expressed that the watershed approach, despite some flaws, was an effective way to protect our waters.

Many comments touched on the role of agriculture in keeping pollution out of watersheds. Most of these saw agriculture as a source of much pollution, both from soil nutrients and manure runoff. While several people pointed to large Concentrated Animal Feeding Operations (CAFOs) as the main source, others acknowledged that these operations were actually the most heavily regulated and suggested small and medium sized concerns should be treated similarly. Many people advocated to treat agriculture pollution as a point source in order to more thoroughly regulate and control it.

Another theme related to the unwieldy nature of watersheds, which often cross many political jurisdictions. Given their size, addressing watershed health on a county-by-county or even state-by-state basis is unrealistic. As several commenters mentioned, it's impossible to enforce one standard when developers in the next city over don't have to follow the same standards or are allowed to dump whatever they want into the river. Many pleaded for increased coordination of local, state, federal, and non-governmental policies and actions to allow for more cohesive planning and implementation.

A final common thread was for the need to instill a sense of ownership of a watershed in the people who live and work within its boundaries. Many commenters saw this as the key to sustained, realistic watershed protection. When people realize their actions affect the water they use and rely on, commenters argued, they will be more conscientious about their lifestyle choices. For all the common-sense suggestions and success stories, many people acknowledged keeping a watershed healthy or restoring one are vast, complicated tasks that require energy, resources, and commitment from a variety of entities to resolve.

Frequently mentioned specific topics: regulating/banning lawn chemicals, encouraging the use of riparian barriers, stopping application of sewage sludge, no-till farming, removing dams to restore natural hydrology

Topic 2: Managing Pollutants from Nutrients

Commenters were prompted with the following questions:

- What critical elements need to be included in an effective nutrient strategy?
- How should the strategies differ for protecting healthy and functioning watersheds versus those that need to be significantly restored due to previous pollution?
- What has worked for your organization, state, or tribe in controlling nutrient pollution? What hasn't?

One topic dominated throughout the discussion of nutrients: agriculture. While most commenters saw CAFOs and other large agriculture concerns as the prime source of nutrient pollution, some came to the defense of the farming community and lauded them as partners in environmental stewardship.

Many expressed a perception that the agriculture industry was treated differently from other polluting industries, or that it benefits from "loopholes" in Clean Water Act regulations. One such frequently mentioned exception involved the redistribution of manure. Many felt CAFOs should be accountable for the final use of any manure, even if sold to another party.

Several comments pointed out that large-scale farms operate much like any other factory or business and produce similar or even greater amounts of pollution, yet are not regulated as stringently. Many called for agriculture to be treated as a point source and regulated as such, or for stricter enforcement of current laws (and levy harsher fines as a result). Others, though, pointed out CAFOs are already highly regulated; smaller farms should be subject to similarly strict rules.

Some people argued for a more cooperative approach, one that sees farmers as stewardship partners rather than adversaries. Concerted outreach and education could help them realize the consequences certain practices have on water, and how alternative methods and best-management practices would be better for their land and crops as well as our natural resources. Several people presented a different side of the "partner" theme, arguing that farmers have a vested interest in keeping nutrients in the soil and are already doing everything they can in that regard.

Other concerns regarding nutrients included the role of enforcement and making current regulations more effective. Many also touched on the importance of TMDLs (Total Maximum Daily Loads) for impaired waters. Many people complained EPA is good at developing TMDLs, but not so accomplished in assuring their implementation and monitoring them. With stringent and consistent use of TMDLs and other existing regulations, they argued, we could solve many nutrient-related problems.

Frequently mentioned specific topics: agriculture, require/promote phosphate-free fertilizer, repair/improve infrastructure, treat for nutrient pollution in wastewater

Topic 3: Stormwater Pollution

Commenters were prompted with the following questions:

- In light of the principles of smart growth, including green infrastructure, what practices or approaches have you seen in urban settings that have been effective in supporting achievement of the CWA goals?
- What additional practices or approaches do you believe hold potential to support achievement of CWA goals?
- What actions can EPA and others take to promote these practices or approaches in support of achievement of CWA goals?

Many contributors advocated prevention—through the use of green infrastructure and low-impact development—as the best way to deal with stormwater pollution. Again, greater variation was seen in how best to achieve this.

Many called for businesses to somehow account for the natural groundcover they remove or replace, and to more generally take responsibility for their stormwater. The use of specific techniques such as green roofs, rain barrels, or porous pavement were frequent suggestions. Commenters were split on whether businesses should be required or merely encouraged to adopt such practices. Those of the former opinion want to see cities incorporate stormwater regulations into their building codes and permits, while those advocating voluntary methods discussed cost-sharing or incentives and direct outreach.

Other commenters discussed what one referred to as “smaller laws”—those aimed at individuals, such as littering and pet waste removal. By reaching out to homeowners and community members, the water sector can help these groups understand their role in preventing stormwater pollution.

As in other sections, the permit process and enforcement was a frequent issue in managing stormwater. Several people commented that National Pollutant Discharge Elimination System (NPDES) permits were inconsistently and even unfairly enforced. One business owner and permit holder shared his frustrations over being a frequent target of enforcement officials, while a neighboring business that did not hold a stormwater permit was ignored.

Above all, contributors see stormwater as a local issue, one that cities and municipalities must control. They also see it largely as a positive opportunity, where businesses and homeowners can become partners in pollution prevention through outreach and education. By showing residents how their community benefits from controlling stormwater, more people will be willing to contribute to the effort.

Frequently mentioned specific topics: low-impact development, require developments to retain stormwater onsite, build stormwater requirements into building permits, demonstrate cost savings of LEED or low-impact development to businesses.

Appendix E: Index of Public Online Comments

Coming Together for Clean Water
U.S. Environmental Protection Agency
April 15, 2010, Washington, DC
Online Discussion Forum Comment Index

This appendix lists comments received on three areas presented to the public through the online discussion forum for Coming Together for Clean Water. Comments are shown alphabetically by topic, with the frequency of that topic listed after it. Topics which were discussed in a variety of contexts are further organized into sub-topics, much like a book index.

Topic 1: The Watershed Approach

Air deposition of water pollutants, account for—1

Citizen monitoring programs, establish—3

Clean Water Act (CWA)

 Revise—1

 Restoration of following Supreme Court decisions *SWANCC* and *Rapanos*—5

 Expand—2

 --to include protection of habitat

 --beyond “navigable waters”

 Section 303d revision—2

 --States without budget for remediation are reluctant to list impaired waters

 --Disincentive to delist because funding based on listed streams

 Rectify disconnect with Safe Drinking Water Act—1

 Coordinate all sections of—1

 Poorly suited to watershed approach—1

Climate change, account for—1

Conservation drainage, increase use of—1

Coordination

 Of jurisdictions/organizations across watersheds—6

 Of funding sources/distribution—3

 Of regulations/policies/permits—5

 Of data—3

 Between freshwater and salt water regulation—1

 Within EPA/federal programs—1

Dam removal—4

Designated use, do not allow states to weaken—1

Downstream uses of waterways, account for—1

Final

Emerging contaminants, address—8

Enforcement (increased)

General—3

Of illegal discharges—1

Take citizen reports of violations seriously—1

Greater accountability for developers—1

Rather than voluntary programs—1

Environmental justice, consider when issuing permits—2

Funding (increased)

For upstream/coastal projects—2

Predictability/reliability of—1

To implement TMDLs—1

Allow 319 grants to fund staff positions—1

Federal matching/cost-sharing—2

For local watershed groups—1

For site-specific research—1

For increased technology—1

Hydraulic fracturing, regulate/ban—3

Impermeable membranes, use in deep waste pit storage—1

Incentives rather than enforcement—2

Land-use planning, watershed-wide—1

Lawn chemicals, ban/regulate manufacture/sale of—8

Mountaintop mining/stream burying, ban—9

Nonpoint-source pollution (NPS)

Increase regulation of—1

Do not regulate without authority—1

Outreach/education (increased)

About invasive species—1

Lead by universities/nonprofits—1

Of watershed residents—17

Of school children—4

Of industries—2

Regarding effects of landscaping/development on watersheds—2

Regarding shoreline degradation—1

Pollution trading, cannot undermine current requirements—1

Population growth, curb—2

Regulation (increased)

Final

- Of landscaping industry—1
- Of dumping—1
- Of mercury—1

Riparian buffers/corridors, require farmers/landowners to install—19

Scale up/down

- Local efforts up to state- or nation-wide—1
- National messages down to local situations—1

Sewage sludge

- Stop application of—17
- Convert to energy—1

States

- Allow flexibility for in establishing priorities—2
- Marine reserves, establish—1

Total Maximum Daily Loads (TMDL)

- Adapt USDA's Conservation Measurement Tool—1
- Adaptive management techniques, use instead—1
- Better implementation—3
- Deadlines, incorporate into—1
- Keep non-listed watersheds healthy—1
- Scorecards, use to track pollutants involved in impairment—1
- Use watershed groups to implement—1
- Target worst-case impairments first—3
- Expand to dam regulation and flow impairment—1
- Establish federal variations for interstate waters—1

Urban communities, increase involvement of—1

Vegetation

- Native, encourage use of—3
- Increase amount of—1

Voluntary programs, increase use of over more enforcement—3

Water efficiency, encourage to reduce strain on watersheds—1

Water quality monitoring

- Increase frequency—2
- Watershed-wide sensor systems, use of—1
- Allow site-selection-only data—1

Watershed approach

- Clearly define—1
- Don't use an excuse to delay setting specific pollution limits—1

Wetlands

- Construction of, encourage—1

Clarify guidance for protection of—1
Maintain function of—2

Topic 2: Nutrient pollution

Agriculture

Treat as point-source pollution—4
Stop exemptions for—1
Regulate nutrients from—1
View as a partner, not an adversary—5

Best/Adaptive Management Practices (BMPs)

Encourage use of —3
Use of instead of numeric criteria—2
Establish “pollutant-load reduction matrix” for each—1

Clean Water Act (CWA)

Coordinate with SDWA—1
Cover “nutrient sinks” (headwaters/wetlands) in—1
Define “propose to discharge” in relation to CAFOs—1
View as a whole for “big picture” of clean water—1
Revise to include emerging contaminants—1

Community ombudsman, establish to help citizens navigate laws—1

Concentrated Animal Feeding Operations (CAFOs)

Emissions deposited in water, account for—1
Require to treat wastewater—2
Require all to get discharge permits—2
Require co-permitting of with vertically integrated farms—1

Consumer products, ban phosphates in—1

Data

Clear guidance needed on approvable site-specific nutrient criteria—1
Provide more on ecosystem services—1
Use water chemistry w. watershed lithology to predict background concentrations—1

Discharges

Limits based on newest available technology—1
Promulgate national, technology-based limits—1

Enforcement (increase)

General—4
Harsher fines—1
Investigate citizen complaints seriously—1
On sub-CAFO-sized farms—2
Provide alternative to for when mitigating nutrient pollution is not possible—1

Facilities, allow to follow cost/benefit analysis of any required upgrade—1

Final

Fertilizer

- Promote/require phosphate-free versions—1
- Create from byproducts of ethanol—1

Flooding

- Prevention, encourage—1
- Geotextiles, use to prevent—1

Groundwater monitoring, require CAFOs to install—1

Groundwater nutrient contamination, account for—1

Hypoxia Task Force, strengthen—1

Impaired waters

- Ban new discharges to—1
- Restrict access to—2

Incentives, use of over enforcement—1

Infrastructure upgrades, integrate to consider issues beyond nutrient pollution—2

Livestock

- Tax to fund waste treatment—1
- Limit according to amount of waste nearby waters can handle—1

Low Impact Development, use of to reduce nutrient pollution—1

Manure

- Regulate distribution of—3
- Ban raw application of as fertilizer—2
- Ban stockpiling of—1
- Ban use of as fertilizer in areas without karst substrates—1
- Use to create energy—2

Metals pollution/accumulation, address—2

Monitoring, more consistent/easier—6

Natural soil cycle, restore—1

No-till farming, encourage use of—5

Numeric criteria

- Establish/enforce—7
- Account for regional differences in soil type, rainfall, crops, etc.—2

Outreach/education (increase)

- Of farmers—6
- On dangers of fertilizer (general audience)—3
- Of government transportation departments—1

Regulation of farms

- Harmful to economy—1
- More tools to address ag-related NPS—1
- Decrease/do not increase—2
- Regs must be based on science—1

Removal/treatment methods

- Biological treatment, develop—1
- Broad-based, multi-state coordination—1
- Develop for septic systems—2
- Methanol denitrification—1
- Nanofiltration—1
- Packed tower aeration—1
- Plant cattail marshes to soak up nutrients—1
- Use of wastewater effluent as nutrient delivery system—1
- Treat for 100% of nitrogenous/urine pollution in water—1

Safe Drinking Water Act, use to study emerging contaminants—1

Soil organic matter, increase through carbon sequestration—1

States

- Allow to administer their own nutrient programs—3
- Encourage them to develop functional indicators of stream conditions—1
- Enforce anti-degradation policies in—1

Subsidies, end—2

Total Maximum Daily Loads (TMDLs)

- Develop for nutrient loadings—1
- Include point-source reductions in—1

Voluntary programs

- Use of over enforcement—2
- Cost-sharing for nutrient management—1

Water quality

- Test before and after waste disposal—1
- Use USGS National Water Quality Assessment info—1

Topic 3: Managing Stormwater

Alternative energy, promote to reduce water pollution—1

Army Corps of Engineers, take away environmental management capacity of—1

Asian carp, manage population of—1

Best Management Practices (BMPs)

- Expand beyond green infrastructure—1

Final

Provide data on life cycle cost of—1

Businesses

Require to offset runoff (e.g., through green infrastructure or onsite collection)—3

Climate change, account for—2

Coaltar, ban—1

Codes (building/zoning)

To stop urban sprawl—2

Alter to allow gray water—2

Include requirements for use of green infrastructure—2

Extend federal building requirements (in Energy Independence and Security Act) to all new developments—1

Work with developers/architects/landscapers to develop “green” codes—1

Consumer products

Ban “weed and feed” products—2

Limit pesticide use—1

Require warnings about water pollution on household chemicals—1

Cost-sharing

For manure digesters—1

For treatment of stormwater—1

To finance residential BMPs—1

Diverse sources of runoff (silviculture, agriculture), address—2

Dumping

Lock manholes to prevent—1

Promote soy-based vehicle fluids—1

Enforcement

More consistent—2

Of individual-based laws (lawn care, littering, etc)—3

Of oil and gas industry (increased)—1

General (increased)—4

Stronger at city level—3

Erosion/shoreline degradation

Force all structures (incl. historic) to conform to shoreline codes—1

More consistent laws (state to state)—1

Partner with erosion control industry—2

Plant trees—1

Filtration systems, repair/improve—1

Floodplains, protect from development—1

Funding

Final

- Allow research and development with 319 funds—1
- Increased—2
- Prioritize grants for groups w. comprehensive watershed management plans—1
- To train engineers in LID techniques—1

Groundwater

- Consider effects of stormwater filtration on—4
- Develop BMPs for managing stormwater that are also protective of groundwater—1

High density development/infill/vertical growth (encourage)—4

Infrastructure

- Do not divert CSOs into streams—1
- Eliminate combined sewer systems—2
- Make storm sewers more stream-like—1
- Replace CSS with hydraulic sensitive treatment facilities—1
- Replace with stream-friendly practices—1
- Repair—4
- Control inflow—1

Impervious surfaces, decrease—3

Litter, factor into post-construction TMDL—1

Low-impact Development (LID)

- Creating tax-incentives for—2
- Provide incentives for companies to adopt—1
- Provide process for cities to license developers who use it—1
- Require/encourage use of—10

National Pollutant Discharge Elimination System (NPDES)

- Consider high cost of implementation with relatively few environmental benefits—1
- Improve implementation by developers—1

Natural areas, retain when possible—2

Outreach/education

- Of public—10
- Of school children—2
- Of builders/developers/industry—4
- Of zoning boards—1
- On cost-savings of environmental design—3

Pharmaceuticals, ban flushing of—1

Pressure regulators, require placement on water meters to avoid blown fixtures—1

Regulations

- Extend urban runoff laws to roads that go outside city limits—1
- Make more cohesive—2

Final

Retention areas, construct next to developed sites—2

Septic systems

Convert to distributed sewer systems—1

Regulate—1

Smart growth, use of to prevent runoff—2

Soil surveys, implement—1

Stormwater protection/management plans

Develop with stakeholders to ensure buy-in—1

Incorporate natural hydrology—1

Incorporate land-use planning—3

Review after implementation—1

Underground Injection Control

Coordinate with other federal water regulations—1

Redefine Class V wells to reference water source and exclude cases where stormwater infiltration is obvious intent—1

View stormwater as an asset—3