U.S. Environmental Protection Agency
National Water Program
2012 Strategy:
Response to Climate Change

Public Comment Summary

Final
December 2012

EPA National Water Program 2012 Strategy: Response to Climate Change
Public Comment Summary

This document summarizes the public comments submitted to the US Environmental Protection Agency (EPA) regarding the EPA's *National Water Program 2012 Strategy: Response to Climate Change*. It follows the general outline of the EPA Strategy and provides references to specific commenters, comment numbers, and page numbers within those comments. Responses are provided following each comment. Commenters can locate the NWP's response to their comments by doing a search for the commenter number (provided in Appendix A) or by organization name.

This document provides a bulleted summary of comments submitted to the US Environmental Protection Agency (EPA) regarding the EPA's *National Water Program 2012 Strategy: Response to Climate Change*. Overall, there were forty-four sets of comments representing various federal, state and local agencies, state drinking water agencies, professional societies, national and local non-governmental organizations, the regulated community (agricultural, development and resource extraction) and private citizens.

I. EXECUTIVE SUMMARY

Seven comment letters referenced the Executive Summary. Half the letters were from non-governmental organizations, representing either the water sector or the regulated community. The remaining three letters were received from a federal government agency, a state/tribal government agency, and a general private citizen.

- The U.S. Geological Survey (Doc. #31, p. 1) offers the following comments:
  - "Page 1 – Maybe indicate on the title page that this plan covers 2012-2020 or the next 'three to eight years' as stated on page 3. The word 'transformative' is used three times on the first page to describe EPA's approach. It would be good to explain what is meant by 'transformation' in this context and why it is needed."
  - "Page 2 – Excellent summary of climate change impacts on water resources."
  - "Page 3 – The ten guiding principles make sense, but it might be good to reword the ones entitled 'water-energy nexus' and 'costs of inaction', because those are program emphases not principles per se."
  - "Pages 6-9 – This table of goals and actions in the Executive Summary are a nice way to summarize the entire strategic plan. It also prompts the question of partnerships with others. Many of the strategic actions and goals in this table are commonly shared with agencies such as the USGS, NOAA and DOE. You mention the importance of such partners on the prior pages but it would be good to insert a sentence in the 'Conclusions' that appear right before the table stating that many of the goals and actions will be achieved through partnerships with others."
  - The map of geographic climate regions corresponds with the map used by the USGCRP for the using the climate regions map established by the U.S. Global Change Research Program for the 2013 National Climate Assessment. This map accounts for political boundaries and therefore no longer splits Texas and Colorado between climatic regions.

  Response: Thank you for your careful review. We have incorporated most of the edits you suggest except that we are not adopting the 2013 National Climate Assessment map at this time as it is not yet final. We will adopt the updated map in the future.

- The Association of State Drinking Water Administrators (ASDWA; Doc. #40, p. 3) recommends:
    - "EPA include drinking water and public health in the first paragraph on page 1 so as to prominently highlight their importance in this Strategy."
    - "Provide explanations for each of the table inserts for context as to why they are being included and located where they are."
    - "The 'National Goal' and 'EPA Vision' inserts at the very beginning are not connected to the text on this page. We suggest either moving them to page 3, somewhere under 'B. Programmatic Visions, Goals and Strategic Actions,' or again providing some explanation up front."
    - "The location of the paragraph on page 1, 'Table ES-1, below, summarizes the Visions, Goals and Strategic Actions described in this 2012 Strategy…' seems randomly placed here with unassociated text."
    - "On page 3, the 'Ten Guiding Principles' insert has no context. Please provide an explanation for this box and why it is located here."
    - "On page 5, in the second bullet under 'Tracking Progress and Measures,' please change this to a plural so that the text does not sound like EPA will be developing a rulemaking specific to climate change as follows:

      'The NWP will incorporate climate change considerations in the development and implementation of ~~a~~ rulemakings by 2015.'"

  Response: Thank you for your careful review. We have incorporated most of the edits you suggest except the last one; the goal to incorporate climate change considerations into five rulemakings or policies by 2015 is an EPA-wide goal, of which the NWP is only committed to one. Further, to clarify, this is not a statement that we intend to promulgate a rulemaking or policy requiring all Office of Water rulemakings to consider climate change, but rather that climate will be a factor in the analysis of one rule or policy that is being undertaken. That said, we have removed this chart from the Executive Summary to allay confusion.

- The National Ground Water Association (Doc. #44, p. 1) suggests:
    - The executive summary should include diagrams and quotes from the text.
    - The Strategy should include a scientific analysis of the evidence for climate change.

  Response: After consideration, the NWP elected to retain the current discussion of the science of climate change, referring the reader to other authoritative discussions of the evidence for climate change. We did include more explicit reference to those materials.

- The American Petroleum Institute (Doc. #46, p. 2) stresses that EPA needs to include timeframes for its strategic actions and should incorporate new climate information on a continuous basis into its adaptive approach. Also, the Institute

feels that any actions taken must be clearly authorized by the Clean Water Act and existing regulations.

Response: The 2012 Strategy is a planning strategy, providing directional intent over the long term, and rather than listing commitments for particular actions by particular dates, it suggests that we hope to achieve the Strategic Actions over the course of the next approximately eight years, dependent upon resources. Further, we recognize that as knowledge grows, including updated science, strategies too may change, consistent with an adaptive management approach. Needless to say, all actions taken will be consistent with our statutory authorities and in accordance with the Administrative Procedures Act.

- The Alaska Department of Environmental Conservation (Doc. #39) voices that:
  - "While EPA states that the Strategy is not a rule or regulation and will not impose any 'legally binding requirements,' (p. iii), the Strategy in fact provides a 'response' to climate change."
  - "EPA states the National Water Programs (NWPs) 'will' implement strategic actions or goals. EPA also states (p. 1) that the strategy 'addresses climate change in the context of our water programs' and that 'climate change poses such significant challenges to the nation's water resources that more transformative approaches will be necessary.…The implementation of the guidance will have legal consequences, and therefore the Strategy constitutes final agency action."
  - "The Strategy sets a goal (p. 7) to '[i]ncorporate climate change considerations into the CWA 404 regulatory program as they relate to permit reviews and compensatory mitigation.' EPA should clearly indicate where application of the Strategy can be expected to interplay with other regulatory processes, such as the 404 permitting process implemented by the U.S. Army Corps of Engineers (Corps)."
  - "[E]PA should also embark on a rulemaking to amend those other affected regulatory processes. For these reasons, the Strategy should he subject to formal rulemaking."

Response: The NWP strategy is not the consummation of the agency's thinking or decisionmaking on adapting to climate change; nor does it determine rights or obligations from which legal consequences will flow. Accordingly, we disagree with the commenter that it is a "final agency action." Nor is the strategy a rule or regulation. Indeed, in the body of the final document, we are inserting additional language reminding readers that nothing in this 2012 Strategy is binding or imposes any new requirements. Rather, it is a description of programmatic goals and strategic actions that we at the present time intend to pursue, subject to a variety of factors such as the availability of resources and evolving scientific knowledge. As we take actions described in the strategy, we will abide by requirements of the Administrative Procedures Act wherever necessary and appropriate.

- The National Mining Association (Doc. #37, p. 2) states that "It is impossible to predict the types of outcomes and effects the Draft 2012 Strategy contemplates integrating into CWA permitting decisions with the certainty that could justify the time and expense federal agencies will be expected to undergo. It is therefore disconcerting that EPA is seeking to 'revise data collection, analytical methods, and even regulatory practices that have been developed over the past 40 years since passage of the CWA and the Safe Drinking Water Act' based on such unsure science." The Association points out that, in its opinion, this could lead to permitting delays and litigation.

  Response: It is not the intent of this strategy, nor do we expect it to be the strategy's outcome, to increase federal agency time and expense or permitting delays and litigation; instead it is hoped that steps taken pursuant to the strategy will minimize time and expense by reducing adverse consequences of impacts due to a changing climate.

- Other State Commenter (Doc. #48, p. 1) states that "With respect to the National Goal, suggest the inclusion of businesses, in addition to government agencies and citizens, as they are important partners in carrying out climate change adaptation actions."

  Response: Thank you for the suggestion; we have added text to underscore that the private sector is an important partner in all our actions.

INTRODUCTION

Overall, 13 comment letters discuss the Introduction. Seven are from national non-governmental organizations (NGOs), including four environmental NGOs. Three commenters are associated with the regulated community (agriculture, fertilizer, and mining), one is a multi-sector trade organization, one is a federal agency, and one is a local government agency.

1. 2008 Strategy vs. 2012 Strategy

- The Water Environmental Federation (Doc. #14) commends EPA in developing a comprehensive strategy that builds and expands upon the 2008 Strategy.

  Response: The NWP thanks WEF for their support and we look forward to working with the Association and other stakeholders in the future.

- The Amigos Bravos Friends of the Wild Rivers (Doc. #15) contends that the 2012 Strategy does not go far enough to address the threat of climate change. It makes the point that EPA needs to develop "strong regulations and guidance, adequate enforcement of regulations, and funding" and urges EPA to incorporate stronger action items that are both voluntary and mandatory and can be used by local and state regulatory agencies. The letter indicates that it

provided the same critiques to the 2008 Strategy. "Here we are 4 years later, and this report is still lacking the appropriate sense of urgency and desperately needed bold actions with associated enforcement and funding mechanisms."

Response: EPA appreciates the commenter's concern; we share the concern that climate change poses urgent challenges to society and that action must be taken now to avoid consequences in the future. We are working with the larger federal and science community to understand the nature of changes and to create the tools that will enable water resource managers to make informed decisions. We hope that Amigos Bravos will continue to provide perspective to inform future decisions.

- The Western Business Roundtable (Doc. #23, p. 7) states that the 2012 Strategy lays out an unclear approach and contends that "the Administration needs to expose its extremely expansive climate adaptation agenda to the rigors of the formal public notice comment rulemaking process."

  Response: While this 2012 Strategy is not binding and not a rule, we understand the importance of the matter and have therefore provided an opportunity for public notice and comment, as is evidenced by the process through which the Western Business Roundtable submitted their comment. Should any actions be taken that involve rulemaking, we will follow the public notice and comment process established by the Administrative Procedures Act.

- The Clean Water Network (Doc. #41) comments that it previously commented on the 2008 Strategy and suggested that stronger, regulatory actions need to be taken by EPA. It believes that the 2012 Strategy details only voluntary measures and recommends a more comprehensive approach, including regulatory programs with teeth to achieve real change.

  Response: EPA appreciates the commenter's concern; we share the concern that climate change poses urgent challenges to society and that action must be taken now to avoid consequences in the future. We are working with the larger federal and science community to understand the nature of changes and to create the tools that will enable water resource managers to make informed decisions. We hope that the Clean Water Network will continue to provide perspective to inform future decisions.

2. Relationship to Other Planning Activities

- The Fertilizer Institute (Doc. #17, p. 3) asks that clarification be provided regarding the five major scientific models and/or decision-support tools, five rulemaking processes, and five major grant, loan, contract, or technical assistance programs identified on page 11 of the Strategy.

Response: EPA's 2011-2015 Strategic Plan includes three Agency-wide measures for climate change adaptation and one for reducing GHGs. The three adaptation measures noted by the commenter were developed by a cross-Agency workgroup, and are intended to prompt EPA program offices to begin to evaluate, understand and factor in potential impacts of climate change in the conduct of our business. The EPA offices involved include the Offices of Water, Air and Radiation, Solid Waste and Emergency Response, Pollution Prevention and Toxic Substances, Research and Development, and Policy. Each Office will decide how and when to do so. As for OW, we are developing tools such as the CREAT tool to assist water managers in their infrastructure planning and design, and we are working with our National Estuary Program to factor climate change into their funding. As for a rulemaking, at this time EPA is primarily focused on developing tools to help local decision makers evaluate efficacy of their decisions as they implement different aspects of the CWA program under a changing climate. As use of climate change information is evaluated in EPA rulemakings, EPA will follow the appropriate rulemaking processes, including public notice and comment.

- The Los Angeles County Department of Public Works Flood Control District (Doc. #16) suggests that the Strategy could have implications on the National Environmental Policy Act (NEPA) and asks if EPA intends to incorporate climate change into NEPA requirements.

  Response: OW's Strategy is not intended to guide EPA or Executive Branch policy on the application of NEPA. EPA's own water programs are generally exempt from NEPA under section 511(c) of the CWA. However, where NEPA does apply, such as to EPA issuance of new source NPDES permits, EPA NEPA reviews consider climate change issues, as appropriate. Where EPA assists other federal agencies in complying with NEPA, EPA also works to foster consideration of climate change impacts, mitigation, and adaptation issues, as appropriate.

  The Western Business Roundtable (Doc. #23, p.2) provides recommendations based on the organizations "common sense climate principles" that "provide a recommended framework for policymakers to use in fashioning public policies associated with climate change." In summary, recommendations listed in the comment letter focus on how federal action that aims to reduce greenhouse gases (GHGs) should incorporate economic growth and job creation, awareness of economic impacts, and public-private partnerships, among others. Federal action should also, among other recommendations, "recognize that climate change is a global phenomenon that requires comprehensive, long-term and coordinated worldwide responses" and "that the time frame for implementation of any GHG emission reduction requirements must be tied to technology availability, reliability and economic feasibility in order to avoid unacceptable impacts on consumers/electricity grids" (Doc. #23, p. 3). Finally, revenues generated by climate change programs should be invested in development and

implementation of technology that captures and stores GHGs, assist consumers in dealing with high energy costs, and "to reasonable climate mitigation initiatives".

Response: Thank you for your comment. EPA is committed to supporting development of jobs, and the NWP too promotes the economic opportunities that water technologies, such as Green Infrastructure, WaterSense, and new energy efficient water treatment technologies can bring to the 'green economy'. This 2012 Strategy does not address trading or other market methods of reducing GHGs.

- The City of Aurora, CO (Doc. #30) indicates that these are complicated issues that bear further exploration and more in depth analysis before the comment period is closed.

  Response: Thank you for your comment. It is the case that these are complicated issues, and that is why our general approach is one of collaborative learning and adaptive management. We are not extending the comment period.

- The American Petroleum Institute (Doc. #46) strongly supports coordination among Federal agencies that deal with water resource issues utilized by EPA in the development of the Draft 2012 Strategy. The Institute also acknowledges the Draft 2012 Strategy references a "number of planned activities that involve coordination with not only other Federal agencies, but also states and public stakeholders" and asks that "this coordination be open and continuous with emphasis on including non-governmental input during the planning process and not after decisions have been made with respect to government activities and actions."

  Response: The NWP agrees with the commenter. We have added text in the Coastal and Oceans section to reflect EPA's anticipated actions under the new National Ocean Policy Implementation Plan. The Fish, Wildlife and Plants Strategy does not articulate specific Agency commitments, but the NWP strategy is consistent with the Fish, Wildlife, and Plants strategy. We aim to ensure transparency through our public communication media, such as our new website, among other means.

Environmental Justice

- A private citizen (Doc. #7) raises the issue of environmental justice and asks if "there will be adequate protection for our ecosystem against waste facilities and fossil fuel missions even in impoverished neighborhoods" and whether the plan will "provide adequate sustainability in water and energy efficiency."

  Response: The NWP appreciates the commenter's view. The NWP embraces the principle of prioritizing the most vulnerable – including the most vulnerable populations such as the elderly, children, tribes, and low income communities,

as well as the most vulnerable places such as coastal communities or those facing severe drought.

- Another private citizen (Doc. #8) feels Goal 12 should be emphasized because it will "focus primarily on community efforts, and pertain to the majority of people who may not be as informed as the government agencies and scientists involved in the matter." This commenter also identified concerns that sustainability needs to be emphasized in low-income areas, since these populations often lack the resources to incorporate climate change considerations into water quality planning.

  Response: The NWP embraces the principle of prioritizing the most vulnerable – including the most vulnerable populations such as the elderly, children, tribes, and low income communities, as well as the most vulnerable places such as coastal communities or those facing severe drought. This includes improved outreach and education. The NWP agrees that it is important to include this principle as we implement the Strategic Actions under Goal 12, Water Quality.

3. Impacts of Climate Change on Water Resources

- The Natural Resources Defense Council (Doc. #33, p. 11) commends EPA for developing the Strategy, but points out that, as written, it is too general and should contain more specifically defined steps to address the impact of climate change on water resources. It is of the opinion that Goals 2 and 3 are meaningless because they are so vague. Additionally, it offers several suggestions on how to strengthen the document:

  Response: It is the intention of this Strategy to indicate overall direction by the National Water Program, not to specify details of how climate change and its effects will be incorporated into NPDES permitting, development of TMDLs, implementation of other EPA regulations, or the relationship between Federal, State, Tribal, and local governments. Use of climate information in these decisions will be evaluated and implemented through appropriate procedures on a case-by-case basis.

- NRDC (Doc. #33) cites the US Global Change Research Program's (USGCRP) observed changes to the water cycle from warmer temperatures. The letter discusses the impacts of these observed changes on water resources as atmospheric greenhouse gas levels increase and temperatures continue to rise.

  Response: The NWP appreciates NRDC's comments.

- The National Mining Association (NMA) (Doc. #37, p.3) contends that EPA does not recognize that there will be both winners and losers associated with the impacts of climate change. They indicate that the Strategy is "uniformly negative." The National Mining Association asserts that "EPA does not offer an

explanation as to why preservation of a static biological community is always desirable, and NMA is concerned with EPA's application of that concept."

Response: The NMA misunderstands the purpose of the NWP strategy. It is not to identify or predict "winners and losers." Nor does it assert that "preservation of a static biological community is always desirable." Such terms and ideas imply value judgments the Strategy does not intend to make. The Strategy instead attempts to identify the range of challenges posed to built and natural systems by changing hydrometeorological background conditions and anticipate potential response actions to minimize detrimental effects to those systems. Moreover, the draft 2012 Strategy stated on page 14, "not all near term impacts of climate change will necessarily be disruptive, and could, in some cases provide benefits. For example, increased precipitation could improve flows supporting aquatic ecosystem health in some areas, and changing sea levels could aid submerged aquatic vegetation. However, on balance the range of challenges posed by the interface between built and natural systems and the changing hydrometeorological background conditions is likely to require response actions in order to minimize detrimental effects to current built and natural systems. The impacts listed here refer to the general risks to water resources posed by climate change, but whether and to what degree these risks are likely to be realized in specific locations will require local assessment. That said, where benefits can be realized, the NWP intends to evaluate and take advantage of those opportunities.

- The City of San Diego (Doc. #38, p.1) pointed out that the 2012 Strategy has a default assumption that alteration due to climate change is a degradation and/or impairment, although in some cases such changes may be ecologically neutral.

  Response: The draft 2012 Strategy stated, "not all near term impacts of climate change will necessarily be disruptive, and could, in some cases provide benefits. For example, increased precipitation could improve flows supporting aquatic ecosystem health in some areas, and changing sea levels could aid submerged aquatic vegetation. However, on balance the range of challenges posed by the interface between built and natural systems and the changing hydrometeorological background conditions is likely to require response actions in order to minimize detrimental effects to current built and natural systems. The impacts listed here refer to the general risks to water resources posed by climate change, but whether and to what degree these risks are likely to be realized in specific locations will require local assessment." That said, where benefits can be realized, the NWP intends to evaluate and take advantage of those opportunities.

FRAMEWORK

A total of nine comment letters addressing the Framework for a Climate Ready National Water Program were submitted. Of the nine comment letters, two were submitted by federal government agencies, two were submitted by local government agencies, three were submitted by national NGOs, one was submitted by a State/Tribal government agency/elected official, and one was submitted by the regulated community. Most of the comments from this group are positive, and complimentary toward EPA for developing the Strategy. For example, the Groundwater Protection Council (GWPC) (Doc. #25, p. 2) introduces their letter by stating, "GWPC commends the USEPA Water programs on the use of integrated water resource management (IWRM) throughout the draft strategy." Among the comment letters addressing the Framework, three touched on both Section A. Guiding Principles and Section B. Integrated Water Resources Management (IWRM), while three spoke only to Guiding Principles, and two discussed only IWRM.

1. Economics of Adaptation

- Various comments concerning adequacy of funding

  Response: It is not the intent of this 2012 Strategy to increase costs of implementing water programs, however, climate change itself could incur additional costs. Planning ahead helps managers to find best solutions to avoid costs, where possible. Further, while EPA sees value in all elements of the Strategy, we recognize that resources are limited. This Strategy does not impose legally binding requirements on EPA, States, the public, or the regulated community. EPA will attempt to provide resources where possible and will provide technical guidance to help implement Strategic Actions. EPA looks forward to working with partners and stakeholders to implement these actions over the long term.

- WUCA (Doc. #24) suggests that EPA create "an economics team specializing in water-pricing strategies that could be called upon by those entities that want advice about how to incorporate more of the cost of water in their planning and actions."

  Response: Thank you for the suggestion, however, the NWP leaves the issue of pricing to local communities. We will take the suggestion to create an economics team under advisement.

- While WUCA is supportive of water pricing to control demand, they comment that "EPA's role regarding pricing should be limited to education and public outreach" (Doc. #24, p. 6) because pricing structures are location-specific and address local need, such as low-income residents and other considerations.

Response: EPA agrees that pricing is a local decision, but will continue to promote and educate on the need for appropriate pricing structures that better reflect the costs of providing service while meeting affordability needs.

- Additionally, WUCA (Doc. #24, p.8) raises a concern with the tone of the statement under Coastal and Ocean Waters: "In the context of coastal change and sea level rise, decision must be made about whether some environmental restoration efforts, particularly for coastal marshes, are realistic or practical" (Strategic Action #27, p. 45). WUCA believes the tone "should not be to undermine the reality or practicality of coastal marsh restoration. Rather, decisions about coastal marsh investment should consider long-term viability and replenishment costs".

  Response: The language in question has been edited to read as follows: "*In the context of coastal change and sea level rise, decisions about coastal marshes may need to consider long term viability and replenishment costs*."

- American Rivers (Doc. #27) suggests that the NWP "make adherence to EPA's full lifecycle analysis guidance a requirement for infrastructure projects that receive Clean Water Act (CWA) permits" (Doc. #27, p. 2).

  Response: The NWP promotes effective utility management, including energy and water efficiency, and will continue to work with States and utilities to develop tools to aid in decision making. It is unclear what guidance the commenter is referring to, however, it is not feasible to make such guidance a requirement for CWA permitting.

- The Natural Resources Defense Council (NRDC) (Doc. #33, p. 12) suggests "EPA should develop a program to document the national benefits of improved water efficiency, both in terms of water conserved and the impact on energy systems and greenhouse gas emissions. More data documenting the impact of water efficiency (and energy efficiency) on the water-energy nexus would help EPA's partners advocate for better practices.

  Response: Thank you for this comment. The NWP does document the water, energy and GHG savings resulting from the WaterSense program. We will continue to work to educate the public on the energy and GHG footprint of water and the water footprint of energy.

- Regarding Strategic Action 27 (coastal environments), the City of San Diego (Doc. #38, p. 7) stated that "at present, there are no criteria for determining realism or practicality, or guidelines for the type and degree of compensation or mitigation required" and "depending on how these are formulated they could dramatically increase project costs."

  Response: The NWP appreciates the comment. This is the type of information

it is hoped that water resource managers would develop over time.

- The Clean Water Network (Doc. #41): EPA needs to assess funding commitments for monitoring and assessment of impacts, adaptation of infrastructure, and protective measures for wetlands and aquatic habitat. The Strategy needs on-the-ground funding and resources to implement the plan, not a 'report' (need for funding is also directed at the Administration).

  Response: The NWP supports the activities described in the 2012 Strategy subject to the availability of resources.

- Other State Commenter (Doc. #48, p. 2) states "We believe that the costs of climate change related actions mentioned would be more useful and understandable if they were expressed over a specific timeframe. For example, "$30 million per year," or "$30 million over five years," would mean more to the strategy's audience than just providing "$30 million to manage low DO levels due to warmer waters."

  Response: Thank you for the comment; we will edit the Strategy with available information.

Infrastructure Funding

- NACWA (Doc. #43) states that EPA must recognize that significant funding will be needed to help POTWs with adaptation and energy efficiency measures. EPA should consider more carefully the financial resource that utilities will need to meet the Agency's climate change goals in addition to existing water infrastructure needs.

  Response: See the first response at the beginning of the economics section of this response to comments document.

- AWWA (Doc. #21, p. 2) suggests that "NWP should acknowledge the unmet financial needs for infrastructure maintenance and renewal, and should commit to working with other government agencies and water industry associations to address water infrastructure needs, both for maintaining current service and for climate change adaptations. It will not be a question of one or another, but rather of accomplishing both goals."

  Response: The NWP appreciates the comment. We have inserted an edit in the infrastructure discussion to acknowledge the challenges utilities face concerning availability of infrastructure funding.

- WUCA (Doc. #24, p. 5) states that "these cost considerations should be incorporated in the regulatory process as well as the state CWA and SDWA

revolving funds. Specifically, utilities need flexibility to determine risk management strategies that determine how best to invest capital dollars to manage competing pressures, including climate change."

Response: As the Agency moves forward with responding to climate change, we will consider where statutes allow for regulatory flexibility in adjusting to shifting conditions.

- American Rivers (Doc. #27, p. 8) recommends that EPA "must recognize that current federal funding is insufficient to provide for the needed infrastructure upgrades. According to the American Society of Civil Engineers, our drinking water systems face an annual shortfall of at least $11 billion to replace aging facilities that are near the end of their useful lives and to comply with existing and future federal water regulations."

  Response: The NWP appreciates the comment. We have inserted an edit in the infrastructure discussion to acknowledge the challenges utilities face concerning availability of infrastructure funding.

- The Clean Water Network (Doc. #41): Energy efficiency in wastewater treatment and compliance with CWA §313(b) and §304(d)(3) should be conditions to receiving CWSRF monies for wastewater treatment plants.

  Response: The NWP encourages the use of funding for water and energy efficiency as allowable under federal law, e.g., using the SRF Green Reserve. EPA will continue to work closely with States to facilitate their decision making process and ensure they have the tools needed to make appropriate decisions.

Watersheds and Wetlands

- The New England Interstate Water Pollution Control Commission (NEIWPCC; Doc. #35, p. 2) writes that the role of Section 319 of the Clean Water Act should be explored as a tool to maintain watershed health, saying it is a "cost effective response to both current conditions and changes to the climate." and that future Section 319 guidance should be crafted to optimize the ability to use 319 for healthy watersheds.

  Response: The NWP agrees with the commenter that the Section 319 program is an excellent tool in EPA's effort to maintain watershed health. SA 10 (healthy watersheds) already implies the use of Section 319 grants in the discussion of "funding and technical assistance programs." However, specific reference to CWA Section 319 has been inserted into SA12 (watershed restoration and floodplain management) and SA 33 (water quality planning).

- The Association of State Drinking Water Administrators (ASDWA; Doc. #40, p. 4) also suggests that specific references to Section 319 should be included in the discussion of protecting healthy watersheds.

  Response: SA 10 (healthy watersheds) already implies the use of Section 319 grants in the discussion of "funding and technical assistance programs." Specific reference to CWA Section 319 has been inserted into SA12 (watershed restoration and floodplain management) and SA 33 (water quality planning).

- The National Ground Water Association (NGWA) (Doc. #44, p. 2) comments on the value of source water protection planning and states that "Action to update delineations, assessments or protection plans may not happen without federal funding to the states or local government," and also suggests that managed aquifer recharge projects be included as eligible water infrastructure projects for federal financial support (Doc. #44, p. 1). In addition, NGWA suggests that Strategic Action 32 (water quality planning) may not happen without federal funding (Doc. #44, p. 2).

  Response: States may fund aspects of aquifer recharge from the CWSRF if the project is connected to a publicly owned treatment works (POTW) e.g., the CWSRF may fund the treatment of wastewater for aquifer recharge or the conveyance of recycled water from a treatment plant to the site for aquifer recharge. Note that DWSRF funding for ASR projects that are essentially underground reservoirs is prohibited by regulation (40 CFR 35.3520(e)(3)).

- The National Farms Union (Doc. #19, p. 2) notes that financial and technical assistance from federal, state and local government sources to help farmers and ranchers address nonpoint source pollutions are not always coordinated for maximum benefit. NFU encourages EPA to utilize the successful model under CWA Section 319 to establish partnerships and coordinate efforts in addressing NPS and climate adaptation. They further encourage EPA to seek market-based solutions to leverage private resources to enhance public investment in adaptation strategies.

  Response: The CWA Section 319 program is indeed a model of successful partnerships achieving results, examples of which can be found on the EPA web site at http://water.epa.gov/polwaste/nps/success319/. EPA will look for opportunities to extend these partnerships to address issues related to the impacts of climate change. SA 10 (healthy watersheds) implies the use of Section 319 grants in the discussion of "funding and technical assistance programs." In addition, specific reference to CWA Section 319 has been inserted into SA12 (watershed restoration and floodplain management) and SA 33 (water quality planning).

  The City of San Diego Transportation and Stormwater Department (Doc. #38, p. 5) supports Strategic Action 13 under Goal #4, but notes that the practical

implementation can be problematic in that funding for acquisition of riparian buffers and lands could be limited, and buying and managing land will require greater fiscal budget, but Public Utilities, are economically challenged.

Response: The NWP acknowledges this challenge.

- ASDWA (Doc. #40, pp. 4-5) believes the updating of source water assessments and protection plans under Strategic Action 14 is important, but are "concerned about the lack of resources dedicated to undertake this activity at the national level."

  Response: The NWP acknowledges this challenge.

Monitoring

- The Ground Water Protection Council (GWPC) (Doc. #25) supports Goal 14, specifically Strategic Action 42, and suggests the text be revised to incorporate "an expanded acknowledgement that the state groundwater-related projects are eligible for funding under §319 Nonpoint Source Management Programs, §106 Grants for Pollution Control Program, and §305 Water Quality Inventory Grants" and that the CWA definition of Waters of the U.S. doesn't preclude funding of groundwater-related monitoring. In addition, the GWPC also indicates the Strategy is missing an important interagency monitoring network under development by the Advisory Committee on Water Information (ACWI) Subcommittee on Ground Water's (SOGW) National Ground Water Monitoring Network (NGWMN) which is "a nationwide database that will provide long term groundwater quantity and quality monitoring that would provide necessary information for the planning, management, and development of groundwater supplies to meet current and future water needs, and ecosystems requirements." OGWDW should be included in Strategic Action 42 in a supporting role (Doc. #25, p. 2).

  Response: Thank you for your comments. We agree that the ACWI Subcommittee on Ground Water's (SOGW) National Ground Water Monitoring Network (NGWMN) is an important partnership with whom we will continue to collaborate. Regarding eligibility of state groundwater-related projects for funding, the NWP will produce an informational brief on this subject and post it to our web site. We have added OGWDW to SA 42.

2. Guiding Principles

- Aurora Water (Doc. #30, p.2) suggests that "The Six Step Approach to Climate Change Adaptation Planning on Page 18 should be changed. The top step – 'Set Mandate' is indicative of a top down command strategy and is contrary to the stated goals of a collaborative approach that is stated elsewhere in the document."

Response: The phrase 'set mandate' appears in a schematic developed by CEQ outlining a generic six-step approach; inclusion of the chart in the NWP Strategy does not mean the NWP is 'setting a mandate' or that the NWP intends to undertake a top down command strategy. The Strategic Action 52 discussion makes it clear that the NWP proposes to adopt a phased approach that uses indicators of progress which emphasizes peer-to-peer learning rather than a top-down mandate. Indeed, throughout the 2012 Strategy, we underscore the importance of partnerships and collaborative learning to increase the nation's resilience to future impacts of a changing climate.

- The United States Geological Survey (USGS) (Doc. #31, p. 3) recommends specific modifications to the Guiding Principles text, including revising the statement on page 18 that currently states, "Uncertainty is not necessarily a reason to defer decisions" to "convey that decisions about the future are commonly made under some conditions of uncertainty." The USGS also suggests labeling Guiding Principle 7 as "Accounting for the costs of inaction."

  Response: Edit adopted. Thank you.

- ASDWA (Doc. #40, p. 5) suggests moving the EPA vision on page 18 to Section IV. Programmatic Visions, Goals, and Strategic Actions. ASDWA also mentions that it "supports the guiding principles of the draft Strategy, and particularly, the inclusion of integrated water resources management (IWRM), adaptive management, and collaborative learning and capacity development."

  Response: Edit adopted. Thank you.

- WUCA (Doc. #24, p. 5) supports the Guiding Principles, especially the Adaptive Management principle which "acknowledges uncertainty as a context of decision making and building flexibility into policy and decision-making to manage risk and to allow for new knowledge input." WUCA also supports the energy-water nexus issue.

  Response: As the Agency moves forward with responding to climate change, we will consider where statutes allow for regulatory flexibility in adjusting to shifting conditions.

- Regarding Guiding Principle 5, the Water Energy Nexus, WUCA (Doc. #24, p. 5) supports this issue and encourages EPA to support adoption of federal appliance efficiency standards.

  Response: Thank you for your support.

- The NRDC (Doc. #33, p. 4) identifies, "The use of energy should have the smallest possible impact on water resources. However, the Draft Strategy fails to address this important component of the water-energy nexus."

  Response: Thank you for pointing this out. It was our intention that Goal 13 covered the energy impact on water resources. We have edit Goal 13 and added a new Strategic Action to clarify this issue. The Strategy now reads:

  GOAL 13: As the nation makes decisions to reduce greenhouse gas emissions and develop alternative sources of energy and fuel, the NWP will work to protect water resources from unintended adverse consequences.

  Just as it takes energy to treat and distribute water supplies, it takes water to generate and produce energy and fuels. Well-designed or rehabilitated water infrastructure can reduce energy demand and careful energy planning can reduce water demand. Using a systems approach, consolidated water infrastructure, energy and transportation planning can directly and indirectly reduce the demand for both water and energy. While Goals 1 and 2 in the Infrastructure section of this 2012 Strategy discuss improving the energy profile of water infrastructure, this goal identifies actions to reduce the adverse effects of new energy technologies on water resources.

  Strategic Action 39: *The NWP will continue to provide perspective on the water resource implications of new energy technologies.*

  Production of energy and fuel rely on access to water, and may in turn contribute to water quantity and quality problems. Further, while alternative sources of energy and fuel are important for reducing emissions of GHGs and offer a number of win-win energy choices, they too bring water resource challenges. As technologies go through the regulatory cycle, it is the NWP's responsibility to provide perspective on how the nation's energy choices affect water resources.

- ASDWA (Doc. #40, p. 5) recommends providing an explanation about the text box and referenced appendix, and asks, "Does the appendix come from a separate document and why is it an appendix, rather than included in the text like IWRM?"

  Response: Edits added. The Energy-Water principles are in an appendix because there are specific goals and actions addressing this, whereas IWRM is an approach rather than a specific action. We added edits in the document to cross-reference these principles, including under Infrastructure (Goals 1 and 2) and Water Quality (Goal 13).

- The City of San Diego (Doc. #38) is concerned that, without clear guidelines, both regulatory agencies and municipalities run the risk of expending substantial resources in fruitless efforts and that legal actions by third parties could prompt regulatory actions to comply with the letter of the law in ways that are counterproductive. The City suggests that a more productive methodology would emphasize the education of upland land managers about overuse of fertilizers and pesticide on water supplies and water quality in the face of climate change, and suggests EPA bring agricultural interests to the table when implementing IWRM.

  Response: Thank you for this comment. We have incorporated the important role of agriculture in the discussion of IWRM.

- Other State Commenter (Doc. #48, p. 1) states that "We are glad to see the use of several different partnerships, many of which already exist, in carrying out strategic actions. This draft strategy seems to include more partnerships than the 2008 strategy. Federal, state, tribal, municipal and other types of partnerships are mentioned. We appreciate the inclusion of the State-Tribal Climate Change Council (STC3), which has strong state association involvement. One important partner not mentioned, except with respect to the IWRM guiding principle, is interstates. Interstate organizations should be mentioned when the draft strategy lists federal, state, tribal and local partners. Inclusion of interstates is especially important in the sections that address watersheds and wetlands, IWRM, and outreach."

  Response: Thank you for this comment. We have incorporated the important role of interstates in the lists of partnerships discussed throughout the 2012 Strategy.

3. Integrated Water Resources Management

- The National Oceanic and Atmospheric Administration (Doc. #9) comments that "This is a good beginning. I would prefer EPA take a more proactive position and promote IWRM via policy and where ever possible, promote IWRM through active public education."

  Response: Thank you for your comment and support.

- The County of Los Angeles Department of Public Works (Doc. #16, p. 2) recommends, "Flood protection should be mentioned in the document as being inherent with the commitment to taking an integrated water resources management approach as stated in the 2012 strategy."

  Response: Thank you; we have edited the IWRM discussion to include its important role for flood protection.

- When performing integrated planning, the American Water Works Association (AWWA) (Doc. #21, p. 4) notes that the drinking water community has found EPA generally unwilling to include drinking water utilities in integrated planning, and recommends that EPA include drinking water utilities in addition to wastewater and storm water, since "the actions of each type of water utility affect the others."

  Response: The NWP agrees with the statement that "the actions of each type of water utility affect the others" and will encourage inclusion of drinking water utilities in integrated planning.

- The Groundwater Protection Council (Doc. #25, p.1) commends the USEPA Water programs on the use of IWRM throughout the draft strategy. Collaboration among all stakeholders is key, and GWPC is pleased that NWP acknowledges the need to address quality and quantity of sustainable water resources within the full hydrologic cycle, including interactions between surface water, shallow groundwater, and underlying fresh, brackish, and saline aquifers.

  Response: The NWP looks forward to working with GWPC and other stakeholders in the future on this important issue.

- The National Farmers Union (Doc. #19, p. 2) is encouraged by the Strategy in that it recognizes the need to work with the agricultural community to promote water management. It feels that the Strategy accurately assesses that there is an increasingly limited water supply and it will be further stressed by rising temperatures.

  Response: The NWP looks forward to working with NFU and other stakeholders on these important issues.

- The American Petroleum Institute (API) (Doc. #46, p. 4) recommends that the IWRM effort include non-governmental participants in addition to the mentioned public stakeholders.

  Response: Thank you for your suggestion; non-governmental and private sector partners are now included in lists of partners throughout the 2012 Strategy. The NWP looks forward to working with API and other stakeholders on these important issues.

- Other State Commenter (Doc. #48), indicates support for "the guiding principles set forth in the draft strategy, including the inclusion and emphasis placed on integrated water resources management (IWRM). We recognize the importance of employing a holistic, watershed approach to resource management, taking into account water supply and quality, as well as all types of water resources – groundwater, drinking water and surface water. It is imperative to have all

relevant stakeholders involved in the process. We have already seen several states begin to incorporate IWRM into their water programs, as well as to integrate climate change considerations into their strategies."

Response: The NWP looks forward to working with States and other stakeholders on these important issues.

PROGRAMMATIC VISIONS, GOALS AND STRATEGIC ACTIONS

1. Infrastructure

The 17 comment letters addressing infrastructure were submitted from a wide variety of commenters, from State agencies to national associations and NGOs, as well as private citizens. Most commenters are either supportive or commending of EPA's efforts, and many approve of EPA's Climate Ready Water Utilities (CRWU) Program, which they see as a valuable tool for assisting utilities. These commenters provide suggestions on how to further improve the National Water Program (NWP).

General Comments

- **Various Comments concerning funding**

  Response: In response to several comments concerned with the adequacy of funding for infrastructure in particular and water programs in general, it is not the intent of this 2012 Strategy to increase costs, however, climate change itself could incur additional costs. Planning ahead helps managers to find best solutions to minimize costs, where possible. Further, while EPA would like to see all elements of the Strategy go forward, we recognize that resources are limited. This Strategy does not impose legally binding requirements on EPA, States, the public, or the regulated community. EPA will attempt to provide resources where possible and will provide technical guidance to help implement these Strategic Actions. EPA looks forward to working with partners and stakeholders to implement these actions over the long term.

- LA DPW and LA Co. Flood Control District stated that while current findings on climate change may be useful for planning purposes, it may be in some cases pre-mature to use them to design near term water projects. The 2012 Strategy should put more emphasis on research to adequately quantify its impact on hydrologic events and to develop methodologies to analyze non-stationary samples of hydrologic data.

  Response: EPA agrees that emphasis is needed on developing non-stationary hydrologic data and is actively working in this area.

- After providing cost estimates, the American Water Works Association (AWWA) (Doc. #21, p. 2) suggests that "NWP should acknowledge the unmet

financial needs for infrastructure maintenance and renewal, and should commit to working with other government agencies and water industry associations to address water infrastructure needs, both for maintaining current service and for climate change adaptations. It will not be a question of one or another, but rather of accomplishing both goals."

Response: EPA has added this acknowledgement to the Strategy.

- After providing cost estimates for replacement of existing infrastructure, and addressing climate variability, the Water Utility Climate Alliance (WUCA) (Doc. #24, p. 5) states that "these cost considerations should be incorporated in the regulatory process as well as the state CWA and SDWA revolving funds. Specifically, utilities need flexibility to determine risk management strategies that determine how best to invest capital dollars to manage competing pressures, including climate change."

  Response: As the Agency moves forward with responding to climate change, we will collaborate with utilities to help factor risk management into capital investment decisions, and will work to consider where statutes allow for regulatory flexibility in adjusting to shifting conditions.

- American Rivers (Doc. #27, p. 8) recommends that EPA "must recognize that current federal funding is insufficient to provide for the needed infrastructure upgrades. According to the American Society of Civil Engineers, our drinking water systems face an annual shortfall of at least $11 billion to replace aging facilities that are near the end of their useful lives and to comply with existing and future federal water regulations."

  Response: EPA has added this acknowledgement to the Strategy.

- Various Comments concerning conditions for receipt of federal funding

  Response: In response to several comments concerned with the adequacy of funding for infrastructure in particular and water programs in general, it is not the intent of this 2012 Strategy to increase costs, however, climate change itself could incur additional costs. Planning ahead helps managers to find best solutions to minimize costs, where possible. Further, while EPA would like to see all elements of the Strategy go forward, we recognize that resources are limited. This Strategy does not impose legally binding requirements on EPA, States, the public, or the regulated community. EPA will attempt to provide resources where possible and will provide technical guidance to help implement these Strategic Actions. EPA looks forward to working with partners and stakeholders to implement these actions over the long term.

- American Rivers (Doc. #27) provides the following general infrastructure-related recommendations, which is echoed in a joint letter from American

Rivers, Cahaba Riverkeeper, Clean Water Action, Clean Water Network, National Wildlife Federation, Oregon Environmental Council and South Carolina Coastal Conservation League (Doc. #36, p. 2):

- "As a condition for approval of Municipal Separate Stormwater (MS4) permits, Combined Sewer Overflow (CSO) long term control plans, and State Revolving Fund (SRF) awards, require a thorough assessment of and maximum use of green infrastructure" (Doc. #27, p. 2).
- "Make adherence to EPA's full lifecycle analysis guidance a requirement for infrastructure projects that receive Clean Water Act (CWA) permits" (Doc. #27, p. 2).
- "Continue to support designated infrastructure funding for green infrastructure and water and energy efficiency within the State Revolving Funds, and work with states to update state ranking criteria to provide full evaluation of climate resilient infrastructure" (Doc. #27, p. 2).

Response: The NWP encourages water and energy efficiency as allowable under federal law, including the use of funding, e.g., using the SRF Green Reserve. EPA will continue to work closely with States to facilitate their decision making process and ensure they have the tools needed to make appropriate decisions.

- A joint letter from American Rivers, (Doc. #27) Cahaba Riverkeeper, Clean Water Action, Clean Water Network, National Wildlife Federation, Oregon Environmental Council and South Carolina Coastal Conservation League also recommends:
  - Issue performance-based standards for stormwater management
  - Require climate change planning as a prerequisite for approval of any CSO long term control plan, Clean Water SRF awards or stormwater permits.

  Response: EPA is exploring potential options to adopt performance-based standards for stormwater management and would encourage further comment on this issue. Over the long term, EPA will evaluate the appropriate uses of its authorities and will attempt to provide resources and technical guidance wherever possible to implement these Strategic Actions. Meanwhile, The NWP encourages water and energy efficiency as allowable under federal law, including the use of funding, e.g., using the SRF Green Reserve. EPA will continue to work closely with States to facilitate their decision making process and ensure they have the tools needed to make appropriate decisions.

- The Natural Resources Defense Council (Doc. #33, p. 11) offers suggests adding the phrase "and using those projections as the basis for assessing compliance of LTCPs with the specific control requirements of the CSO policy" at the end of the first goal.

Response: EPA is exploring potential options to adopt performance-based standards for stormwater management and would encourage further comment on this issue. Over the long term, EPA will evaluate the appropriate uses of its authorities and will attempt to provide resources and technical guidance wherever possible to implement these Strategic Actions.

- The Alaska Department of Environmental Conservation (AK DEC) (Doc. #39, p. 3) comments that this section include language to promote the use of "Current Best Practices" to adapt infrastructure while the nation develops and implements climate change strategies. In addition, AK DEC states that, apart from Strategic Action 3, the infrastructure section appears "tailored to public utilities in the contiguous United States" and recommends that "a note be added to this section, in coordination with the State, to develop an appropriate infrastructure strategy for Alaska."

Response: The concept of using current best practices is inherent in an adaptive management approach. Regarding the comment specific to Alaska, please see the Alaska section of the Strategy and this response to comment document.

Goal #1

- A number of commenters applaud the CRWU, including the following:
    - The Water Environment Federation (WEF) (Doc. #14, p. 1) commends EPA for "undertaking the CRWU effort and incorporating its results into their 2012 strategy."
    - AWWA thanks EPA for acknowledging the role of water industry associations in collaborating with the NWP and looks forward to further collaborating with them and others; AWWA comments that "the questions and concepts presented in the Climate Ready Water Utilities (CRWU) program provide a reasoned and accessible starting point for many utility managers to begin evaluating climate change strategies" (Doc. #21, p. 1-2).
    - AWWA also applauds EPA for acknowledging water infrastructure concerns but that Strategy should note that climate related infrastructure expenses are in addition to costs and challenges to maintain current levels of service, and that EPA should commit to work with others to address unmet financial needs. (Doc. #21, p. 1)
    - American Rivers commends "the EPA for their Climate Ready Water Utilities (CRWU) initiative" (Doc. #27, p. 2).

  Response: The NWP is glad that the commenters find the CRWU to be an important program; we look forward to working with the water resource community to expand tools to help address the challenges posed by a changing climate.

Strategic Action 1

- AWWA (Doc. #21, p. 2) comments that the current version (1.0) of Climate Resilience Education and Awareness Tool (CREAT) tool "requires very labor-intensive data entry but renders relatively generic recommendations", and points to several other tools already developed by the federal government, including "FEMA's HAZUS tool," "NOAA's Sea Level Rise and Coastal Flooding Impacts Viewer," and "USGS's programs to project long-term flood, landslide, earthquake, and tsunami risks" as well as others under development by the private and non-profit sectors (Doc. #21, p. 3). In addition, they recommend the "development of scenario planning tools that could evolve over time using adaptive management" and provide a number of suggested scenarios while noting that scenario planning is appropriate for planning but not for regulatory issues (Doc. #21, p. 2-3).

  Response: Thank you for your comments. We hope that you will find that CREAT 2.0 is more user friendly, including a scenario-based approach. We will include information on the tools you have identified on our updated water and climate change web site. The NWP and the CRWU program look forward to working with AWWA and other stakeholders to ensure that the tools we develop are useful and effective. See also the response to NEIWPCC (Doc. #35), below.

- WUCA (Doc. #24, p. 5) also recommends improvements to the CREAT tool "by simplifying the front end data input section, and adding an option to assess impacts and develop adaptation options using simple scenarios", and suggests that EPA expand "utility outreach and direct assistance in the use of CREAT and any other developed support tools." WUCA provides the example of "regional workshops to provide training in the developed tools" as an outreach method.

  Response: WUCA's suggestions are noted. The NWP looks forward to continued collaboration with WUCA to improve the CRWU tools and to design and deliver training useful for utilities. In the coming years, we intend to expand training and outreach. See also the response to NEIWPCC, Doc. #35, below.

- The Natural Resource Defense Council (NRDC) (Doc. #33, p. 4) makes a similar point regarding outreach by commenting that "these tools and resources will only be effective in enabling utilities to adequately prepare for climate change if they are both widely disseminated and utilized". Their comment applies to CREAT as well as other tools, and they recommend working with states on promoting these resources because "State agencies are many times the only entity that many utilities, particularly those that are limited in capacity, have direct and regular contact with on water resource-related issues."

Response: The NWP looks forward to continued collaboration with NRDC and others to improve tools and to design and deliver training useful for water resource managers. In the coming years, we intend to expand training and outreach. See also the response to NEIWPCC, Doc. #35, below.

- The New England Interstate Water Pollution Control Commission (NEIWPCC) (Doc. #35, p. 1) indicates that it is critical that the CREAT documentation stress the importance of helping guide users and front-line facility operators and managers about how to use hydrologic science and tools, including to communicate, explain and offer consensus on impacts on infrastructure. NEIWPCC recommends adding "a component (whether in CREAT or elsewhere) that allows users (non-scientists) to frame such information for public consumption and for governmental forums".

  Response: The Agency appreciates the positive feedback on our Climate Ready Water Utilities (CRWU) initiative. As in the past, we will continue to work with stakeholders to build on our climate ready efforts that assist drinking water, wastewater, and storm water utility owners and operators better understand and assess climate change impacts to their utilities.

  The Climate Resilience Evaluation and Awareness Tool (CREAT), pronounced "create," assists users in conducting climate change risk assessments and promotes general awareness of climate change impacts for utility owners and operators. This tool represents the first effort to provide practical, easy-to-use software that translates the most recent climate change science into actionable information for drinking water, wastewater and storm water systems. To introduce utilities to the software and demonstrate how to use the tool, we have developed self-guided training modules on CREAT 1.0. These modules assist water sector utility owners and operators with inputting data to identify and assess threats, identifying adaptation options, and developing an implementation plan.

  We are working on version 2.0 of CREAT which will feature improved scenario-based planning, extreme events data, and energy management capabilities. Utilities can also conduct analysis comparison scenarios for different time periods. Utilities in Oakland, California and Wilmington, Delaware have participated in pilots for CREAT 2.0, we expect to release version 2.0 in late 2012. In coordination with our partners, after the release of the software, EPA will outreach to the sector educate and provide training on this tool.

  For more information on CRWU and CREAT, please visit www.epa.gov/climatereadyutilities.

Strategic Action 2

- The National Association of Clean Water Agencies (NACWA) (Doc. #43, p. 2) provides a number of arguments in support of biosolids and recommends that "EPA and other federal agencies better promote biosolids as a renewable resource". In addition, they recommend that EPA "consider its GHG regulations, such as the deferral of biogenic GHG."

  Response: While this comment is outside the scope of the NWP 2012 Strategy, EPA's Office of Air and Radiation supplied the following information in response to this request. Biogenic CO2 is released during the combustion of biogenic feedstocks, including biosolids and biogas. In July 2011, EPA finalized the Deferral for CO2 Emissions From Bioenergy and Other Biogenic Sources Under the Prevention of Significant Deterioration (PSD) and Title V Programs, which deferred for three years (until July 2014) the CAA permitting requirements for biogenic CO2 emissions from stationary sources (July 20, 2011, 76 FR 43490). EPA is using the three-year deferral period to conduct a detailed examination of the science associated with biogenic CO2 emissions, and in September 2011 EPA submitted the draft Accounting Framework for Biogenic CO2 Emissions from Stationary Sources to the Science Advisory Board (SAB) for review. The purpose of this study is to explore the scientific and technical issues associated with biogenic CO2 emitted from stationary sources and to present an accounting framework for estimating biogenic CO2 emissions on the basis of information about the carbon cycle. The SAB has undertaken a thorough scientific and technical review of the study including one in-person meeting and four teleconferences, and is expected to release its recommendations later in 2012. Based on the feedback from the scientific and technical review, EPA intends to follow notice-and-comment rulemaking procedures to determine how biogenic CO2 emissions should be accounted for in Clean Air Act permitting.

- The NRDC recommends integrating climate change factors into "federal loan and grant funding criteria and decision-making" (Doc. #33, p. 4) and giving "preference to projects that save energy and reduce greenhouse gas emissions" as a demonstration of the "federal government's commitment to sustainable infrastructure and operations." They suggest that these criteria "include energy and water efficiency as well as potential climate change impacts to the design and siting of proposed projects."

  Response: The NWP encourages the use of funding for water and energy efficiency as allowable under federal law, e.g., using the SRF Green Reserve. EPA will continue to work closely with States to facilitate their decision making process and ensure they have the tools needed to make appropriate decisions.

- While the City of San Diego (Doc. #38, Appendix A, p. 1) is supportive of tools that help reduce energy, they urge caution about mandatory use because specific

scenarios will not always produce a reduction in energy use since there is no one-size fits all solution".

Response: The NWP encourages and supports energy efficiency as a way to achieve sustainability while also reducing GHGs. We will continue to work with States and utilities to develop tools for effective decision making.

- The Clean Water Network (Doc. #41, p. 4) states that energy efficiency in wastewater treatment and compliance with CWA §313(b) and §304(d)(3) should be conditions to receiving Clean Water State Revolving Fund (SRF) monies for wastewater treatment plants.

  Response: The NWP encourages water and energy efficiency as allowable under federal law, including the use of funding, e.g., using the SRF Green Reserve. EPA will continue to work closely with States to facilitate their decision making process and ensure they have the tools needed to make appropriate decisions.

Strategic Action 3

- NRDC (Doc. #33, p. 5) is particularly supportive of this strategic action, as it describes the challenges for small utilities with limited resources to comply with regulatory requirements and prepare for climate change.

  Response: Thank you for your support.

- NEIWPCC and the Association of State Drinking Water Administrators (ASDWA) recommend rewording the strategic action as follows.
  - NEIWPCC: "The NWP will work with the States and public water systems to identify and plan for climate change challenges to drinking water safety and to assist in meeting health-based drinking water standards" (Doc. #35, p. 2).
  - ASDWA: "The NWP will continue working to enhance partnerships with states and others to improve water sector understanding of climate change adaptation options and ..." (Doc. #40, p. 4).

  Response: The suggestions have been adopted; Strategic Action 3 now reads: "*The NWP will enhance partnerships with States, interstates, tribes, and public water systems to understand and plan for climate change challenges to drinking water safety and to assist in meeting health-based drinking water standards.*"

- The City of San Diego (Doc. #38, Appendix A p. 1) wishes to be involved in identifying technical assistance activities because "if these technical activities are enforced, we want to ensure the cost-effectiveness and feasibility of the activities within our jurisdiction".

Response: The NWP looks forward to working with the City of San Diego and other stakeholders in developing decision support tools.

Strategic Action 4

- WUCA (Doc. #24, p. 6) recommends adding funding to the strategic actions under this goal, and suggests that this be done by expanding Strategic Action 4 to read "'Promote and fund' or 'Promote and incentivize' via Federal grants or some other financial mechanism".

  Response: The NWP supports these activities within its available resources.

- The City of San Diego (Doc. #38, Appendix A, p. 1) comments that "a disruption of locally implemented rate structuring could undermine visions and goals of local entities" and that the strategy is not robust because it is based on a handbook that is still under development. They recommend finalizing the handbook through public comment "before a strategic action can be based on its foundations."

  Response: The NWP has completed *Planning for Sustainability: A Handbook for Water and Wastewater Utilities* which provides a series of steps OW to help utilities voluntarily incorporate sustainability considerations into their planning.

Other Strategic Actions

- The Wisconsin Department of Natural Resources (DNR) (Doc. #32, p. 1) recommends adding a "Strategic Action related to developing new non-stationary floodplain mapping concepts into water and wastewater facility design and public water system sanitary survey inspection criteria".

  Response: This concept is already incorporated in the 2012 Strategy, in Strategic Actions 1 (infrastructure) and 51 (research), and in other SAs that state that we will work with partners to develop this type of information.

- WUCA (Doc. #24, p. 6) urges "EPA to include a Strategic Action which provides a funding vehicle not only for the design of sustainable systems, but also to offset the cost of modifications to existing infrastructure or for new sustainable infrastructure."

  Response: The NWP will support the activities in the 2012 Strategy within available resources.

- The Clean Water Network (Doc. #41, p. 4) comments on energy efficiency in wastewater treatment, and suggests that compliance with §313(b) of the CWA and §304(d)(3) be conditions to receiving Clean Water State Revolving Fund (SRF) monies for wastewater treatment plants.

Response: The NWP encourages water and energy efficiency as allowable under federal law, including the use of funding, e.g., using the SRF Green Reserve. EPA will continue to work closely with States to facilitate their decision making process and ensure they have the tools needed to make appropriate decisions.

Goal #2

- The National Farms Union (Doc. #19, p. 1) is encouraged that the 2012 Strategy recognizes the need to work with the agriculture community to promote water management. NFU indicates that conservation-based management strategies such as agriculture drainage management can provide a two-pronged strategy to improve water-use efficiency and reduce water quality impacts. NFU encourages EPA to continue collaborating with USDA NRCS, and to support delivery technical and financial assistance necessary to work with the agriculture community.

  Response: Thank you for your support; we look forward to working with NFU on these important issues.

- While the American Rivers (Doc. #27, p. 6) letter is supportive of many of the actions in the Strategy, the comments includes extensive discussion on ideas for moving the nation towards a more sustainable future, and makes the point that the NWP fails to address many comprehensive policy changes that are needed.

  Response: Thank you for your support; it is not the strategy's goal to address and provide answers for all policy issues associated with climate change; addressing such issues is an iterative and adaptive process and EPA looks forward to working with all stakeholders, including American Rivers, to make sure important policy issues are not overlooked.

- WUCA (Doc. #24, p. 6) identifies Strategic Actions 5 and 6 as "no-regret strategies" that should be priority actions "because they make the utility more resilient to a number of challenges facing the water sector, in addition to climate change impacts, such as minimizing the challenges associated with meeting demands with limited water supplies and growing populations"

  Response: An edit was made to acknowledge that many of the actions in those strategic actions can be considered no-regrets activities.

<u>Strategic Action 5</u>

- While supportive of Aquifer Storage and Recovery (ASR) projects, the Ground Water Protection Council (GWPC) (Doc. #25, p. 1) emphasizes the need to protect underground sources of drinking water from contamination, and

cautions "the NWP in the use of ASR and other green infrastructure as a process of storing water underground for future use when applied to stormwater". GWPC recommends "guidance and rules associated with the upcoming revised stormwater regulations that are not only protective of surface water quality, but also protective of groundwater quality" and is proposing to work with EPA to identify viable solutions.

Response: The NWP looks forward to working with GWPC and other stakeholders on this issue.

- An employee of the City of Aurora (Doc. #30, p. 1) states that as population continues to grow in the West while less water becomes available, increased demands on water providers must be addressed and the debate about additional storage must be started.

  Response: The NWP will engage in this issue as appropriate.

- The National Ground Water Association (NGWA) (Doc. #44, p. 1) recommends that:
  - "These sections need to mention the nexus among artificial groundwater recharge and conservation, reuse and water quality protection. Groundwater banking is an underutilized mechanism in which artificial recharge is directly linked to responsible reuse and market based allocation"
  - "Clarifying that ASR is 'one technique for managed aquifer recharge' among others"
  - "Managed aquifer recharge projects should be included as eligible water infrastructure projects for federal financial support."

  Response: Edit made to indicate that ASR is one type of managed underground injection, and that all types of underground injection must not endanger USDWs.

- The Wisconsin DNR (Doc. #32, p. 1) recommends the following additional research and outreach be performed related to water recharge and reuse:
  - "Research and an implementation strategy for seepage cells or infiltration galleries in the Midwest to be used to mitigate groundwater depletion from intensive uses."
  - "Research on satellite wastewater systems in the Midwest that could be used to extract water from sewer flows to be infiltrated on-site as a way to replenish groundwater supplies."
  - "An outreach and education strategy for public acceptance of wastewater reuse."

  Response: We can take these under consideration as we work on issues, although we would want to ensure that any activities related to infiltration not

endanger underground sources of drinking water. However, we do not believe the specific activities need to be added to the Climate Strategy document.

- NRDC (Doc. #33, p. 5) provides a number of facts and statistics to illustrate the importance of water loss control and to suggest that EPA "should be aggressively promoting water loss control programs". NRDC also describes ongoing efforts in California to emphasize that "EPA should work with water agencies to ensure these types of clear, mandated water loss control requirements are undertaken outside of California as well." They identify the *AWWA's Manual M-36, Water Audits and Loss Control Programs* as free software that could be beneficial to utilities.

  Response: EPA agrees that utilities should address the issue of water loss and, when working with the regulated community, recommends use of the IWA/AWWA methodology for conducting water audits (see http://water.epa.gov/infrastructure/sustain/wec_wp.cfm). There are many activities that EPA is carrying out to support the overall sustainability of water systems. The Climate Strategy is intended to communicate broader directions rather than the specific activities that would be carried out under each goal/strategic action area.

- Rather than monitor research development for desalination, AWWA (Doc. #21, p. 3) suggests that the "NWP should commit to actively seeking to drive down the energy intensity of desalination, recognizing that in some instances desalination may be the best technology available to meet the drinking water needs of coastal residents (or of residents in areas with saline ground water)"

  Response: We intend to collaborate with the research community and communicate relevant findings to water utilities, in cooperation with the associations which represent them.

Strategic Action 6

- The US Geological Survey (USGS) (Doc. #31, p. 2) comments that on page 28, "the wrong reference is given for the water shortages map on this page. While this map did appear in a USGCRP report, the source was cited in that report as follows: U.S. Bureau of Reclamation, 2005: Water 2025: Preventing Crises and Conflict in the West. U.S. Bureau of Reclamation, Washington, DC, 32 pp. Updated from USBR http://www.usbr.gov/uc/crsp/GetSiteInfo"

  Response: Correction made.

- The Wisconsin DNR (Doc. #32, p. 1) recommends the following research activities related to metering:

- "Research and development of systems to process real-time customer water use data to deliver useful information to customers for them to make informed water use decisions.
- Research the effectiveness of real-time water use information to change customer behavior."

Response: We appreciate the comment. EPA agrees that this type of information, which can be made available to customers through automatic metering systems, could be useful.

- NRDC (Doc. #33, p. 6) provides the following recommendations regarding metering:
  - "EPA should strongly encourage and work with water utilities to first ensure that the utility is metering all service connections, and using metered water for billing purposes (exceptions may be made for the smallest systems, provided the exceptions are reviewed periodically to account for current information on the technology and economics of metering and billing systems)."
  - "EPA should continue its work with plumbing and building codes to encourage the installation of meters on all new homes, on multi-family individual units, and on commercial buildings so water use can be measured and billed accordingly."
  - It also discusses the conservation benefits of multifamily sub-metering for apartments and condominiums.

  Response: EPA is actively supporting these types of activities within its authority and resources.

- American Rivers (Doc. #27, p. 6) makes the point that efficiency and conservation may be a better way forward than large-scale engineering projects and recommends additional EPA effort "to require water and wastewater utilities to meet standards for efficiency, leak detection and conservation pricing through permit requirements and as a condition of receiving SRF funding."

  Response: The NWP encourages water and energy efficiency as allowable under federal law, including the use of funding, e.g., using the SRF Green Reserve. EPA will continue to work closely with States to facilitate their decision making process and ensure they have the tools needed to make appropriate decisions. We look forward to working with America Rivers and other stakeholders on this important issue.

- Regarding WaterSense, NRDC (Doc. #33, p. 6) appreciates EPA's efforts, and recommends that EPA continue to "update the WaterSense standards for all fixtures and appliances and promoting the incorporation of those standards into an update of national minimum water efficiency standards."

Response: EPA is actively supporting these types of activities within its authority and resources.

- The Clean Water Network (CWN) (Doc. #41, p. 4) recommends the following actions related to water conservation:
    - "Allocate significant resources for the WaterSense program."
    - "Allocate serious resources for state and local governments as well as for local watershed and community civic groups for water conservation program grants."
    - "Encourage water utilities to offer their customers incentives to practice water conservation."
    - "Work with states to ensure that new development has adequate water supply to avoid unsustainable development."
    - "Actively implement Executive Order 13421 Section 2(c), which requires Federal facilities to reduce water consumption."

  Response: EPA is actively supporting these types of activities within its authority and resources.

- AWWA (Doc. #21, p. 3) is very supportive of EPA's efforts related to pricing that reflects the true cost of water, and recommends that this be taken "a step further" by coordinating with other EPA Offices, other parts of the government, and with water industry associations to promote the true cost concept".

  Response: As AWWA knows, EPA has been promoting the practice of full cost pricing for several years. However, because rate-making is a local utility decision, the Agency is eager to continue working with its stakeholders to educate local officials and the public on the need to better price water to reflect the costs of providing service.

- While WUCA (Doc. #24, p. 6) is supportive of water pricing to control demand, they comment that "EPA's role regarding pricing should be limited to education and public outreach" because pricing structures are location-specific and address local need, such as low-income residents and other considerations. They also suggest that EPA create "an economics team specializing in water-pricing strategies that could be called upon by those entities that want advice about how to incorporate more of the cost of water in their planning and actions."

  Response: EPA agrees that pricing is a local decision, but will continue to promote and educate on the need for appropriate pricing structures that better reflect the costs of providing service while meeting affordability needs. We will take the suggestion to create an economics team under advisement.

- NRDC (Doc. #33, p. 6) recommends that EPA "support conservation pricing, such as tiered systems for both drinking water and wastewater service" and

provide concrete examples of tiered pricing strategies successful at reducing consumption, as well as a number of arguments to substantiate their recommendation. NRDC suggests "including these types of water conservation measures in NPDES permits for POTWs administered by EPA, and ensuring that states that administer NPDES permits follow suit."

Response: EPA is actively supporting these types of activities within its authority and resources.

- The City of San Diego (Doc. #38, Appendix A, p. 2) comments that it is not EPA's role to be involved in local water rates, and that EPA should instead focus their efforts on researching "more innovative ways of infrastructure operations, maintenance and rehabilitation or working more efficiently under constrained costs."

  Response: EPA is actively supporting these types of activities within its authority and resources.

- NRDC (Doc. #33) references an EPA document related to water-efficient landscaping to point to the lack of recommendations related to this topic in the NWP. NRDC recommends that EPA do the following:
  - "Develop model ordinances that municipalities can adopt that ensure efficient landscapes in new developments and reduce water waste in existing landscapes."
  - Encourage and incentivize businesses and institutions "to replace turf with low-water use vegetation, and invest in innovative devices such as smart controllers and moisture sensors."
  - Encourage and incentivize farmers "to take full advantage of measures such as modest crop shifting, smart irrigation scheduling, advanced irrigation management, and efficient irrigation technology."

  Response: EPA is actively supporting these types of activities within its authority and resources.

- Other State Commenter (Doc. #48, p. 1) seeks clarification as to how the WaterSense Program will actually reduce greenhouse gas emissions.

  Response: It takes energy to move, treat and use water. By reducing water use, less energy will be used, thereby reducing GHGs. WaterSense labeled fixtures help residential water users to use less water.

2. Watersheds and Wetlands

A total of nineteen comment letters were received that provided input on this section of the Strategy. Comments were received from local government agencies, state and federal agencies, the regulated community and national environmental

NGOs. Comments were received regarding this topic in general and in specific regard to Goals #3-7. Approximately half the commenters provided feedback on the recommendations to incorporate climate change considerations in the Clean Water Act (CWA) Section 404 program.

General Comments

- The Louisiana Environmental Action Network (Doc. #20, p. 1) supports the goal of promoting healthy watersheds, saying this is important to improving conditions within the Gulf of Mexico.

  Response: Thank you for your support. The NWP looks forward to collaborating with LEAN on this important issue.

- American Rivers (Doc. #27, p.4) states their support of this goal saying that healthy watersheds are "critical to reducing the impacts of climate change."

  Response: Thank you for your support. The NWP looks forward to collaborating with American Rivers and other stakeholders on this important issue.

- The Wisconsin Department of Natural Resources' Water Division (Doc. #32, p.1) asks that consideration be given to allowing flexibility in implementing the goals in the Watershed and Wetland portion of the strategy from state to state or region to region. While the report does a good job discussing collaboration with terrestrial system, the discussion should be expanded to "address how changes in climate may shift agricultural production and cropping systems," including how warmer temperatures may breakdown residue faster reducing protection against erosion. They further state that there is a need to better define what the change in watersheds will be prior to knowing how to design for it.

  Response: As the Agency moves forward with responding to climate change, we will consider where statutes allow for regulatory flexibility in adjusting to shifting conditions. Regarding agricultural systems and changes in watersheds, these are the types of issues that are expected to be addressed over time.

- Other State Commenter (Doc. #48, p.2) is in favor of the draft Strategy's increased focus on the importance of protecting healthy waters/watersheds/wetlands in Section IV, Subsection B, and states "The draft strategy notes that EPA will work to integrate protection of healthy watersheds throughout NWP core programs. This is very much in line with other ongoing EPA initiatives, including the Clean Water Act (CWA) Section 303(d) 10-Year Vision and Section 319 Reform efforts."

  Response: Thank you for your support. The NWP looks forward to collaborating with our partners on this important issue.

Goal #3

- The Los Angeles Department of Public Works and Los Angeles County Flood Control District (Doc. #16, p. 2) comment on the importance of the U.S. Forest Service (USFS) in maintaining healthy watersheds in the Los Angeles area and states that "added significance to the USFS mission in this area should be recognized through expanded funding commensurate with the increased risk of wildfire and other factors …as a result of climate change".

  Response: The NWP agrees that the role of the USFS is critical to maintaining a healthy watershed, and the NWP intends to continue to collaborate with them on these issues.

- American Rivers (Doc. #27, p. 11) supports EPA's healthy watershed goal, and says that "EPA must restore the traditional scope of Clean Water Act protection intended by Congress" and that EPA should complete the rulemaking process and increase wetland jurisdiction to protect small streams and wetlands.

  Response: EPA thanks the commenter for its support of EPA's healthy watersheds goal but notes that the aspect of the comment dealing with CWA jurisdiction is outside the scope of this Strategy.

- The U.S. Fish and Wildlife Service (Doc. #34, p.1) writes that the Strategy could be "enhanced by a more thorough discussion of how a variety of agencies could collaborate at the landscape scale to build climate-resilient wetlands and watersheds." (USFWS makes this same comment under Goal #4.) It also states that the National Fish Habitat Action Plan is mis-characterized and they provide specific text edits to that language under Goal #3 in the Strategy to correct this issue (Doc. #34, p. 3).

  Response: Thank you for this comment. We have inserted a text box listing the goals of the Draft Fish, Wildlife and Plants Adaptation Strategy and underscored our commitment to work with participating partners to achieve the goals. The suggested edits regarding the NFHAP are accepted.

- The New England Interstate Water Pollution Control Commission (NEIWPCC; Doc. #35, p. 2) writes that the role of Section 319 of the Clean Water Act should be explored as a tool to maintain watershed health, saying it is a "cost effective response to both current conditions and changes to the climate." and that future Section 319 guidance should be crafted to optimize the ability to use 319 for healthy watersheds.

  Response: The NWP agrees with the commenter that the Section 319 program is a cost effective tool in EPA's effort to maintain watershed health. SA 10 (healthy watersheds) already implies the use of Section 319 grants in the

discussion of "funding and technical assistance programs." However, specific reference to CWA Section 319 has been inserted into SA12 (watershed restoration and floodplain management) and SA 33 (water quality planning).

- The Association of State Drinking Water Administrators (ASDWA; Doc. #40, p. 4) also suggests that specific references to Section 319 should be included in the discussion of this goal.

  Response: SA 10 (healthy watersheds) already implies the use of Section 319 grants in the discussion of "funding and technical assistance programs." However, specific reference to CWA Section 319 has been inserted into SA12 (watershed restoration and floodplain management) and SA 33 (water quality planning).

- The City of San Diego Transportation and Stormwater Department (Doc. #38, p. 5) comments on the recommendation to encourage the use of green infrastructure through stormwater permits, stating "the cost/benefit ratio of any such requirements would depend on how they are implemented." The City would like to take advantage of opportunities to engage in the USEPA/state continuing planning process.

  Response: The NWP looks forward to engaging with the City of San Diego and other stakeholders on this issue.

Goal #4

- The U.S. Fish and Wildlife Service (Doc. #34, p.1) writes that the Strategy could be "enhanced by a more thorough discussion of how a variety of agencies could collaborate at the landscape scale to build climate-resilient wetlands and watersheds." Please note they make this same comment under Goal #3.

  Response: Thank you for this comment. We have inserted a text box under Goal 3 listing the goals of the Draft Fish, Wildlife and Plants Adaptation Strategy and underscored our intention to work with participating partners to achieve the goals. This applies to Goal 4 and other aspects of the 2012 Strategy s well.

- The City of San Diego Transportation and Stormwater Department (Doc. #38, p. 3) supports Strategic Action 13 under Goal #4, but notes that the practical implementation can be problematic in that funding for acquisition of riparian buffers and lands could be limited, and buying and managing land will require greater fiscal budget, but Public Utilities, are economically challenged.
-

  Response: The NWP acknowledges this challenge.

- NEIWPCC (Doc. #35, p.2) writes of the importance of the recognition of the riparian zone and floodplain management. It states that "structural and non-structural floodplain and riparian zone decisions can assist in reducing the impact of severe storms; and intact and well-managed watersheds can absorb impacts and help balance flows over time." It requests that this be specifically identified in the Strategic Actions section in the Strategy.

  Response: EPA appreciates this comment and has inserted an additional revision to place more emphasis on floodplain management.

- Another State Commenter (Doc. #48, p.2) comments under Goal 4, Strategic Action 13, "federal agencies could do a better job of protecting and enhancing naturalized riparian buffers if they work together to address the multiple benefits of riparian areas, including habitat, flood reduction, nutrient reduction, recreation and base flow enhancement. We would also like to note that in that same strategic action, we support the emphasis placed on non-structural solutions."

  Response: Thank you for your comment; the NWP intends to work with other federal agencies to achieve this Goal.

Goal #5

- The Los Angeles Department of Public Works and Los Angeles County Flood Control District (Doc. #16, p. 3) discuss the concern about rising sea level as it relates to their injection well system that is used to provide a salt water intrusion barrier to protect drinking water aquifers. They indicate that more research is needed to define probabilistically the magnitude of sea level rise, and encourage "more research and welcome technical assistance from the various Federal agencies that could assist in projected possible needs to guard against the effects of sea level rise…."

  Response: EPA agrees that research is needed in this area and is collaborating with others on this issue.

- The Water Utility Climate Alliance (WUCA) (Doc. #24, p. 7) raises an issue regarding the stated concerns about warmer water temperature fostering pathogen growth, and increased precipitation causing elevated pollutant loads in surface water reservoirs and streams used for public water supply. It agrees that these conditions can lead to increased treatment requirements, and suggests "placing the emphasis of the two situations on the increased financial burden to utilities which will have to do additional treatment, rather than on the reliability of treatment." The WUCA also "supports EPA's decision to foster increased collaboration at the local and watershed or aquifer scale."

Response: An edit has been inserted adding the text, "*and potentially increasing costs.*"

- The Ground Water Protection Council (GWPC) (Doc. #25, p. 2) supports the goal of continued stakeholder collaboration to promote source water protection awareness, as well as the action to encourage the inclusion of source water protection areas in local climate change adaptation initiatives discussed in Strategic Action 15.

  Response: The NWP looks forward to working with GWPC and other stakeholders on these important issues.

- The National Association of Homebuilders (NAHB) (Doc. #26, p. 8) raises an issue about Strategic Action 14 concerning source water delineations, and states that the Strategy has not done enough to incorporate recommendations by the stakeholders most impacted. NAHB indicates there are multiple agencies working to address climate change through changes in local planning and code requirements, including EPA, DOT and HUD via the Partnership for Sustainable Communities Initiative. It suggests that these be evaluated by the NWP to avoid a duplication of effort and duplication in requirements for compliance.

  Response: The NWP appreciates the NAHB's comment, and will ensure that we continue to coordinate with the Partnership for Sustainable Communities Initiative on these issues.

- American Rivers (Doc. #27) and a joint letter from American Rivers, Cahaba Riverkeeper, Clean Water Action, Clean Water Network, National Wildlife Federation, Oregon Environmental Council and South Carolina Coastal Conservation League (Doc. #36, p. 2): suggest that EPA "Strengthen source water protection" (Doc. #27, p. 8).

  Response: The NWP looks forward to working with American Rivers and other stakeholders on these important issues.

- ASDWA (Doc. #40, pp. 4-5) asks that groundwater be more prominent by adding the following words to the last sentence on page 33: "…where groundwater withdrawals are outstripping recharge; increased pressure head from a higher sea-level worsens this problem." It also believes the updating of source water assessments and protection plans under Strategic Action 14 is important, but are "concerned about the lack of resources dedicated to undertake this activity at the national level."

  Response: Edit accepted. The NWP acknowledges the economic challenge.

- The National Ground Water Association (NGWA) (Doc. #44, p. 2) comments on the value of source water protection planning and states that "Action to update delineations, assessments or protection plans may not happen without federal funding to the states or local government."

  Response: The NWP acknowledges this challenge.

Wetlands General Comments

- Several Comments

  Response: A number of commenters, itemized below, raised legal concerns regarding Strategy Goals 6 and 7 (CWA 404 and EPA's wetlands program.) In particular, commenters said that (1) EPA does not have the authority to superimpose additional climate change analyses on the CWA 404 program generally and, in particular, when determining pursuant to the 1992 Section 404(q) Memorandum of Agreement (MOA) whether there would be a "substantial and unacceptable" effect to an Aquatic Resource of National Importance (ARNI); (2) any new substantive climate-related CWA 404 permitting criteria must pass through the APA rulemaking process; (3) any climate change effects on the CWA 404 program should only be analyzed after EPA issues a wetlands jurisdictional rule based on an appropriate reading of its statutory authority; and (4) EPA should avoid any arbitrary definition of "natural" states of wetland diversity.

  With regard to comments that EPA does not have authority to superimpose additional climate change analysis on the CWA 404 program, EPA responds that, as Strategic Action 16 states, EPA will consider the effects of climate change only as appropriate when making determinations or taking action under CWA 404. "As appropriate" would include as consistent with applicable statutory and regulatory authority. Moreover, Strategic Action 16 states that EPA will coordinate with USACE regarding "if/how" consideration of climate change could be incorporated into CWA 404 decision processes. EPA will also consider the role of States and Tribes through programmatic assumption, state programmatic general permits and/ water quality certification. EPA intends to carefully analyze its legal authority to consider the effects of climate change on any regulatory or permitting action it takes pursuant to CWA section 404, including determining if there would be a "substantial and unacceptable" impact to ARNI. This analysis would include whether it is necessary to undertake APA rulemaking. EPA considers it beyond the scope of this Strategy and comment response exercise to respond to comments regarding the development of CWA 404 jurisdictional guidance. Lastly, EPA intends to avoid taking any action pursuant to this Strategy that could be characterized as "arbitrary," including the adoption of an arbitrary definition of "natural" states of wetland diversity.

- The Western Business Roundtable (Doc. #23, p. 11) comments on the integration of the Strategy into the CWA and states that "We are particularly concerned by the combined implications of this expansive and vaguely defined climate initiative and the Agency's proposed expansion of its authority under the CWA." They also state their opposition to the recent "Draft Guidance in Identifying Waters Protected by the Clean Water Act" and give a number of reasons for this opposition. It asks that the comments it filed on the draft guidance be incorporated by reference into its comments on the Strategy.

  Response: See the first response in this section on Wetlands General Comments. As in that response, EPA notes that it is beyond the scope of this Strategy and comment response exercise to respond to comments regarding the development of CWA 404 jurisdictional guidance.

- NAHB (Doc. #26, pp. 3-7) provides significant discussion on the CWA Section 404 program, including a summary of recent court decisions and EPA guidance documents related to permitting of Waters of the United States. In this context, it expresses a concern about the increased requirements proposed under Goal #6 in the Strategy and states they are "based on subjective interpretations of climate change impacts and mitigation strategies that will undoubtedly add to already cumbersome, confusing and complicated wetlands permitting program." It states that "Changing the requirements of the Section 404 program to address the effects of climate change require a rulemaking to implement" and "Prior to adding new layers of compliance requirements, the EPA must instead address existing issues with the Section 404 program."

  Response: See the first response in this section on Wetlands General Comments. As in that response, EPA notes that it is beyond the scope of this Strategy and comment response exercise to respond to comments regarding the development of CWA 404 jurisdictional guidance. EPA disagrees that it cannot simultaneously address climate adaptation concerns and other "existing issues" related to the CWA 404 program.

- The National Mining Association (Doc. #37, pp. 1, 3-4) express concerns about potential expansion of authority under Section 404 of the CWA and states that it is concerned that the Strategy will "result in further delays and complications in already cumbersome permitting processes with few or no corresponding benefits." It specifically mentions that the Strategy discusses CWA Section 404(q) with regards to ARNI's and says that this section of the Act does not mention ANRI's or "permit EPA to further delay the permitting process to purportedly account for nearly impossible-to-predict climate change scenarios." It also raises a similar concern regarding the consideration of climate change impacts by NPDES permitting authorities.

Response: See the first response in this section on Wetlands General Comments. EPA disagrees with the comment that anticipating issues presented by climate change will delay or complicate the CWA 404 permitting process.

- Consol Energy (Doc. #42, pp. 1-2) raises similar issues with potential changes to the Section 404 program as described by the National Mining Association, and writes that it supports the Association's concern that "EPA is using the Strategy to expand its own authority without statutory justification and infuse the entire Section 404 permitting regime with questionable science that is subject to frequent change." It further writes that "This Strategy threatens to unravel the CWA regulatory scheme, increase cost, add unforeseeable delays to the permitting process, and open the door for costly litigation."

  Response: See the first response in this section on Wetlands General Comments. Moreover, EPA disagrees with the comment that this Strategy "threatens to unravel the CWA regulatory scheme, increase cost, add unforeseeable delays to the permitting process, and open the door for costly litigation."

- The American Petroleum Institute (Doc. #46, p. 5) states that the proposal to determine how wetlands under changing climate conditions will differ from their natural state is an unachievable objective. It says that "EPA must be careful to ensure that all wetlands determinations are made based solely on the statutory limits of EPA's jurisdictional authority, as intended by Congress." It questions whether it is possible to identify natural wetland conditions as well as appropriate indicators of climate change. It also says "there is no guarantee that the 'natural' state of a particular wetland community has a greater ecological value than an altered state resulting from changes in its water balance and ambient temperature regime." It recommends that EPA focus on wetland mapping goals instead of looking at changes in the natural state of wetlands.

  Response: See the first response in this section on Wetlands General Comments.

- The Association of State Wetland Managers (ASWM) (Doc. #28, p. 2) requests that EPA add an additional goal encouraging "sustainable wetland restoration and long term planning and priority setting for wetland restoration projects which takes into account the potential added benefits for climate change mitigation and adaptation." Strategic actions could address (1) consideration of likely climate impacts on hydrology in restoration design and management; (2) encouraging agencies and organizations to restore and preserve wetlands to prepare for climate change when setting priorities, and (3) research to clarify the conditions under which restored or preserved wetlands can serve as carbon sinks, and to estimate the potential scope of potential carbon sequestration, including actions to maximize carbon sequestration.

Response: EPA thanks ASWM for this suggestion and agrees that the 2012 Strategy should address long term planning for wetland restoration. Rather than add a new Goal, this concept will be merged with the existing Goal 7, giving it a broader focus. The new Goal and Strategic Actions will read:

Goal 7: EPA improves baseline information on wetland extent, condition and performance to inform sustainable wetland restoration, long term planning, and priority setting that takes into account the potential added benefits for climate change adaptation and carbon sequestration.

Strategic Action 20: The NWP intends to work with partners and stakeholders to develop information and tools to support long term planning and priority setting for wetland restoration projects.

Wetlands have the potential to provide added benefits for climate change adaptation as well the potential to sequester carbon. The NWP intends to work with partners and stakeholders, encouraging them to consider climate change when setting priorities, including to protect wetlands from impacts as well as to maximize carbon sequestration.

Goal #6

- The Los Angeles Department of Public Works and Los Angeles County Flood Control District (Doc. #16, p. 4) is concerned that U.S.ACE would add more permitting and mitigation requirements on proposed projects, affecting regulatory agencies' ability to process permits in a timely manner due to additional work. EPA should be expected to develop any such changes to the 404 regulatory program through a formal rulemaking process.

  Response: EPA will carefully consider application of the Administrative Procedures Act or rulemaking processes, including notice and comment, should it consider or make changes to the CWA 404 regulatory program.

- WUCA (Doc. #24, p. 7) supports the CWA 404 program and urges "EPA to take a regional or local level stance when considering the effects of climate change on CWA Section 404 Wetlands permitting and enforcement programs" as discussed in Strategic Action 16. It also "would like further clarification as to how the EPA Section 404 permit review process would determine if there would be a 'substantial and unacceptable' impact to Aquatic Resources of National Importance (ARNI)."

  Response: The Goals and Strategic Actions discussed in the Strategy identify areas of intended, future focus and are not intended to describe in detail the nature of future actions that may be undertaken. The intent is to work with

partners and stakeholders to figure out if and how to factor climate change into future actions.

- American Rivers (Doc. #27, p. 11) is concerned that EPA's commitment to evaluating the 404 program are "far too timid and do not represent the overhaul that is necessary to correct the significant failings of the Section 404 program." Further, it writes that "the Agency should be more proactive in and develop detailed and binding guidance on the steps that must be undertaken by an applicant for a Clean Water Act Section 404 permit."

  Response: EPA notes that the commenters broadly expressed concerns about the existing Section 404 program generally, or permitting in particular, are beyond the scope of this 2012 Strategy.

- ASWM (Doc. #28. p. 1) states that the discussion regarding this goal focuses on federal agencies, while "many states and tribes play a major role through program assumption, state programmatic and general permits, and/or Section 404 water quality certification." It recommends that EPA recognize the need to collaborate with states and tribes during the evaluation of the 404 program and that "state/tribal wetland permit programs also be addressed by this goal" as states and tribes are both affected by changes to the 404 program.

  Response: The NWP agrees, and it is our intent to work with all relevant parties.

- The U.S. Geological Survey (Doc. #31, p. 2) recognizes the challenge in implementing this strategic action yet recognizes "this is an important action because IPCC and many others have listed wetlands among the most highly vulnerable ecosystems to the effects of climate change."

  Response: The NWP thanks the USGS for its support and collaboration.

- A joint letter from American Rivers, Cahaba Riverkeeper, Clean Water Action, Clean Water Network, National Wildlife Federation, Oregon Environmental Council and South Carolina Coastal Conservation League (Doc. #36, p. 2) suggests:
  - that the NWP work with EPA Regions to set water conservation and efficiency standards and metrics for the 404 permitting process, similar to Region 4's current standards;
  - that the effects of climate change be considered when making practicable alternatives and significant degradation determinations in the Section 404 program;
  - give real meaning to avoidance under Section 404 sequencing by elevating the importance of preserving intact systems; and

- evaluate with the US ACE how wetland and stream compensation projects could be selected, designed, and sited to aid in reducing the effects of climate change.

Response: The NWP appreciates the commenters' letter, and welcomes their ongoing input as the NWP works to address these important issues in the future.

- The Clean Water Network (Doc. #41, p. 6) stated that EPA should work with the USGS and US ACE and other agencies to reinvigorate efforts to protect all existing wetlands, focusing on wetlands that must be off limits to new development due to climate change considerations.

  Response: The NWP appreciates the commenter's letter, and welcomes the Clean Water Network's ongoing input as the NWP works to address these important issues in the future.

- Other State Commenter (Doc. #48, p.2) suggests with respect to the wetlands-related strategic actions, "it should be clarified whether we should also assess those wetlands that will not be able to accrete at a pace that is fast enough to keep up with sea level rise. We suggest that the protection of wetlands that can survive sea level rise be prioritized to ensure we are acting in a cost effective manner. In addition, it would be helpful for the final strategy to set forth examples of wetlands adaptation."

  Response: Thank you for your comment. We have edited Goal 7 and added a new Strategic Action to include the need to prioritize efforts:

  Goal 7: EPA improves baseline information on wetland extent, condition and performance to inform sustainable wetland restoration, long term planning, and priority setting that takes into account the potential added benefits for climate change adaptation and carbon sequestration.

  Strategic Action 20: The NWP intends to work with partners and stakeholders to develop information and tools to support long term planning and priority setting for wetland restoration projects.

Goal #7

- WUCA (Doc. #24, p. 7) believes "EPA should prioritize initial efforts to focus on SA 18 and commit funding and training to complete wetland mapping, especially in the arid West." Based on stakeholder monitoring and assessment projects conducted to date in Nevada, it recommends that EPA survey stakeholders to share available data.

Response: Thank you for your comment. The NWP supports these efforts within available resources.

- The NAHB (Doc. #26, pp. 3-7) states, with regard to the recommendation to update wetlands mapping, that "Prior to adding new layers of compliance requirements, the EPA must instead address existing issues with the Section 404 program."

  Response: Thank you for your comment. EPA notes that this strategy does not add "new layers of compliance" and, in any event, disagrees that it cannot simultaneously address climate adaptation concerns and other "existing issues" related to the CWA 404 program.

- ASWM (Doc. #28, p. 2) recognizes the value of a national assessment of wetlands, but that states and tribes also monitor wetland extent and condition (e.g., Great Lakes) and indicates that State and regional data will be important in planning for and evaluating climate impacts, and evaluating the success of adaptation actions.

  Response: The NWP agrees with the comment.

3. Coastal and Ocean Waters

Ten comment letters were submitted on this section of the Strategy from a wide range of entities including professional societies, federal, state, and local government agencies, regulated communities, and national environmental NGOs. These comments are generally in support of this section of the National Water Program (NWP), and offer suggestions of further inclusions and expansions.

General Comments

- The Fertilizer Institute (TFI) has two major comments related to the Coastal and Ocean Waters section regarding duplication of existing intergovernmental activities and clarifications of the CWA authority over greenhouse gases.

  TFI (Doc. #17, p.2) states that there must exist a "structure with the formal standing to coordinate among existing intergovernmental bodies involved in existing activities" to avoid "overlapping and duplicative efforts". For example, TFI cites four "broad-based, budget-intensive watershed protection efforts… for several major water bodies" that will be readdressed by the *2012 Strategy*. TFI would like to see a proposal for how the existing intergovernmental bodies will be integrated into a single Task Force whenever possible.

  Response: Thank you for the comment about how the proliferation of strategies and adaptation plans throughout the federal government may be confusing, especially since, at the time of issuance of the draft 2012 Strategy,

the National Ocean Policy and the Fish, Wildlife and Plants Strategy were still under development (and have not yet been issued in final form). We are working to ensure that the plans avoid contradictions or duplication, and that they promote coordination. As such, the actions in the Coastal and Ocean Waters section of our strategic plan are closely tied to these other federal strategic plans for addressing climate change (including the National Ocean Policy implementation). Strategic Action 31 specifically says that EPA intends to work for interagency implementation of federal strategies. Now that the NOP implementation plan is nearing final issuance, we are incorporating edits in the final 2012 Strategy to ensure consistency.

The Fertilizer Institute further states that EPA Must Clarify Clean Water Act (CWA) Authority over Greenhouse Gases. TFI states that air pollutants have historically been regulated under the Clean Air Act (CCA). Additionally, "there are many unknowns to the process of regulating GHGs under the CWA that must first be explored, discussed and evaluated before proceeding" (Doc. #17, p.3). Before EPA regulates GHGs under the CWA, TFI would like to see a "legal analysis of its authority to do so, the structure regulating GHGs under the CWA, and how those regulations would intersect with CCA regulations" (Doc. #17, p.3). Time for public review and comment should also be provided.

Response: In the 2012 Strategy EPA is not proposing to use the Clean Water Act to regulate greenhouse gases. References to greenhouse gases in the Coastal and Ocean Waters section are merely in the context of explaining that any actions taken by the U.S. to address greenhouse gases are intended to be protective of water quality.

- The Louisiana Environmental Action Network (LEAN) (Doc. #20-1, p.2) praises EPA for continuing "to attempt to work with state and local governments" and encourages EPA to "not back down in [its] efforts to develop national level responses to the pressing problem of climate change." LEAN recognizes that the reduction of greenhouse gases should be a "key component of the water response strategy for climate change," especially considering the region's "vulnerability to hurricanes and extreme weather events".

  Response: EPA appreciates the commenter's support.

- When performing integrated planning, the American Water Works Association (AWWA) (Doc. #21, p.4) notes that the drinking water community has found EPA generally unwilling to include drinking water utilities in integrated planning, and recommends that EPA include them in addition to wastewater and storm water, since "the actions of each type of water utility affect the others." AWWA later states, "EPA should acknowledge the potential for climate change impacts on source waters," which may cause changes in baseline conditions. As

a result of this, "some flexibility in future regulations and actions may be necessary".

Response: EPA understands the comment about the potential for climate change to affect source water and it is our intention to work with both the drinking water and wastewater communities to build resilience. As the Agency moves forward, we will consider the extent to which regulatory or other flexibility may be necessary and appropriate.

Goal #8

- Regarding Strategic Action 21, the Natural Resources Defense Council (NRDC) (Doc. #33, p.9) suggests that the National Water Program (NWP) could "assist in monitoring efforts by assuring that NPDES permits and other EPA programs include requirements to monitor for important pollutants like pH, dissolved inorganic carbon, alkalinity, nutrients, and sediments" and "critical biological indicators (e.g., coral reefs and shellfish resources)".

Response: Strategic Action 21 says that the NWP intends to work within EPA and with other federal, tribal, and state agencies to be sure that knowledge and information to protect ocean and coastal areas is collected, produced, analyzed, formatted, and easily available. EPA intends to consider the extent to which NPDES permitting and other EPA program monitoring can assist in this effort. In addition, Strategic Action 42 in the section on Water Quality describes general monitoring for both inland and coastal surface and ground waters, including pH. Please see the response to comments in that section. When impacts such as eutrophication effects on pH are identified, this strategy assumes they will be handled through existing mechanisms.

Goal #9

- The Alaska Department of Environmental Conservation (Doc. #39, p.3) suggests, "EPA should expand the section to include discussion on partnerships pertinent to Alaska," since "Alaska is not currently represented in the NEP, LAE, or Great Waterbodies organizations mentioned." Alaska is of particular importance because "it comprises more coastline of the United State than the coastline of the other 49 states combined".

Response: The National Estuary Program, Climate Ready Estuaries, and the Council of Large Aquatic Ecosystems strive to produce examples, case studies, and recommended best practices, for the use of all coastal managers. These place-based programs are not found in every state, and even where a NEP may exist, large expanses of the state's coastal zone may still be outside NEP study areas. However, we have also committed to work with state partners on coastal and ocean issues, and having an established place-based program is not a

condition for cooperation. The Alaska Region section of the strategy lists some coastal strategies that Region 10 has identified. We also note EPA's interest in working with the regional planning bodies established in the National Ocean Policy implementation.

Goal #10

- The County of L.A. Department of Public Works and L.A. Co. Flood Control District (Doc. #16, p. 3) indicate that, based on some projections for sea level rise, many flood control channels, levees, and storm drains in L.A. County could become inadequate and large areas would have to be remapped as flood zones; further, seawater rise may increase saltwater intrusion into coastal aquifers; and requests that more research be done to define sea level rise probabilistically.

  Response: Thank you for your comment.

- In reference to Strategic Action #26, the Alaska Department of Environmental Protection (Doc. #39, p. 4) suggests, "EPA should consider augmenting the Strategy, again with State involvement, with a more comprehensive discussion of considerations and strategies for community relocation efforts, which may be required due to increases in erosion in coastal areas or loss of permafrost".

  Response: Please see response in the section on Alaska.

- The Water Utility Climate Alliance (WUCA) (Doc. #24, p.8) would also like to see some expansion of Strategic Action #26 to include non-coastal water entities. WUCA reiterates its point that while "WUCA supports the Coastal and Ocean Waters strategic actions 20 through 31," WUCA would like to see "EPA have an equivalent funding mechanism similar to SA 25 and 26 for non-coastal water entities engaged in improving utility resistance, adaptation planning, and minimizing risks to climate change impacts" (Doc. #24, p.7). Additionally, WUCA raises a concern with the tone of the statement: "In the context of coastal change and sea level rise, decisions must be made about whether some environmental restoration efforts, particularly for coastal marshes, are realistic or practical" (Strategic Action #27, p. 45). WUCA believes the tone "should not be to undermine the reality or practicality of coastal marsh restoration. Rather, decisions about coastal marsh investment should consider long-term viability and replenishment costs".

  Response: EPA disagrees that the statement in the strategy "undermines the reality or practicality of coastal marsh restoration." Nevertheless, to avoid misunderstanding, Strategic Action 27 has been edited to read: "In the context of coastal change and sea level rise, decisions about restoration efforts for coastal marshes should consider long-term viability."

- Regarding Strategic Action 27 (Doc. #38, p. 7), the City of San Diego stated that "at present, there are no criteria for determining realism or practicality, or guidelines for the type and degree of compensation or mitigation required" and "depending on how these are formulated they could dramatically increase project costs".

  Response: The NWP appreciates the comment. This is the type of information that water resource managers would develop over time.

Goal #11

- The Natural Resources Defense Council (NRDC) (Doc. #33) suggests that the National Water Program (NWP) could "assist in monitoring efforts by assuring that NPDES permits and other EPA programs include requirements to monitor for important pollutants like pH, dissolved inorganic carbon, alkalinity, nutrients, and sediments" and "critical biological indicators (e.g., coral reefs and shellfish resources)" The NRDC also recommends that in Strategic Action #28, the NWP "explicitly should consider the interrelationship between acidification and nutrient pollution" (Doc. #33, p. 9), and cites several recent scientific studies that "have identified enhanced acidification of marine waters due to eutrophication." NRDC attached Table 1 which includes existing federal authorities who can oversee ocean acidification monitoring (Doc. #33, p. 13).

  Response: See Response to NRDC comment re: In Goal 8, Strategic Action 21 re: Goal 8, Strategic Action 21. We further state that, as more monitoring and assessment data become available over time including for impacts such as eutrophication effects on pH, we will respond to that information using available tools and mechanisms.

- The National Mining Association (NMA) (Doc. #37, p. 6) objects "to the use of the CWA to address ocean acidification. The CWA only regulates point source discharges into waters of the United States." NMA states that CO_2 emissions "do not constitute point source discharges of the type covered under CWA" and "CO_2 emissions are global in nature and there are many uncertainties concerning their effects". NMA raises the points that "changes in the pH of ocean waters are not related to atmospheric levels of CO_2 alone, but… are affected by water chemistry, temperature and biological processes," and "scientists are debating whether the effects of ocean acidification on marine organisms will be beneficial or detrimental" (Doc. #37, p. 5). NMA suggests that before the incorporation of ocean acidification into management plans, "research should be conducted to help understand impacts to biological processes, particularly marine calcification, and environmental monitoring should include oceanographic parameters such as temperature, irradiance, hydrodynamics, nutrients and atmospheric parameters such as surface winds and pressures" (Doc. #37, p. 5-6). NMA further states that CWA already regulates permit limitations on pH of point discharges, and "there is no evidence

that such discharges are failing to meet water quality standards for pH or are causing any adverse impacts as to ocean acidification" (Doc. #37, p. 6).

Response: See next response, Consol Energy.

- CONSOL Energy Inc. (Doc. #42, p. 3) agrees that there is a need "to further study the potential impacts of climate change, ocean acidification and interacting stressors on ecological systems". Similar to NMA, CONSOL also believes that "a better understanding of the causes of ocean acidification and its affects are required before agencies can incorporate these concerns into management plans". CONSOL makes the same point that as a non-point discharge, CO_2 should not be regulated by the CWA.

  Response: In response to both NMA and Consol Energy, please note that this strategy does not propose any new uses of the CWA to address ocean acidification. It is not our intent to imply in this 2012 Strategy that the National Water Program is proposing to regulate CO_2 emissions using the Clean Water Act. Further, we state our intention to work with USGCRP and other partners to develop needed information, including for ocean acidification and that, as more monitoring and assessment data become available over time including for impacts such as eutrophication effects on pH, we will respond to that information using available tools and mechanisms.

- The City of San Diego (Doc. #38, p. 7) is also concerned about the listing of ocean acidification and other impacts being regulated by the CWA. The City of San Diego states that "while USEPA is deferring establishing TMDLs related to ocean acidification until more information is available, listings could have important near-term implications for the City in terms of requirements for participating in monitoring networks for pH, dissolved gases, nutrient loadings, and CO_2 emissions". The City raises the concern that due to the global nature and irreversibility of ocean acidification, "the key issue for the City will be the TMDL targets, how realistic and feasible they are, and the role of individual permittees in meeting the targets".

  Response: See response to previous comment. EPA further notes that acidification in coastal waters can be influenced by many different factors, including ocean acidification from the uptake of anthropogenic atmospheric carbon dioxide and eutrophication-related acidification in coastal waters from nutrient pollution, which differ in their geographic extent (global versus local, respectively). In regards to the commenter's concern about TMDLs, EPA does recognize the complex nature of these different sources of acidification, and will take the City of San Diego's comments into account in any additional guidance related to addressing acidification in coastal waters through the 303(d) listing and TMDL programs. In reference to the existing EPA November 2010 policy memo on the Clean Water Act Sections 303(d), 305(b), and 314 integrated reporting and listing decisions related to ocean acidification cited by the City of

San Diego, EPA reaffirms that States must list waters not meeting any applicable water quality standard, where data and assessment methods are available, using the current 303(d) listing framework. For instance, if there is existing and readily available data and/or information demonstrating non-attainment of the State's current marine pH criteria and/or aquatic life designated uses, then that State should list the water, regardless of the source. However, since sources of such impairments in coastal waters may be related to ocean and eutrophication-related acidification, EPA encourages States to begin developing methodologies to identify acidification impacts in their coastal waters

4. Water Quality

A total of twenty-one comment letters addressing Water Quality and the three goals covered within the topic area were received. Of the twenty-one comment letters, two were submitted by Federal government agencies, four were submitted by State/Tribal government agencies/elected officials, two were submitted by national environmental NGOs, four were submitted by national NGOs, one was submitted by a local government agency, two were submitted by professional societies, three were submitted by the regulated community, and three were submitted by private citizens. Most of the comments from this group are positive, and supportive of EPA's development of the Strategy. All but a few of the comments have provided recommendations to improve the document.

General Comments

- Louisiana Environmental Action Network (Doc. #13) indicates "It is not clear if EPA is willing to adjust program/performance activity measures (e.g. PAMS) across all water quality programs in addition to drafting new measures for the Climate Change Strategy".

  Response: Performance Activity Measures (i.e., PAMS) are annual program management measures. While this strategy does not contemplate adjusting existing PAMs, we do intend to implement a process for tracking progress for adaptation and mitigation. See Goal 18.

- One private citizen (Doc. #29, p. 1-2) comments "aspects of water quality are being addressed as a priority without the solid science to substantiate a measurement of the negative effect of pollution. The Clean Water Act is failing to establish a baseline that is a true indication of impairment," and suggests that EPA establish baselines for each specific ecosystem with data, research, goals, measurements and monitoring realistic reductions, and that exchanges via a credit system be avoided. In addition, the commenter feels the Federal government is creating a ministerial approach which negates State and municipal discretionary action, and that we need to see that municipalities have

current plans; the commenter asks if there are legal obligations for monitoring, measurement and/or maintenance (i.e. California Environmental Quality Act).

Response: Thank you for your comment. It is the intention, described throughout this 2012 Strategy, to work with federal, State, tribal, interstate, local, nongovernmental, and private sector partners and stakeholders to address the risks and challenges posed by a changing climate. Moreover, EPA does not intend that these issues be addressed in a manner that negates State and municipal discretionary action.

- The Wisconsin Department of Natural Resources Water Division (Doc. #32, p. 2) offers general comments on Water Quality: WIDNR would like to see flexibility in implementing the goals from state to state or region to region; and suggests prioritizing action items (e.g., cannot factor climate into TMDLs until methods for rainfall duration and frequency can be addressed).

  Response: As the Agency moves forward with responding to climate change, we will consider where statutes allow for regulatory flexibility in adjusting to shifting conditions. The NWP agrees that certain actions may need to be done first, such as building the needed information for factoring climate change into many of our programs. The NWP is, and will continue, to undertake research and projects to build information and tools to support integration of climate change factors into our programs.

- The Clean Water Network (Doc. #41) assumes that the discussion of revising water quality standards means that the NWP intends to strengthen standards to prevent deterioration. If so, CWN supports this Strategic Action.

  Response: Strategic Actions 37 and 38 articulate the NWP's intent to identify and work to protect "at risk" designated uses and clarify in a subsequent "informational document" how States can update their criteria using the best and most accurate science and data in an effort to protect aquatic life from impacts from climate change. Where possible, this is a correct assumption.

Goal #12

- Various Comments on the use of CWA

  Response: The objective of Goal 12 is to build the understanding, information, and tools that will enable the NWP and its partners and stakeholders to use climate information appropriately as we carry out our mission to protect water resources and human health. As that body of information is developed, any CWA or other regulatory decision taken will be evaluated and implemented in accordance with law and through appropriate administrative procedures. Again, nothing in this 2012 Strategy imposes any requirements or conditions; rather, it indicates areas in which the NWP intends to work to ensure we continue to

achieve our mission in the face of a changing climate. Further, as EPA moves forward with responding to climate change, we will consider where statutes allow for regulatory flexibility in adjusting to shifting conditions and to enable the use of risk management as well as adaptive management.

- One private citizen (Doc. #5) calls for the inclusion of the treatment of polluted waters or the containment of pollutants, stating that "with flooding becoming more widespread, it is crucial that the EPA explore how climate change will affect the natural flow of water bodies and use these findings to discuss methods of containing pollution and preventing widespread contamination of drinking water sources".

  Response: EPA agrees with this concern. Greater emphasis on flooding and management of floodplains has been added to the final 2012 Strategy.

- Another private citizen (Doc. #8) feels Goal 12 should be emphasized because it will "focus primarily on community efforts, and pertain to the majority of people who may not be as informed as the government agencies and scientists involved in the matter." This commenter also identified concerns that sustainability needs to be emphasized in low-income areas, since these populations often lack the resources to incorporate climate change considerations into water quality planning.

  Response: The NWP embraces the principle of prioritizing the most vulnerable – including the most vulnerable populations such as the elderly, children, tribes, and low income communities, as well as the most vulnerable places such as coastal communities or those facing severe drought. This includes improved outreach and education.

- The Amigos Bravos Friends of the Wild Rivers (Doc. #15) discusses NPDES and Water Quality Standards, stating we are beyond the 'evaluating' stage and guidance documents. The commenter states that EPA should develop requirements for NPDES programs and start implementing them in non-delegated States such as New Mexico, including requirements to calculate permit limits based on low flow conditions, and include margins of safety to account for uncertainty. The commenter further states that EPA should disapprove WQS that categorize climate change as a background or natural condition; and indicates that antidegradation should protect against less stringent criteria for increasingly hard water in rivers and streams as more water is return flows from wastewater and less is rainfall or snowmelt. Finally, the commenter indicated that, as more rivers have flows that are near or below critical low flows, precautions must be taken to ensure they are protected.

  Response: The NWP appreciates the commenters' thoughts, and has incorporated an edit to clarify that we are not, in this document, defining climate change as a natural background condition. Further, we agree that lower low

flows as a result of climate change is a matter of concern. The commenters' specific recommendations about implementing the water quality standards and permit programs are beyond the scope of this strategy document.

- The County of Los Angeles Department of Public Works and L.A. Co. Flood Control District (Doc. #16, p. 3) state that any recommendations to alter permitting requirements for stormwater systems to increase watershed resilience "should not result in increased permitting costs or approval timelines and should strive to streamline the process".

  Response: The intention is not to increase costs or to complicate the permitting process; rather, the intention is to work with water program managers to anticipate risk and provide the tools needed to build resilience and avoid costs of climate impacts, where possible.

- The National Farms Union (Doc. #19, p. 2) notes that financial and technical assistance from federal, state and local government sources to help farmers and ranchers address nonpoint source pollutions are not always coordinated for maximum benefit. NFU encourages EPA to utilize the successful model under CWA Section 319 to establish partnerships and coordinate efforts in addressing NPS and climate adaptation. They further encourage EPA to seek market-based solutions to leverage private resources to enhance public investment in adaptation strategies.

  Response: The NWP agrees that the CWA Section 319 program is a successful model and will work to incorporate climate change considerations in that program, as appropriate.

- The American Water Works Association (AWWA) (Doc. #21, p. 5) identifies Strategic Action 35 as inconsistent with the rest of the Strategy, as it over simplifies climate change by indicating that adding an additional margin of safety will be sufficient, stating "The NWP should acknowledge that sophisticated climate change planning using the best available information should be incorporated into the TMDL process, and that TMDLs may need to be reassessed with changing climate conditions".

  Response: The NWP agrees with the comment and has revised Strategic Action 35 accordingly. EPA intends to work with TMDL developers to explore through pilot projects and related partnership opportunities appropriate places in the TMDL process to incorporate climate change.

- The Water Utility Climate Alliance (WUCA) (Doc. #24, p. 8) encourages non-regulatory controls promoting Green Infrastructure (GI) and low impact development (LID) strategies. However, WUCA requests additional specific clarification on how regulatory controls may be modified to address climate change issues, asking for an explanation as to "what is meant by incorporating

climate change considerations in calculations to support National Pollutant Discharge Elimination System (NPDES) permits and Total Maximum Daily Loads (TMDLs)".

Response: The NWP appreciates WUCA's comment. To reiterate, the objective of Goal 12 is to build the understanding, information, and tools that will enable the NWP and its partners and stakeholders to use climate information appropriately as we carry out our mission to protect water resources and human health. The Strategic Actions are indication of areas in which the NWP intends to work over the long term to ensure we continue to achieve our mission in the face of a changing climate. EPA looks forward to working closely with WUCA and other stakeholders to develop the most effective means of doing so.

- The National Association of Homebuilders (NAHB) (Doc. #26) discusses the private sectors voluntary measures to promote green buildings and LID, and recommends that EPA further develop and support voluntary mitigation programs in the regulated sector. NAHB notes WaterSense, EnergyStar, and the National Green Building Standard and notes that a 2012 McGraw-Hill *Smart Market Report* found that since 2005 seventeen percent of new residential construction is dominated by green construction projects. NAHB further states that the Strategy fails to address existing issues in several EPA permitting programs, particularly the Section 404 and NPDES programs (Doc. #26, p. 10). NAHB states that EPA should rethink the existing regulatory framework and strongly urges EPA to consider the benefits associated with integrating and streamlining programs; consider incentives and market based initiatives to promote practices such as LID; and consider funding pilot projects to promote LID adaptation projects to build resilience, especially for higher risk projects both financially and environmentally (Doc. #26, p. 9).

  Response: Thank you for your comment. Voluntary partnership and incentive programs play a critically important part in achieving the national goal of protecting the nation's waters and public health and safety. The NWP intends to continue to work in these areas, and looks forward to continuing to work with NAHB and others on understanding and evaluating climate change impacts and appropriate response actions.

- American Rivers (Doc. #27) strongly supports EPA's expanded efforts to meet current water quality standards and to protect designated uses or water quality criteria at risk, in light of climate change and states: "It is critical that EPA guards against Use Attainability Analyses (UAAs) to downgrade uses" (Doc. #27, p. 8). American Rivers also supports EPA's efforts to adapt the NPDES program to changing conditions, however, it urges EPA to "make this recommendation more robust by ensuring that climate models are incorporated into permit renewals to ensure adequate amounts of water are available for

changing flow conditions throughout the entire year to achieve water quality standards" (Doc. #27, p. 9).

Response: EPA appreciates the commenters' support and expression of concern. EPA will take the commenters' suggestions under advisement as it moves forward in this area.

- Other State Commenter suggests that the strategic action mention TMDL alternatives, in an effort to be consistent with other agency initiatives (e.g., Section 303(d) 10-Year Vision).

  Response: Thank you for your comment. We will take this under advisement as we implement the Strategy.

- The Wisconsin Department of Natural Resources Water Division (Doc. #32, p. 2). offers several specific comments on Goal 12:
  - Feels the permitting section is vague and is not sure how watershed permitting can help address climate change;
  - While the idea of accounting for climate change in the TMDL margin of safety is a good one, this cannot be done until there is sufficient information to perform the analysis;
  - monitoring for climate change and adjusting or re-evaluating designated uses seems difficult at best, especially from a political standpoint; and
  - Strategic Actions 34 (NPDES) and 35 (TMDL) require technical guidance.

  Response: It is the intention of this Strategy to indicate overall direction by the National Water Program, not to specify details of how climate change and its effects will be incorporated into NPDES permitting, development of TMDLs, implementation of other EPA regulations, or the relationship between Federal, State, Tribal, and local governments. Use of climate information for these types of decisions will be evaluated, vetted, and implemented through appropriate procedures, including technical guidance and information to support State, tribal and local program managers. Regarding the comment on using the TMDL margin of safety, EPA received several comments on this issue and has revised Strategic Action 35 to reflect more sophisticated treatment of this issue.

- Regarding Strategic Action 34, the National Association of Home Builders (NAHB) (Doc. #26, p. 9) cautions EPA's focus on allocating more resource to programs already fully addressing climate change impact, such as the construction industry through the NPDES stormwater program. EPA should focus on developing appropriate modeling tools rather than changing existing programs that would negatively complicate the existing regulatory scheme already developed.

  Response: The objective of Goal 12 is not to complicate the existing regulatory

scheme but to build the understanding, information, and tools that will enable the appropriate use of climate information. The NWP intends to work with partners and stakeholders to build that body of information. Any CWA or other regulatory decision taken will be evaluated and implemented in accordance with the relevant legal requirements and through appropriate administrative procedures. Again, nothing in this 2012 Strategy imposes any requirements or conditions; rather, it is an indication of areas in which the NWP intends to work to ensure we continue to achieve our mission in the face of a changing climate.

- The Natural Resources Defense Council (NRDC) (Doc. #33) agrees with EPA's recognized importance of green infrastructure (GI) and low impact development (LID) in protecting water quality and maintaining watersheds' resilience. However, it believes that EPA's new rules must adopt objective performance requirements for control of runoff volume from new development and redeveloped sites, in addition to requiring retrofits in existing public and private developed areas (Doc. #33, p. 9). Also, NRDC comments "where TMDLs are re-opened or re-examined for other purposes, EPA should encourage and support the consideration of climate change as part of that process, and, in those circumstances where climate change likely will implicate the ability of an existing TMDL to attain applicable water quality standards, the TMDL or its implementation plan should be revisited so as to incorporate relevant climate change information" (Doc. #33, p. 10).

  Response: The NWP welcomes NRDC's input on rulemakings. Regarding TMDLs, Strategic Action 36 (formerly 35) has been edited to remove the word "future" and the discussion has been revised. The Strategic Action now reads:

  > *The NWP intends to encourage water quality authorities to consider climate change impacts when developing wasteload and load allocations in TMDLs where appropriate.*

- The City of San Diego Transportation and Storm Water Department (Doc. #38, p. 6) comments that Goal 12 "highlights a wide range of possible direct and indirect impacts on ecosystems, emphasizing the importance of regional, watershed-scale monitoring and assessment programs that can accurately capture spatial patterns and temporal trends in ecosystem indicators, along with their relationship to stressors".

  Response: Thank you for your comment.

- The City of San Diego (Doc. #38) also comments on several SAs under Goal 12:
  - Strategic Action 32 (planning) may require the City to increase staff time or expertise, gather data, and participate in partnerships and networks described in the Strategy.

- Strategic Action 33 (GI/LID) states that GI and LID may produce benefits that offset costs of increased costs resulting from new permitting and planning. A key issue will be the type and amount of infrastructure required in permits and the rationale for the requirements.
- Strategic Action 34 (NPDES) will require the City to improve its technical capabilities to deal with more complex permitting processes. A key issue will be the type and quality of guidance provided to permit writers.
- Regarding Strategic Action 35 (TMDLs), the City comments that "climate change impacts may create new waste load allocations or cause existing allocations to increase or decrease, depending on the TMDL. It will be important for the City to understand the basis for such calculations as well as any models used to determine margin of safety" (Doc. #38, p. 7);
- Regarding Strategic Action 36 (antidegradation), the commenter states that climate change will impact existing beneficial uses; the requirement to conduct a UAA for each instance could create a large burden on permittees unless there are provisions for conducting aggregate analyses at the regional or statewide scales. Lags in revising beneficial uses could expose permittees to legal action from third parties where such uses are no longer viable due to climate change. Further, the commenter states that beneficial uses will shift nonlinearly over time, requiring flexibility in the 303(d) listing process. Further, it is not clear to the commenter how existing uses will be maintained in the face of fundamental and irreversible change processes, and the antidegradation statement contradicts other statements in this Strategic Action. The last sentence about working with stakeholders is vague.
- The commenter states that Strategic Action 37 (WQ criteria) is admirable but the Strategy provides no detail on the process or guidelines for evaluating new criteria. In addition, the emphasis on protecting aquatic life from impacts may work at cross purposes with the Strategy's earlier emphasis on adaptation.

Response: Thank you for your thorough and thoughtful comments. The NWP will consider your views as we evaluate how to incorporate climate change into our core programs. We look forward to working with you and other stakeholders to avoid negative consequences, such as unnecessarily increasing costs, while ensuring that we achieve our common goal to build resilience in the face of climate change.

- The Clean Water Network (Doc. #41, p. 6) makes the following recommendations relative to water quality:
    - use Clean Air Act authority to regulate direct and indirect GHG emissions at the time of NPDES permit issuance; EPA needs to look at regulation through a multi-media lens;
    - use Clean Air Act authority to regulate direct and indirect GHG emissions at the time of required permitting for Concentrated Animal Feeding Operations (CAFOs);

- require states to include climate change assessments in their biennial National Water Quality Inventory Reports (305b);
- revise TMDL regulations and guidance to require states to provide adaptation and mitigation strategies to climate change for waters that are impaired by pollutants; and
- develop concrete NPDES Permit requirements that must be incorporated into all NPDES permit programs.

Response: EPA has not previously considered regulating GHG emissions under the CAA at the same time as NPDES permit issuance, but appreciates the multi-media comment and will take this under advisement. Regarding the other aspects of the CWA program, we reiterate that it is the intention of this Strategy to indicate overall direction by the National Water Program, not to specify details of how climate change will be incorporated into elements of the CWA program. Use of climate information in these decisions will be evaluated and implemented through appropriate procedures. Regarding the 305(b) report, please note that the EPA database known as *ATTAINS* (http://water.epa.gov/lawsregs/guidance/cwa/305b/index.cfm) displays current information provided by the States in their 305(b) biennial integrated water quality assessment reports.

- The Clean Water Network (Doc. #41, p.5) also provides a number of recommendations relative to Strategic Action 33, to promote green building design and smart growth, including:
  - Aggressively fund green infrastructure including use of STAG ($1B/year would be a fifth of the federal share needed);
  - Require green building and green infrastructure in stormwater and construction NPDES permits, as well as in effluent limits for post-construction runoff;
  - Develop comprehensive action for the agriculture sector and other nonpoint sources by providing adequate funding for AGstar and other partnership programs; provide tax incentives to agricultural facilities to protect water quality and reduce releases of methane while generating electric power.

  Response: EPA is actively supporting these types of activities within its authority and resources.

- The National Association of Clean Water Agencies (NACWA) (Doc. #43, p.2) comments that while the Strategy seeks to promote a holistic watershed approach, combining Strategic Actions 33 and 34 with a comprehensive evaluation of Clean Water Act regulations to determine how they can be better implemented, will improve their efficacy. Regarding SA 34 (NPDES), NACWA further states that while low flows will likely change due to climate shifts, EPA should be looking at better, more appropriate ways to protect water quality in both wet and dry weather periods

Response: The NWP appreciates NACWA's comment about taking a holistic watershed approach, and we are working to integrate a variety of approaches. The NWP thanks NACWA for raising awareness on incorporating green infrastructure into NPDES program, including into CSO consent decrees. NWP also appreciates the comment on using other ways besides NPDES to address both wet and dry weather periods. It is the intent of the Strategy, as a whole, to convey this message that water resource protection will require a variety of ways to build resilience to both dry weather and wet weather impacts. As a side note, NPDES permit writers do calculate permit limits based on critical conditions of the effluent and receiving water. For more information, please see the NPDES permit writers Manual (available at: http://cfpub.epa.gov/npdes/writermanual.cfm?program_id=45) at section 6.2.4, which contains information on how climate change impacts potentially could be incorporated into modeling interactions between effluent discharge and a river or stream.

- The National Ground Water Association (Doc. #44, p. 2) comments that while the multi-pronged approach to working with Tribal, State and Local governments in mitigating climate change impacts to water supply is a good beginning, the Strategy fails to provide the mechanics on how the federal government will work cooperatively with these entities' established regulatory networks. Inclusion of hypothetical decision process diagrams/case studies might be considered; the regional collaborations described in the Geographic Regions section are a good start. In addition, NGWA suggests that Strategic Action 32 (water quality planning) may not happen without federal funding.

  Response: It is the intention of this Strategy to indicate overall direction by the National Water Program, not to specify details of how climate change and its effects will be incorporated into elements of the CWA program. However, the Strategy does emphasize that understanding impacts and building needed tools will require collaborative learning. We intend to evaluate and implement use of climate information in the NWP through appropriate procedures. Meanwhile, we look forward to working with NGWA and other stakeholders as we develop information to help local decision makers.

- The Texas Commission on Environmental Quality (TCEQ) (Doc. #45) states concerns that "EPA in the future may attempt to compel compliance with the NWP by withholding funds for water quality management if a State does not implement some of the Strategic Actions identified in the Strategy, and strongly requests that EPA not move forward with this document" (Doc. #45, p. 2). Also, TCEQ comments that Strategic Actions 34 and 35, intended to incorporate climate change evaluations in specific activities of water quality management, should be eliminated from the Strategy (Doc. #45, p. 3). Further, "Strategic Actions 32 through 37, and the non-regulatory controls identified potentially infringe on the primary right of states preserved by the CWA "to plan the

development and use…of land and water resources" (Doc. #45, p. 4). "TCEQ strongly requests that the sections on SAs 32 through 37 be revised to clarify that EPA will not use the NWP 2012 Strategy to interfere in states' efforts to promulgate water quality standards and develop TMDLs."

Response: It is not EPA's intention to state or imply that funding may be withheld form States for not complying with the Strategic Actions in this Strategy, or to imply that the Strategy will interfere with States' roles with regard to their program implementation. While the disclaimer on the inside cover of the Draft 2012 Strategy says exactly that, EPA has incorporated the following additional text in the introduction to Section II. Programmatic Visions, Goals and Strategic Actions, underscoring that this Strategy does not constitute any requirement on State water programs:

> *It is important to underscore that this 2012 Strategy does not impose any requirements on State, Tribal or local water programs. Rather, it provides a comprehensive discussion of the elements of the NWP into which EPA intends, over the long term, to incorporate climate change considerations as appropriate and in accordance with applicable legal authorities and the best available science and information. This document discusses areas in which the NWP intends to work with stakeholders and partners to account for and respond to the potential and actual impacts of climate change*.

- The American Petroleum Institute (API) (Doc. #46, p. 2) comments that a number of the proposed Strategic Actions suggest problematic changes to regulatory programs: Strategic Action 34, is inappropriate if EPA solely relies on models to characterize climate change effects; and Strategic Action 35, must be based on measured climate effects and should directly alter point and non-point load allocations, not be hidden in a reserved margin of safety. API believes that Strategic Action 37 is out of place as it is unclear that such criteria require updating and that EPA's current approach for providing stakeholder input during the process should not be cut short for any perceived need that is unjustified in the absence of new data on the effects of pollutants on aquatic life.

  Response: While the disclaimer on the inside cover of the Draft 2012 Strategy says exactly that, EPA has incorporated the following additional text in the introduction to Section II. Programmatic Visions, Goals and Strategic Actions, underscoring that this Strategy does not constitute any requirement on State water programs:

  > *It is important to underscore that this 2012 Strategy does not impose any requirements on State, Tribal or local water programs. Rather, it provides a comprehensive discussion of the elements of the NWP that should, over the long term, incorporate climate change considerations as appropriate and in accordance with applicable legal authorities*

and the best available science and information. This document represents areas in which the NWP intends to work with stakeholders and partners to account for and respond to the potential and actual impacts of climate change".

Models are developed using calibration from observed data and well understand system dynamics. EPA uses modeling as a tool in many contexts, which are applied in situations where little or no measured data is available. While observed conditions are utilized when available, projections may need to be employed when forecasting future conditions, such as the impact of climate change on water resources.

Regarding Strategic Action 35 (now SA 36) addressing TMDLs, we have revised the action as follows: The NWP intends to encourage water quality authorities to consider climate change impacts when developing wasteload and load allocations in TMDLs where appropriate. We have removed reference to the margin of safety, and instead describe our intent to: explore the use of tools such as models to help states evaluate pollutant load impacts under a range of projected climatic shifts. This would be done in a way that takes into account the best available data as well as any uncertainties in the models or data. EPA intends to work with TMDL developers to explore through pilot projects and related partnership opportunities appropriate places in the TMDL process to incorporate climate change.

Regarding Strategic Action 37 (now SA 38), the NWP does not intend to cut short opportunity for stakeholder input or to take action in absence of justifiable data.

- Other State Commenter (Doc. #48, p. 2) is in favor that the draft Strategy notes that states would not be expected to reopen TMDLs to incorporate these considerations, and adds "We would like to note, however, that if it is expected that states, going forward, will take into account potential climate change impacts when developing TMDLs, EPA should develop guidance on the matter. In addition, we suggest that this strategic action also mention TMDL alternatives, in an effort to be consistent with other agency initiatives (e.g., Section 303(d) 10-Year Vision)."

  Response: The NWP appreciates the commenter's suggestion and verifies that our intent is not to reopen TMDLs expressly for the purpose of evaluating climate change considerations. EPA will consider developing guidance in the future on how to evaluate climate change when developing new or revised TMDLs.

Goal #13

- The Fertilizer Institute (TFI) (Doc. #17, p. 4) questions whether the Clean Water Act (CWA) grants EPA the authority to promulgate rules pertaining to air emissions, stating "If EPA intends to regulate GHGs under the CWA, TFI first requests EPA provide a legal analysis of its authority to do so, the structure of regulating GHGs under the CWA, and how those regulations would intersect with CAA regulations. EPA should also provide the public with the opportunity to review and provide comment on the Agency's analysis".

  Response: It is not the intent of the 2012 Strategy to suggest that EPA is proposing to use the Clean Water Act to regulate GHG air emissions. Goal 13 was intended merely to convey the NWP's intention to fulfill its role with regards to protecting water quality under the CWA. That is, as energy policy decisions are made to mitigate GHGs, and as new energy technologies are developed, the EPA and States are responsible for evaluating how they affect water resources. The final Strategy will clarify its intention by editing Goal 13. In addition, the commenter may want to note that the final 2012 Strategy amends Goal 13 and adds a new Strategic Action:

  GOAL 13: As the nation makes decisions to reduce greenhouse gas emissions and develop alternative sources of energy and fuel, the NWP intends to work to protect water resources from unintended adverse consequences.

  Just as it takes energy to treat and distribute water supplies, it takes water to generate and produce energy and fuels. Well-designed or rehabilitated water infrastructure can reduce energy demand and careful energy planning can reduce water demand. Using a systems approach, consolidated water infrastructure, energy and transportation planning can directly and indirectly reduce the demand for both water and energy. While Goals 1 and 2 in the Infrastructure section of this 2012 Strategy discuss improving the energy profile of water infrastructure, this goal identifies actions to reduce the adverse effects of new energy technologies on water resources, consistent with the recently published Principles for an Energy-Water Future (see Appendix B).

  Strategic Action 39: The NWP will continue to provide perspective on the water resource implications of new energy technologies.

  Production of energy and fuel rely on access to water, and may in turn contribute to water quantity and quality problems. Further, while alternative sources of energy and fuel are important for reducing emissions of GHGs and offer a number of win-win energy choices, they too bring water resource challenges. As technologies go through the regulatory cycle, it is the NWP's responsibility under

the CWA to provide perspective on how the nation's energy choices affect water resources.

- The Alliance for Affordable Energy (Doc. #18) notes that the system of pumping stations to protect the city of New Orleans against floods are responsible for 50% of the city government's energy use. AAE supports the integration of energy issues with water concerns in the Strategy, particularly the importance of energy efficiency as a means to reduce greenhouse gas emissions as water planning is implemented. It also acknowledges EPA's leadership and courage on this issue.

  Response: Thank you for this comment. The NWP looks forward to collaborating with AAE and other stakeholders on this issue.

- The American Water Works Association (AWWA) (Doc. #21, p. 4) strongly supports Goal 13 and the protection of water resources from adverse consequences of alternative sources of energy and fuel. However, AWWA also states concern that the Strategy does not specifically address hydraulic fracturing, and the broader issue of oil and gas development, possibly as a separate Strategic Action. While AWWA also expresses support for EPA's efforts on the Class VI Underground Injection Control (UIC) regulation for Carbon Capture and Storage (CCS), AWWA cautions EPA to review their previous concerns and recommendations on its implementation and all actions related to CCS must acknowledge that protection of underground sources of drinking water is the top priority. EPA should also work with other agencies and associations to further research and regulation of CCS activities.

  Response: Thank you for your support of this Goal. While the 2012 Strategy does not specifically address hydraulic fracturing, Goal 13 was intended to convey the NWP's intention to carry out its statutory role under the CWA with regards to both conventional and alternative energy development activities to evaluate how they might affect water resources. The final Strategy will clarify its intention by editing Goal 13 and adding a new Strategic Action. (See response to The Fertilizer Institute, Doc. #17, above.)

- The U.S. Department of the Interior, Bureau of Reclamation (Doc. #22, p. 1) asks that EPA clarify Strategic Action 41 by replacing 'Bureau of Reclamation' with 'Department of Interior' as one of the signatories to the Federal Hydropower Memorandum of Understanding.

  Response: Edit adopted.

- The Wisconsin Department of Natural Resources Water Division (Doc. #32, p. 2) comments on Goal 13 that EPA should examine the impact of alternative fuel options like ethanol production on water quality, both surface and groundwater.

Response: The NWP agrees with the comment.

Goal #14

- The Ground Water Protection Council (GWPC) (Doc. #25, p. 2) supports Goal 14, specifically Strategic Action 42, and suggests the text be revised to incorporate "an expanded acknowledgement that the state groundwater-related projects are eligible for funding under §319 Nonpoint Source Management Programs, §106 Grants for Pollution Control Program, and §305 Water Quality Inventory Grants" and that the CWA definition of Waters of the U.S. doesn't preclude funding of groundwater-related monitoring.

  In addition, the GWPC also indicates the Strategy is missing an important interagency monitoring network under development by the Advisory Committee on Water Information (ACWI) Subcommittee on Ground Water's (SOGW) National Ground Water Monitoring Network (NGWMN) which is "a nationwide database that will provide long term groundwater quantity and quality monitoring that would provide necessary information for the planning, management, and development of groundwater supplies to meet current and future water needs, and ecosystems requirements." Finally, GWPC suggests that OGWDW be included in Strategic Action 42 in a supporting role.

  Response: Regarding eligibility of state groundwater-related projects for funding, the NWP will produce an informational brief on this subject and post it to our web site. In addition, we accepted the suggestion to list OGWDW in a supporting role for Strategic Action 42, and we emphasized that ACWI is an important partner in developing groundwater monitoring networks.

- The Wisconsin Department of Natural Resources Water Division (Doc. #32, p. 2) indicates that Strategic Action 42 (long term monitoring) requires financial support.

  Response: EPA is actively supporting this type of activities within its authority and resources.

- The American Petroleum Institute (API) (Doc. #46, p. 2) comments that a number of the proposed Strategic Actions suggest problematic changes to regulatory programs: Strategic Action 43, should not pre-empt the use of field measurements of such effects, nor encourage the use of such models in lieu of measured data in regulatory decision-making.

  Response: Models are developed using calibration from observed data and well understand system dynamics. EPA uses modeling as a tool in many contexts, which are applied in situations where little or no measured data is available. While observed conditions are utilized when available, projections may need to be employed when forecasting future conditions, such as the impact of climate

change on water resources. However, the intent of Strategic Action 43 is to ensure that sound science is used to support water management programs.

5. Working with Tribes

A single comment letter was received that discussed this section of the Strategy. The State of Alaska Department of Environmental Conservation appears to be generally supportive of the Strategy and has provided comments on Goal #15.

Goal #15

- The State of Alaska Department of Environmental Conservation (AK DEC) (Doc. #39, p. 4) has concerns regarding Tribal Science Council's (TSC) ability to "adequately inform and recommend the climate change concerns of Alaska tribes." It feels it would be worthwhile to consider additional opportunities to express the concerns of the Alaska tribes and request additional seat(s) on the TSC.

  Response: The NWP will forward your request to the EPA Office of Research and Development that manages the TSC. However, the NWP runs the State-Tribal Climate Change Council and we would welcome Alaska DEC's active engagement.

- AK DEC (Doc. #39, p. 4) also points out the frequent mention of working with and involving tribes, but also states there is no discussion as to how this will occur. They ask, "will the involvement in watershed-based strategies and integrated resource management and participation in the development of strategies for addressing climate change occur through the single TSC representative or through some other mechanism?"

  Response: Engagement with tribes will occur in several venues. The NWP engages with tribes directly via both the National Tribal Water Council and the State-Tribal Climate Change Council. We also work closely with the TSC run by the Office of Research and Development, to coordinate pursuit of science and research relevant to tribes. Third, the EPA American Indian Environmental Office is working to coordinate EPA's efforts related to climate change and tribes, including engagement with the National Tribal Council and the National Tribal Operations Council. We are clarifying these avenues in the final NWP Climate Strategy.

- AK DEC (Doc. #39, p.4) comments on Strategic Action 46, concerning guidance on the use of funding programs for mitigation and adaptation planning and implementations, and suggests that "EPA make these activities 'voluntary' on the part of the states so that states do not need to decrease core clean water programs to fund new EPA initiatives". AK DEC supports and looks forward to

guidance on funding programs, and would like to be kept apprised of tribal funding opportunities in order to collaborate with tribes.

Response: Nothing in this *2012 Strategy* imposes any changes to guidance or requirements for funding or other programs.

GEOGRAPHIC CLIMATE REGIONS

Ten comment letters addressing Geographic Climate Regions were received. Of the ten comment letters, three were submitted by Federal Government Agencies, three were submitted by State/Tribal and Local Agencies, three were submitted by the Regulated Community, and one was submitted by a National Environmental NGO. They are all are either generally supportive of the Strategy or do not offer a clear position. Commenters offer recommendations and suggest specific language to clarify and strengthen the document both in the introduction section as well as the specific climate region sections.

Introduction

- The United States Department of the Interior, Bureau of Reclamation (Doc. #22, p. 1) suggests including language to require collaboration with the Department's Landscape Conservation Cooperatives and Climate Science Centers throughout the document.

  Response: While the NWP does not *require* such collaboration, EPA Regions are eager to work with the LCCs and CSCs on these complex issues.

- The National Mining Association (Doc. #37, p. 4) recommends adding the works "in support of" after DOI's in the first two bullets on page 60.

  Response: Edits accepted.

- The Water Utility Climate Alliance (Doc. #24, p. 4) comments that they "would like to urge EPA that consideration of climate change in any regulatory framework take into account the spatial variability of projected climate impacts."

  Response: Text has been inserted to acknowledge the importance of doing so.

- Other State Commenter (Doc. #48, p. 2) notes that "there are six interstate organizations that receive CWA Section 106 funding from EPA, which are clustered in three of EPA's designated climate regions – Northeast, Southeast and Midwest. These organizations should be included in the discussions on these regions."

Response: Thank you for your comment. We have added the notion of working with interstates throughout the final 2012 Strategy, and have added text and a text box listing the six interstates receiving CWA 106 funds in Section V Geographic Climate Regions, Subsection B, Ongoing Programs.

Northeast Region

- NEIWPCC (Doc. #35, p.2) writes of the importance of the recognition of the riparian zone and floodplain management. It states that "structural and non-structural floodplain and riparian zone decisions can assist in reducing the impact of severe storms; and intact and well-managed watersheds can absorb impacts and help balance flows over time." It requests that this be specifically identified in the Strategic Actions section in the Strategy.

  Response: EPA appreciates this comment and has inserted an additional Strategic Action: *Promote structural and non-structural floodplain and riparian zone management strategies that recognize that intact and well-managed watersheds are more resilient to severe storms, and absorb impacts and help balance flows over time.*

Midwest Region

- The Wisconsin Department of Natural Resources (Doc. #32, p.2) appreciates the work EPA has done on the important issue of climate change. It is of the opinion that "States need support from EPA to gain more regulatory power over nonpoint sources of pollutants."

- The Natural Resources Defense Council (Doc. #33, p. 11) offers several suggestions specific to the Midwest Region:
  - Add the phrase "and using those projections as the basis for assessing compliance of LTCPs with the specific control requirements of the CSO policy" at the end of the first goal.
  - Mention the invasive species threat, specifically zebra and quagga mussels, to the Great Lakes in the strategic issues section.
  - Make reference to the Great Lakes-St. Lawrence River Basin Water Resources Compact in the strategic issues section.
  - Address the interface with nutrient issues in the third bullet under the strategic issues section.
  - Strengthen the language of the strategic action that discusses working with the agricultural community, pointing out the well documented interaction between fertilizer run-off and presence of algal blooms.

  Response: EPA appreciates the constructive suggestions posed by the commenter and has incorporated two of the five suggestions. We added reference to zebra and quagga mussels; we included reference to nutrient issues and working with the agricultural community. We did not add your suggested

phrase on assessing compliance with LTCPs. Further, it is not appropriate for the NWP climate strategy to specifically reference the Great Lakes Water Resource Compact. EPA has no role with this state-driven tool to manage or control potential water diversions.

Great Plains Region

- The National Mining Association (Doc. #37, p. 6) notes that the mining community is not specifically identified in the goals section as a group that EPA should work with. It proclaims that "Mining companies can and should play an important role in seeking solutions to complicated environmental issues." This comment is also echoed by CONSOL Energy, Inc. (Doc. #42, p. 2).

  Response: Thank you for your comment. We have added the mining sector to the list of stakeholders with whom we intend to work.

Southwest Region

- The United States Geological Survey, Climate and Land Use Change (Doc. #31, p. 2) recommends that the nearly completed 2013 National Climate Assessment regional reports could be used in the Strategy to enhance the regional analyses on pages 69 to 79.

  Response: Thank you for your comment. We noted in the final 2012 Strategy the importance of doing so.

- The Natural Resources Defense Council (Doc. #33, p. 11) writes that the water resources of Southwest will be one of the areas that will be greatly impacted by climate change. It points out that the Strategic Actions are vague and not adequate. It recommends that EPA outline more specific measures and ensure that they are implemented in this section.

  Response: Thank you for pointing this out to us. We have revised the Goals and added a new Strategic Action as follows:

  Goals:
  - *Increase the number of communities and utilities conducting climate change vulnerability assessments and implementing the resulting recommendations;*
  - *Work with partners and stakeholders to evaluate and reduce the impacts of future drought and flooding on surface and ground water resources;*
  - *Protect water quality and quantity to reduce stress on ecosystems;*
  - *Address sea level rise by working with coastal states, tribes, counties, cities, and federal partners to enhance adoption of*

adaptive measures to lessen or avoid significant adverse effects and to increase resiliency.

Strategic Action:

- *Work with States and local governments to expand water sources, storage and recovery options (e.g., aquifer storage and recharge, water re-use, desalination, etc.) for areas experiencing snow pack loss, and drought.*

Pacific Northwest Region

- The U.S. Fish and Wildlife Service (Doc. #34, p. 4) recommends removing word "DOI's" from the first bullet under "Collaboration".

  Response: Accepted.

Montane Region

- The U.S. Fish and Wildlife Service (Doc. #34, p. 4) requests that states, tribes, and others involved in LCCs, be included in the list of groups to collaborate with EPA.

  Response: Accepted.

Alaska Region

- The U.S. Fish and Wildlife Service (Doc. #34, p. 4) requests a more detailed description of the challenges that the native community will face, and recommends that specific language be added to the Strategy.

  Response: Thank you for your suggested edits; we did not incorporate them as it would be disproportionate to the other regional sections in this chapter. However, we do refer readers to additional sources of information.

- The State of Alaska Department of Environmental Conservation (Doc. #39, p. 4) suggests adding a reference to the first paragraph for the statement "increasing acidification of Alaskan waters." AK DEC states that the Strategic Actions in this section do not fully address or consider the Strategic Issues.

  Response: The statement on acidification comes from USGCRP, 2009. We recognize that our Strategic Actions may not cover all the issues facing each Region. The 2012 Strategy describes how we must work with others to address the larger issues, with EPA contributing according to its role, authority and resources.

CROSS-CUTTING PROGRAM SUPPORT

A total of ten comment letters addressing Cross Cutting Program Support and the three goals covered within were received. Of the ten comment letters, one was submitted by a Federal government agency, two were submitted by national environmental NGOs, one was submitted by a national NGO, two were submitted by professional societies, two were submitted by the regulated community, one was submitted by a State/Tribal government agencies/elected official, and one was submitted by a private citizen. Most of the comments from this group are positive, and supportive of EPA's development of the Strategy. Some feel this section is the strongest and most important section of the Strategy (API, Doc. #46).

Goal #17

- One private citizen (Doc. #8) feels Goal 17: "Communicate, Collaborate, and Train" should be emphasized because it will "focus primarily on community efforts, and pertain to the majority of people who may not be as informed as the government agencies and scientists involved in the matter." This commenter also identified concerns that sustainability needs to be emphasized in low-income areas, since these populations often lack the resources to incorporate climate change considerations into water quality planning.

  Response: The NWP embraces the principle of prioritizing the most vulnerable – including the most vulnerable populations such as the elderly, children, tribes, and low income communities, as well as the most vulnerable places such as coastal communities or those facing severe drought. This includes improved outreach and education.

- The NAHB (Doc. #26, p. 8) points out that EPA fails to develop goals for building partnerships with the private sector and appropriate adaptation toolkits should be developed, including a one-stop shop of all Agency initiatives, noting the popular Corporate Responsibility and Sustainability Reporting.

  Response: Thank you for your comment. We have added the private sector to the list of partners that are important for success.

- The Water Utility Climate Alliance (WUCA) (Doc. #24, p. 8) fully supports the strategy to "Communicate, Collaborate, and Train" and "urges EPA to consider relocating this goal to the beginning of the document, perhaps after Chapter II on the Evolving Context". In addition, WUCA requests clarification on how NWP plans to engage stakeholders if the regulatory framework is revisited to include climate change, as this is one of the most important stages in which continuous dialogue is key.

  Response: While we appreciate that 'Communicate, Collaborate, and Train' is an extremely important goal, we have not accepted the commenter's suggestion.

Further, stakeholder engagement with regard to any regulatory action would be in conformance with all EPA policies and legal requirements to engage the public, including conformance with the Administrative Procedures Act. In addition, this *2012 Strategy* is predicated on the basis that climate adaptation requires collaborative learning and capacity development, and as such it is the NWP's intent to engage stakeholders throughout our activities.

- The U.S. Fish and Wildlife Service (Doc. #34, p. 4) request the following revision to the second bullet under Decision Support "Federal partners are building regional capabilities, such as the National Integrated Drought Information System (NIDIS), NOAA RISAs, and the LCCs and CSCs launched by DOI".

  Response: Accepted.

- The National Ground Water Association (Doc. #44, p. 1) suggests that an FAQ on the Strategy would be beneficial. Further, there is a need to balance economic growth with a responsible approach to natural resource consumption. This reconciliation can partly be achieved through public outreach programs.

  Response: The NWP will work to develop an FAQ to accompany the 2012 Strategy

Goal #18

- The Water Utility Climate Alliance (WUCA) (Doc. #24, p. 8) feels that "Tracking Progress/Measuring Outcomes" is an important goal, but advises the agency to spend time developing specific criteria based on outcomes rather than number of regulations (per the 2011-2105 Agency Strategy); the emphasis should be on the Phases Approach described in Table 3 which describes NWP specific programmatic progress towards Adaptive Management rather than Table 2 listed quantitative goals. WUCA offers to work with the NWP to develop an improved method for tracking progress. Further, WUCA suggests removing this table as it is confusing to the reader. WUCA states that they would be willing to work with the NWP in developing alternative metrics, based on specific criteria, for measuring NWP success.

  Response: Thank you for your comment. We have deleted the 2011-2015 Agency Strategy goals from the Executive Summary, and shifted its location in Goal 18, SA50, in order to reduce the appearance that this was the main focus of our intent to track progress. In addition, the NWP would like to take you up on your offer to help us develop improved metrics.

- The Natural Resources Defense Council (NRDC) (Doc. #33, page 3) suggests that "success will be difficult to measure" under the current approach for Principle 2, Adaptive Management, and that "goals and actions should be

specific and quantifiable." NRDC goes on to state that "when measureable goals and actions are articulated, they often lack ambitious targets."

Response: Thank you for your comment. The NWP intends to work to develop better methods to measure progress.

- The Natural Resources Defense Council (NRDC) (Doc. #33, p. 12) suggests "EPA should develop a program to document the national benefits of improved water efficiency, both in terms of water conserved and the impact on energy systems and greenhouse gas emissions. More data documenting the impact of water efficiency (and energy efficiency) on the water-energy nexus would help EPA's partners advocate for better practices".

  Response: Thank you for this comment. The NWP does document the water, energy and GHG savings resulting from the WaterSense program. We intend to continue to work to educate the public on the energy and GHG footprint of water and the water footprint of energy.

- Other State Commenter (Doc. #48, p. 2) supports "EPA's proposed phased approach for tracking progress, as well as the emphasis the draft Strategy places on examining outcomes rather than outputs. Again, this is in line with other EPA initiatives and how they intend to measure progress and success (e.g., Section 303(d) 10-Year Vision). We also appreciate the inclusion in the draft strategy of language indicating that EPA will collaborate with the STC3 as it works to refine its proposed approach. It is important to keep the states involved throughout the entire process of defining measures."

  Response: Thank you for your support and we look forward to working with the STC3 and other stakeholders to further refine these kinds of measures of progress.

Goal #19

- A citizen (Doc. #11) stated that there should be more emphasis on rapidly changing science, and that the Strategy should be as dynamic and adaptable at its core as is climate change science.

  Response: The NWP has emphasized this point in the 2012 Strategy.

- The Los Angeles Co. Department of Public Works and Los Angeles County Flood Control District (Doc. #16, p. 3) indicate that more research is needed to define probabilistically the magnitude of sea water rise both to evaluate the effects on salt water intrusion into aquifers as well as on the potential for inundation of LACFCD facilities and impacts to operations.

  Response: This is the kind of information that the NWP hopes to work with

others to develop.

- Los Angeles Co. Department of Public Works and Los Angeles County Flood Control District (Doc. #16, p. 2) suggests that "the 2012 Strategy should put more emphasis on climate change research to adequately quantify its impact on hydrologic events and to develop methodologies to analyze non-stationary samples of hydrologic data."

  Response: The NWP agrees and intends to do so.

- The American Water Works Association (AWWA) (Doc. #21, p. 5) states it is important that the NWP acknowledge that changing regulations will affect the design and operations of water utilities, thus, the energy intensity and total energy utilized for treatment. AWWA suggests including a commitment to supporting research that will reduce the energy intensity of drinking water production.

  Response: We intend to collaborate with the research community and communicate relevant findings to water utilities, in cooperation with the associations which represent them.

- AWWA (Doc. #21, p. 4) also states that EPA should also work with other agencies and associations to further research and regulation of CCS activities.

  Response: The NWP intends to do so.

- The Water Utility Climate Alliance (WUCA) (Doc. #24, p. 9) supports prioritizing Strategic Action 51 as it is a new arena for many water sector managers. Emphasis on this area will "help water managers integrate research needs into planning, operations and decision-making, such as improved statistical products and interpretation of historical observations as well as projections of downscaled climate data and decision support".

  Response: The NWP agrees and appreciates the efforts of WUCA.

- The Ground Water Protection Council (GWPC) (Doc. #25, p. 2) supports research to support watersheds and wetlands under Hydrology, yet cautions "many states administer their own programs to protect the quality and quantity of water within their boundaries, including the protection of groundwater. State experiences with regional conditions and protection of their water resources should be consulted. We suggest that you consider, as part of your research, the potential decline in wetlands due to coastal surface subsidence and/or decreased groundwater discharge from declining water tables due to increased pumping of groundwater to supply increased demands due to climate change".

Response: Thank you for your comment, we have inserted, ", *including from increased groundwater pumping*" so that the research priority on hydrology now includes a sentence that reads: *Model potential changes to flood regulation, ground water recharge, and surface water base flow given scenarios of wetlands loss, including from increased groundwater pumping.*

In addition, the following research priority has been added: *Develop tools for prioritizing response actions that take into account potential for both adaptation and GHG mitigation, especially for wetlands protection and restoration.*

- American Rivers (Doc. #27, p. 9) supports flow and TMDLs as a potential water quality research area, and states "it is critical for EPA to include low flow as initiator for a TMDL, and further requests EPA affirm with regional and state regulators that flow and water quantity are legitimate bases of NPDES permits and TMDLs and work with local universities to further document the relationship in specific river basins".

  Response: Thank you for your comment. We will take it under advisement.

- The Association of State Wetland Managers (ASWM) (Doc. #28, p. 2) requests that EPA add an additional goal encouraging plus 3 SAs, including: (3) research to clarify the conditions under which restored or preserved wetlands can serve as carbon, and to estimate the potential scope of potential carbon sequestration, including actions to maximize carbon sequestration.

  Response: The following research priority has been added: *Develop tools for prioritizing response actions that take into account potential for both adaptation and GHG mitigation, especially for wetlands protection and restoration.*

- The Wisconsin DNR (Doc. #32, p. 1) recommends the following additional research and outreach be performed related to water recharge and reuse:
  - "Research and an implementation strategy for seepage cells or infiltration galleries in the Midwest to be used to mitigate groundwater depletion from intensive uses."
  - "Research on satellite wastewater systems in the Midwest that could be used to extract water from sewer flows to be infiltrated on-site as a way to replenish groundwater supplies."
  - "An outreach and education strategy for public acceptance of wastewater reuse."
  - "Research and development of systems to process real-time customer water use data to deliver useful information to customers for them to make informed water use decisions.
  - Research the effectiveness of real-time water use information to change customer behavior."

Response: Thank you for your comment. These suggestions will be considered.

- NMA (Doc. #37, p. 5-6) suggests that before the incorporation of ocean acidification into management plans, "research should be conducted to help understand impacts to biological processes, particularly marine calcification, and environmental monitoring should include oceanographic parameters such as temperature, irradiance, hydrodynamics, nutrients and atmospheric parameters such as surface winds and pressures".

  Response: Thank you for your comment. The suggestion will be considered.

- The City of San Diego (Doc. #38, Appendix A, p. 2) comments that it is not EPA's role to be involved in local water rates, and that EPA should instead focus their efforts on researching "more innovative ways of infrastructure operations, maintenance and rehabilitation or working more efficiently under constrained costs."

  Response: The NWP agrees that setting water rates is a local issue. We are working to provide information and tools to support local decision making.

- The American Petroleum Institute (API) (Doc. #46, p. 8) comments that the "Cross Cutting Program Support Section is one of the strongest and most important sections of the Draft 2012 Strategy. Goal 19 is an essential component of the adaptive approach to addressing water resource issues, both from climate change and other natural and anthropogenic influences." API urges EPA to focus efforts on the goals within this section.

  Response: Thank you for your support. The NWP agrees that this is a critically important Goal.

APPENDIX A: Commenters by Document Number

Organization Name	Document Number
Private Citizen	3
Private Citizen	4
Private Citizen	5
Private Citizen	6
Private Citizen	7
Private Citizen	8
National Oceanic and Atmospheric Administration	9
Private Citizen	11
Private Citizen	12
Louisiana Dept. of Environmental Quality	13
Water Environment Federation	14
Amigos Bravos Friends of the Wild Rivers	15
Los Angeles County Dept. for Public Works/Flood Control District	16
The Fertilizer Institute	17
Alliance for Affordable Energy	18
National Farmers Union	19
Louisiana Environmental Action Network/Lower Mississippi Riverkeeper	20
American Water Works Association	21
U.S. DOI, Bureau of Reclamation	22
Western Business Roundtable	23
Water Utility Climate Alliance	24
Ground Water Protection Council	25
American Rivers	26
National Association of Home Builders	27
Association of State Wetland Managers, Inc.	28
Private Citizen	29
Private Citizen	30
USGS Climate and Land Use Change	31
Wisconsin Department of Natural Resources	32
Natural Resources Defense Council	33
U.S. Fish and Wildlife Service	34
New England Interstate Water Pollution Control Commission	35
American Rivers, Cahaba Riverkeeper, Clean Water Action, Clean Water Network, National Wildlife Federation, Oregon Environmental Council, South Carolina Coastal Conservation League	36
National Mining Association	37
San Diego Transportation and Storm Water Department	38
Alaska Department of Environmental Conservation	39

Association of State Drinking Water Administrators	40
Clean Water Network	41
CONSOL Energy Inc.	42
National Association of Clean Water Agencies	43
National Ground Water Association	44
Texas Commission on Environmental Quality	45
American Petroleum Institute	46
State/Tribal Government Agency/Elected Official	48

APPENDIX B. References Cited By Commenters

Citations that are referenced in the 2012 Strategy are omitted from this summary.

Allen, Jason, et al. 2005. *Potential Effects of Climate Change on New Mexico*. Agency Technical Work Group State of New Mexico. Available online at: http://www.nmenv.state.nm.us/aqb/cc/Potential_Effects_Climate_Change_NM.pdf

American Society of Civil Engineers. 2009. *Report Card for America's Infrastructure: 2009.* Available online at: http://www.infrastructurereportcard.org/sites/default/files/RC2009_full_report.pdf.

American Society of Civil Engineers. 2009. *Report Card for America's Infrastructure: 2009 - Drinking Water Fact Sheet.* Available online at: http://www.infrastructurereportcard.org/sites/default/files/RC2009_drinkwater.pdf.

American Water Works Association. 2012. *Buried No Longer*. Available online at: http://www.awwa.org/files/GovtPublicAffairs/GADocuments/BuriedNoLongerCompleteFinal.pdf

Andreen, William L., Jones, Shana C. 2008. *The Clean Water Act, A Blueprint for Reform.* Draft. Center for Progressive Reform. White Paper #802. Available online at: http://www.progressivereform.org/articles/CW_Blueprint_802.pdf

Association of Metropolitan Water Agencies, National Association of Clean Water Agencies. 2009. *Confronting Climate Change: An Early Analysis of Water and Wastewater Adaptation Costs.* Available online at: http://www.amwa.net/galleries/climate-change/ConfrontingClimateChangeOct09.pdf

Bernstein, Harvey M., et al. 2012. *New and Remodeled Homes – Transforming the Marketplace*. McGraw-Hill. Available online at: http://www.nahbgreen.org/Content/pdf/NewAndRemodeledGreenHomes.pdf

Borges, A.V. and N. Gypens. 2010. *Carbonate Chemistry in the Coastal Zone Responds More Strongly to Eutrophication than to Ocean Acidification*. Limnology and Oceanography 55(1): 346-353.

Cai, W.J., et al. 2011. *Acidification of Subsurface Coastal Waters Enhanced by Eutrophication*. Nat. Geosci. 4, 766-770.

Chestnutt, T.W. 2011. *Volumetric Pricing for Sanitary Sewer Service in the State of California.* A&N Technical Services. Available online at: http://docs.nrdc.org/water/files/wat_11121301a.pdf

Copeland, Claudia. *Wetlands: An Overview of Issues.* 2010. Congressional Research

Service Reports. Paper 37. Available online at: http://digitalcommons.unl.edu/crsdocs/37

D'Antonio, John R. 2006. *The Impact of Climate Change on New Mexico's Water Supply and Ability to Manage Water Resources*. New Mexico Environmental Law Center website. Available online at: http://nmenvirolaw.org/images/pdf/NMELC-14.pdf

Environmental Council of the States. 2011. *Objection to the U.S. Environmental Protection Agency's Imposition of Interim Guidance, Interim Rules, Draft Policy and Reinterpretation Policy.* Policy Resolution. March 30, 2011. Available online at: http://www.ecos.org/files/4395_file_11_1_interum_Guidance.doc

Executive Office of the President, Office of Management and Budget, Memorandum from Administrator Cass R. Sunstein. 2012. *Cumulative Effects of Regulation.* March 20, 2012. Available online at: http://www.whitehouse.gov/sites/default/files/omb/assets/inforeg/cumulative-effects-guidance.pdf

Gilliam, J.W. 1994. *Riparian Wetlands and Water Quality*. Journal of Environmental Quality Vol. 23:896-900.

Griffiths-Sattenspiel, Bevan and Wendy Wilson. 2009. *The Carbon Footprint of Water*. Available online at: http://www.rivernetwork.org/sites/default/files/the%20Carbon%20Footprint%20of%20Water-River%20Network-2009.pdf

Grunenfelder, Greg, National Drinking Water Advisory Council Chair. 2010. *Climate Ready Water Utilities.* U.S. U.S. EPA website. December 2010. Available online at: http://water.U.S. EPA.gov/drink/ndwac/climatechange/upload/CRWU-NDWAC-Final-Report-12-09-10-2.pdf

Hurd, Brian H., and Julie Coonrod. 2007. *Climate Change and Its Implications for New Mexico's Water Resources and Economic Opportunities*. New Mexico State University. Available online at: http://aces.nmsu.edu/pubs/research/economics/TR45.pdf

Idso, Dr. Craig and Sherwood Idso. 2009. *CO_2, Global Warming and Species Extinction: Prospects for the Future*. The Science and Public Policy Institute.

Jobs Council. 2011. *Taking Action, Building Confidence: Five Common-Sense Initiatives to Boost Jobs and Competitiveness.* Interim Report to the President, October 10, 2011. Available online at: http://www.jobs-council.com/2011/10/10/jobs-council-releases-taking-action-building-confidence-interim-report-to-the-president/

Karl, Thomas R., et al. (eds.). 2009. U.S. Global Change Research Program (USGCRP). *Global Climate Change Impacts in the U.S.* . Cambridge University Press.

Available online at: http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf

Katt-Reinders, Elizabeth, et al. 2011. *Wisconsin's Changing Climate: Impacts and Adaptation.* Wisconsin Initiative on Climate Change Impacts. Nelson Institute for Environmental Studies, University of Wisconsin-Madison and the Wisconsin Department of Natural Resources, Madison, Wisconsin.

Kenny, J.F., et al. 2009. *Estimated Use of Water in the U.S. in 2005*. U.S. Geological Survey Report. Circular 1344 at 38.

Mayer, Peter W., et al. 2004. *National Multiple Family Submetering and Allocation Billing Program Study*. Aquacraft. Inc. and the East Bay Municipal Utility District. P. xxii. Available online at: http://www.cuwcc.org/resource-center/products/end-use-studies.aspx

Millar, Constance I., et al. 2007. *Climate Change and Forests of the Future: Managing in the Face of Uncertainty*. Ecological Applications, December, 2007. Vol. 17, No. 8 : 2145-2151. Available online at: http://www.esajournals.org/doi/pdf/10.1890/06-1715.1

Moore, Robert, et al. 2008. *Wasted Green, How Lost Revenue and State Spending Shortchange New York Taxpayers and the Environment*. Environmental Advocates of New York.

National Association of Clean Water Agencies (NACWA). 2007. NACWA Strategic Watershed Task Force. *Recommendations For a Viable and Vital 21st Century Clean Water Policy*. October 18, 2007. Available online at: www.nacwa.org/watershed

National Drinking Water Advisory Council (NDWAC). 2010. *Climate Ready Water Utilities Working Group, Final Report to the National Drinking Water Advisory Council.* Dec 9, 2010. Available online at: http://water.U.S. EPA.gov/infrastructure/watersecurity/climate/upload/NDWAC-overview-of-CRWU-10.pdf

National Ocean Council. 2012. *National Ocean Policy Implementation Plan*. National Ocean Council website. Available online at: http://www.whitehouse.gov/sites/default/files/microsites/ceq/national_ocean_policy_draft_implementation_plan_01-12-12.pdf

National Research Council (NRC) of the National Academy of Sciences. 2010. *Ocean Acidification: A National Strategy to Meet the Challenges of a Changing Ocean.* Available online at: http://oceanacidification.nas.edu/?page_id=2

National Resources Defense Council. 2012. *Volumetric Pricing for Sanitary Sewer Service in California Would Save Water and Money.* Available online at: http://www.nrdc.org/water/files/Volumetric-wastewaer-FS.pdf

Odefey, Jeffrey, et al. 2012. *Banking on Green.* American Rivers, Water Environment Federation, Association of Landscape Architects and EcoNorthwest. American Rivers website. Available online at: http://www.americanrivers.org/library/reports-publications/going-green-to-save-green.html

Peterson, David L, et al. 2011. *Responding to Climate Change in National Forests: A Guidebook for Developing Adaptation Options.* U.S. Department of Agriculture Forest Service. Available online at: http://www.treesearch.fs.fed.us/pubs/39884

Riexinger, Patty, et al. 2009. *Voluntary Guidance for States to Incorporate Climate Change into State Wildlife Action Plans and Other Management Plans.* Association of Fish and Wildlife Agencies.

Roundtable Comments, CEQ. 2010. *Draft U.S. EPA Guidance on Consideration of the Effects of Climate Change on Greenhouse Gas Emissions.* 75 Fed. Reg. 8046, February 23, 2010. Available online at: http://www.westernroundtable.com/Portals/0/Docs/RegReform/WBRT_Commetns_NU.S. EPA_Climate_5-23-10_Final.pdf

Roundtable Comments, U.S. EPA. 2009. *Draft Framework for Categorizing the Relative Vulnerability of Threatened and Endangered Species to Climate Change.* 74 Fed. Reg. 61671, November 25, 2009. Available online at: http://www.westernroundtable.com/Portals/0/Docs/Air/2010/WBRT_U.S. EPAVulnerability_FINAL.pdf

Roundtable Comments. 2012. *National Fish, Wildlife and Plants Climate Adaptation Strategy.* March 5, 2012. Available online at: http://www.westernroundtable.com/portals/0/Docs/lands/public_lands/2012/WBRT_USFWSClimatePlan_FINAL.pdf

Roy, Sujoy, et al. Tetra Tech. 2010. *Evaluating Sustainability of Projected Water Demands Under Future Climate Change Scenarios.* Available online at: http://rd.tetratech.com/climatechange/projects/nrdc_climate.asp

Scientist Letter (internal citations omitted), *citing* Brinson. M.M. 1998. *Changes in the Functioning of Wetlands along Environmental Gradients.* Wetlands Vol. 13(2) June 1998 pp65-74.,

Stephenson, John B., et al. 2007. *Climate Change: Agencies Should Develop Guidance for Addressing the Effects on Federal Land and Water Resources*. Report to Congressional Requesters. Government Accountability Office website. Available online at: http://www.gao.gov/assets/270/265207.pdf

Sunding D., and D. Zilberman. *The Economics of Environmental Regulation by Licensing: An Assessment of Recent Changes to Wetlands Permitting Process.* Nat.

Resources J. Winter 42: p59.

Supporting Document/Agencies Compliance Template for Council on Environmental Quality. 2011. *Instructions for Implementing Adaptation Planning in Accordance with Executive Order 13514, Federal Leadership in Environmental, Energy and Economic Performance*. The White House website. March 4, 2011. Available online at: http://www.whitehouse.gov/sites/default/files/microsites/ceq/adaptation_support_document_3_3.pdf

Tiner, R.W. 2005. *In Search of Swampland: A Wetland Sourcebook and Field Guide*. Rutgers U. Press, New Brunswick, NJ and London. Pp 93-94.

U.S. Department of Agriculture, Federal Crop Insurance Corporation. 2005. *Preventing Planting Loss Adjustment Standards Handbook.*

U.S. EPA. *Section 319 Nonpoint Source Success Stories.* U.S. EPA website.

U.S. Global Change Research Program. 2009. *Global Climate Change Impacts in the U.S.* . Available online at: http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/full-report

U.S. Environmental Protection Agency (U.S. EPA). 1987. Clean Waters Act Section 319: Laws, Regulations, Treaties, Nonpoint Source Management Program Clean Water Section 319. Available online at: http://water.U.S. EPA.gov/polwaste/nps/cwact.cfm

U.S. EPA and U.S. Army Corps of Engineers. December, 2010. *Clean Water Protection Guidance, CONFIDENTIAL DRAFT*. P1.

U.S. EPA. 2008. *A Screening Assessment of the Potential Impacts of Climate Change on Combined Sewer Overflow (CSO) Mitigation in the Great Lakes and New England Regions.* Global Change Research Program, National Center for Environmental Assessment, Washington, DC, U.S. EPA/600/R-07/033F. Available from the National Technical Information Service, Springfield, VA, and online at http://www.U.S. EPA.gov/ncea.

U.S. EPA. 2008. *National Water Program Strategy: Response to Climate Change*. Available online at: http://www.U.S. EPA.gov/water/climatechange/strategy.html

U.S. EPA. 2009. *2007 Drinking Water Infrastructure Needs Survey and Assessment: Fourth Report to Congress.* Environmental Protection Agency, Office of Water. Available online at: http://water.U.S. EPA.gov/infrastructure/drinkingwater/dwns/upload/2009_03_26_needssurvey_2007_report_needssurvey_2007.pdf

U.S. EPA. 2009. *Clean Watersheds Needs Survey 2008: Report to Congress.* Environmental Protection Agency, Office of Water. Available online at:

http://water.U.S. EPA.gov/scitech/datait/databases/cwns/upload/cwns2008rtc.pdf

U.S. EPA. 2010. *Control and Mitigation of Drinking Water Losses in Distribution Systems*. Available online at: http://water.U.S. EPA.gov/type/drink/pws/smallsystems/upload/water_loss_control_508_FINALDEc.pdf

U.S. EPA. 2010. *FY 2011-2015 Strategic Plan.* Environmental Protection Agency, September 30, 2010. Available online at: http://www.U.S. EPA.gov/planandbudget/strategicplan.html

U.S. EPA. 2010. *Region 4 Guidelines on Water Efficiency Measures*. June 21, 2010. Available online at: http://www.U.S. EPA.gov/region4/water/wetlands/documents/guidelineso_wate_efficienc_measures.pdf

U.S. EPA. November 15, 2010 Guidance Memorandum. *Integrated Reporting and Listing Decisions Related to Ocean Acidification.* Denise Keehner to Water Division Directors. Available online at: http://water.U.S. EPA.gov/lawsregs/lawsguidance/cwa/tmdl/oa_memo_nov2010.cfm

U.S. EPA. *Water-Efficient Landscaping: Preventing Pollution & Using Resources Wisely*. Undated. Available online at: http://www.U.S. EPA.gov/watersense/docs/water-efficient_landscaping_508.pdf

U.S. Fish and Wildlife Service. 2010. *Rising to the Urgent Challenge: Strategic Plan for Responding to Accelerating Climate Change*. Climate Change Strategic Plan. Available online at: http://www.fws.gov/home/climatechange/pdf/CCStrategicPlan.pdf

Union of Concerned Scientists. 2011. *The Energy-Water Collision: Power and Water at Risk*. Available online at: http://www.ucsusa.org/assets/documents/clean_energy/ew3/powerand-water-at-risk-with-endnotes.pdf

Walbridge, M.W. 1993. *Functions and Values of Forested Wetlands*. Vol 91(5): pp15-19.

Waters Advocacy Coalition Comments, U.S. EPA/USACE. 2011. *Draft Guidance on Identifying Waters Protected by the CWA.* (Docket ID No. U.S. EPA-HQ-OW-2011-0409) May 2, 2011. Available online at: http://www.westernroundtable.com/Portal/0/Docs/Water 072911WACcommentsFinal.pdf

White House Council on Environmental Quality. 2011. *Instructions for Implementing Adaptation Planning in Accordance with Executive Order 13514, Federal Leadership in Environmental, Energy and Economic Performance*. The White House website. March 4, 2011. Available online at: http://www.whitehouse.gov/sites/default/files/microsites/ceq/adaptation_final_impleme

nting_instructions_3_3.pdf

White House Council on Environmental Quality. 2011. *Instructions for Implementing Climate Change Adaptation Planning in Accordance with Executive Order 13514. Federal Leadership in Environmental, Energy, and economic Performance*. March 4, 2011. Available online at: http://www.whitehouse.gov/sites/default/files/microsites/ceq/adaptation_final_implementing_instructions_3_3.pdf

White House. 2009. *Memorandum to Heads of Agencies of Executive Departments and Agencies: Scientific Integrity.* March 9, 2009. Available online at: http://www.whitehouse.gove/the-press-office/memorandum-heads-executive-departments-and-agencies-3-9-09

White House. 2009. *Memorandum to Heads of Executive Departments and Agencies: Transparency and Open Government.* Federal Register Vol. 74 No. 15. January 21, 2009. Available online at: http://www.whitehouse.gov/the_press_office/TransparencyandOpenGovernement

Regulations, Executive Orders, and Agreements

Clean Air Act, 42 U.S.C. §§ 7401-7700

Clean Water Act (Federal Water Pollution Control Act) 33 USC § 1251 *et seq*

Coral Reef Conservation Act of 2000, 16 U.S.C. §§ 6401-6409

Great Lakes-St. Lawrence River Basin Water Resources Compact. December 13, 2005. Available online at: http://www.cglg.org/projects/water/docs/12-13-05/Great_Lakes-St_Lawrence_River_Basin_Water_Resources_Compact.pdf

Endangered Species Act, 16 U.S.C. §§ 1531-1599

Energy Policy Act of 1992. 42 U.S.C. § 13201 *et seq.*

Executive Order (Number TBA): Identifying the Reducing Regulatory Burdens. The White House website. May 10, 2012. Available online at: http://www.whitehouse.gov/the-press-office/2012/05/10/executive-order-identifying-and-reducing-regulatory-burdens

Executive Order (Number TBA): Improving Performance of Federal Permitting and Review of Infrastructure Projects. The White House website. March 22, 2011. Available online at: http://www.whitehouse.gov/the-press-office/2012/03/22/executive-order-improving-performance-federal-permitting-and-review-infr

Executive Order 12866 of September 30, 1993, Regulatory Planning and Review. Available online at: http://www.archives.gov/federal-register/executive-orders/pdf/12866.pdf

Executive Order 13340: Great Lakes Interagency Task Force. Federal Register Vol. 69 No. 98. May 18, 2004.

Executive Order 13508: Chesapeake Bay Protection and Restoration. Federal Register Vol. 74 No. 93. May 12, 2009.

Executive Order 13514: Federal Leadership in Environmental, Energy and Economic Performance. Federal Register Vol. 74 No. 194. October 8, 2009. Available online at: http://www.whitehouse.gov/assets/documents/2009fedleader_eo_rel.pdf

Executive Order 13547: Stewardship of the Ocean, Our Coasts, and the Great Lakes. Federal Register Vol. 75 No. 140. July 19, 2010. Available online at: http://www.whitehouse.gov/the-press-office/executive-order-stewardship-ocean-our-coats-and-great-lakes

Executive Order 13563 of January 18, 2011, Improving Regulation and Regulatory Review. Available online at: http://www.gpo.gov/fdsys/pkg/FR-2011-01-21/pdf/2011-1385.pdf

Executive Order 13563: Improving Regulation and Regulatory Review. Federal Register Vol. 76 No. 14. January 18, 2011. Available online at: http://www.reginfo.gov/public/jsp/Utilities/EO_13563.pdf

Federal Ocean Acidification Research and Monitoring Act of 2009 (FOARAM Act), 33 U.S.C. §§ 3701-3709

Global Change Research Act of 1990, 15 U.S.C. §§ 2921-2961

Integrated Coastal and Ocean Observation System Act of 2009, 33 U.S.C. §§ 3601-3610

Magnuson-Stevens Reauthorization Act § 701, Pub. L. 109-479 (2007)

Marine Mammal Protection Act, 16 U.S.C. §§ 1361-1423h

National Climate Program Act of 1978, 15 U.S.C. §§ 2901-2908

National Coastal Monitoring Act, 33 U.S.C. §§ 2801-2805

Ocean Dumping Provisions, 33 U.S.C. §§ 1401-1445