The Nature Conservancy
Protecting nature. Preserving life.™

Worldwide Office
4245 N. Fairfax Drive
Suite 100
Arlington, VA 22203-1606

Tel: (703) 841.4582
Fax: (703) 841.7400
nature.org

April 2, 2010

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

Dear Mr. Breyman:

Thank you for the opportunity to comment on the *Proposed National Objectives, Principles and Standards for Water and Related Resources Implementation Studies* as required by Section 2031 of the Water Resources Development Act of 2007 (WRDA 2007). We strongly support the change in policy to ensure that our national objectives, policies and goals for environmental protection and restoration are achieved in the process of supporting sustainable economic development and appropriate use of floodplains and other natural resource areas.

The Nature Conservancy is an international, nonprofit organization dedicated to the conservation of biological diversity. Our mission is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. Our on-the-ground conservation work is carried out in all 50 states and in 30 foreign countries and is supported by approximately one million individual members. The Nature Conservancy has protected more than 117 million acres of land and 5,000 miles of river around the world. Our work also includes more than 100 marine conservation projects in 21 countries and 22 US states.

Overall Comments:
We support the new direction for water resource planning that places environmental benefits on par with economic benefits so that federal water resource projects achieve both sustainable environmental and economic benefits. In particular, we support numerous elements of the draft Principles and Standards, including:

- Using the best available science, practices, analytical techniques, procedures and tools.
- Focusing on maintaining and restoring key environmental processes as well as on environmental and economic outcomes.
- Requiring that non-structural alternatives be considered and included in the final project evaluation stages and that projects that include a mix of structural and non-structural approaches be considered;
- Requiring that appropriate mitigation be implemented after impacts have been avoided and minimized and that compensatory mitigation is implemented in advance or concurrent with project activities to the extent practicable.

- Proactively addressing the risks and uncertainty associated with the effects of climate change and future development.
- Including both ecosystem services and intrinsic natural values in project evaluations.
- Planning at the appropriate watershed scale using ecosystem based management approaches.
- Including social equity and environmental justice considerations in project evaluations.

In support of these objectives, we offer five broad suggestions to strengthen the draft Principles and Standards.

1. The national objective and standards should require that *all* federal water projects achieve a net improvement of environmental quality;
2. Ensure that environmental restoration projects continue to be evaluated on their cost-effectiveness rather than the benefit-cost analysis required of projects with other purposes.
3. Strengthen the focus on maintaining and restoring the key physical and ecological processes by requiring that changes to these processes be included as explicit metrics for project evaluation and selection and requiring no net loss of existing functions.
4. Require the use of a 'natural condition' baseline against which to measure changes to physical and ecological processes.
5. Clarify how ecosystem services, existence values of environmental resources, and the intrinsic value of resources are used in evaluating project alternatives.
6. More consistently include the special considerations associated with climate change, coastal issues, and endangered species throughout the planning process as these issues each require specific analyses and attention in order to be fully considered.

We offer the following more detailed comments on the December 3rd, 2009 draft Principles and Standards.

National Policy Objective:
We recommend that the national objective be revised to more explicitly achieve the goal of having environmental and economic considerations be on par with each other and to more closely reflect the statutory language. The proposed national objective requires water resource development projects to "maximize net economic, environmental and social benefits". However, the enabling legislation provides for a more nuanced hierarchy that is useful in creating this level playing field.

The statutory language establishes that all water resource projects "should reflect national priorities, encourage economic development, and protect the environment". The most definitive of these three phrases is 'protect the environment'. The more definitive language to protect and restore the environment and mitigate unavoidable impacts is repeated in the statutorily listed elements which follow, compared with the use of the term '*seeking*' to describe the objectives of maximizing sustainable economic development and avoiding unwise use of floodplains and flood-prone areas.

Since the language calls for both protection and restoration of natural functions, we suggest the national objective explicitly call for all projects to achieve a net gain in environmental quality.

Such a change is consistent with maximizing net environmental, economic and social benefits and, given the history of degradation of our water resources, will help put our nation on the path to long-term environmental and economic sustainability.

To this end we offer this revision to the national objective:

Federal water resources planning and development should improve the nation's quality of life by contributing to the achievement of our national priorities, contributing to our economic development and by protecting and restoring the environment. This should be achieved by:

(1) Protecting and restoring natural ecosystems by restoring their natural functions, fully mitigating any unavoidable impacts to these ecosystems, and ensuring continued improvement in environmental quality.

(2) Avoiding the unwise use of floodplains and of flood-prone and coastal erosion-prone areas and minimizing adverse impacts and vulnerabilities in any case in which a floodplain, flood-prone or coastal erosion-prone area is used;

(3) Encouraging sustainable economic development;

Sustainable economic development should be defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." This definition is widely accepted. [1]

Principles (p. 1):

To achieve this national objective, we suggest the addition of several new principles:

- Ensure all projects achieve a net improvement in environmental quality.
- Ensure no net loss of the physical and ecological processes necessary to sustain freshwater and coastal systems, including:
  - Hydrologic regimes, including tidal regimes;
  - Sediment & nutrient regimes;
  - Floodplain and river corridor processes;
  - Lateral and longitudinal connectivity;
  - Biotic interactions and other ecological processes;
  - Geomorphic processes;
  - Sequestration of carbon.
- Require the sequence of avoid, minimize and mitigate for all adverse impacts to ecosystems, natural processes and ecosystem services.
- Avoid and minimize adverse impacts and vulnerabilities in any case in which a floodplain, flood-prone, coastal erosion-prone, channel migration zone, or tidal areas are used.
- Account for the life-cycle costs of projects, including decommissioning and/or replacement costs.
- Incorporate actions that aid in the recovery of species listed under the Endangered Species Act and similar state statutes.

Implementation Studies (p. 4):

[1] World Commission on Environment and Development, 1987

The section on exemptions specifically excludes "routine operations of projects". However, the operation of federal projects, particularly dams, often have a major influence on ecosystems and their functions, the use of floodplains, and on sustainable economic development. The Principles and the Standards should encourage the evaluation of existing operations within the planning process and changes to these operations to improve environmental conditions should be included in the development of alternatives. In addition, for federal projects which directly involve these structures, the standards should require that the operations of the structures be evaluated and that the recommended improvements to these operations are included in the preferred alternatives. For example, The Nature Conservancy and the Army Corps of Engineers have a long-standing partnership through our Sustainable Rivers Program that focuses on just such re-operations of existing projects.

In addition, the section on exemptions should more explicitly define "maintenance and repair" programs to ensure they do not include activities that improve or change structures (such as raise and widen levees). Repair and maintenance should be limited to activities to the original structure and should not include expansions or substantial changes to the original project.

Planning Standards (p. 5):
In addition to the addition of new standards consistent with the principles outlined above, we offer the following suggestions to the language of the draft standards:

Protect and Restore Natural Ecosystems and the Environment while Encouraging Sustainable Economic Development (p. 5)
This section should more clearly articulate the three elements of the national water policy and objective (protecting and restoring the environment, avoiding unwise use of floodplains and flood-prone areas, and sustainable economic development). As currently drafted, the section focuses primarily on 'appropriate use', avoiding 'unwise use', and evaluation of services gained and lost, which are just a few of the issues addressed elsewhere in the document. We recommend this section be redrafted to focus on requiring no-net-loss of key physical and ecological processes and require a net overall gain in environmental quality. This will help avoid promoting projects that may have a net national gain but would still have substantial overall detrimental environmental effects as the preferred project.

Account for Ecosystem Services (p. 5):
The incorporation of ecosystem services into the decision making process for water resources planning is highly commendable. This new accounting has the potential to more fully account for the many benefits associated with water resources that are valued by society.

To ensure the intended services are evaluated, the section should clarify the definition of ecosystem services. The draft defines ecosystem services as the "contributions ecosystems make to the environment and human populations." We recommend that the phrase 'to the environment' be removed from this sentence. Ecosystem services generally are defined as 'the benefits natural systems provide to humans' or 'the contributions natural systems make to human well-being.'

These ecosystem services should include 'existence values', that is, the gains in well-being people receive from their appreciation of the existence and conservation of particular species or ecosystems, independent of any direct use of these species or systems. Existence values can be quantified using well-established methods widely applied in the fields of natural resource and environmental economics. We further recommend that the term 'existence value' be substituted for the term 'intrinsic value' (p. 6). Intrinsic value refers to the right of a living organism, species or ecosystem to exist for its own sake independently of any value for humans. As such, unlike existence values, intrinsic values cannot be quantified using any commonly-accepted metric.

As the draft notes, both ecosystem services and environmental benefits depend on ecosystem processes and functions to provide these services and to sustain ecosystems. Therefore, we recommend a new section be added that requires that projects measure and account for changes to the key physical and ecological processes associated with the various project alternatives and to make these changes a key metric for project evaluation and selection. All projects should, at a minimum, evaluate changes in:

a. Hydrologic regimes, including tidal regimes;
b. Sediment & nutrient regimes;
c. Floodplain and river corridor processes;
d. Lateral and longitudinal connectivity;
e. Biotic interactions and other ecological processes;
f. Geomorphic processes;
g. Sequestration of carbon.

We suggest these metrics include 1) the percent change to a particular process or ecosystem service in the study area, taking into account quality differences among flows; 2) the uniqueness and significance of the impacted process or ecosystem service; and 3) the presence of substitutes and complements of the impacted process or ecosystem service.

As noted elsewhere in the document, the level of detail for these evaluations should be commensurate with the potential impact of the decisions.

Avoid the Unwise Use of Floodplains and Flood-prone Areas (p. 6)
This section commendably focuses the planning process on avoiding the unwise use of floodplains and flood-prone areas and to reduce the nation's vulnerability to floods and storms. We recommend a new section to require that plans also avoid the unwise use of coastal bluffs, estuaries and coastal erosion-prone areas. We also recommend that in addition to evaluating alternatives for direct and indirect impacts on floodplain and coastal functions, the analysis also include direct and indirect adverse impacts to human life and property, ecosystems and other environmental attributes, and to ecosystem services. This broader scope is consistent with the statutory language on minimizing adverse impacts and vulnerabilities.

Utilize Watershed and Ecosystem Based Approaches (p. 6)
We strongly support basing the planning process on both a watershed and ecosystem based framework. In particular, we recommend the current emphasis on the protection of ecosystem

structure, function and key processes be strengthened by emphasizing evaluation of a specific set of key processes, as described above. As discussed, we recommend that the net changes of these processes be central to the project evaluation and selection process and the achievement of a net improvement of environmental quality standard. In cases where existing federal projects significantly affect these key processes, evaluation of changes to existing operations to improve environmental quality should be required.

This section, as drafted, focuses exclusively on the protection of ecosystem services. Ecosystem-based management should equally focus on protecting and restoring natural resources and improving environmental quality. Also, the ecosystem based management approach should explicitly recognize that ecosystems' structure, function, and services will fluctuate due to climate change and other factors, and that these should be accounted and planned for in the planning process.

Finally, this section should more explicitly address coastal issues. Watersheds may not be the appropriate spatial unit for analysis if one is undertaking projects in coastal waters. The draft should mention that the planning process should specify the appropriate spatial frameworks for evaluation of projects in coastal and offshore areas.

Account for Significant Effects and Mitigate Unavoidable Impacts to Ecosystem Services (p. 10)

We support the clear and strong language requiring mitigation to be included with each alternative under consideration and the explicit requirement to follow the sequence of avoid, minimize and mitigate as fundamental to the planning process and consideration of alternatives. However, we recommend that this sequence, and the requirement for mitigation of unavoidable impacts, be required for all federal and federally-supported water resources projects, not just when required by other natural resource management authorities.

We also support the requirement that compensatory mitigation be implemented in advance or concurrent with project activities to the extent practicable. However, we believe that this requirement should apply to all natural resources impacts, rather than solely to impacts to ecosystem services as stated in the title of this section and in section (2) (line 37).

In order to ensure that environmental impacts from projects are minimized to the extent practicable, agencies should be required to blend the avoid-minimize-compensate sequence with landscape-level conservation planning. An example of how such a blending can be achieved is the "Development by Design" methodology proposed by Kiesecker et al. (2009) for biodiversity impacts.[1] Similar methodologies should be applied for a range of other ecosystem services.

Address Risk and Uncertainty, Including the Effects of Climate Change and Future Development (p. 11)

---

[1] Kiesecker, J. M., H. Copeland, A. Pocewicz, and B. McKenney. 2009. Development by design: Blending landscape-level planning with the mitigation hierarchy. *Frontiers in Ecology & the Environment* doi:10.1890/090005.

We support the consideration of climate change and future development in project planning as they are important elements in selecting projects that will achieve the long-term national objective. This standard would be strengthened if the probability of future conditions were discussed in terms of risk *and* uncertainty, which is quantifiable, rather than primarily as uncertainty, which, by definition, is not. The standard should require that alternatives be developed considering a range of future conditions that bracket the expected range of changes. The standard should then state a preference for the most 'robust' projects – those projects that perform best under multiple possible future conditions – consistent with the standard of achieving net improvement to environmental quality and achieving the project's objectives. Such an approach is discussed under future conditions (p. 15) but is particularly relevant to consideration of climate change impacts.

Overview of Planning Process (p. 13)
We agree that ensuring a logical, orderly and systematic planning process is essential to developing projects that meet the national objectives. The approach would be strengthened if the scoping process (p. 14) and the specifying of the study objectives (p. 16) were more closely linked. The articulation of project objectives is critical to the ultimate evaluation of project alternatives and is necessary in order to effectively define the appropriate study area and existing and future conditions, to describe problems and opportunities, and to specify planning constraints.

Determine Existing and Future Conditions (p. 15)
While existing and future conditions are critical to understanding project alternatives and their benefits and impacts, we recommend the addition of a 'natural condition' baseline to the planning process. Such a 'natural condition' baseline is not intended as a project goal but rather is to be used to help describe existing conditions and how far these conditions are from a more natural condition. This will allow analysis of whether future conditions move the system toward or away from a more natural condition. Natural conditions should be analyzed based on key physical and ecological processes, as described above. In highly altered systems, returning to a more natural condition may not be the best way to sustain the environment and ecosystem services, but such a baseline would none-the-less help articulate the relative benefits of project alternatives in providing sustainable ecosystems and the provision of ecosystem services.

As important, the analysis of existing and future conditions should include an assessment of cumulative effects in both existing and future conditions. This will allow assessment of whether a proposed project is contributing to the cumulative degradation of a resource or to the improvement of current conditions, which is consistent with existing NEPA requirements.

Formulate Alternatives (p. 16)
This section should clearly state that all alternatives must be consistent with the national objective and the planning standards included in this document.

Evaluate the Potential Effects of the Alternatives (p. 18)
We suggest this section more clearly reference the key elements of the national objectives and the planning standards. For example, in section (1), in addition to evaluating the 'difference between the most likely future conditions with the alternative with the most likely without plan-

condition', both of these should be presented in the context of (and evaluating the difference from) the natural baseline condition. Section (2), on the quantification of benefits and costs, should explicitly include the need to evaluate changes to key physical and ecosystem processes, as well as the quantification of ecosystem services. Section (3) should, in addition to the net overall contribution to the study objectives, describe whether and how a 'net gain in environmental quality' is met.

(4)(a) – p. 18: The discussion of the Monetary Effects Category could be clarified by distinguishing monetary effects from market effects (line 32). Market effects are generally defined as the effects a project has on traded goods and services and thus are reflected in changes in the quantities and prices of goods and services. In contrast, estimating monetary effects in many cases will require non-market valuation, such as when accounting for many ecosystem services, which can be monetized but are not directly traded in markets. Further, the advice in the current draft that, all else being equal, revealed preference shall be used over stated preference methods, should be modified to limit this advice to resources that principally carry use values. For resources with mostly non-use values (e.g., existence of endangered species), stated preference approaches generally are better suited to capture the total economic value of these resources. Finally, as included in the 1973 version of the P&G (p. 36), the distribution among groups and across time should be included in the evaluation, including identification of the groups who benefit and those who are adversely impacted.

The section on public safety should specifically include an assessment of the effect of infrequent but inevitable catastrophic events. This would include project impact on regional emergency planning and response.

Recommend a Plan (p. 23)
We recommend the P&G specify different project evaluation criteria for projects that have environmental restoration as their primary objective than for projects with other objectives as their purpose. This would ensure the P&G remains consistent with the current congressionally authorized approach of using cost-effectiveness as a key criterion in various existing environmental restoration authorizations and benefit-cost analyses for flood control and other project purposes.

Therefore, environmental restoration projects should be judged by their:

- Completeness;
- Effectiveness;
- Cost-effectiveness (rather than efficiency[2]). Cost-effectiveness should be evaluated at a regional scale because certain resources may be relatively more valuable in some regions than others.
- Acceptability.

[2] Efficiency is generally defined as 'the state in which social net benefits from a project are maximized.' It is the appropriate measure for identifying the optimal project design only in cases in which no other goals are to be met. However, restoration projects often have social equity and environmental goals or are based on legal mandates. Therefore, we recommend only using efficiency as a criterion for projects whose express primary purpose it is to maximize net national gain. In contrast, cost-effectiveness is a more appropriate criterion for evaluating whether federal and partner resources are being appropriately used to achieve the stated purpose of restoration projects.

For projects other than those whose primary purpose is environmental restoration, we support the three criteria provided in the draft of providing the greatest net combined contribution to the national objectives (p. 23). In addition, we recommend the addition of a fourth criterion, which is to demonstrate a net gain in environmental quality as a result of the recommended plan.

Finally, we recommend that the Principles and Standards explicitly discuss multi-purpose projects where environmental restoration is one of the primary project objectives. Multi-objective projects should be required to apply the relevant economic evaluation criteria to each objective. For example, project alternatives for a project that has both environmental restoration and flood control objectives should be assessed based first on the cost-effectiveness of their respective restoration components and then by the net benefits of their respective flood control components. Specifically, of the alternatives with cost-effective restoration components, the preferred project would be the one whose flood control component generates the highest net benefit. The 1973 P&G offered a similar two-prong approach (p. 141) but in reverse, starting with the NED and then allocating to environmental quality.

Thank you for the opportunity to comment on this draft. We look forward to continued work on this draft and the review by the National Academy of Science so that these new Principles and Standards, and their accompanying agency guidance, can be developed and put to use in the near future.

Please let us know if you have any questions.

Sincerely,

Robert Bendick
Director
U.S. Government Relations