

**American Rivers ♦ Clean Water Network ♦ Freshwater Future
Gulf Restoration Network ♦ Izaak Walton League of America
National Wildlife Federation ♦ Restore America's Estuaries
River Network ♦ Sierra Club ♦ Waterkeeper Alliance**

April 5, 2010

Terry Breyman
Associate Director of Natural Resources
Council on Environmental Quality
722 Jackson Place, NW.
Washington, DC 20503

Re: Comments on the Proposed Principles and Standards Sections of the “Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies”

Dear Mr. Breyman:

American Rivers, Clean Water Network, Freshwater Future, Gulf Restoration Network, Izaak Walton League of America, National Wildlife Federation, Restore America's Estuaries, River Network, Sierra Club, and Waterkeeper Alliance (the Conservation Organizations) submit these comments on behalf of our millions of members and supporters. The Conservation Organizations appreciate the opportunity to comment on the Proposed Principles and Standards Sections of the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (the proposed P&S). The revision process provides a tremendous opportunity to develop a modern framework for water project planning that will protect the Nation's waters and ensure that we are able to meet the critical water resources needs of the 21st Century.

The Conservation Organizations have extensive experience with the project planning and implementation processes of the U.S. Army Corps of Engineers (Corps), the Bureau of Reclamation, and other federal agencies, and a long history of working to improve the planning process for Federal water projects. Many of the Conservation Organizations strongly supported passage of the Corps reform provisions in the Water Resources Development Act of 2007 (WRDA 2007), including the requirement to modernize the more than a quarter century old Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (the 1983 P&G), because we believe the current system is failing to responsibly address the Nation's current and future water resource needs.

These comments provide our detailed review of the proposed P&S and specific recommendations for the framework needed to implement a new paradigm for Federal water resources planning. For ease of reference, the Conservation Organizations have included both a detailed Table of Contents and an Executive Summary for these comments.

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EXECUTIVE SUMMARY

A. Introduction

For decades, the Nation invested in water resources projects designed primarily to fuel economic development. While these projects produced some positive economic benefits for the Nation, they typically involved extensive alteration and manipulation of river systems and coastlines, at the expense of the important natural ecological services these systems provide. The environmental damage has been so great that Federal water resources projects are recognized as one of the leading reasons that North America's freshwater species are disappearing five times faster than land based species, and as quickly as rainforest species.¹ Many large-scale structural water projects have also increased flood risks for communities downstream, reduced water quality, impaired recreational opportunities, and damaged economies that rely on a healthy environment. In addition, the economic benefits promised by these Federal water projects often have not been realized.

Climate change makes planning and operating water projects both more complicated and less certain. Likely effects of climate change on water-related resources include rising sea-levels, changes in glacial and snowmelt patterns, reduced snowpack in the West, additional ocean and estuary "dead zones," declining ecosystem health, additional threats to biodiversity, and more frequent and severe storms, floods, and droughts. The Nation is already experiencing some of these impacts, including earlier spring snow melt in the West. To increase the ability of both natural and human communities to thrive in the face of these changes, it is imperative that Federal water projects anticipate climate change and be designed and operated to protect communities, and to protect and restore healthy rivers, wetlands, and coastlines.

Congress recognized this need to shift Federal water project development and operations in the Water Resources Development Act of 2007 (WRDA 2007), which established a new national policy that requires, among other things, that *all* water resources projects "protect the environment" by "protecting and restoring the functions of natural systems and mitigating any unavoidable damage to natural systems" and by "seeking to avoid the unwise use of floodplains."² This policy augments the existing requirements of such bedrock laws as the Clean Water Act and the Endangered Species Act, which also require avoidance of impacts to the nation's waters and the imperiled species that depend on them. National economic development, of course, remains a major part of water resources project development, but WRDA 2007 recognized that not all economic development is in the National interest by shifting the focus to "seeking to maximize *sustainable* economic development."

To comply with these legal requirements, and to meet the challenges created by climate change, degraded water resources, increased urbanization and population growth, and economic development needs, the Proposed Principles and Standards Sections of the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (the proposed P&S) must be revised to institute a new framework for water resources

¹ Ricciardi, Anthony and Rasmussen, Joseph B., "Extinction Rates of North American Freshwater Fauna"; *Conservation Biology*; 13 (5), October 1999, at 1220.

² WRDA 2007 Section 2031(a), (a)(2), and (a)(3).

planning that turns its back on the failed approaches of the past. Rather than simply adding additional environmental considerations to the existing framework, the final P&S should establish a planning hierarchy with clear directives and criteria to ensure that Federal law and policy, and national priorities, drive water resources planning. The final P&S should require avoidance of adverse environmental impacts to the maximum extent possible; shift water resources planning towards modern risk management, watershed planning, integrated water resources management, and economic sustainability approaches; and establish planning criteria that ensure compliance with these directives. Once all planning criteria are met, a benefit-cost analysis could be used to select among alternatives for those projects and programs that are principally intended to generate sustainable economic development benefits.

B. The Proposed Principles And Standards Move Water Resources Planning Forward

While these comments focus on areas of needed improvement, the Conservation Organizations also wish to commend the Council on Environmental Quality (CEQ) and the Federal agencies on the many positive elements contained in the proposed P&S. We greatly appreciate the change in language and tone in the proposed P&S, which sound very different than the existing planning framework. The Conservation Organizations believe that the following areas represent important and welcome steps forward in water resources planning:

- Systemic recognition of the value of ecosystem services to people and communities;
- Extending project selection criteria beyond maximizing National Economic Development to include social and ecological benefits;
- Requiring use of the best available science, including the science of climate change, in project analyses;
- Recognition of the need for explicit analysis of risk and uncertainty;
- Adoption of modern planning paradigms, including watershed planning approaches and integrated water resources management approaches;
- A focus on nonstructural alternatives; and
- Recognition of the role of environmental justice in project development.

C. Despite These Steps Forward, The Proposed Principles And Standards Do Not Establish The Much Needed New Paradigm For Water Resources Planning

While the proposed P&S take the important steps discussed above, they fundamentally retain the approach to water project planning established by the 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (the 1983 P&G), which has destroyed rivers, coasts, and wetlands; created unacceptable risks to public safety; and wasted taxpayer dollars. The proposed P&S roll back current approaches to restoration planning and will make many restoration projects less environmentally sound. The proposed P&S do not ensure protection of healthy rivers, wetlands, and coasts and do not ensure compliance with the Nation’s environmental laws.

The Conservation Organizations have the following major concerns with the proposed P&S:

- (1) The proposed P&S retain economic development as the overriding objective for all water resources projects by requiring that *all* projects “maximize net national economic,

environmental, and social benefits” and “encourage sustainable economic development.” While environmental protection and restoration are discussed in the proposed P&S, there is no stand alone environmental protection objective. This undermines the Congressionally-mandated requirement that all water projects must protect the environment. Requiring all projects to maximize national economic benefits also fundamentally alters the current approach to restoration planning and will undermine the ability of restoration projects to focus on ecological objectives like restoring natural hydrology and improving ecosystem services. Promoting economic development is also an inappropriate planning objective for numerous Federal agencies, including the U.S. Fish and Wildlife Service, the National Park Service, and the Federal Emergency Management Agency, because their missions do not include economic development.

- (2) The proposed P&S rely almost exclusively on a project-by-project benefit-cost analysis to determine whether a project should be constructed using Federal tax dollars. There are two main problems with this. First, this approach will continue a process of piecemeal planning that cannot respond to the enormous, and often watershed or basin-wide, water resources challenges facing the Nation. While watershed scale and integrated water resources management planning are acknowledged in the proposed P&S, the project-by-project approach remains embedded as the fundamental driver in the planning process. Second, benefit-cost analyses cannot provide an accurate assessment of whether or not a project is in the Federal interest, and typically are so rife with problems that they preclude even the most basic assessment of whether a project’s actual benefits will exceed its actual costs. While the proposed P&S take a step forward by requiring an assessment of the value of ecosystem services in the benefit-cost analysis, this requirement does not remedy the many problems with the benefit-cost tool. In fact, the addition of ecosystem services, which are notoriously difficult to quantify, may make the analysis more subject to manipulation. While there is certainly a role for benefit-cost analysis, it should not be the foundation for the Nation’s water resources planning.
- (3) While changes to sea level, hydrology, and water resources are among the most certain of the challenges posed by climate change, the proposed P&S fail to provide direction and guidance as to how those challenges are to be met. Climate change is acknowledged, but the proposed P&S do not address the most fundamental climate-changed induced problem — that the Nation can no longer rely on historical hydrological records as a guide to the future. The proposed P&S also do not ensure protection of healthy rivers, wetlands, and coastlines that increase the ability of natural and human communities to withstand the changes that will occur as the earth’s climate continues to change. It is essential that the P&S adopt principles and standards that effectively guide planning in the face of the certain, yet difficult to quantify, challenges created by climate change.
- (4) WRDA 2007 shifted the emphasis in analysis of economic development from general economic development to “sustainable economic development.” However, the proposed P&S fail to provide guidance or require analysis of a project’s impacts on such sustainability. A number of methodologies have been developed to carry out such analyses, and while none are perfect, an evaluation of sustainability is fundamental to complying with the national water policy enacted by WRDA 2007. At an absolute

minimum, given the need to address climate change, the energy uses associated with the construction and operation of any water project must be fully and carefully evaluated. The final P&S should also define what is meant by sustainable economic development.

(5) While WRDA 2007 directed revision of the 1983 P&G as it applies to the U.S. Army Corps of Engineers (“Corps”), the proposed P&S would apply to a wide variety of agencies, many with missions and histories very different from those of the Corps. Despite this expansion of scope, the proposed P&S remain heavily focused on the Corps’ flood damage reduction and navigation mission areas. The Proposed P&S do not advance the planning of:

- Agencies with responsibility for environmental restoration and management, such as the U.S. Fish and Wildlife Service, the National Park Service, and the National Oceanic and Atmospheric Administration. The proposed P&S also roll back Corps restoration planning.
- The Bureau of Reclamation, which has a primary focus of assisting the Nation in meeting the water demands of the West while protecting the environment and the public’s investment in these structures. The Bureau is the largest wholesaler of water in the country and the second largest producer of hydroelectric power in the western United States. Because the Bureau operates in an environment where most water has already been appropriated, and the hydrologic effects of climate change are already pressing, the future work of the Bureau will need to focus on how to make the Bureau’s existing projects and systems provide more benefits using the same, or less, water. Integrated water resources management should be the standard, and mandatory, approach for Bureau projects, but the proposed P&S does not include such a requirement.
- Corps projects that are increasingly being pressed into providing water supply as populations grow and the climate changes. These issues are becoming increasingly contentious in the Southeast, and are likely to become problematic in other areas of the country as well. As with the Bureau, integrated water resources management will be an essential tool for the Corps’ ability to address water supply issues.
- The water resources efforts of other agencies and Departments, such as the Federal Emergency Management Agency (FEMA), Environmental Protection Agency, and Department of Agriculture whose programs could potentially contribute to planning and developing nonstructural approaches to address water resources problems.

D. Federal Law And Policy Require A New Paradigm For Water Resources Planning

To meet the Nation’s 21st Century water resources needs, water resources planning must be driven by federal law and policy and modern planning approaches, not simply by benefit-cost analysis. As called for by key Congressional leaders, the proposed P&S should establish a mandatory planning and decision-making hierarchy with clear directives and criteria to ensure that Federal water projects comply with Federal law and policy and address national priorities. These should include “clear directives to avoid adverse environmental impacts to the maximum extent possible, along with specific requirements that ensure compliance. For example, a clear requirement to first consider and utilize nonstructural and restoration approaches to solving water

problems, where practicable, would provide the type of direction needed to preserve the natural systems that can protect communities facing catastrophic flooding, droughts, and sea level rise caused by climate change.”³ Once all planning criteria are met, a benefit-cost analysis could be used to select among alternatives for those projects and programs that are principally intended to generate sustainable economic development benefits.

The planning hierarchy should:

- (1) Establish maintaining and restoring the health of the Nation’s water resources to achieve long-term sustainable ecosystem integrity as a primary and stand-alone objective for all water resources projects, as required by WRDA 2007;
- (2) Require the use of nonstructural and restoration approaches whenever practicable because these types of approaches can effectively solve many water resources problems while avoiding adverse environmental impacts and improving the health of the Nation’s waters and the natural and human communities that depend on them. This standard is required by the Clean Water Act, which prohibits the construction of Federal (and private) water projects if there is a practicable alternative which would have less adverse impact on the aquatic ecosystem;
- (3) Require the use of watershed planning approaches and integrated water resources management approaches to ensure the most efficient and environmentally sound planning possible for the full range of water resources projects covered by the final P&S;
- (4) Ensure that water resources planning increases the ability of natural and human communities to withstand the changes wrought by climate change, including by requiring that project planners use the best available science about the current and projected impacts of climate change in project design and operation, and by protecting and restoring healthy rivers, wetlands, and coastlines; and
- (5) Ensure that restoration planning is driven by ecological and not economic development objectives so that restoration can focus on restoring natural functions and processes to improve the health, sustainability, and resiliency of ecosystems and to obtain long term ecological and hazard reduction benefits. Restoration projects should also be evaluated through a cost-effectiveness analysis (not a benefit-cost analysis), as required by law; and
- (6) Ensure that planning and recommended water resources projects comply fully with Federal law, including the Clean Water Act’s requirements to avoid and minimize adverse impacts to aquatic resources. This includes avoiding and minimizing impacts to hydrologic regimes, ecologically sound instream flows, floodplain and river corridor processes, geomorphic processes, and ecological processes.

³ Letter to the Honorable Nancy Sutley, Chair of the Council on Environmental Quality from Senators Russell Feingold, John McCain, Barbara Boxer, Benjamin Cardin, Joseph Lieberman, and Mary Landrieu, dated November 17, 2009.

Proposed language to implement this planning hierarchy is included in Section IV of these comments.

E. Conclusion

The Conservation Organizations appreciate the opportunity to provide comments on the proposed P&S and are committed to improving the Nation's water planning process. The proposed P&S take an important first step in this direction by emphasizing the value of healthy rivers, wetlands, and coasts; and by including the important planning concepts identified in Section I of these comments.

However, the Conservation Organizations cannot support the proposed P&S in its current form, and urge the critical changes discussed in these comments to ensure that Federal planning is capable of meeting the nation's 21st Century water resources needs. Federal law and policy, and the dire condition of the Nation's water resources, mandate a stand-alone environmental protection objective and a mandatory planning hierarchy with clear directives and criteria to ensure that Federal water project planning is driven by Federal law and policy and national priorities.

I. Significant New Water Resources Challenges And Federal Law Mandate A New Paradigm For Federal Water Resources Planning

The Nation's many water resources challenges mandate a new paradigm for Federal water resources planning. Many of the Nation's water resources are severely degraded due in large part to the outdated approach to water resources planning established by the 1983 P&G. These problems are being, and will continue to be, exacerbated by climate change. These existing problems, the extraordinary future water resources challenges, and Federal law and policy mandate a fundamental change in the Nation's approach to water resources planning.

A. The Nation Is Faced With Extraordinary Environmental Challenges That Mandate A New Approach For Planning Federal Water Projects

For decades, the Nation has invested in structural water resources projects designed to fuel economic development. While these projects have in some cases produced positive economic benefits for the Nation, they have typically involved extensive alteration and manipulation of river systems and coastlines and have caused significant environmental harm. The environmental damage has been so great that Federal water projects are recognized as one of the leading reasons that North America's freshwater species are disappearing five times faster than land based species, and as quickly as rainforest species.⁴ In the West, many of the large Bureau of Reclamation projects are operating under Endangered Species Act restrictions imposed as a result of project construction and operation. Large-scale structural projects planned and constructed by the Corps have also increased flood risks for many communities, reduced water quality, impaired recreational opportunities, and damaged economies that rely on a healthy environment.

Many of these problems, including particularly those caused by Corps projects, can be traced to the 1983 P&G, which focus almost exclusively on maximizing National Economic Development at the expense of the environment. Two National Academy of Sciences panels and the Department of the Army Inspector General have concluded that the Corps has an institutional bias for approving large and environmentally damaging structural projects, and that its planning process lacks adequate environmental safeguards.⁵ Less environmentally damaging, less costly, nonstructural measures that would result in the same or better outcomes are routinely ignored or given short shrift. This results in projects that are unnecessarily destructive, costly, and in many cases, simply not needed.

The Nation is currently facing a host of environmental challenges, like the need to restore Florida's Everglades and Louisiana's coastal wetlands, that are the direct result of previously constructed Federal water projects. Other notable water resources challenges come from increased urbanization, major land use changes, and poor conservation practices that have led to

⁴ Ricciardi, Anthony and Rasmussen, Joseph B., "Extinction Rates of North American Freshwater Fauna"; *Conservation Biology*; 13 (5), October 1999, at 1220.

⁵ National Research Council, *New Directions in Water Resources Planning for the U.S. Army Corps of Engineers*, 1999, at 4, 21, 61-63; National Research Council, *Inland Navigation System Planning: The Upper Mississippi River-Illinois Waterway*, 2001, at 25-28; 53-54; US Army Inspector General, *Report of Investigation*, Case 00-019, 2000, at 7-8.

water shortages and water conflicts across the country. We face still more challenges for ensuring public safety due to the intensification of urbanization in areas at high risk from storms and floods.

These problems are being exacerbated by climate change which is leading to potentially calamitous environmental consequences, including increasing sea-level rise, changes in glacial and snowmelt patterns, additional ocean and estuary “dead zones,” declining ecosystem health, threats to biodiversity, and more frequent and severe storms, floods, and droughts.

Climate change is placing additional burdens on already stressed water resources across the country. The Nation’s coastal and riverside communities are at particular risk from storms and floods, water quality will suffer across the country, and wildlife will become increasingly vulnerable as species’ ranges and migration patterns shift.⁶ The impacts of climate change “will combine with pollution, population growth, overuse of resources, urbanization, and other social, economic, and environmental stresses to create larger impacts than from any of these factors alone.”⁷

Climate change is likely to “affect all sectors of water resources management, since it may require changed design and operational assumptions about resource supplies, system demands or performance requirements, and operational constraints.”⁸ This includes needed changes to the assumptions used to respond to large scale damage to existing water resources infrastructure from natural disasters like floods and hurricanes. Such disasters typically require rapid, and sometimes extremely costly and consequential, decisions regarding the appropriate disposition of damaged or destroyed water resources infrastructure. In the face of climate change, it is extremely important to reconsider the general assumptions that currently guide such responses, including the general assumption that damaged projects and infrastructure should be reconstructed to pre-disaster conditions.

In the face of these dire consequences, it is more imperative than ever to protect and restore healthy rivers, wetlands, and coastlines. These resources are vitally important to help communities withstand the increased storms, floods, and droughts that will occur as the earth’s climate continues to change. These natural systems absorb flood waters; act as barriers between storm surges and homes, buildings, and people; recharge groundwater supplies; and filter pollutants from drinking water. They also provide critical habitat for fish and wildlife, and exceptional recreational opportunities.

Given the importance of these resources, it makes no sense to allow unnecessary destruction and degradation of water resources, while pumping billions of dollars into restoring and improving the Nation’s wetlands, rivers, and coasts. This is even truer today than ever, as it has become increasingly clear that a significant portion of the billions of dollars of climate-change related

⁶ Global Climate Change Impacts in the United States, Thomas R. Karl, Jerry M. Melillo, and Thomas C. Peterson, (eds.). Cambridge University Press, 2009 at 12, 79. Available at <http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf>.

⁷ *Id.* at 12.

⁸ Brekke, L.D., Kiang, J.E., Olsen, J.R., Pulwarty, R.S., Raff, D.A., Turnipseed, D.P., Webb, R.S., and White, K.D., 2009, *Climate change and water resources management—A federal perspective: U.S. Geological Survey Circular 1331*, at 8. Available at <http://pubs.usgs.gov/circ/1331/>.

natural resource adaptation funds will ultimately be needed to protect and restore rivers, wetlands, and coasts. “Conservation science tells us that wetlands and water resources are like most things in life — it is cheaper and more effective to take care of what you have than it is to repair or replace it.”⁹

B. Congress Established A New Approach To Water Planning In WRDA 2007

Congress recognized the need for a fundamentally new approach to water resources planning in the WRDA 2007. The national water resources policy established in WRDA 2007 requires, among other things, that *all* water resources projects “protect the environment” by “protecting and restoring the functions of natural systems and mitigating any unavoidable damage to natural systems” and by “seeking to avoid the unwise use of floodplains”:

“It is the policy of the United States that *all* water resources projects should reflect national priorities, encourage economic development, and *protect the environment by—*

- (1) seeking to maximize sustainable economic development;
- (2) *seeking to avoid the unwise use of floodplains* and flood-prone areas and minimizing adverse impacts and vulnerabilities in any case in which a floodplain or flood-prone area must be used; and
- (3) *protecting and restoring the functions of natural systems and mitigating any unavoidable damage to natural systems.*”¹⁰

This policy augments the many other laws, like the Clean Water Act, the Endangered Species Act, the Fish and Wildlife Coordination Act, the Coastal Zone Management Act, and the National Environmental Policy Act that also require protection of the environment and the species that rely on a healthy environment. As a result, environmental protection must be a fundamental and primary objective of each water resources project as a matter of law.

II. The Proposed Principles And Standards Fall Far Short Of Addressing The Nation’s Current And Future Water Resources Needs

To address the Nation’s needs and to respond to the Congressional directives established in WRDA 2007 and in a host of environmental protection laws, we need a new paradigm for water resources planning. The new P&S must establish a framework for water planning driven by strict compliance with Federal law and policy and by national priorities, including increasing the resiliency of fish and wildlife and human communities to the changes being wrought by climate change. This framework should include a mandatory planning hierarchy that establishes clear directives and criteria for determining which projects are appropriate for Federal investment.

The proposed P&S do not implement this much needed, and Congressionally-mandated, paradigm shift in water resources planning. Indeed, the proposed P&S fail to establish either a clear national standard or a coherent national water policy. As a result, neither the Federal

⁹ Scott Yaich, *Climate Change: A Lens for Focusing on a Coherent National Wetlands Policy*, National Wetlands Newsletter, Volume 32, No. 1, January-February 2010 (Environmental Law Institute).

¹⁰ WRDA 2007 Section 2031(a), 42 U.S.C. 1962-3 (emphasis added).

agencies, local project sponsors, nor the public are given clear guidance on what types of projects are appropriate for Federal investments.

While the proposed P&S take the important step of recognizing the value of healthy rivers, wetlands, and coasts — and they certainly sound different than the 1983 P&G — they fundamentally retain the current approach to water project planning that has produced devastating environmental damage, unacceptable risks to public safety, and an enormous waste of taxpayer dollars. For restoration projects, the proposed P&S actually make planning less environmentally sound. The proposed P&S undermine the ability of restoration planning to achieve critical ecological restoration objectives by requiring, for the first time, that restoration projects promote economic development and be justified through a benefit-cost analysis.

Like the 1983 P&G, the proposed P&S maintain economic development as the overriding objective for all water resources projects. Under the proposed P&S, all projects must “maximize net national economic, environmental, and social benefits” and must “encourage sustainable economic development.” While environmental protection and restoration are discussed at length in the proposed P&S, there is no stand alone environmental protection objective and the proposed P&S fail to ensure protection of the environment or compliance with the Nation’s environmental laws and policies. Contrary to the clear mandates of WRDA 2007, the proposed P&S essentially treat environmental protection and restoration as constraints on project planning instead of primary goals. Applying this standard beyond the traditional construction agencies could force agencies like the U.S. Fish and Wildlife Service to plan projects in a way that undermine or violate their primary missions and statutory mandates.

Like the 1983 P&G, the proposed P&S also rely almost exclusively on a project-by-project benefit-cost analysis to determine whether a project should be constructed using federal tax dollars. Project-by-project benefit-cost analyses produce piecemeal planning that cannot respond to the enormous, and often ecosystem-wide, water resources challenges facing the Nation. Benefit-cost analysis is also rife with problems that preclude even the most basic assessment of whether a project’s actual benefits will exceed its actual costs. While the proposed P&S take a step forward by requiring an assessment of the value of ecosystem services in the benefit-cost analysis, this requirement does not remedy the many problems with the benefit-cost tool. These problems render benefit-cost analysis entirely inappropriate as the primary tool for guiding the Nation’s water resources planning.

As noted above, the proposed P&S also make drastic changes to the restoration planning process used by the Corps and other federal agencies.¹¹ The proposed P&S undermine the ability of

¹¹ The 1983 P&G do not address restoration planning because they were written before Congress gave the Corps a restoration mission. However, the Corps’ engineering regulations do provide guidance on ecosystem restoration planning. They require the Corps to plan ecosystem restoration projects to increase the net quantity and/or quality of ecosystem resources; economic development is not a consideration. ER 1105-2-100 (2 April 2000). A benefit-cost analysis also is not required for ecosystem restoration projects; instead the Corps conducts only a cost-effectiveness determination. Section 907 of the Water Resources Development Act of 1986 states “In the evaluation by the Secretary [of the Army] of benefits and costs of a water resources project, the benefits attributable to measures included in a project for the purpose of environmental quality, including improvement of the environment and fish and wildlife enhancement, shall be deemed to be at least equal to the costs of such measures.” 33 U.S.C. § 2284. For a more detailed discussion of this issue, see Sec III B of these comments.

restoration projects to focus on ecological objectives like restoring natural hydrology and improving ecosystem services because they require — for the first time — that restoration projects promote economic development. While restoration projects can, and often do, promote sustainable economic development, it is critical that they be designed with the objective of restoring natural processes. A requirement to promote economic development as an objective for each restoration project will almost certainly result in compromises to restoration plans that will undermine the ability of a restoration project to actually produce self-sustaining improvements to the health and viability of the environment.

The proposed P&S also require — again for the first time — that restoration projects must be justified through a benefit-cost analysis. This is contrary to current law and imposes significant new burdens on federal agencies planning restoration projects. Problems associated with the proposed P&S requirements for restoration planning are discussed in detail in Section III B of these comments.

The proposed P&S will not ensure the protection and restoration of healthy rivers, wetlands, and coastlines that are essential for a healthier environment, improved public health and safety, and the ability of natural and human communities to thrive in the face of climate change. The critical changes needed to ensure such protections are discussed in detail below.

A. Benefit-Cost Analysis Should Not Be The Primary Driver Of Federal Water Resources Planning

Federal water resources planning should be driven by Federal law and policy and by promoting national priorities. It should not be driven primarily by benefit-cost analysis as set forth in the proposed P&S because benefit-cost analysis does not provide an accurate assessment of a project's value to the Nation.

Indeed, reliance on benefit-cost analysis as the primary driver of water resources project selection has been devastating to the health of the Nation's freshwater and coastal ecosystems. This reliance on benefit-cost analysis has:

- Led to project planning that ignores and undermines strict compliance with the laws and policies established to protect the nation's rivers, wetlands, and coasts;
- Produced piecemeal planning that ignores both the ecological and economic value of healthy rivers, wetlands, and coasts; and
- Left Federal water project planning subject to excessive speculation, miscalculation, and manipulation.

Because of these problems, the *actual* costs and benefits of a project often bear little or no relation to the benefit-cost analysis used to justify selection of the project as approved by Congress. We see again and again that the many problems associated with the calculation of benefit-cost analyses prevent that tool from providing a reliable assessment of whether or not a project is in the Federal interest, or even whether a project's actual benefits will in fact exceed the project's costs.

The National Research Council has concluded that benefit-cost analysis is not appropriate “as a precise decision rule.”¹² Instead, it “is most appropriately employed mainly as a method to inform and support decisions, not as a precise decision rule.”¹³ This conclusion is supported by many economists and planners for three main reasons:

- (1) “there may be important equity considerations in the distribution of costs and benefits that are not addressed by maximizing the difference between total benefits and total costs;”
- (2) “benefit and cost estimates may contain significant uncertainties,” and
- (3) “it may not be possible to use money as a measure of all relevant costs and benefits (e.g., biodiversity, ethical issues).”¹⁴

Historically, the analysis of both project costs and benefits has been rife with problems that range from basic math errors to outright manipulation of data. For example, after examining the benefit-cost analyses in a number of Corps studies, the Government Accountability Office (GAO) concluded in 2006 that those studies “did not provide a reasonable basis for decision-making” because they were “were fraught with errors, mistakes, and miscalculations, and used invalid assumptions and outdated data.” The GAO went on to note that such problems are not unique as “the Corps’ track record for providing reliable information that can be used by decision makers . . . is spotty, at best.”¹⁵ In a particularly notorious episode, the Department of the Army Inspector General found that the Corps had deliberately and intentionally manipulated data to achieve a positive benefit-cost ratio that would support large scale construction of longer locks on the Upper Mississippi River.¹⁶

The Conservation Organizations note that, at least with respect to the Corps, the many problems with benefit-cost analysis are a longstanding problem. In 1987, the Washington Post editorialized that the Tennessee-Tombigbee Waterway “was justified over the years by egregiously skewed cost-benefit estimates — what you would call lies if your children told them instead of the Corps of Engineers.”¹⁷

The many problems associated with benefit-cost evaluations make them particularly unsuited for being the sole guide for water resources planning. Importantly, even a completely accurate benefit-cost analysis will fail to provide information related to a number of critical issues. For example, benefit-cost analyses — even those that include an evaluation of ecosystem services — do not account for cumulative impacts and do not account for project-induced changes to an ecosystem’s or community’s ability to withstand the affects of climate change.

The problems with benefit-cost analysis can be seen on both sides of the equation. The calculation of a project’s cost is difficult at best, particularly for large scale projects that may

¹² National Research Council, *Analytical methods and Approaches for Water Resources Project Planning*, 2004 at 43 (National Academies Press).

¹³ *Id.*

¹⁴ *Id.*

¹⁵ Government Accountability Office (GAO-06-529T), *Corps of Engineers, Observations on Planning and Project Management Processes for the Civil Works Program*, March 2006.

¹⁶ U.S. Department of the Army Inspector General, *Report of Investigation*, Case 00-019, 2000, at 6.

¹⁷ Editorial, “Wet Elephant”, *The Washington Post*, January 5, 1987, at A16.

take years or even decades to complete. The table below illustrates that indeed, the Corps has a long history of significantly underestimating project costs, in part because the cost estimate is made on the basis of only a partial engineering analysis.¹⁸

Examples of Corps Projects With Significantly Underestimated Costs					
Project	State	Project Type	Original Estimate (millions)	Current Estimate (millions)	Percentage Increase
Louisiana Hurricane Protection	Louisiana	Flood Damage	\$85	\$738	768%
Sacramento Flood Protection	California	Flood Damage	\$57	\$270 to \$370	374% to 549%
Rio de Flag River	Arizona	Flood Damage	\$24	\$85	254%
Lower Monogahela River Locks & Dam	Pennsylvania	Navigation	\$556	\$1,700	206%
Olmstead Lock & Dam	Illinois	Navigation	\$775	\$2,124	174%
Folsom Dam Flood Gates	California	Flood Damage	\$215	\$450 to \$650	109% to 202%
McAlpine Locks & Dam	Kentucky	Navigation	\$220	\$427	94%
Marmet Lock	West Virginia	Navigation	\$223	\$406	82%
South Florida Ecosystem Restoration	Florida	Restoration	\$1,540	\$1,970	28%
Oregon Inlet Jetty	Oregon	Navigation	\$4.5 (annual costs)	\$5.5 (annual costs)	22%

Problems with underestimating costs in Corps studies are so well recognized that Congress enacted legislation allowing the Corps to significantly exceed the costs used in a project's

¹⁸ The information in these charts was obtained from the following sources: Government Accountability Office (GAO-05-1050T), *Lake Pontchartrain and Vicinity Hurricane Protection Project*, September 28, 2005; Government Accountability Office (GAO-04-30), *Improved Analysis of Costs and Benefits Needed for Sacramento Flood Protection Project*, October 2003; David Whitney, Sacramento Bee, *Dam project costs may triple, Escalating tab for Folsom gates may reopen the fight for funding in Congress* (June 22, 2005); Water Resources Development Act of 2000, section 101(b)(3) and Water Resources Development Act of 2007, section 3007; Joe Ferguson, Arizona Daily Sun, *Flood plan pricetag soars*, January 14, 2010 (available at http://azdailysun.com/news/local/govt-and-politics/article_81a1d898-c48e-5e3b-b641-a5ef7a5445f4.html) (visited February 21, 2010); Government Accountability Office (GAO-02-803), *Oregon Inlet Jetty Project, Environmental and Economic Concerns Still Need to Be Resolved*, September 2002 (net costs are based on the costs of the proposed project that are in addition to the costs to maintain the inlet without the project); Government Accountability Office (GAO-07-520), *South Florida Ecosystem Restoration is Moving Forward But Is Facing Significant Delays, Implementation Challenges, and Rising Costs*, May 2007; Nicollet Island Coalition, *Big Price – Little Benefit: Proposed Locks on the Upper Mississippi and Illinois Rivers Are Not Economically Viable*, at 22 (February 2010).

benefit-cost analysis. The Corps can automatically increase the authorized cost of a Corps project by 20 percent *plus* the cost of inflation.¹⁹

By contrast, while the Corps has often severely underestimated the costs of constructing structural projects, it has overestimated the cost of using nonstructural approaches to avoid their use. For example, the U.S. Fish and Wildlife Service conducted a detailed investigation of the methodology used by the Corps to evaluate the relative costs of purchasing flowage easements as an alternative to dredging more than 100 miles of the highly contaminated Big Sunflower River in Mississippi in an effort to reduce limited flood damages on marginal agricultural lands. The Service found that the Corps significantly overestimated the costs of utilizing that nonstructural alternative to meet the project's objectives.²⁰

In short, the actual cost of constructing a project often bears no relation to the benefit-cost analysis used to justify selection of the project as approved by Congress. Because projected project costs are so unreliable, the benefit-cost analysis does not provide a meaningful evaluation of whether or not a project should be constructed.

Historically, the benefit side of the benefit-cost analysis is equally unreliable, and if anything, it is subject to even more abuse than cost estimates as these examples demonstrate:

- As noted above, in 2000 the Department of the Army Inspector General found that the Corps had deceptively and intentionally manipulated benefit data in an attempt to justify a \$1.2 billion expansion of locks on the Upper Mississippi River.²¹ This and similar findings were also made in subsequent reports issued by the National Research Council and the Congressional Research Service.²²

¹⁹ The Secretary of the Army may increase a project's costs by up to 20 percent of the total authorized project cost without Congressional approval for any modifications that do not materially alter the scope or function of the project as authorized. 33 U.S.C. § 2280(1). A project's authorized cost also "shall be automatically increased" for changes in construction costs "as indicated by engineering and other appropriate cost indexes" and for "additional studies, modifications, and actions (including mitigation and other environmental actions) authorized" by Federal law. 33 U.S.C. § 2280(2).

²⁰ U.S. Fish and Wildlife Service, *Considerations in the Pricing of Flowage Easements: A Case Study of Non-Structural Flood Control in the Big Sunflower River Basin* (October 1997).

²¹ See the following reports: U.S. Department of the Army Inspector General, *Report of Investigation, Case 00-019*, 2000, at 6. National Research Council, *Inland Navigation System Planning: The Upper Mississippi River-Illinois Waterway*, 66-71 (Nat'l Academy Press, 2001). National Research Council, *Review of the U.S. Army Corps of Engineers Restructured Upper Mississippi-Illinois River Waterway Feasibility Study*, 2004. National Research Council, *Review of the U.S. Army Corps of Engineers Restructured Upper Mississippi-Illinois River Waterway Feasibility Study, Second Report*, 2004.

²² A 2004 National Research Council (NRC) report concluded that the Corps was continuing to use discredited economic and demand forecasting models and was proceeding in a way that made it "not possible" to evaluate potential benefits of expanding the navigation system. National Research Council, *Review of the U.S. Army Corps of Engineers Restructured Upper Mississippi-Illinois River Waterway Feasibility Study*, 2004. A second 2004 NRC report concluded that that Corps' continued use of discredited economic models precluded a demonstration of economic feasibility of the project. National Research Council, *Review of the U.S. Army Corps of Engineers Restructured Upper Mississippi-Illinois River Waterway Feasibility Study, Second Report*, 2004. In 2004, the Congressional Research Service (CRS) also found that the grain traffic forecasts being used by the Corps to justify lock expansion on the Upper Mississippi River were overly optimistic as more and more grain is used to produce ethanol, livestock and other value-added products – products that are generally shipped by truck and rail, not barge. CRS further reported that significantly more grain is now being shipped by rail to Canada and Mexico (since

- In 2000, an independent economic analysis of the Corps' proposal to construct the \$211 million Yazoo Backwater Pumping Plant showed that the Corps had overestimated just the agricultural benefits of that project by \$144 million, and claimed almost \$3 million in annual benefits that are explicitly prohibited by the Corps' own rules.²³
- In 2000, The Corps was forced to acknowledge that the \$90 million Chesapeake & Delaware Canal deepening project was not economically justified, after the *Washington Post* wrote about four retirees documenting dozens of flaws in the Corps' economic analysis of the project, including a "basic math error that boosted the benefit-cost ratio from a failing 0.65 to a passing 1.21."²⁴
- In 2002, the GAO found that the Corps had overstated the economic benefits of the then \$311 million Delaware River dredging project by an incredible 200 percent. GAO concluded that the "Corps' analysis of project benefits contained or was based on miscalculations, invalid assumptions, and outdated information."²⁵
- In 2002, a newspaper's six-month review of the economics of the \$188 million Columbia River channel deepening project revealed that the Corps had overestimated the project's benefits by 140 percent.²⁶
- In 2003, the GAO found that the Corps had dramatically miscalculated the benefits (and costs, see above) of the Sacramento Flood Protection Project in California due to benefits that were based on flawed analysis, miscalculation of the area that would be protected, and the use of an inappropriate methodology to calculate prevented flood damages.²⁷

passage of NAFTA) and to West Coast ports for shipment to Asia. Congressional Research Service (RL32401), *Agriculture as a Source of Barge Demand on the Upper Mississippi and Illinois Rivers: Background and Issues*, May 2004.

²³ That study also concluded that even if all the remaining benefit calculations were correct, those benefits could not justify construction of the project. At the time this study was conducted, the construction costs for the Yazoo Pumping plant were estimated at \$181 million. Leonard Shabman & Laura Zepp, "An Approach for Evaluating Nonstructural Actions with Application to the Yazoo River (Mississippi) Backwater Area"; February 7, 2000 (Prepared in cooperation with the U.S. Environmental Protection Agency, Region 4); Shabman and Zepp Review Comments on "Yazoo Backwater Reformulation" dated September 24, 2000. Dr. Shabman has participated in a number of National Academy of Sciences panels reviewing Corps activities.

²⁴ Michael Grunwald, "A Race to the Bottom", *The Washington Post*, September 12, 2000, at A15.

²⁵ General Accounting Office, *Delaware River Deepening Project Comprehensive Reanalysis Needed*, GAO-02-604, June 2002 at 5.

²⁶ The Oregonian, "'Digging deeper' in Columbia", March 10, 2002. The Corps noticed the new study on March 19, 2002 (67 Fed. Reg. 1246). The Corps told the public that the project would return \$2.10 for each dollar of public money invested. The *Oregonian* found that the project would return just 88 cents for each tax dollar spent. The newspaper identified six key areas where the Corps had relied on outdated or faulty data, or left out important factors. Lester Lave, the chairman of the National Research Council panel that investigated the Upper Mississippi River lock expansion project, endorsed the paper's analysis as fair and reasonable. The Oregonian, "Key parts of corps analysis don't hold water", March 3, 2002.

²⁷ Government Accountability Office (GAO-04-30), *Improved Analysis of Costs and Benefits Needed for Sacramento Flood Protection Project*, October 2003.

Similar to the actual cost of construction, the actual benefits produced by a project often bear no relation to the benefit-cost analysis used to justify selection of the project. Because projected project costs and benefits are so unreliable, the benefit-cost analysis does not provide a meaningful evaluation of whether or not a project should be constructed.

The Conservation Organizations note that benefit-cost analysis is required as a matter of law only for flood damage reduction projects.²⁸ In addition, the benefits of restoration efforts carried out by the Corps are deemed, as a matter of law, to be equal to the costs of such efforts, making benefit-cost analysis entirely unnecessary and inappropriate for restoration projects.

B. While Ecosystem Services Valuation Is A Positive Step, It Will Not Solve The Many Problems Associated With Using Benefit-Cost Analysis As The Primary Tool For Project Selection

While the requirement to include ecosystem services valuation in the benefit-cost analysis for water projects is an important and positive step, it will not solve the many problems associated with relying on benefit-cost analysis as the primary tool for selecting Federal water projects.

Notably, while ecosystem services valuation can be a very useful tool for evaluating the adverse environmental impacts (*i.e.*, costs) and the positive environmental impacts (*i.e.*, benefits) of large scale projects, ecosystem services valuation is not a useful tool for evaluating smaller scale projects. This is because the ecosystem services valuation does not account for the role that smaller projects play in improving the health of the larger ecosystem. For example, valuing the ecosystem services provided by a two acre restoration project in a much larger estuary is like valuing a single bolt in a bridge without valuing the fact that the bridge will collapse unless there are enough bolts to hold it together. Ecosystem services valuation does not capture cumulative impacts or the contribution of a project to the resiliency or sustainability of an overall system.

Importantly, given the current state of knowledge, in almost every case an agency will be able to establish a value for only a portion of the services provided by any given ecosystem. This problem is amplified by the lack of a standardized process for valuing specific services or for selecting the services to value in any given study; the wide degree of variability in the values assigned to specific services; and the lack of adequate baseline valuations for many regions of the country. As a result, in virtually every case, an evaluation of ecosystem services will undervalue both the costs of damaging a system and the benefits of restoring the system.

Moreover, because marketed values and use values are easier to estimate, the requirement to value ecosystem services could lead to more projects that promote these types of values as opposed to the less easily valued functions and processes that are critical to ecosystem health. While the Conservation Organizations recognize the proposed P&S would allow for less easily estimated values to be considered, the proposed P&S provides no guidance on how to weigh a dollar denominated value against a non-dollar denominated value.

²⁸ Flood Control Act of 1936 § 1, 33 U.S.C. § 701a (“the Federal Government should improve or participate in the improvement of navigable waters or their tributaries, including watersheds thereof, for flood-control purposes if the benefits to whomsoever they may accrue are in excess of the estimated costs”).

The requirement to evaluate ecosystem services will also require federal agencies to undertake additional extensive and technical evaluation processes that, like more standard benefit-cost valuations, will also be subject to significant uncertainties and potential manipulation. The results of any specific ecosystem services valuation will also depend on the services selected for valuation, and the selection of the values to assign to those services, both of which have significant implications.

For example, a 2009 study valuing the ecosystem services from wetlands restoration in the Mississippi Alluvial Valley identified the following annual values for individual ecosystem services:

- \$16 per hectare for waterfowl recreation;
- \$162 to \$213 per hectare for greenhouse gas mitigation; and
- \$1,268 per hectare for nitrogen mitigation.²⁹

By valuing these three ecosystem services, the study authors concluded that the social welfare value of wetland restoration in the Mississippi Alluvial Valley was between \$1,446 and \$1,497 per hectare per year.³⁰ However, if nitrogen mitigation had not been included in this study, the value of wetland restoration would have appeared to be just \$178 to \$229 per hectare per year.

The value placed on an ecosystem can also vary widely depending on the values assigned to specific ecosystem services. For example, Earth Economics estimated the value of seven economically valuable ecosystem services for 65,000 acres of ecologically significant wetlands in the heart of the Mississippi River flyway that would have been impacted by the Yazoo Backwater Pumping Plant project in Mississippi. By applying the lowest and highest ecosystem services values in the academic peer reviewed literature, Earth Economics placed an ecosystem services value on these wetlands as between \$22 and \$90 million per year.³¹ As this valuation illustrates, the differences between the lowest and highest peer reviewed values can be enormous, and the selection of the values to use could have a significant impact on the final benefit-cost analysis for an individual project.

Critically, neither the Mississippi Alluvial Valley study nor the Earth Economics study could value the full range of ecosystem services provided by the wetlands being studied, despite the fact that both studies examined the value of some of the nation's most important wetland resources. The Mississippi Alluvial Valley wetland restoration study monetized only three ecosystem services values because of "data and model limitations."³² The Earth Economics study was able to place a value on only seven of 23 ecosystem services identified as economically valuable. As a result, the values presented in both studies clearly understate the true value of the ecosystem services provided by wetlands in this region of the country. Indeed,

²⁹ Murray, Jenkins, Cramer, and Faulkner, *Valuing Ecosystem Services from Wetlands Restoration in the Mississippi Alluvial Valley*, Duke University Nicholas Institute for Environmental Policy Solutions, NI R 09-02 (February 2009) at 4.

³⁰ *Id.*

³¹ Earth Economics used a benefit transfer methodology in this study. Earth Economics, *Ecosystem Service Analysis of the Yazoo Pumps Project For submission to the EPA in Support of a Veto on the proposed Yazoo Pumps Project* (May 5, 2008).

³² *Id.*

by definition, unless an ecosystem services valuation places a value on each service, it will underestimate the value of the natural system.

In addition, the ability to assess the economic value of complex ecological systems “remains dependent on the quality of original benefit estimation” and accurate assessments are not feasible “when there are no original economic studies for identified ecosystem goods or services, the original studies are outdated, or they are poorly designed and reported. . . . From a practical policy perspective, important ecological services may be neglected in policy analysis because there are simply no suitable empirical studies from which benefits may be inferred”³³

As a result, while requiring valuation of ecosystem services as a component of a benefit-cost analysis in project planning is an important step forward, the simple addition of that requirement will not ensure either a full or accurate assessment of project costs and benefits. The valuation of ecosystem services can provide a better assessment of costs and benefits than if the value of those services were assumed to be zero, but at present ecosystem services valuation cannot accurately value the full range of services that an ecosystem provides. The science of ecosystem services valuation still has a long way to go to be utilized as a primary arbiter of Federal agency project selection. In a recent Stanford University study analyzing the challenges of making ecosystem services operational, the authors concluded that:

“Radical transformations will be required to move from conceptual frameworks and theory to practical integration of ecosystem services into decision-making, in a way that is credible, replicable, scalable, and sustainable. There remain many highly nuanced scientific challenges for ecologists, economists, and other social scientists to understand how human actions affect ecosystems, the provision of ecosystem services, and the value of those services. At least as demanding are the social and political challenges associated with incorporating this understanding into effective and enduring institutions, to manage, monitor, and provide incentives that accurately reflect the social values of ecosystem services to society.”³⁴

III. Federal Law And Policy Mandate A New Paradigm For Water Resources Planning

The Conservation Organizations urge CEQ to seize the incredible opportunity provided by this revision process to ensure that the new P&S will meet the Nation’s needs and comply with Federal law and policy. To do this, the final P&S must establish a stand alone environmental protection objective and a clear and mandatory planning hierarchy to ensure that Federal water project planning is driven by Federal law and policy and by the need to direct scarce tax dollars to addressing critical national priorities. While benefit-cost analysis can be a useful tool, the Nation can no longer afford the type of piecemeal and ill-conceived planning that result from using benefit-cost analysis as the principal driver for water resources planning.

³³ Restore America’s Estuaries, *The Economic and Market Value of Coasts and Estuaries: What’s At Stake?* (edited by Linwood Pendleton), 2008 at 30-31.

³⁴ Daily and Matson, *Ecosystem services: From theory to implementation*, Proceedings of the National Academy of Sciences (PNAS), Vol 105, No. 28 at 9455-9456 (July 15, 2008).

To work effectively, the final P&S must also establish a mandatory planning hierarchy with unambiguous directives and criteria that will ensure full compliance with Federal law and policy and that will ensure that Federal investments address national priorities. These must include clear directives to avoid adverse environmental impacts to the maximum extent possible, along with specific planning criteria that will ensure compliance with those directives. Once all planning criteria are met, a benefit-cost analysis could be used to select among alternatives.

A. The Principles And Standards Must Establish A Mandatory Planning Hierarchy With Clear Directives And Criteria To Ensure That Planning Is Driven By Federal Law And Policy And Is Consistent With The Missions Of All Federal Agencies

Federal investments in water resources plans and projects must be driven by Federal law and policy and by national priorities, including the need to increase resiliency to climate change. To ensure that this happens, the final P&S should establish a mandatory planning hierarchy with clear directives and criteria.

The Conservation Organizations are not alone in identifying the need for such an approach. On November 17, 2009, Senators Russell Feingold (D-WI), John McCain (R-AZ), Barbara Boxer (D-CA), Benjamin Cardin (D-MD), Joseph Lieberman (I-CT), and Mary Landrieu (D-LA) wrote to CEQ Chair Nancy Sutley:

“As the Council on Environmental Quality works to modernize the P&G, we ask you to ensure that any new P&G sets forth clear and compulsory policies that guide the Corps of Engineers as they plan and construct water resources projects. Among these should be clear directives to avoid adverse environmental impacts to the maximum extent possible, along with specific requirements that ensure compliance. For example, a clear requirement to first consider and utilize non-structural and restoration approaches to solving water problems, where practicable, would provide the type of direction needed to preserve the natural systems that can protect communities facing catastrophic flooding, droughts, and sea level rise caused by climate change.”³⁵

A healthy future requires this paradigm shift in water resources planning. Federal agencies must be guided by clear and directive planning criteria that, at the absolute minimum, ensure that Federal agencies will take all steps possible to avoid adverse impacts to the Nation’s waters and to promote restoration of already damaged resources. The heavily degraded state of the Nation’s waters, the enormous water resources challenges we are facing, and the clear statutory language and intent embodied in WRDA 2007 and the Nation’s environmental protection laws mandate this type of prescriptive approach.

The planning hierarchy should include the key directives and criteria discussed below. Once all planning criteria are met, a benefit-cost analysis could be used to select among alternatives for

³⁵ Letter to the Honorable Nancy Sutley, Chair of the Council on Environmental Quality from Senators Russell Feingold, John McCain, Barbara Boxer, Benjamin Cardin, Joseph Lieberman, and Mary Landrieu, dated November 17, 2009.

those projects and programs that are principally intended to generate sustainable economic development benefits.

1. Environmental Protection Must Be A Primary And Stand-Alone Objective For All Federal Water Resources Projects

The national water resources policy established in WRDA 2007 requires, among other things, that *all* water resources projects “protect the environment” by “protecting and restoring the functions of natural systems and mitigating any unavoidable damage to natural systems” and by “seeking to avoid the unwise use of floodplains”:

“It is the policy of the United States that *all* water resources projects should reflect national priorities, encourage economic development, and *protect the environment* by—

- (1) seeking to maximize sustainable economic development;
- (2) *seeking to avoid the unwise use of floodplains* and flood-prone areas and minimizing adverse impacts and vulnerabilities in any case in which a floodplain or flood-prone area must be used; and
- (3) *protecting and restoring the functions of natural systems and mitigating any unavoidable damage to natural systems.*”³⁶

As indicated in the italicized language, Congress established three different directives requiring Federal water projects to protect the environment. This policy augments the many other laws, like the Clean Water Act, the Endangered Species Act, the Fish and Wildlife Coordination Act, the Coastal Zone Management Act, and the National Environmental Policy Act that also require protection of the environment and the species that rely on a healthy environment. As a result, environmental protection must be a fundamental and primary objective of each water resources project as a matter of law.

The proposed P&S do not meet this legal requirement. Instead of making environmental protection a primary goal of project planning, the proposed P&S (like the 1983 P&G) treat environmental protection as little more than a constraint on project planning. Each time environmental protection is mentioned in the context of the National Objective in the proposed P&S, it is tied to — and is subservient to — economic development. For example, the proposed P&S defines the National Objective as developing water resources projects that “*maximize net national economic, environmental, and social benefits.*” The proposed P&S also state that projects are to “protect and restore natural ecosystems and the environment *while encouraging sustainable economic development.*”

Moreover, while the value of a healthy environment is discussed at length in the proposed P&S, it does not establish requirements to ensure protection of healthy rivers, wetlands, and coasts or to ensure compliance with the Nation’s environmental laws and policies.

In addition, the requirement that water projects must promote economic development is entirely inappropriate for water resources projects planned by Federal agencies whose missions do not

³⁶ WRDA 2007 Section 2031(a), 42 U.S.C. 1962-3 (emphasis added).

include economic development. For example, promoting economic development is outside of the missions of at least the U.S. Fish and Wildlife Service, the National Park Service, and the Federal Emergency Management Agency and should not be a driving factor for their water project planning:

- (a) The mission of the U.S. Fish and Wildlife Service is “working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.”³⁷ To implement this mission the Service works to: “(1) assist in the development and application of an environmental stewardship ethic for our society, based on ecological principles, scientific knowledge of fish and wildlife, and a sense of moral responsibility; (2) guide the conservation, development, and management of the Nation's fish and wildlife resources; and (3) administer a national program to provide the public opportunities to understand, appreciate, and wisely use fish and wildlife resources.”³⁸
- (b) The mission of the National Park Service is to “preserve[] unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations.”³⁹ The Park Service also “cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.” The statutory language establishing the National Park Service states that the Park Service is “to promote and regulate the use of the . . . national parks . . . which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.”⁴⁰
- (c) The mission of the Federal Emergency Management Agency “is to support our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards.”⁴¹ The Post-Katrina Emergency Management Reform Act of 2006 redefined FEMA’s primary mission: “The primary mission of the Agency is to reduce the loss of life and property and protect the Nation from all hazards, including natural disasters, acts of terrorism, and other man-made disasters, by leading and supporting the Nation in a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation.”⁴²

³⁷ U.S. Fish & Wildlife Service. *FWS Fundamentals*. Employee Pocket Guide. Jan 13, 2010. Available at <http://www.fws.gov/info/pocketguide/fundamentals.htm>.

³⁸ Available at http://www.fws.gov/help/about_us.html.

³⁹ Available at <http://www.nps.gov/legacy/mission.html>.

⁴⁰ National Park Service Organic Act, 16, U.S.C.1. Available at <http://www.nps.gov/legacy/organic-act.htm>.

⁴¹ U.S. Department of Homeland Security. Federal Emergency Management Agency. *About FEMA*. Oct. 30, 2009. Available at <http://www.fema.gov/about/index.shtm>.

⁴² Pub. Law 109-295, 120 Stat. 1396 (Oct. 4, 2006). Available at <http://www.fema.gov/about/index.shtm>.

For the reasons discussed above, environmental protection must be a fundamental and primary objective of all water resources planning and projects. To emphasize the importance of environmental protection for all water resources projects, to meet 21st Century water challenges, to ensure meaningful restoration (see discussion in Section III B below), to protect the ability of the Federal agencies to work within the boundaries of their missions, environmental protection should also be set forth as a stand alone objective. To help meet this objective, all projects should be evaluated for, and measured against, the adverse environmental impacts they might cause and the restorative impact they might have.

2. Use Of Nonstructural And Restoration Approaches Must Be Prioritized

As discussed above, WRDA 2007 makes environmental protection a fundamental and primary objective for each water resources project. A key component of meeting this objective is to require strict avoidance and minimization of adverse environmental impacts.⁴³ As also noted above, the WRDA 2007 national water resources policy augments the existing requirements of such bedrock laws as the Clean Water Act and the Endangered Species Act that also require avoidance of impacts to the Nation's waters and the imperiled species that depend on them. These laws apply to all federal agencies.

Despite the many legal mandates to fully consider and utilize alternatives that avoid adverse environmental impacts, such alternatives are rarely adopted. It is imperative that the P&S drive full compliance with these legal mandates in the planning and evaluation of Federal water projects. This is a critical role for the new P&S.

For example, Clean Water Act § 404, which applies to Federal projects and private activities, prohibits the discharge of dredged or fill material into wetlands, rivers, streams, lakes, ponds, and coastal waters without a valid permit. As discussed below, the long-standing regulations implementing this provision, the 404(b)(1) Guidelines, require strict efforts to avoid and minimize adverse impacts to the aquatic environment as a prerequisite to project approval. These requirements apply to all federal agencies (and to activities carried out by private parties). Both WRDA 2007 and the Clean Water Act 404 implementing regulations further stress the importance of avoiding impacts by explicitly requiring the Corps to comply with the requirements of the 404(b)(1) Guidelines for Corps projects.⁴⁴

Under the Clean Water Act § 404(b)(1) Guidelines:

- (1) Federal water projects are prohibited (and private permits must be denied) if there is a practicable alternative that will cause less harm. A project may not proceed “if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem.” 40 C.F.R. § 230.10(a). “An alternative is practicable if it is available and capable of being done after taking

⁴³ It is critical to note that much more than “avoiding and minimizing” environmental impacts will be needed to ensure that water resources projects protect and restore the environment. Achieving these goals will require fundamentally different approaches to project planning.

⁴⁴ 33 USC § 2283(d)(3); 40 C.F.R. § 230.2; 33 C.F.R. § 336.1. Corps civil works projects are supposed to comply with the substantive and analytical requirements of § 404, although the Corps will not issue itself an actual permit.

into consideration cost, existing technology, and logistics in light of overall project purposes.” This includes locating the project in an area not currently owned by the applicant. An area that is not presently owned by the applicant may be a practicable alternative if it “could be reasonably obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity.” 40 C.F.R. § 230.10(a)(2).

If an activity is not water dependent, the 404(b)(1) Guidelines create a legal presumption that practicable alternatives to the proposed activity are available that do not involve a special aquatic site. Special aquatic sites include wetlands, mud flats, and riffle and pool complexes. These resources are deemed to be so ecologically valuable that their degradation or destruction may represent an irreversible loss of valuable aquatic resources. 40 C.F.R. § 230.1(d). Unless the applicant *clearly demonstrates* that a practicable alternative does not exist, an activity that impacts a special aquatic site must be prohibited. An activity is water dependent if it requires access or proximity to a special aquatic site in order to fulfill the activity’s basic purpose. 40 C.F.R. § 230.10(a)(3).

- (2) Federal water projects are prohibited (and private permits must be denied) if the discharge would: (a) cause or contribute to violations of any state water quality standard; (b) violate any applicable toxic effluent standard or prohibition under Clean Water Act § 307; (c) jeopardize the existence of endangered or threatened species listed under the Endangered Species Act, or result in a likelihood of the destruction or adverse modification of formally designated critical habitat; or (d) violate any requirement imposed by the Secretary of Commerce to protect any marine sanctuary under the Marine Protection, Research and Sanctuaries Act. 40 C.F.R. § 230.10(b).
- (3) Federal water projects are prohibited (and private permits must be denied) if the discharge would cause or contribute, either individually or cumulatively, to significant degradation of protected waters. Significant degradation will be measured by significant adverse affects on: (a) human health or welfare, including municipal water supplies, plankton, fish, shellfish, wildlife, and special aquatic sites; (b) life stages of aquatic life and other water-dependent wildlife; (c) aquatic ecosystem diversity, productivity, and stability, such as loss of fish and wildlife habitat or loss of the capacity of a wetland to assimilate nutrients, purify water or reduce wave energy; and (d) recreational, aesthetic, and economic values. 40 C.F.R. § 230.10(c).
- (4) Federal water projects are also prohibited (and private permits must be denied), *unless* the federal agency has taken “appropriate and practicable” steps to minimize potential adverse impacts on the aquatic ecosystem. 40 C.F.R. § 230.10(d). Potential adverse impacts may be minimized by: (a) the selection of the discharge location; (b) treating or limiting the material to be discharged; (c) controlling the material after it has been discharged and the method of dispersion;

(d) utilizing technology to reduce impacts; and/or (e) avoiding interference with animals and their habitat.

The Corps' regulations impose a second level of review for all Federal water projects (and private activities) if the Corps determines that a project can be approved under the 404(b)(1) Guidelines. Under this second tier, the Corps must evaluate the activity to determine whether the permit or project is in the public interest. The Corps must not proceed with a Corps project, and must deny a permit for a project carried out by any other federal agency, if granting the permit would not be in the public interest as defined by the Corps' regulations. 33 C.F.R. §§ 320.4 and 323.6.

Under its public interest review, the Corps must evaluate the “probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest.” 33 C.F.R. § 320.4(a). The Corps is required to evaluate a number of factors that may be relevant to the public interest, including particularly, environmental factors that include conservation, wetlands, fish and wildlife values, water quality, floodplain management, water and energy conservation, environmental benefits, and mitigation. The Corps' public interest review decision is to reflect the national concern for both protecting and utilizing important resources, including protecting wetlands — a value explicitly recognized by the Corps' own regulations, which state that “wetlands constitute a productive and valuable public resource, the unnecessary alteration or destruction of which should be discouraged as contrary to the public interest.”⁴⁵ 33 C.F.R. § 320.4(b). In recognition of the significant natural values and functions of floodplains, the Corps is also supposed to avoid authorizing floodplain development whenever practicable alternatives exist outside the floodplain. 33 C.F.R. § 320.4(l).

Prioritizing the use of nonstructural and restoration approaches is also strongly supported by the National Environmental Policy Act (NEPA). NEPA requires that an environmental impact statement “[r]igorously explore and objectively evaluate all reasonable alternatives” before a decision is made on whether or how to proceed with a project. 40 C.F.R. § 1502.14(a). This rigorous and objective evaluation of all reasonable alternatives is the “heart of the environmental impact statement.” 40 C.F.R. § 1502.14. The alternatives analysis requires a “thorough consideration of all appropriate methods of accomplishing the aim of the action” and an “intense consideration of other more ecologically sound courses of action.”⁴⁶ While an environmental impact statement (EIS) need not explore every conceivable alternative, it must rigorously explore all reasonable alternatives that are consistent with the basic policy objective and that are not remote or speculative. This includes alternatives that are not currently within the authority of the federal agency planning the project. A viable but unexamined alternative renders an EIS inadequate.

⁴⁵ The Corps' regulations provide specific examples of many wetland functions that are important to the public interest. These include significant biological functions, including food chain production, general habitat, nesting, spawning and rearing areas; drainage, sedimentation and flushing functions; shielding of other areas from wave action; storage areas for storm and flood waters; ground water discharge areas; and water purification functions. 33 C.F.R. § 320.4(b)(2). The Corps' regulations further recognize that the cumulative effects of piecemeal wetland losses can result in a major impairment of wetland resources. 33 C.F.R. § 320.4(b)(3).

⁴⁶ *Environmental Defense Fund, Inc. v. Corps of Engineers*, 492 F.2d 1123, 1135 (5th Cir. 1974).

Nonstructural and restoration approaches are highly effective for both avoiding adverse environmental impacts and improving the health of the Nation's waters and the natural and human communities that depend on them. To understand the significant benefits of these approaches it is useful to understand the full scope of nonstructural, restoration, and structural approaches. The Conservation Organizations recommend that the following definitions be used in lieu of the inadequate definitions contained in the proposed P&S:

- Nonstructural measures are those that utilize, enhance, facilitate, protect and/or restore naturally-occurring hydrologic, geomorphic, and ecological functions and processes of water resources. Nonstructural measures include, but are not limited to, land use restrictions; relocation and/or demolition of flood-prone properties; floodplain protection; or restoration of river, floodplain, wetland, and coastal functions. Nonstructural measures also include measures that address water resources-related problems without employing structural alterations of water resources (structural measures include features such as dams, levees, channels, diversions, jetties, dikes, dredging, etc), but instead, by employing alternative measures such as land use and building controls, water conservation and efficiency, improved water management, pricing mechanisms, etc., and other such tools to manage water resources to meet water resources objectives without physical, geomorphological or hydrological alterations of water resources or water flows.
- Restoration is the process of assisting in the recovery of degraded water resources. Restoration places water resources on a trajectory to be structurally, functionally, and biologically self-sustaining. Restoration results in increased resilience necessary to thrive despite a range of stressors and disturbances.
- Structural approaches are those that intentionally modify, alter and/or eliminate the naturally-occurring hydrologic, geomorphic, and ecological functions and processes of water resources. Structural measures include, but are not limited to, the construction, operation and/or modification of an engineered structure such as a dam, levee, channel, diversion, dredging, weir, jetty, berm, dike, pumping plant, or reservoir.

By their nature, most nonstructural approaches do not rely on large-scale alterations of water resources and natural processes, and therefore, can largely avoid environmental damage and impacts which require mitigation, and often ultimately, costly restoration. This is a principal benefit that argues for requiring the use of nonstructural approaches where such approaches can effectively meet the water resource development objective.

There are literally hundreds of effective nonstructural techniques which can be used by federal agencies, states, communities, and individuals to address water resource needs and problems. These include such things as land use zoning, easements, voluntary buyouts, and relocations that not only reduce risk to lives and property, but also protect and/or restore natural floodplain areas. These types of nonstructural approaches often result in greenways that can safely absorb and pass flood and stormwaters and provide recreation benefits to whole communities.

Nonstructural techniques can also include retrofitting homes and businesses or farms with more water and energy efficient appliances, plumbing products, industrial processes or water delivery

systems that reduce water consumption, help make existing water systems more affordable and sustainable, and reduce demands on finite water supplies for natural systems. Thousands of communities have employed water metering, leak detection and repair, inverted block-rate or other conservation-based pricing of municipal water deliveries and wastewater treatment that encourage conservation and efficiency. Other communities have invested in groundwater management and conjunctive use, regionally appropriate landscaping codes, and incentives to reduce per capita water consumption and stretch existing supplies. All of these methods can be used to solve water problems, while stretching water supplies, protecting the environment, and improving public safety and community resiliency.

Nonstructural measures that can be used to address waterway transportation needs include the use of lightering barges and hub and feeder port systems to accommodate varying channel depths without expensive and damaging dredging demands, and utilizing system-wide scheduling to improve efficiency of lock usage or port and harbor usage. These types of nonstructural measures can help meet both environmental and economic objectives, often with far less cost than structural measures.

A revised P&S which requires the use of nonstructural measures, where effective, is also critical to integrating the federal government's existing policies and approaches to water resource development and management. Many agencies have specific programs directly related to fostering and promoting nonstructural approaches. These include:

- (a) The Federal Emergency Management Agency's National Flood Insurance Program, Stafford Act Hazard Mitigation Grants Program and Pre Disaster Mitigation Grants;
- (b) The Department of Agriculture's Conservation Reserve, Wetlands Reserve, Emergency Wetlands Reserve, and similar programs;
- (c) The Environmental Protection Agency's Clean Water Act, Water Sense, and Energy Star programs;
- (d) The Department of Commerce's Coastal Zone Management Program and coastal climate change initiatives;
- (e) The Bureau of Reclamation's Water Smart Initiative and broad range of water conservation and efficiency programs; and
- (f) The Department of the Interior's Landscape Conservation programs, aimed at improving resiliency to climate change, while enhancing and restoring habitat and water resources.

This is only a short list of nonstructural water resource-related programs that too often have failed to be integrated into traditional water resource planning and should be central to planning in a new government-wide P&S. As the process of further developing the P&S proceeds, the Conservation Organizations urge CEQ to work with the National Research Council to compile a

comprehensive inventory of federal programs and authorities that make use of nonstructural measures and restoration approaches to assist in addressing water resources-related problems. Such an inventory of Federal capabilities in this area would assist CEQ in identifying opportunities and approaches for better utilizing nonstructural measures and restoration approaches in Federal water resource-related planning.

Despite the many benefits provided by nonstructural and restoration approaches, the strong focus on promoting the use of nonstructural approaches throughout the Federal agencies, and the longstanding legal requirements to utilize the least damaging alternatives practicable, the proposed P&S do not require use of these approaches whenever possible to fully or partially address a water resources problem. Instead, the draft requires only that a nonstructural approach be developed and that where applicable, the agencies describe why it did not select a nonstructural alternative in its project evaluation documents. However, full consideration of less environmentally damaging alternatives — like nonstructural and restoration approaches — is already required under NEPA. Much stronger directives are needed to ensure that Federal agencies in fact utilize nonstructural and restoration approaches.

It is critical that the final P&S ensure the most robust efforts to avoid impacts by explicitly requiring Federal agencies to use nonstructural and restoration approaches whenever possible to fully or partially address a water resources problem. This requirement is mandated by the dire condition of many of the Nation's water resources and is required by law. Satisfying this requirement should be a prerequisite to the approval of any individual water project.

3. Integrated Water Resources Planning Must Be Utilized And Is Essential For Water Supply Planning

While the proposed P&S will apply to a broad range of water projects and numerous Federal agencies, the draft fails to establish a framework that is appropriate for the full range of water resources projects that will be covered. Notably, the proposed P&S fails completely to establish a framework appropriate for evaluating water supply and delivery projects. These are the primary types of projects carried out by the Bureau of Reclamation. Water supply issues related to Corps projects are also becoming increasingly contentious.

Water supply and delivery projects, particularly those handled by the Bureau of Reclamation, typically operate in a unique environment that may require a more tailored planning hierarchy. For example, the Bureau of Reclamation operates in a region where virtually all available water has already been developed and where a complex web of existing water management structures and institutions are already in place. In addition, projects planned and constructed by the Bureau of Reclamation have caused considerable environmental harm, as evidenced by the Bureau's \$100 million annual budget for activities designed to restore ecosystems damaged by Bureau projects. The many problems created by such projects highlight the need for a far more sustainable approach to future development.

Consideration of modifications to these systems or for new water supply and delivery projects need to be able to navigate this complicated ecological, geographic, legal, social, and economic landscape. Federal investments in such projects and project modifications should only be made

where planning has first made the most efficient use of existing water systems, where strict conservation efforts are being utilized, and where ecological health and resiliency will be protected.

While water supply problems are particularly prevalent in the West where there is little or no “new water” available, these problems are also widespread in other areas of the country where Federal projects built for other purposes are increasingly part of the water supply system. A prime example can be seen in the issues surrounding the Corps’ management of the Apalachicola-Chattahoochee-Flint river system, and particularly the Corps’ management of Lake Lanier. Lake Lanier is currently being used to provide water to Atlanta despite a recent court ruling that water supply is not an authorized project purpose, and despite significant ecological impacts downstream.

Across the country, water to meet future demands will need to come largely from: improving operation of existing systems; increasing conservation and efficiency by water and energy users; increasing source water protection; reusing water; and using much more sophisticated risk management approaches. This can be done most effectively through the robust use of integrated water resources management.

The nonstructural and restoration approaches discussed above are essential to an integrated water resources management approach.⁴⁷ However, water supply and delivery planning requires the use of additional tailored nonstructural approaches to knit new water projects with the existing landscape of water, land use, economics and ecosystem management.

In the West, there is a growing recognition of integrated water resources management criteria that should drive water supply and delivery planning. The Department of the Interior’s recent WaterSMART initiative, with its focus on water recycling, system improvements and water resources planning is an example of the type of “smart water” planning approaches that are emerging in the West. Federal project development and assessment should be explicitly guided by these “smart water” principles that include:

- (1) Making efficient use of existing developed water supplies before seeking new water supplies. Depending on the context, this may require the use of:
 - Aggressive demand management.
 - In the western part of the United States, use of water marketing, water banking, transfers and other market mechanisms such as interruptible supply agreements to facilitate accommodation of new demands and the need for increased reliability in some water use sectors.
 - Land use planning controls integrated with water planning.

⁴⁷ The Conservation Organizations note that the “nonstructural” concepts highlighted in the proposed P&S are most applicable in the context of developing flood damage reduction projects. We believe that nonstructural approaches must be broader than those covered by the definition contained in the proposed P&S, and that a different suite of nonstructural approaches will be necessary for water supply and delivery projects. The final P&S or subsequent guidance should provide more detailed criteria for the kinds and forms of nonstructural alternatives that are potentially appropriate for different classes of water resources problems, including flood damage reduction, transportation, water supply, power, ecosystem restoration, water quality, and the other water project types.

- Conservation and efficiency measures. However, environmental benefits and water rights dependent on inefficiencies must be considered. In general, increased efficiency in domestic, municipal and industrial uses is positive. Increased agricultural efficiency can also play an important role in reducing the need for new water supplies, although it requires greater scrutiny of impacts on third parties and the environment.
 - Where applicable, acknowledge the connection between groundwater and surface water resources, and manage groundwater in a manner that is compatible with healthy aquatic ecosystems.
 - Reuse and reclamation of wastewater and return flows.
 - Improving and integrating existing water infrastructure (including water supply, wastewater disposal, flood management, groundwater.) Examples might include cross-connections between storage reservoirs to better utilize storage space, rehabilitating storage lost to sedimentation, remediating contaminated groundwater so that it can be conjunctively used with surface supplies, or using restored floodplains to capture and store groundwater.
- (2) Applying incremental approaches to better fit supply enhancements with gradual demand increases.
 - (3) Explicitly incorporating risk-informed strategies and adopting flexible approaches to respond to climate change as well as drought.
 - (4) Greatly improving system operations, applying modern risk management approaches, reoperation of existing facilities, and shifting of project priorities to meet current and future societal goals, including ecosystem restoration. In particular, allocation of storage space among supply, flood, hydropower, instream ecological flows, ecosystem services, and other uses should be made more flexible to respond to changing hydrology and project priorities.
 - (5) Incorporating environmental protection and restoration in every project, with a goal of net improvement, rather than minimization of negative impacts.
 - (6) Evaluating alternatives and selecting actions with least-cost, greatest environmental restoration, and least energy intensity standards.

The proposed P&S acknowledge that integrated water resources management may be a useful planning tool, but falls far short of requiring the use of integrated water resources management when planning Federal water projects. The final P&S should make integrated water resources management a mandatory and core component of project formulation and evaluation. The final P&S should require the use of integrated water resources management that utilizes the above approaches, as appropriate, as a mandatory planning tool and a prerequisite for water resources projects.

4. Water Resources Planning Must Increase The Ability Of Natural And Human Communities To Withstand The Changes Wrought By Climate Change

While the proposed P&S includes consideration of future conditions, including climate change effects, the draft P&S does not go far enough towards making climate change impacts on water resources a focal point in water resources planning. Climate change has already altered, and will continue to alter the water cycle, affecting where, when, and how much water is available for all uses. These changes are placing additional burdens on already stressed water resources across the country.

The United States is expected to face a range of threats in a warming climate with marked regional changes. Floods and droughts are likely to become more common and more intense as regional and seasonal precipitation patterns change, and rainfall becomes more concentrated into heavy events with longer, dry periods in between. In areas where snowpack dominates, the timing of runoff will continue to shift to earlier in the spring and flows will be lower in late summer. The Nation's coastal and riverside communities are at particular risk from storms and floods. Water quality will suffer across the country as polluted runoff increases and temperatures rise, and wildlife will become increasingly vulnerable as species ranges and migration patterns shift. Furthermore, continued global sea-level rise associated with warming ocean waters and melting glaciers and ice caps will inundate low-lying coastal areas and further exacerbate the risk of storm surge damages. The impacts of climate change "will combine with pollution, population growth, overuse of resources, urbanization, and other social, economic, and environmental stresses to create larger impacts than from any of these factors alone."⁴⁸

Climate change is likely to "affect all sectors of water resources management, since it may require changed design and operational assumptions about resource supplies, system demands or performance requirements, and operational constraints."⁴⁹ This includes needed changes to the assumptions used to respond to large scale damage to existing water resources infrastructure from natural disasters like floods and hurricanes. Such disasters typically require rapid, and sometimes extremely costly and consequential, decisions regarding the appropriate disposition of damaged or destroyed water resources infrastructure. In the face of climate change, it is extremely important to reconsider the general assumptions that currently guide such responses, including the general assumption that damaged projects and infrastructure should be reconstructed to pre-disaster conditions.

To deal with these changes, it is imperative that water resources project planning make every effort to increase resilience to the impacts that climate change will have on communities, water resources, and natural systems. Community resilience is closely connected to the health and resilience of the ecosystems on which it relies. Every community depends on rivers, wetlands, and forests to provide clean water, protect public health and property, and drive economic growth. Where these ecosystems are able to withstand the impacts of a changing climate and

⁴⁸ *Id.* at 12.

⁴⁹ Brekke, L.D., Kiang, J.E., Olsen, J.R., Pulwarty, R.S., Raff, D.A., Turnipseed, D.P., Webb, R.S., and White, K.D., 2009, *Climate change and water resources management—A federal perspective: U.S. Geological Survey Circular 1331*, at 8. Available at <http://pubs.usgs.gov/circ/1331/>.

continue to provide ecosystem services, communities will suffer fewer negative consequences, be better able to recover from disturbances, and will have the flexibility to adapt to changing conditions. For example, wetlands and forests can absorb the floodwaters that will strike with increasing regularity in a changing climate, preventing the loss of life and destruction of homes and businesses. The ability of communities to survive and prosper will depend in large part on the health and resilience of ecosystems and their ability to provide vital services.

Projects must be planned to absorb disturbances or stresses caused by climate change without experiencing catastrophic losses or losing essential functions. It is in the best interest of the Federal taxpayers and community safety that water resources planning increase the ability of natural and human communities to withstand the changes wrought by climate change.

The proposed P&S require that “the depiction of existing conditions provides the basis for projecting the future conditions that are most likely to occur.” In the past, water planning and management have been based on historical fluctuations in records of stream flows, lake levels, precipitation, temperature, and water demands. We now know that depending on the past to predict future hydrological conditions no longer works because climate change will significantly modify many aspects of the water cycle. As a result, the assumption of an unchanging climate is no longer appropriate for many aspects of water planning, and it is no longer appropriate to rely on past or existing conditions to project future conditions. Instead, planning must utilize the best available science and models of climate change impacts. The Nation’s leading scientists continue to refine models and predictions regarding temperatures and precipitation patterns, and these changing models and predictions must be taken into account when projecting future conditions.

The proposed P&S require that “all Federal water resources implementation studies shall Address risk and uncertainty, including the effects of climate change and future development.” While this consideration is an improvement, the Conservation Organizations believe that federal water resources projects should be required to go farther and to actually build resilience to climate change impacts. The planning process should require that an alternative or plan that increases the resiliency of natural and human communities to climate change be selected over an alternative or plan that does not increase such resiliency. A project that increases resiliency will allow for flexibility to protect communities and water resources in the face of climate change.

B. Restoration Planning Must Be Driven By Ecological Restoration Objectives And Not Economic Development Objectives

The proposed P&S make alarming changes to the restoration planning process used by the Corps and other Federal agencies that will fundamentally alter the current approach to restoration planning.⁵⁰ Historically, restoration planning has focused on producing

⁵⁰ The 1983 P&G do not address restoration planning because they were written before Congress gave the Corps a restoration mission. However, the Corps’ engineering regulations do provide guidance on ecosystem restoration planning. They require the Corps to plan ecosystem restoration projects to increase the net quantity and/or quality of ecosystem resources; economic development is not a consideration. ER 1105-2-100 (2 April 2000). A benefit-cost analysis also is not required for ecosystem restoration projects; instead the Corps conducts only a cost-effectiveness determination.

ecological outcomes, but the P&S shift this focus to producing economic outputs by requiring — for the first time — that restoration projects promote economic development. This will undermine the ability of restoration projects to focus on ecological objectives like restoring natural hydrology and improving ecosystem services.

If adopted, the proposed changes will reduce the ecological effectiveness of restoration projects and will roll back restoration planning for every Federal agency that plans and constructs restoration projects, including the Corps, the U.S. Fish and Wildlife Service, and the National Oceanic and Atmospheric Administration. For example, the Corps' engineering regulations require the agency to plan restoration projects to increase the net quantity and/or quality of ecosystem resources; economic development is *not* a consideration:

“The Corps objective in ecosystem restoration planning is to contribute to national ecosystem restoration (NER). Contributions to national ecosystem restoration (NER outputs) are increases in the net quantity and/or quality of desired ecosystem resources. Measurement of NER is based on changes in ecological resource quality as a function of improvement in habitat quality and/or quantity and expressed quantitatively in physical units or indexes (but not monetary units).”⁵¹

While restoration projects can, and often do, promote sustainable economic development — and it may be useful for obtaining funding for certain ecosystem restoration projects to show that they also provide economic benefits — promoting economic development should not be a driver for planning restoration projects. To the contrary, it is critical that restoration projects be designed to restore natural functions and processes as this is generally the best way to improve the health, sustainability, and resiliency of ecosystems and to obtain long term ecological and hazard reduction benefits.

Requiring each restoration project to promote economic development will almost certainly result in compromises to ecologically sound restoration plans that will undermine the ability of restoration projects to produce self-sustaining ecological improvements. For example, a restoration project that seeks to improve the form and function of a side channel habitat would allow the restored channel to naturally migrate. However, if that same project also had to promote economic development, an agency could also add such non-restoration elements as a parking lot to increase public access for fishing, and bank hardening to protect the parking lot. Both would significantly undermine the natural functioning of a healthy side channel habitat, and would undermine the project's ability to increase the resiliency of the ecosystem. The requirement to promote economic development could also lead to a project that requires a significant amount of operations and maintenance, which would undermine ecosystem resiliency.

The proposed P&S also require — again for the first time — that restoration projects must be justified through a benefit-cost analysis. This is contrary to current law. The benefits of restoration efforts carried out by the Corps are deemed, as a matter of law, to be equal to the costs of such efforts, making benefit-cost analysis entirely unnecessary and inappropriate for restoration projects:

⁵¹ ER 1105-2-100 (2 April 2000).

“In the evaluation by the Secretary of benefits and costs of a water resources project, the benefits attributable to measures included in a project for the purpose of environmental quality, including improvement of the environment and fish and wildlife enhancement, shall be deemed to be at least equal to the costs of such measures.”⁵²

Instead, as Congress re-confirmed in WRDA 2007, restoration projects require only a cost effectiveness analysis, and not a benefit-cost analysis.⁵³ Benefit-cost analysis is required as a matter of law *only* for flood damage reduction projects.

Requiring justification of restoration projects through a benefit-cost analysis is an enormous change in the restoration planning process for *all* federal agencies, and will certainly impose significant new burdens on Federal agencies planning restoration projects slowing down project planning. More important, selecting restoration projects through a benefit-cost analysis is unlikely to produce better restoration projects. As discussed at length earlier in these comments, benefit-cost analysis is rife with problems and typically does not provide an accurate assessment of whether or not a project is in the Federal interest. Including an evaluation of ecosystem services in the benefit-cost analysis does not resolve these many problems.

The burden placed on Federal agencies under the proposed P&S to demonstrate that restoration projects will maximize net economic benefits has the potential to put a stop to many valuable habitat restoration projects before they ever get off the ground. This is particularly true of small-scale restoration projects whose cumulative benefit, for example, has resulted in access to thousands of miles spawning habitat for diadromous fish species. Projects such as the removal of the Solstice Creek Fair Weather Crossing, which was owned by the National Park Service, restored 44 percent of the Solstice Creek watershed to endangered Steelhead. Restoring almost half of the available habitat on Solstice Creek in California cost less than \$40,000. However, the costs associated with performing a benefit-cost analysis in order to ascertain whether the project should even be pursued likely would have stopped the project before it ever got off the ground. The same situation would likely have occurred for the Hemlock Dam removal on Trout Creek in Washington State. This project, owned by the Forest Service, restored more than 15 miles of habitat for Lower Columbia River steelhead, improved water quality in the impoundment and removed an aging structure that was proving to be a safety liability. Requiring these agencies to promote economic benefits over the environmental values of restoration projects will undermine the ability of these Federal agencies to carry out their missions.

The final P&S must ensure that restoration planning is not tied to economic development. Restoration projects should focus on restoring the natural functions and processes of natural

⁵² 33 U.S.C. § 2284 (Benefits and costs attributable to environmental measures).

⁵³ WRDA 2007, Section 2020 (Aquatic Ecosystem and Estuary Restoration) (directing that restoration projects carried out under this section improve the quality of the environment, be in the public interest, and be cost effective); WRDA 2007, Section 2033 (Planning, also found at 33 USC 2282a) (requiring that all feasibility reports submitted after enactment of WRDA 2007 establish that the proposed water resources project and each separable element is cost-effective).

systems to improve the health, sustainability, and resiliency of ecosystems and to obtain long term ecological and hazard reduction benefits. Restoration projects should also be evaluated through a cost-effectiveness (and not a benefit-cost analysis), as required by law.

C. The Scope And Applicability Of The Principles And Standards Must Be Clearly Defined

The Conservation Organizations applaud the Administration's decision to apply new P&S broadly and government-wide. Among the greatest failings of the Nation's water resources development and management over at least the past half century, and a continually increasing theme of concern from a wide variety of sectors, has been the failure to integrate Federal water resource related programs into a farsighted and coherent policy direction that meets both the current and the anticipated water resource needs of the 21st Century and that recognizes the limitations on the availability of critical water resources of all kinds.

The Nation is already facing many difficult water resources challenges, including population and water demand increases, changing land uses and watershed conditions, increasing costs and difficulties with invasive species, ongoing struggles to improve water quality and increasing needs to protect and restore conditions and habitat supporting fish, wildlife, and natural ecosystem health and functions. These problems will become even more difficult to address as the impacts of climate change and sea-level rise continue to add major and potentially much higher risk and uncertainty to water resources and natural systems planning and management. These challenges make it more imperative than ever that the Nation have a water resources planning framework that brings together the full range of considerations to make wise and future-oriented choices that will provide a long-term foundation for our society, future generations and a healthy, sustainable environment.

In September, 2008, a number of the Nation's leading water resources experts participated in a 4th *National Water Resources Dialogue* on the state of the Nation's water resources sponsored by the American Water Resources Association and other organizations. These experts concluded that:

- There is an immediate need for an assessment of the Nation's water resources to include the current status of the resource, the future needs for water and identification of gaps that exist in fulfilling these needs.
- The Federal government, in cooperation with state and local agencies, needs to develop a national vision and overarching principles to guide water resources development activities supported by the federal government.
- There is increasing need for mechanisms that will better coordinate the water related activities of federal agencies and among congressional committees. The absence of effective coordination is apparent in the conflicts and overlaps that exist in legislation, programs, and agency activities.

- The relationship among the Federal government, states and local communities is changing and must be addressed. The Federal government’s role in water resources, long seen to be a driving force, must be reevaluated in light of growing state attention and direction of water resource activities.
- Federal actions with regard to water resources must be taken in a watershed context where the underlying planning is conducted in partnership with the states and local entities.⁵⁴

Such findings and the results of literally scores of studies and reports on water resources over more than two decades support the idea of a government-wide approach to water planning.

The proposed P&S would apply to “Federal water and related resources implementation studies completed 180 days after the publication of the supporting Interagency Guidelines. Such studies investigate and recommend Federal implementation of site specific projects and project modifications to address water resources problems, needs and opportunities.” The proposed P&S go on to state at page 4 that:

“Water and related resources implementation studies covered by these Principles and Standards investigate and recommend Federal implementation of site-specific projects and project modifications. ‘Projects’ include significant structures and landform changes, and any nonstructural plans that might be implemented. Modifications include significant changes in features or operations that materially affect project impacts, rehabilitation, safety, reallocation, termination, and removal. Implementation studies include pre- and post authorization project formulation or evaluation studies undertaken by Federal agencies.”

The proposed P&S also states that they will apply to implementation studies of the four traditional water resource agencies covered by the 1983 P&G (Corps of Engineers, Bureau of Reclamation, Tennessee Valley Authority and Natural Resource Conservation Service), and “any other Federal agency studies meeting the general criteria presented above,” but not to routine project operations, basic maintenance and minor repairs, or watershed plans or regulatory activities” or to “grants, technical assistance, and other financial assistance or authorization for work implemented by non-Federal entities or facilities to which the United States does not hold title.”

These descriptions should be clarified to provide certainty with respect to the types of studies that will be covered by the P&S. The P&S should:

- (1) Include clear triggers for applicability based on the type of study involved (for example, feasibility studies, general re-evaluation studies, environmental impact statements, supplemental environmental impact statements, water control manuals);

⁵⁴ American Water Resources Association, *et. al.*, Summary, Fourth National Water Resources Policy Dialogue, September 22, 2008, Washington DC, pp 1 – 2.

- (2) Apply to new project planning, project modifications, and project reevaluations;
- (3) Apply to the establishment of operations and maintenance plans, and water control manuals, and should apply to all reviews and reevaluations of those plans and manuals. Periodic reviews of operations and maintenance plans, and of water control manuals, should be required to consider whether and to what degree projects or their operations be updated and modified in light of changing needs and policies;
- (4) Establish new procedures for expedited consideration and planning for post-disaster recovery to carefully consider what are appropriate actions in light of the broadened principles and national objectives in the P&S, and to consider the means by which all agencies with capabilities to assist with planning or implementation of nonstructural approaches or protection and restoration of natural systems can be brought into planning where appropriate; and
- (5) Require post-project implementation reviews for the purpose of informing future planning efforts. All too often, we have seen that the basic planning assumptions upon which project plans were justified proved to be far off the mark. It is critical that studies be conducted to identify the problems with models, predictions, and calculations that resulted in mischaracterizations and deviations from what actually occurred.

IV. Recommendations For Specific Provisions

To specifically address many of the issues discussed in the preceding comments and to implement the needed new framework for Federal water resources planning, the Conservation Organizations recommend the following additions and language changes to the Draft. Subsection A proposes a new National Objective and new Standards for water resources planning to ensure that planning complies with WRDA 2007 and with other Federal laws and policies. Subsection B proposes a new Planning Framework and Criteria to implement the National Objectives and Standards. Subsection C provides additional comments on the proposed P&S and recommends new principles that should be adopted. Subsection D recommends several amendments and additions to the Definitions section of the proposed P&S.

Within this section, the Conservation Organizations have proposed new objectives, standards, and planning criteria. The recommended National Objectives are the policies for water resources planning established by WRDA 2007. The recommend planning standards provide clear directives that must be met when planning water resources projects. The recommended plan selection criteria, which are included as part of the planning hierarchy, provide clear guidance for making plan selection decisions that will comply the planning standards.

A. New National Objectives And Standards For Water Resources Planning

The Conservation Organizations urge CEQ to adopt the following National Objectives and Standards to ensure that water resources planning complies with Federal law and policy and addresses National priorities.

1. Purpose

Purpose

“These National Objectives and the supporting Planning Principles and Standards establish an effective framework for water resources planning that complies with federal law and policy, ensures community and resource resilience in the face of 21st Century water resources challenges and needs, and addresses national priorities. These National Objectives and Planning Principles and Standards are to guide decisions regarding the Federal implementation of solutions to water resources problems, needs and opportunities.”

2. Applicability

Applicability

“These National Objectives and the supporting Planning Principles and Standards apply to the formulation, operation, and re-evaluation of water and related land resources implementation studies and decision making activities carried out by Federal agencies, including planning, rehabilitation, and reconstruction studies and implementation decisions made in response to natural disasters. Such formulation, operation or re-evaluation studies investigate and recommend Federal implementation of site-specific projects and project modifications to address water resources problems, needs and opportunities. The National Objectives and the Principles and Standards shall apply to each study completed on or after 120 days from the publication of supporting Interagency Guidelines, which are to be completed no later than 120 days after the date the National Objectives and Planning Principles and Standards are finalized.”

3. National Objectives Of Water Resources Planning

National Objectives of Water Resources Planning

“Federal water resources planning and development should protect and restore the environment and improve the health, safety, welfare, and economic well-being of the Nation for present and future generations. America’s water resources – streams, rivers, wetlands, estuaries, lakes, and coasts – are at the heart of our economy, our environment and our history. These water resources support billions of dollars in commerce, provide drinking water for millions of Americans, supply vital habitat for fish and wildlife, protect communities from storms and floods, and offer important recreational opportunities, among many other benefits.

The National Objectives for water resources planning in the United States are that “all water resources projects should reflect national priorities, encourage economic development, and protect the environment by—(1) seeking to maximize sustainable economic development; (2) seeking to avoid the unwise use of floodplains and flood-prone areas and minimizing adverse impacts and vulnerabilities in any case in which a floodplain or flood-prone area must be used;

and (3) protecting and restoring the functions of natural systems and mitigating any unavoidable damage to natural systems.”

4. Water Resources Planning Standards

Water Resources Planning Standards

To implement the National Objectives, and to ensure compliance with Federal law, the following standards shall be met for planning, operating, and re-evaluating water resources projects:

- (a) Federal water resources projects shall have as a primary objective maintaining and restoring the health of the nation’s water resources to achieve long-term sustainable ecosystem integrity.
- (b) Federal water resources projects shall avoid adverse impacts to the environment to the maximum extent possible, and shall fully mitigate any adverse impacts that cannot be avoided.
- (c) Federal water resources projects shall avoid the unwise use of floodplains and flood prone areas to the maximum extent possible, and shall minimize adverse impacts and vulnerabilities in any case in which a floodplain or flood prone area must be used.
- (d) Federal water resources projects shall minimize potential risks to public safety to the maximum extent possible.
- (e) Federal water resources project shall be designed to work with, and maintain, the integrity of natural systems to the maximum extent possible.
- (f) Federal water resources projects shall seek to increase the resiliency of ecosystems and natural and human communities to climate change.
- (g) Federal water resources project elements addressing problems and opportunities related to navigation, flood damage reduction, water supply and delivery, and power generation and other marketable economic development activities that assist identifiable interests or populations shall meet the criteria in (a) through (f) above, shall seek to maximize sustainable economic development, and shall be evaluated through a benefit-cost analysis. The cost and benefits analysis shall account for the full life-cycle costs and benefits of a project.
- (h) Federal water resources restoration projects and restoration elements of multiple-purpose projects shall meet the criteria in (a) through (f) above, shall restore the functions of natural systems, and shall be evaluated through a cost-effectiveness analysis. The cost-effectiveness analysis shall account for the full life-cycle costs and benefits of a project.

B. A New Planning Process Framework

The Conservation Organizations urge CEQ to adopt the following new planning process framework and criteria for evaluating new water resources projects and for reevaluating operations of existing projects. Use of this framework and criteria would, of necessity, lead to additional changes within the proposed P&S, some of which are captured in the succeeding sections. We propose that the following language replace significant portions of the Overview of the Planning Process (pages 13–23).

1. The Planning Process And Plan Selection Criteria

The Planning Process and Plan Selection Criteria

“The National Objectives, Principles, and Standards shall be implemented through a deliberate planning process, which shall include the following major steps and criteria:

- (a) The agency’s first step in Federal water resources planning shall be to conduct a full and independent analysis and evaluation of the water resources problem to identify and properly define the problem, to identify the cause or causes of the problem, and to determine whether the problem is one that may be appropriate for resolving through a Federal investment. Such analyses shall be completed before considering or evaluating alternatives for addressing the problem.
- (b) The agency shall fully and comprehensively evaluate whether there is a nonstructural or restoration approach that would solve all or a portion of the properly defined problem before evaluating other types of approaches. If nonstructural and/or restoration approaches would work to solve all or a portion of the properly defined problem, such approaches shall be utilized if: (i) in the case of nonstructural solutions they meet economic and environmental feasibility requirements and are justified through a benefit-cost analysis; and (ii) in the case of restoration projects they meet environmental feasibility requirements and are cost-effective. If nonstructural or restoration approaches would solve only a portion of the problem, structural approaches shall be considered to address the remainder of the properly defined problem.
- (c) The agency shall utilize robust watershed planning approaches and integrated water resources management in planning water resources projects.
- (d) In addition to other evaluations required by law, the agency shall evaluate:
 - (i) The implications of proposed alternatives on increasing or decreasing the resiliency of ecosystems and of natural and human communities to climate change;
 - (ii) For projects that address economic development opportunities and challenges, the sustainability of economic development generated by the project, as determined through life-cycle analysis of the project and the economic development that the project generates or enables; and
 - (iii) The energy consumption of construction and operations of the project.

(e) The agency shall ensure full compliance with laws and policies to protect and preserve water and related land resources, laws designed to ensure robust analysis of the environmental consequences of project planning, and laws designed to promote public participation in the decision-making process.

(f) The agency shall ensure outside independent peer review of costly or controversial projects, as required by law or as otherwise appropriate.

(g) The agency shall utilize the following criteria for selecting a project alternative. Project alternatives that comply with these criteria shall, absent a finding of overriding consideration, be selected as the preferred alternative:

(1) Nonstructural approaches and restoration of natural systems shall be utilized whenever practicable to address water resources needs. Planning efforts shall look first to these alternatives, which shall be recommended if:

(i) in the case of nonstructural solutions, the alternative meets economic and environmental feasibility requirements and will produce project benefits that exceed project costs; and

(ii) in the case of restoration projects, the alternative meets environmental feasibility requirements and is cost-effective.

(2) An alternative or plan that encourages or enables residential, commercial or industrial development vulnerable to flood damages in undeveloped floodplain areas, in general, is not in the Federal interest and shall not be recommended.

(3) An alternative or plan shall not be selected unless the risks to public safety and any risks that will remain after implementation have been assessed and minimized to the maximum extent possible in the selected alternative or plan.

(4) An alternative or plan shall not be selected unless the agency has demonstrated that all practicable steps have been taken to avoid and minimize adverse impacts to water and related land resources, and that any unavoidable impacts will be fully mitigated. This shall include avoiding and minimizing impacts to hydrologic regimes, ecologically sound instream flows, floodplain and river corridor processes, geomorphic processes, and ecological processes. A nonstructural or restoration approach that solves all or a portion of a water resources problem shall be deemed to be a practicable step.

(5) An alternative or plan shall not be selected unless the agency has demonstrated that all practicable steps have been taken to avoid unwise use of floodplains and flood prone areas, and to minimize adverse impacts and vulnerabilities in any case in which a floodplain or flood-prone area must be used.

(6) An alternative or plan shall not be selected, in general, if the alternative or plan fails to protect the functions of natural systems by preventing the

maintenance of ecologically sound instream river flows. In all cases, any such impacts that cannot be avoided shall be fully mitigated.

(7) An alternative or plan that increases the resiliency of natural and human communities to climate change, with other factors being equal, generally shall be selected over an alternative or plan that does not increase such resiliency.

(8) An alternative or plan shall not be selected unless the alternative or plan and the evaluation comply fully with Federal law and with the State laws, including environmental protection laws in the state(s) in which the project is located.

(9) Subject to the above criteria, project alternatives that incorporate the following, shall, absent a finding of overriding consideration, be selected as the preferred alternative:

- (i) Primarily nonstructural or restoration elements;
- (ii) Net benefits to ecosystems;
- (iii) Minimization of energy consumption, in both construction and operation;
- (iv) For economic development projects, maximization of sustainable economic development, as determined through life-cycle analysis of both the project and its economic and ecological impacts.”

2. Operations And Reevaluations Of Existing Projects

Operations and Reevaluations of Existing Projects

“Existing projects shall be re-evaluated on a regular schedule to ensure that continued operations and maintenance are appropriate and to ensure that operations are as protective of the environment and public safety as possible. Where continued operations are appropriate, the agency shall adopt a new operating plan that meets current planning criteria, and shall prioritize those alternatives that ensure ecologically appropriate flows. On the basis of this evaluation, the agency may recommend a change in the authorized purposes of the project, including a recommendation to decommission, deauthorize, and/or remove structures as appropriate.”

C. Additional Comments And Recommended New Principles

This section provides additional comments on the proposed P&S and recommends new principles that should be adopted (these are identified as “new”). The comments and recommendations in this subsection are *not* a substitute for the fundamental structural changes and recommendations describe in earlier sections of these comments. In fact, several of the recommendations below seek to imbed that new structure. Moreover, it is critical that the recommendations in this section not be viewed in isolation from one another.

1. Account For Ecosystem Services (pages 5-6, 18)

The Conservation Organizations applaud the strong recognition included in the proposed P&S of the many values of natural systems and support the evaluation of ecosystem services for the purposes of evaluating the adverse environmental impacts (*i.e.*, costs) and the positive

environmental impacts (*i.e.*, benefits) of water resources projects and programs, and especially for larger scale restoration efforts. However, as discussed at length in Section II B of these comments, it is important to recognize that ecosystem services valuation is not a useful tool for evaluating smaller scale projects, for evaluating increases or decreases in ecosystem resiliency, or in assessing the cost and benefits associated with cumulative impacts. Moreover, as also discussed at length in these comments, the addition of ecosystem services valuation will not resolve the many problems inherent in benefit-cost analyses.

The provisions on ecosystem services valuation in the proposed P&S fail to address critical issues associated with ecosystem services valuation, including such things as: identifying a standardized process for valuing specific services; providing guidance on the selection of services to be valued; providing guidance on the selection of the valuations to utilize when the published literature includes a range of values for a given service; and providing guidance on the approach to utilize for regions or habitat types that lack adequate baseline valuations. The lack of consistency of methods and data make it difficult to compare alternatives (or to compare the relative value of projects in different locations). In addition, as written, while the proposed P&S would allow for less easily estimated values to be considered, the proposed provides no guidance on how to weigh a dollar denominated value against a non-dollar denominated value.

Although the proposed P&S include language on the value of biodiversity, the P&S should explicitly include ecosystem processes and functions in the definition of ecosystem services to be valued. Assessing processes and functions is essential to a proper valuation of ecosystem services; it is simply that these services are more difficult to value or quantify.

The proposed P&S also strongly promotes the use of “willingness-to-pay” for determining the monetary effects of ecosystem services. However willingness-to-pay is not an ecosystem services valuation methodology. Instead, it merely describes a concept that places a value on an item based on how much society would be willing to pay for it if they had to. The Conservation Organizations strongly recommend that the Council on Environmental Quality reach out to Ecosystem Services experts to assist in the development of these provisions and approaches, and particularly with ecosystem services experts who are experienced in addressing valuations when limited data are available.

2. Avoid The Unwise Use Of Floodplains, Flood-Prone Areas And Other Ecologically Valuable Areas (page 6)

We recommend adding the following language to this section:

“An alternative or plan that encourages or enables residential, commercial or industrial development vulnerable to flood damages in undeveloped floodplain areas, in general, is not in the Federal interest and shall not be recommended.

“An alternative or plan shall not be selected unless the risks to public safety and any risks that will remain after implementation have been assessed and minimized to the maximum extent possible in the selected alternative or plan.”

3. Utilize Watershed And Ecosystem Based Approaches (pages 8–9)

The Conservation Organizations applaud the emphasis on watershed and ecosystem based approaches. However, we recommend that you also include a specific discussion of Integrated Water Resources Management by adding the following at the beginning of this section:

“The agency shall utilize robust watershed planning approaches and Integrated Water Resources Management (IWRM) to develop and select plans and projects. IWRM seeks to promote the coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. Integrated water resources management considers interdependencies between science, policy and public participation to provide a holistic examination of the entire water system. A watershed planning approach must include consideration of the many, and sometimes competing demands on water resources both now and in the future. By considering water resources in this perspective agencies can work together to provide sustainable, long-term solutions.”

We recommend that you reorder the paragraphs under “Watershed Perspective” by first defining and describing watershed approaches, as they are in the second paragraph and succeeding bullets. That may then be followed by some of the description of limitations and exceptions put forth in the first paragraph of the current draft (pages 6–7).

The treatment of ecosystem based management is reasonably thorough but would benefit from additional examination of current literature. One critical flaw is the suggestion that ecosystem based management is limited to “sustain(ing) necessary ecosystem services.” Ecosystem based management should include not only sustaining ecosystem services but also ecosystem processes and functions.

One area of particular concern to the Conservation Organizations is how these guidelines will relate to or coordinate with projects regulated by the Federal Energy Regulatory Commission (FERC). FERC projects are found in most major river basins throughout the Nation and interact and influence the operation of other dams, flood control projects, water supply reservoirs, navigation channels, and ecosystem restoration projects. The Federal Power Act requires that all projects licensed by FERC be “consistent with a comprehensive plan of development” for a waterbody. The Conservation Organizations strongly urge that water resources planning carried out within the same watershed as projects licensed by FERC shall fully and comprehensively evaluate the cumulative impacts of a proposed alternative with FERC projects (and with other federal and private projects in that watershed), and ensure that any Federal water resources project will preserve the integrity of that watershed. The agency also should be required to coordinate and consult with FERC, and of course with other Federal and state agencies. This cooperative and coordinated evaluation of power generation, flood control, and water supply projects from a basin-wide perspective is critical to properly assessing project impacts and to identifying the potential for obtaining important increases in efficiencies.

4. Utilize Best Available Science, Practices, Analytical Techniques, Procedures And Tools (page 9)

The Conservation Organizations strongly support the direction to planners and decision makers to utilize “the best available principles, data, analytical techniques, procedures, and tools.” The emphasis on “contemporary water resources paradigms” will ensure that agencies do not become complacent with the same old approaches and formulas and remain at the cutting edge of the field. While some may assume that these directives specifically cover the use of modern climate change science, we do not believe it is adequate to simply ask agencies to “consider the effects of climate change,” given how fundamental climate is to water resources planning. We recommend the following language:

“Project planning and formulation shall include consideration of the potential impacts of climate change on hydrology, project operations, project benefits, ecosystem health and environmental conditions. This analysis shall be based upon the best available science. It shall include an analysis of the range of risks to human health and safety, economics and ecosystems affected by the project posed by projected changes in climate due to natural and anthropogenic causes, and alternatives to mitigate those risks. The Council on Environmental Quality, in consultation with the National Research Council, shall adopt guidance on the methodology for this analysis. Each agency should have a process in place to fully incorporate and model existing and future conditions that is not based on temporal stationarity in hydroclimatic variables. To do this, each agency should support comprehensive long-term monitoring to ensure the best data are available to inform decision criterion for decision making processes.”

5. Level Of Detail Commensurate With Potential Decisions (pages 9-10)

While the Conservation Organizations recognize that it can be appropriate to conduct a less detailed analysis in certain cases, it is important to properly define the amount of detail needed. The proposed P&S states that the level of detail used “shall not be greater than needed to inform the decision efficiently and effectively.” This gives license to the agencies to carry out only a minimal evaluation and it limits the amount of detail in an analysis based on an agency’s perception of the problem *before* they have studied that problem. At a minimum, this language should be changed to state that the level of detail used in project planning “shall be as extensive as needed to properly inform the decision.” We further recommend that each agency establish a simple appeal or other process that provides the public with an opportunity to seek greater detail in the analysis.

6. Account For Significant Effects And Mitigate Unavoidable Impacts (pages 10-11)

This provision does not comply with the clear and long-standing mandates of the Clean Water Act. This language should be replaced and the section should be re-titled as follows:

Avoid Adverse Impacts to Natural Ecosystems and Fully Mitigate Any Unavoidable Impacts

“An alternative or plan shall not be selected unless the agency has demonstrated that all practicable steps have been taken to avoid and minimize adverse impacts to water and related land resources, and that any unavoidable impacts will be fully mitigated. This shall include avoiding and minimizing impacts to hydrologic regimes, ecologically sound instream flows, floodplain and river corridor processes, geomorphic processes, and ecological processes. A nonstructural or restoration approach that solves all or a portion of a water resources problem shall be deemed to be a practicable step.”

A detailed discussion of the Clean Water Act’s requirements to avoid, minimize, and mitigate for unavoidable impacts is included in Section III A of these comments. All federal agencies must meet the requirements of the Clean Water Act.

Water projects constructed by the Corps are also subject to the following *additional* mitigation requirements:

- (a) The Corps must implement mitigation for fish and wildlife losses unless the Corps makes a specific finding that the project would cause only “negligible adverse impacts to fish and wildlife.”⁵⁵
- (b) The Corps must implement not less than in-kind mitigation. This means that the mitigation must restore the same or greater ecosystem and habitat values as those lost to the civil works project. Specifically, the Corps must implement in-kind mitigation for damage to bottomland hardwood wetlands, and it must mitigate impacts to other habitat types “to not less than in-kind conditions, to the extent possible.”⁵⁶ The Corps’ engineering regulations also require that adverse impacts to wetlands be “fully mitigated.”⁵⁷
- (c) WRDA 2007 emphasized the requirement for the Corps to comply with the mandates of Clean Water Act § 404 and the Clean Water Act 404(b)(1) Guidelines by statutorily requiring the Corps to meet the mitigation requirements that the Corps applies to other governmental entities and private parties under the Clean Water Act § 404 regulatory

⁵⁵ 33 U.S.C. § 2283(d).

⁵⁶ 33 U.S.C. § 2283(d).

⁵⁷ U.S. Army Corps of Engineers, ER 1105-2-100 (22 Apr 2000), Appendix C at 6-17. Each District Commander is to “ensure that adverse impacts to wetland resources are fully mitigated.” WRDA 1990 established a statutory “interim goal of no overall net loss of the Nation’s remaining wetlands base, as defined by acreage and function, and a long-term goal to increase the quality and quantity of the Nation’s wetlands, as defined by acreage and functions” for the Corps’ civil works program. 33 U.S.C. § 2317(a)(1).

program.⁵⁸ To do this, the Corps must first avoid impacts, and then minimize any impacts that cannot be avoided, and then implement compensatory mitigation to offset any remaining damage.⁵⁹ To comply with these requirements, civil works mitigation plans must comply with the Federal mitigation rule on *Compensatory Mitigation for Losses of Aquatic Resources*⁶⁰ in addition to the mitigation planning requirements in 33 U.S.C. § 2283(d).

The final P&S must ensure strict compliance with these requirements and the requirements of the Clean Water Act Section 404(b)(1) Guidelines. The draft P&S does not do this.

First, the draft does not require robust efforts to avoid impacts or to minimize impacts that cannot be avoided. For example, the draft P&S states that the agency should “wherever possible, avoid adverse impacts by modifying the alternative or applying another practicable alternative with less adverse impact” and that where mitigation cannot be practicably implemented in advance or concurrently with the activities, then the decision document must explain why other alternatives cannot more effectively avoid and minimize. Neither of these standards complies with the Clean Water Act. The final P&S should clearly state that an alternative cannot be selected unless it has been demonstrated that no less damaging alternative is available and that all steps possible have been taken to avoid damages, as required by the Clean Water Act.

Second, the provision requiring minimization of adverse impacts only “to the extent appropriate and practicable” does not comply with the Clean Water Act. The provision must require the minimization of adverse impacts that cannot be avoided.

Third, the mitigation standard in the draft P&S, which states that each alternative shall include mitigation “determined to be appropriate by the decision maker” does not comply with the Clean Water Act or with the mitigation requirements established in WRDA 2007. The final P&S must require full mitigation for impacts that cannot be avoided, and should require the amount and type of mitigation required by Federal and state law.

Finally, the provision appears to suggest that only significant effects are to be evaluated and that only significant effects are to be avoided, minimized and mitigated. This is an incorrect standard, and will not provide the level of environmental protection needed to ensure a healthy future. For example, the Corps is required, as a matter of law, to implement compensatory mitigation for any impacts that are more than negligible.

⁵⁸ 33 U.S.C. § 2283(d)(3); 40 C.F.R. § 230.2(a) (the Clean Water Act 404(b)(1) Guidelines explicitly state that they apply to the Corps’ civil works program).

⁵⁹ The Council on Environmental Quality reports that under the 404 program, the Corps requires “a ratio of more than two acres of mitigation for every acre of permitted impacts to wetlands” so this should also be the minimum requirement for the Corps’ civil works program. Council on Environmental Quality, *Conserving America’s Wetlands 2006: Two Years of Progress in Meeting the President’s Goals*, Appendix B at 22 (April 2006).

⁶⁰ 73 Fed. Reg. 19594 (April 10, 2008); 33 C.F.R. Parts 325 and 332; 40 C.F.R. Part 230.

7. Address Risk And Uncertainty, Including The Effects Of Climate Change And Future Development (page 11)

The Conservation Organizations recommend the following language to ensure that risk and uncertainty is properly addressed:

“Each agency should have a process in place to fully incorporate and model existing and future conditions given that we can no longer assume temporal stationarity in hydroclimatic variables. To do this, each agency should support long-term monitoring to ensure the best data are available to inform decision criterion for decision - making processes. These decision-making processes should perform well over a wide range of possible future scenarios.

An alternative or plan that increases the resilience of both natural and human communities to climate change generally, with other factors being equal, shall be selected over an alternative or plan that does not increase such resilience.

Resilience is defined as the ability of a system to absorb disturbances or stresses without experiencing catastrophic losses or losing essential functions. Therefore approaches that enhance resilience have the following characteristics:

- (a) Flexible – Approaches that bend but do not break;
- (b) Adaptable – Approaches that can be modified through an approach of adaptive management;
- (c) Scalable – Approaches which can be expanded and/or contracted quickly and effectively;
- (d) Multi-dimensional – Approaches that can work in a wide variety of potential futures and conditions and that meet multiple project objectives; and
- (e) Redundant – Approaches that have layers of redundancy in the event that one element fails, another can take its place.”

8. Ensure Environmental Justice For Low Income, Tribal And Minority Communities (page 12)

The Conservation Organizations strongly support this principle. With respect to Tribal communities, we believe it is important to particularly acknowledge and address the legal treaty and trust responsibilities of the Federal Government and associated agencies. This relationship often involves its own unique set of issues and requirements, particularly around water and other natural resources.

9. Ensure The Planning Process Is Fully Transparent (page 12)

The final P&S should ensure that each agency engage in a robust public participation in the planning process, and provide the public with ready access to planning documents including underlying data, assumptions and models.

Public participation and transparency must be inextricably linked to water resources planning given that the Nation's water resources are public trust resources and highly valued by society. Inherent in this is a strong and effective public participation process for informing, consulting, involving, collaborating, and empowering participants in the decision-making process. Public participation includes the promise that the public's contribution will be fully integrated into, and considered in, the process of decision-making. Therefore, it is also critical that agencies communicate to participants how their input affected the decision.

10. Collaborate Implementation Study Activities Broadly (page 13)

Federal agencies planning water resources projects shall coordinate and work closely with Federal and state resource agencies beginning early in the planning process, and shall ensure that comments, concerns, and recommendations of resource agencies are fully accounted for, and where appropriate, incorporated into the final plan.

11. Determining Existing And Future Conditions (page 15)

The Conservation Organizations recommend a different approach to determining existing and future conditions. Rather than basing evaluation of alternatives to changes in existing conditions, we recommend utilizing a baseline of a healthy ecosystem and then evaluating the extent to which the alternatives being considered would move the ecosystem towards that healthy baseline. At a minimum, this approach should be included as an additional requirement for project planning. It is also critical that this analysis require inventory of fish and wildlife, a provision that is notably missing from the draft P&S. The draft P&S also allows excessive use of "professional judgment" to establish most likely without-plan future conditions "where data are lacking." Federal water resources planning should not take place in this manner. Given the many limitations on funding and the current backlog of Federal water projects, it should not be in the Federal interest to plan new projects for situations where needed planning data are not available.

12. Specify The Study Objectives (page 16)

The Conservation Organizations object to the provision in the draft P&S that states that the study objectives "shall reflect the specific effects that are desired by groups and individuals external to the agency as well as any declared to be in the National interest by the Congress or the Executive Branch" found at page 16 of the p P&S. A fundamental element of effective water resources planning is an independent and objective evaluation of the problem and the establishment of an appropriate objective for a study and any resulting project. The study objectives for a Federal project should not be based on the desired effects proposed by the project proponent without study, but instead should be based on the National Objectives, national priorities, and compliance with Federal law and policy.

13. Protect And Restore The Functions Of Natural Ecosystems To Enhance Net Environmental Quality (new)

The final P&S should ensure that:

“Federal water resources implementation studies shall seek to protect and restore natural ecosystems and environmental quality. The appropriateness of modifying water resources shall be based on evaluations of the ecosystem functions, processes, and services gained and lost, and only those actions that provide a net gain in net environmental quality shall be considered further or selected.

14. Ensure That Water Resource Development Plans Are Consistent With Associated Water Quality And Species Recovery Plans (new)

The final P&S should ensure that:

“Federal water resources implementation studies must be consistent with and wherever possible, contribute to the achievement of associated water quality, species recovery, and other appropriate environmental plans. For example, proposed water projects should be examined and studied for ways in which they can contribute to the attainment of water quality standards and criteria pursuant to a Total Maximum Daily Load established for a waterbody under the Clean Water Act. Those elements of a water development project that best meet those water quality goals shall be prioritized. Similarly, water projects should be evaluated for their ability to contribute to the recovery of species listed under the Endangered Species Act and subsequently those elements that do, shall be prioritized.”

15. Account For The Life-Cycle Costs Of Projects, Including Operations And Maintenance, Decommissioning And/Or Replacement Costs (new)

The final P&S should require that:

“All project plans must account for the full life-cycle costs of various options, including operations and maintenance as well as eventual decommissioning and/or replacement costs in the future.”

16. Rapid Decision Making In Response To Natural Disasters (new)

The final P&S should require that agencies responsible for making rapid decisions regarding rebuilding or utilizing new approaches to water resources problems in the face of natural disasters shall comply with the National Objectives and Planning Principles and Standards, and shall establish procedures for rapid decision-making that applies the National Objectives and Planning Principles and Standards.

D. Definitions

The Conservation Organizations recommend the following definitions. The final P&S also should include a comprehensive definition of sustainable economic development that fully incorporates the sustainable economic development benefits provided by healthy water resources and ecosystems.

1. Ecological Stream Flows Or Ecological Instream Flows

Ecological Stream Flows or Ecological Instream Flows are the flows and water levels required in a water body to provide for the ecosystem functions and services needed to support thriving fish, wildlife, and plant populations present within that water body and its margins. Such flows will ensure that a hydrologic regime that varies both within years and from year-to-year and maintains the natural processes that support diverse aquatic communities.

2. Floodplain Functions

Floodplain functions are the interrelated natural processes and attributes of the floodplain including hydrological and hydraulic processes (movement and distribution of water), geomorphic processes (movement and distribution of soils and land), and biologic processes (functions of fish, wildlife, plants and ecosystems).

3. Integrated Water Resources Management

Integrated Water Resources Management (IWRM) is a deliberate, systematic approach to water resources planning that promotes the coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. Integrated water resources management considers interdependencies between science, policy, and public participation to provide a holistic examination of the entire water system. In the context of water supply and delivery project planning IWRM must involve a holistic examination of the entire water system to identify and recommend steps to: improve the efficiency of the existing system before seeking new water supplies, including through improving systems operations; increase conservation and efficiency by water users; increase source water protection and other environmental protection measures with a goal of improving ecosystem health; increase water reuse; minimize energy use; and explicitly incorporate risk and the adoption of flexible strategies to respond to climate change and drought.

4. Nonstructural Measures

Nonstructural measures are those that utilize, enhance, facilitate, protect and/or restore naturally-occurring hydrologic, geomorphic, and ecological functions and processes of water resources. Nonstructural measures include, but are not limited to, land use restrictions; relocation and/or demolition of flood-prone properties; floodplain protection; or restoration of river, floodplain, wetland, and coastal functions. Nonstructural measures also include measures that address water resources-related problems without employing structural alterations of water

resources (structural measures include features such as dams, levees, channels, diversions, jetties, dikes, dredging, etc), but instead, by employing alternative measures such as land use and building controls, water conservation and efficiency, improved water management, pricing mechanisms, etc., and other such tools to manage water resources to meet water resources objectives without physical, geomorphological or hydrological alterations of water resources or water flows.

5. Restoration

Restoration is the process of assisting in the recovery of degraded water resources. Restoration places water resources on a trajectory to be structurally, functionally, and biologically self-sustaining. Restoration results in increased resilience necessary to thrive despite a range of stressors and disturbances. **Restoration measures** are actions that restore the physical, chemical, and/or biological characteristics of a wetland, floodplain or river ecosystem to assist in the recovery of natural form and function needed to create and maintain a healthy and self-sustaining system. **Restoration approaches** include, but are not limited to, removal of structures that are preventing rivers and river corridors from re-establishing their natural form and function, such as dams and levees; modification of critical remaining infrastructure to allow for increased river function, such as widening culverts and bridges and setting back levees; and efforts to re-establishing natural form, function, and processes of rivers, floodplains, and wetlands and to restore wetland hydrology and natural floodplain inundation, and to remove non-native species and/or to plant and reintroduce native species.

6. Resiliency

Resiliency is the ability of a system to absorb disturbances or stresses, including those caused by climate change, without experiencing catastrophic losses or losing essential functions. Approaches that enhance resilience are flexible, adaptable, scalable, multi-dimensional, and redundant (in the event that one element fails, another can take its place).

7. Structural Approaches

Structural approaches are those that intentionally modify, alter and/or eliminate the naturally-occurring hydrologic, geomorphic, and ecological functions and processes of water resources. Structural measures include, but are not limited to, the construction, operation and/or modification of an engineered structure such as a dam, levee, channel, diversion, dredging, weir, jetty, berm, dike, pumping plant, or reservoir.

8. Vulnerability

Vulnerability is the susceptibility of communities and ecosystems to stress and changing conditions.

V. Conclusion

The Conservation organizations appreciate the opportunity to provide comments on the proposed P&S and are committed to improving the Nation's water planning process. The proposed P&S take an important first step in this direction by emphasizing the value of healthy rivers, wetlands, and coasts; and by including important planning concepts.

However, the Conservation Organizations cannot support the proposed P&S in its current form, and urge the critical changes discussed in these comments to ensure that Federal planning is capable of meeting the nation's 21st Century water resources needs. Federal law and policy, and the dire condition of the Nation's water resources, mandate a stand-alone environmental protection objective and a mandatory planning hierarchy with clear directives and criteria to ensure that Federal water project planning is driven by Federal law and policy and national priorities.

Sincerely,

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Planning by the U.S. Army Corps of Engineers*